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# Information systems development and practice in organisations in Sri Lanka : an in-depth case study

Sunil G. Rajapaksege
*Edith Cowan University*

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# Information Systems Development and Practice in Organisations in Sri Lanka: An in-depth Case Study

Rajapaksege Sunil Gunatunge
B. Sc. (Bus. Admn.) (USJP) Sri Lanka, M.A. (Management Systems) (Hull) England, M.B.A. (Colombo) Sri Lanka

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# USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

# Dedication

This thesis is highly dedicated to my ever loving parents and my only son Pasan Manjitha Rajapakse

## DECLARATION

*I certify that this thesis does not, to the best of my knowledge and belief:*

*(i)* *incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;*

*(ii)* *contain any material previously published or written by another person except where due reference is made in the text; or*

*(iii)* *contain any defamatory material.*

Rajapaksege Sunil Gunatunge

# Publications

Part of the work of this thesis has been presented and published in the following conference proceedings and journals.

1. Williams, M. C., and Gunatunge, R. S. (1999a). Communicative actions for reforming university education: Comments from a Sri Lankan case study. Paper presented at the *4th International Conference of Global Alliance for Transnational Education.* Australia: Monash University

2. Mark Williams, and Sunil Gunatunge (1999b). Composite Case Study Demonstrating the Use of Soft Systems Methodology for Analysing Information Management. *The Proceedings of the 17th International Conference of the Systems Dynamics Society and the Fifth Australian & New Zealand Systems Conference* 20-23 July (p. 135). New Zealand: Wellington

3. Williams, M. C., and Gunatunge, R. S. (2000a). Information Systems and Organisational culture in a developing country: A critical theory perspective. *Proceedings of the second International Conference on Cultural Attitudes towards Technology and Communication* 12-15 July (pp. 195-208). Australia: Morudoch University.

4. Mark Campbell Williams, and Sunil R. Gunatunge (2000b). Communicative Action for Reforming University Education: Comments from a Sri Lankan Case Study, *Higher Education in Europe*, XXV (3), 401-9.

5. Gunatunge, R. S., and Williams, M. C. (2000) Understanding Communication Patterns: A Management Vignette. *Proceedings of the 3rd Western Australian Workshop on Information Systems Research* 27th November. Australia: Edith Cowan University.

# ABSTRACT

This thesis describes an investigation of information systems development and practice in a privatised state owned enterprise (North-West Cement Company Limited or NWCL) in Sri Lanka between 1958-2000. The objectives of my study were: (1) to understand the approaches used by NWCL for information systems development; (2) to understand how these approaches relate to the organisational, socio-cultural, economic and political realities of organisations in Sri Lanka; (3) to outline a theory to better understand information systems development and practice for organisations in Sri Lanka; and (4) to make recommendations which could be used to improve information systems development and practice for organisations in Sri Lanka.

Five research questions were examined. (1) What impact did the state control policies have on information systems development and practice within NWCL, particularly in the context of organisational socio-cultural lifeworlds? (2) What impact did the neo-classical economic policies introduced by the government have on information systems development and practice within NWCL, particularly in the context of organisational socio-cultural lifeworlds? (3) What approaches were taken into consideration by NWCL management when developing and using information systems in the organisation? (4) How much were cultural, social, economic, and organisational contexts taken into consideration by NWCL management in information systems development and practice in the organisation? And why? (5) How can such findings in the above areas contribute to the theory and practice of information systems development?

To study the social phenomena, contextualised, interpretive one, with critical case study methods congruent with Habermas's critical social theory perspective has been employed. This study is a holistic one in that ten episodes of information systems development are critically examined within the historical context of institutions in Sri Lanka. I have made observations by iterating theory with empirical data and by reflecting on each episode in an endeavour to gain an in-depth understanding and meaning.

The research reveals that information systems development at NWCL existed within broadly related but interlocking socio-cultural, economic, and political and administrative structures in Sri Lanka. These social structures both influenced and were influenced by information systems development at NWCL and thus shaped the organisation's reality.

Both state controlled policies and neo-classical economic policies impacted on information systems development and the engendering of the socio-cultural lifeworlds of employees. Information systems development followed a positivist approach with values embedded in Western society. The techno-scientific, instrumental, strategic, economic and purposive rational approaches together with a highly institutionalised bureaucracy and political apertures are shown to be in conflict with the social reality of NWCL and this has hampered information systems development. As a result, NWCL was largely unable to develop innovative information systems to better the organisation.

Information systems development requires representation of socio-cultural norms, values, and expectations which are used to guide the thinking process of people in a country. Such elements are integrated in employee lifeworlds and embody tacit understanding and knowledge. If information systems are developed including such tacit knowledge, employees, management, NWCL itself and the wider society benefit together. Such a process can be achieved through increased use of communicative action in information systems development. Such findings would enhance the theory and the practice of information systems development in NWCL and other organisations in Sri Lanka. The central message of this thesis is that communicative action remains as an attractive option for NWCL transformation.

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# THESIS CONTENTS

## CHAPTER THREE

## CRITICAL SOCIAL THORY- THEORETICAL FRAMEWORK

## CHAPTER FOUR

## SOCIAL CONTEXT: SOCIO-CULTURAL, ECONOMIC AND POLITICAL ENVIRONMENTS

## CHAPTER FIVE

## RESEARCH METHODOLOGY



## CHAPTER SIX

## NWCL CEMENT COMPANY:

## CASE DESCRIPTION AND ANALYSIS

## CHAPTER SEVEN

## RESEARCH FINDINGS, THEORISATION AND CONCLUSION

# TABLE OF FIGURES

# LIST OF ABBREVIATIONS

1. State Owned Enterprises (SOEs)
2. Chief Executive Officer (CEO)
3. Vice President (VP)
4. North-West Cement Company Limited (NWCL)
5. Tokyo Cement (TC)
6. Mahavali Marine Cement (MMC)
7. Maintenance of Cement (MAC)
8. Data Base Management Systems (DBMS)
9. Computerised Time and Attendance Information Systems (CTAIS)
10. Computerised Preventive Maintenance Information Systems (CPMIS)
11. Computerised Work-Order Information System (CWOIS)
12. Integrated Information Systems (IIS)

# CHAPTER ONE

## INTRODUCTION

### 1.0 Introduction

Human actions based on misinterpretation and misguided perceptions of what is "right" for a group of geographically, socially or politically connected people, are part of the core study of my work. An exploration of the symbolic structures and themes, coupled with interpretative research aimed at realising the potential of improving mutual communication and influence, through the political activities and interests in the Sri Lankan context, are integral factors in this discourse.

I attempt to investigate the balance between individual and collective interests, and how the application of instrumental and strategic actions can detriment, or compliment, communication, meaning and purposes of socio-cultural, economic, and political contexts in which the chosen information systems function.

In this chapter, beginning with a description of some of the key terms, I give an overview of this work by reflecting on research conducted by Williams and Gunatunge (1999a). Following is an explanation of the overall statement of the research problem with description of the specific research. A description of the significance of the research is provided, followed by an explanation of the objectives of the study and a structural outline of the thesis.

### 2.0 Definitions of Key Terms

The following operational definitions of key terms are used throughout this work.

### 1. Information Technology

The term "information technology" in this research refers to the computer-based technology used for acquisition, processing, storage and retrieval, presentation and dissemination of information, and includes computers, telecommunication and digital electronic technologies.

## 2. Information Systems

The term "information systems" is used to describe all different sorts of information systems from payroll to group-decision support systems (Lyytinen, 1992, p. 160). Information systems in this study is defined as "a computer-based organisational information systems, which provides *information support* for *management activities and functions*" (Ives, Hamilton & Davis, 1980).

Information support broadly includes information storage, transmission, manipulation and delivery of symbolic representations that are relevant to, or shape, organisational action. Management activities and functions are assumed to apply to all organisational participants whether or not they are called managers. The focus and problem formulations of information systems are generally associated with the idea of technological change in information systems and generic problems of information processing (Lyytinen, 1992, p.160).

## 3. Information Systems Development

Information systems development is a *social activity* that operates within *social contexts* as a *social process* (Newman & Robey, 1992; Hirschheim, Klein & Newman, 1991; Hirschheim & Newman, 1991) of shared learning. Social context includes organisation, *lifeworlds*, and economic and political contexts of a country.

The information system can be *either* an in-house developed system or an out-sourced information system. An in-house developed system is one that has been developed by staff employees within the organisation. An out-sourced information system is one that moderates its systems features to suit the information requirement of the organisation is also considered as a *social activity* that operates within the social contexts as a *social process*. Within this interpretation 'lifeworlds' is defined as the world of consciousness and humanly created meaning. In 'lifeworlds' contexts, people create and attach their own meanings (*self-understanding*) to the world around them and to the behaviour they manifested in that world (Habermas, 1987b, 1979).

**4. Social Process**

The social process of information systems development consists of certain kinds of activities that go into information systems solutions to solve organisational problems. These activities consist of effective deign, delivery, and usage of information systems in organisations and society (Keen, 1980, p.10). In this social process the goals, strategies, policies, methods, procedures, resources, norms, motives, and values of information systems and development activities need to be openly discussed by all the participants. This occurs through *communicative interaction*, which is genuinely oriented to reaching an understanding as a process of shared learning in a distortion free group discussion.

**5. Participants**

The participants of information systems development are considered as intelligent *social* or *organisational actors* who critically assess whatever information they receive through the *communicative actions* in the activities of the information systems development process. These participants can include a person or group of persons (stakeholders) (e.g. politicians, managers, employees, customers, community members' etc.) who directly or indirectly may have *communicative interests* in the information systems development process and the outcome of information systems projects.

The discussion of information systems development activities is oriented towards the critical reflection by each participant about the inter-subjectively and shared knowledge of the activities of information systems development process. In this self-reflection, participants draw meanings from the 'lifeworlds' as contexts for their *communicative actions* and *communicative interactions*. The emergent information systems solution as a result of this interaction is defined as the *communicative rationality* of information systems development. This *communicative rationality* is based on the *communicative interests* of all the participants, that would lead to success of information systems solutions for organisational problems, otherwise failure of both information systems development and information system use would result.

**6. Technicism**

Technicism is an over-emphasis on *technical, instrumental or strategic techniques or actions* to the detriment of wider human communication, human values or human purpose (Adorno & Horkheimer, 1990; Dryzek, 1990; Ellul, 1990; Habermas, 1987c; Marcuse, 1969,1964). Persons thinking in *technicist* ways would tend to define all human problems in terms of rational and technical solutions, thus leading to an undue emphasis on the science. In more general contexts, this way of thinking is referred to as an *instrumental rationality* (Adorno & Horkheimer, 1990; Dryzek, 1990) or a *strategic rationality* (Habermas, 1987c). It can also be referred to as technocratic consciousness or technocratic rationality (Habermas, 1987b, 1987c).

In this context technology encapsulates a form of making and controlling as well as the mechanics used in these processes (Habermas, 1987b, 1984). *Scientism* means knowledge defined by what the sciences do in the methodological analysis of scientific procedures an institutionalised form of reasoning, and *purposive rationality*, rationality with regard to purposes or ends (Habermas, 1987b, 1984). Instrumental and strategic actions are two basic instances of a more general action type, which Habermas calls purposive-rational.

**7. Purposive Rational Actions**

Purposive-rational action is action directed at attaining only rationally determined objectives. Here the actors, or participants, attempt to achieve measurable objectives, and measure the success of their actions by how they achieve, or nearly achieve, their objectives and how efficient were the means deployed. Purposive rational action applies technical rules that have satisfied some empirical test of the efficiency and effectiveness of the means (Lyytinen, 1992).

## 8. Communicative Rationalities

Habermas (1987b, 1987c) provides a useful categorisation of instrumental, strategic and communicative rationalisations, which can be listed as:

(1) Instrumental rationality - a technical or instrumental knowledge used to control nature

(2) Strategic rationality - the inappropriate use of instrumental rationality in social situations by persons or groups to control others by manipulation, coercion, propaganda, threat or by raw power

(3) Communicative rationality - a self-reflexive, inter-subjective and consensual approach to obtaining what is true or just or free, based on freedom from both inner and external coercion or unjust authority. Communicative rationality is oriented to inter-subjective understanding and the achievement of true consensus through free, open dialogue with honesty and respect shown by all participants in communicative interaction.

Habermas's (1987b, 1987c, 1984) use of the term, communicative rationality is a mindset or way of thinking that is most clearly demonstrated in language and self-reflection, especially of an ethical or moral character. There is a common concern with justice for all participants involve in the communicative interaction and freedom from internalised or outer coercion or unjust authority.

## 9. Communicative Actions

Habermas (1987b, 1987c, and 1984) categorises human action in the following ways:

(1) Instrumental action as a human activity oriented towards success or control over objects in nature, mainly for the *technical interest*. It stems from instrumental rationality

(2) Strategic action as a human activity or interaction oriented to instrumental success, control or domination over other people by manipulation, coercion, propaganda, threat or raw power, mainly for the *technical interest*. It springs from strategic rationality

(3) Communicative action as a human activity oriented to reaching an understanding in an inter-subjectivity shared communicative interaction, mainly for the *practical* and *emancipatory interest*. It emanates form communicative rationality.

**10. Human Knowledge Interests**

Habermas 1987b, 1984; Outhwaite, 1987; Pusey, 1987) categorise human interests as:

(1) Technical human interest seeking technical or instrumental knowledge of human actions for controlling the nature using the knowledge generated by empirical natural sciences. It is mainly manifested in work.

(2) Practical human interest aims to gain practical knowledge which is oriented towards hermeneutic or historical understanding of human actions from the meaning ascribed by social actors. It is manifested in language

(3) Emancipatory interest, which is mainly manifested in self-reflection and *self-understanding* of human actions. It concerns with the emancipation from internalised or outer coercion or unjust authority. It orients towards truth, freedom and justice of human existence. The self-understanding means a person or group's own interpretation of its motives, norms, and goals (Habermas, 1987a, p. viii).

### 3.0 Overview-Reflection on a Study

I use a research paper (Williams & Gunatunge, 1999a) presented at the 4th Global Alliance for Transnational Education conference held at Melbourne in Australia in 1999 and subsequently published in Higher Education in Europe (Vol. XXV, Number 3, 2000b) to expound the background of this research study.

I perceived a dominating technicism or instrumental actions in the information systems development process when the Head of a School of Management in a university in Sri Lanka attempted to design a database system for recording students' personal data. The aim of the database development, as explained by the Head of the School, was to respond rapidly to students' queries and to better control of students within the university. The attempt failed because students did not support the Head of the School in the requirement identification stage of the development.

The students interpreted the database as an instrument through which the school endeavoured to control their behaviour within the university. They resisted this control of their behaviour by the government's effort to privatise universities with the support of the World Bank. For example, students argued that the school attempted to introduce recent educational reforms of the government through the database. They suspected that the recorded information in the database system would be directed to the authorities in the government and that the government would seize their benefits (Williams & Gunatunge, 1999a).

The database development project failed due to an overly technical approach taken by the Head of the school. He considered students as passive objects who could be

controlled through the database design to achieve his rational objectives. Habermas (1987a, p. 57) uses the term "technology" to mean situations like this scientifically rationalised control of objectified processes. From a Jungian perspective, Segaller & Bergman (1989) assert that: "life is very widely dominated still by the belief that rational solutions exist for all problems, and that problems which don't respond to reason cannot be real" (p. 38). This is a facet of technicism taken up by Bowers (1988) when he asserts that persons influenced by technicism: "view all aspects of human experience in terms of problems that require technical solutions" (p. 8).

The result of a technicist way of thinking is a naive faith that science and technology can solve all problems, opening the way to utopia. Persons under the influence of technicism come to an over-emphasis on technique and a naive trust in the science and technology of modernism - to the detriment of human values, and human purpose, and meaningful communication (Ellul, 1990).

The Head of the School over emphasised the application of instrumental and strategic actions to the detriment of communication concerning meaning or purpose or socio-cultural, economic, and political contexts in which the information systems development process was embedded. There was neither significant dialogue nor open communication with the students in regard to the database design. There was no opportunity for students to self-reflectively understand the objectives of the database design. Moreover, no alternative perspectives and approaches were considered in the development process.

The Head of the School did not examine the social context of students' *social behaviour*. He did not understand that the social behaviour is determined as a result of

the interaction between the students' and the context that they draw meaning for their social actions. In other words, he did not examine the subject mater of the database design, the students' 'lifeworlds' or other contexts within which communication functions. For example, the Head of the School did not examine, why and how students interpreted database design as an instrument to control their social behaviour within university.

Students opposed the database design, drawing meanings mainly from broader social contexts such as:

(1) Their poor living conditions within the university (the majority of students who come from poor families receive government bursaries, although the amount is not sufficient to balance their day to day living expenses)

(2) The government's attempt (through recent educational reforms) to run the university as a market place treating students as commodities in that market

(3) Withdrawal of freedom to freely exchange their views with university administration.

A narrow technical interest in database design was concerned with the efficient techniques and methods used in the development process to achieve predetermined and rigidly set goals of the Head of the School, to control and to dominate students' behaviour within the university. The instrumental rationality, unbalanced by communicative rationality, dominated in the database design attempt in the human capacity for reasoned thought and action. Consequently, economically rationalistic attitudes and managed instrumental rationality surfaced in the actions of the Head of the school as he attempted to dominate students' 'lifeworlds' through the database design (Williams & Gunatunge, 1999a, 2000b).

This database example illustrates the need for the focus of this research; a quest for a better model that could improve information systems development and use practice in organisations, particularly in Sri Lanka. Habermas' s (1987a) thesis . . . "how can the power of technical control be brought within the range of the consensus of acting and transacting citizens?" (p. 57) stimulated me to start my research with the implicit supposition, that "information systems development should be considered as a social activity of shared learning by the participants". Therefore, I reviewed the literature to look for approaches alternative to the existing technical approach.

Readings of Myers (1997), Orlikowski and Baroudi (1991), and Chua (1986) helped me to find out useful schema for categorising research approaches to information systems development and practice in organisations. Their main categories are the positivist approach, the interpretative approach and the critical social theory approach.

On further reading of such authors as Avision, Wood-Harper, Vidgen & Wood, 1998, Myers & Young, 1997, Wilson, 1997, Hirschheim, Klein & Lyytinen, 1996; Klein & Hirschheim, 1996; Walsham, 1995; Walsham, 1993; Ngwenyama, 1991; Hirschheim & Klein, 1989; Habermas, 1987a, 1987b, 1987c, 1984, 1979, 1975, 1973; Lyytinen & Klein, 1985; Klein & Lyytinen, 1985), I realised that the positivist approach (technical approach) can be flawed when using overly narrow technical interests based on instrumental and strategic rationalisations.

Drawing rules of law for social sciences from the natural-science model, positivistic information systems development approaches have shown to be repeatedly flawed in their application to the information systems development within the contexts of

'lifeworlds' in organisations (Avision et al., 1998; Wilson, 1997; Myers & Young, 1997; Ngwenyama & Lee, 1997).

In my journey of searching for a better model for information systems development, I perceived that many systems development projects were abandoned, or failed, due to little or no communication with the social actors or participants. There was a failure to achieve consensus due to misunderstandings or mistrust about the development process (see Williams & Gunatunge, 2000b, 1999a; Klein & Hirschheim, 1991, 1989; Lyytinen & Hirschheim, 1987). For example, Gibbons (1987, p. 1) states that "the concepts present in the language of the positivist research philosophy cannot reflect the everyday language usage of the study participants, as these are considered too ambiguous and subjective. I realised that irreducible values underpin the 'lifeworlds' contexts within which social practice of information systems development functions. The understanding of social reality in social actions requires understanding of how practice and meanings are formed and informed by the language and tacit norms shared by humans working towards some shared goals (Orlikowski & Baroudi, 1991).

Recognising the limitations of the strict application of the natural science model to information systems development, I further examined the interpretivist research perspective as an alternative approach to the positivist research tradition (see Klein & Myers, 1999; Myers, 1994; Walsham, 1993; Orlikowski, 1993; Orlikowski & Baroudi, 1991; Chua, 1986). The interpretative tradition explicitly addresses information systems development issues in the contexts of 'lifeworlds' so as to come into a mutual understanding, a shared consciousness among actors in human communication.

The aim of the interpretative research is to firstly understand how members of a social group, through their participation in social processes, enact their particular realities and endow them with meaning. Secondly, to show how these meanings, beliefs and intentions of the members help to constitute their social action (Orlikowski & Baroudi, 1991). The interpretative perspective attempts "to understand the inter-subjective meanings embedded in social life . . . to explain why people act the way they do" (Gibbons, 1987, p. 3). The understanding of communicative acts are enhanced by interpreting the meanings of actors.

However, the interpretative approach does *not* address the issues that underpin distortions in understanding and communicative interactions arising from:

1. Socio-politico-economic forces which are often external and which give rise to certain meanings and experiences
2. Unintended consequences of actions which shape social reality
3. Structural conflicts within society and organisations.
4. Historical construction of social reality in organisations. (Fay, 1987, p. 92). The interpretative approach does not address the question: "how can human actors free themselves from understandings arising from distorted communicative interactions?"

After reading critical social theory literature, I decided to employ Habermas's theory of communicative action to research information systems development and practice by organisations for the following reasons.

1. Habermas' s thinking is considered to have more relevance and impact on the information systems discipline than any other critical school of social theory

(Ngwenyama & Lee, 1997). The theory is a powerful framework to understand information systems development and practice as a social activity and process (Newman & Robey, 1992; Hirschheim & Newman, 1991). Habermas's theory has a broad and encompassing nature, which makes it seem capable of subsuming most other social theories within itself (Lyytinen & Hirschheim, 1988).

2. Habermas's model enables an understanding of how technical systems, such as management information systems (MIS), tend to dominate the prominent social systems. Habermas argues for a need for exposure to both concepts and their interrelationship, in any given context. (Laughlin, 1987).

3. Habermas's model provides a detailed process, different dimensions, human [subjective world], social [inter subjectively shared world] and technical [objective world], which are all interrelated. These allow not only an understanding about the nature and interaction of social, human, and technical systems but also the possibility to engender change and development in these systems (Laughlin, 1987).

4. Habermas's model enables a theoretical and practical understanding of the appropriateness of particular changes, such as privatisation policies on organisations and information systems within a broader spectrum of societal development (Broadbent, Laughlin & Reed, 1991; Laughlin, 1987).

5. Habermas's model has an openness with which critical appraisal can be undertaken. As Giddens (1982, p. 332) points outs "enlightenment is not joke" implying that the enlightenment project of transferring the world to be more just and democratic is not to be laughed at. Broadbent et al. (1991) asserts that modern world could

become more enlightened with Habermas's thinking of societal development [than any other critical social theory perspective].

Habermas's (1987b, 1984) theory of communicative actions is concerned with values, meaning or purpose that makes more conscious and explicit the process whereby relevant personal beliefs, personal concepts and ideas, metaphors, feelings, emotions, personal values and goals are openly communicated in a process of information systems development in organisations. Thus, it is part of the self-reflective process by which social actors come to understand each other's actions and interactions as a process of shared learning.

## 4.0 Statement of the Research Problem

In developing countries, one broad but important phenomenon that needs to be investigated is the interaction between development policies of governments and information systems development practice in organisations. Sri Lanka, as a developing country, gained independence in 1948. Until 1977, Sri Lanka followed state-controlled policies and approaches for industrialisation based on public ownership. State owned enterprises (SOEs) were introduced as major development programs following the industrialisation policies of the government (see chapter four). Information systems were introduced as steering media (techniques and strategies) in some SOEs for improving efficiency and effectiveness. These information systems had tremendous impact on socio-cultural 'lifeworlds' in these organisations.

In 1977, Sri Lanka opened its frontiers allowing neo-classical development policies to be operated. Neo-classical policies have provided market-driven approaches such as

privatisation of SOEs and economic liberalisation (Colombage, 1993; Karunatilleke, 1993). The primary objective of such liberalised approaches was to introduce competition in the hope of reducing cost and improving the productivity of organisations (Kelegama, 1993), and accelerating economic development towards improving the living conditions of people (Rondinceli, 1993).

These approaches have had profound effects on both processes and structures in organisations in these countries. For instance, when SOEs in developing countries are privatised, organisations usually have to introduce new business visions, objectives, strategies, policies, structures, decision making processes, and management control systems (Wickramasinghe, 1993).

Computerised information systems (computerised information systems) are some times introduced as steering media to direct these organisations (Myers & Young, 1997; Broadbent et al., 1991). These newly developed information systems can become one of key instruments by which senior management can achieve the desired objectives of the government's reforms. Such situations can be complicated particularly, due to the culturally and socially specific imperatives in these countries (Myers & Young, 1997; Kelegama, 1993; Broadbent et al., 1991). These provide rich contexts for information systems development research in organisations in Sri Lanka.

Sri Lanka is considered as a low-income economy (World Bank, 1990; IMF, 2000). In this country, policy makers have introduced market oriented development approaches in 1977. Sri Lanka was expected to gain newly industrial county status in the year 2000 (Indraratne, 1993). One of the striking policy measures embraced by recent government

induced reforms is increased privatisation programmes. At the end of 1998 about 60 SOEs have been privatised with the agenda to increase efficiency and effectiveness.

It is reported that many of these privatised companies in Sri Lanka are equipped with newly introduced information systems to help them cope with competitive markets (Samaranayake, 1999, 1989). These systems have been developed following Western prescriptions and are considered to be technical and rationalistic follwing a Western thought and mindset (Avgerou, 1996; Kirlidog, 1996). These information systems could be at odds with the organisational and the socio-cultural reality of Sri Lanka. As a result, a number of organisations have realised that these systems need to be considered within broader organisational, social, cultural, economic contexts that reflect the specific characteristics of Sri Lanka (Gray, 1991).

Case studies in information systems development in Sri Lankan organisations could help to throw light on the issues of broader organisational, social, cultural, and economic contexts. Therefore, the proposed study is based on five fundamental research questions.

### 4.1 Research Questions

Based on a single in-depth case study of a Sri Lankan organisation:

1. What impact did the state control policies have on information systems development and practice in the organisational socio-cultural 'lifeworlds?'
2. What impact did the neo-classical economic policies have on information systems development and practice in the organisational socio-cultural 'lifeworlds?'

3. What approaches did the management take into consideration when developing and implementing information systems in the organisation?
4. How much were cultural, social, economic, and organisational contexts taken into consideration by the management in information systems development and practice in the organisation and why?
5. How did such findings contribute to the theory and practice of information systems development?

**4.2 Limitations of the Study**

The first limitation of this thesis is the time frame studied. Though I examined information systems development and practice within an historical context, data description and analysis was carried on after 1958 and due to the (NCCL's) long history, it was unable to trace back data prior to the 1958.

The second limitation of this thesis pertains to the information gathered through the in-depth interviews with the participants (see section 5.3.2 of chapter five for the number and the type of participants interviewed) of a privatised industrial organisation (NCCL). The historical construction of the data gathered rest on the integrity and knowledge of the interviewed participants.

The third limitation of this thesis involves a lack of focus on freeing and changing the social attitudes of participants. The use of Habermas's communicative actions in research involves not only to reveal empirical evidence and interpretive understanding of information systems development and practice but also to free social actors who are constrained. This involves revealing constraints, thereby motivating participants to engage in conscious political actions in systems development. Moreover, it involves

liberation of repressed seeking through dialogue to make social participants aware of oppressive structures. It also involves changing social attitudes of participants to make them aware of the problems of the current practices. Time and distance constrained in engaging in such a critical study. However, I engaged in critical discussions with managers and other employees. I made them aware the present problems and reasons for failures of information systems development and practice at NCCL.

The fourth possible limitation is related to the participants interviewed. This study is an in-depth in the subsidiary (NCCL) based on data produced by internal participants of NCCL and few out side participants (see section 5.3.2) for socio-culture, economic and political contexts, government involvement, single owner and the multinational Company. Key owners of Goldembank located in the Company head quarters, customers, suppliers and competitors were not interviewed.

The fifth limitation of this thesis is that it was conducted using national socio-culture as unique phenomenon throughout the history of Sri Lanka. However, the study casts doubt upon the notion of cultures being a national concept. For example, Sri Lanka had been ruled by foreign dominations over five and half centuries (see section 4.3 of chapter four). The impact of this foreign language, religion, arts, administration, technology was to have a tremendous impacts on changing socio-cultural attitudes of Sri Lankans. Had this study been focused and conducted on ethnic and religious basis, then the results would have been different. A more detailed study focusing on language, religion, and ethnicity within original communities may well have revealed segments of socio-cultural values, economic and political contexts between families, political groupings which might have impacted on the modern Western cultural values, rather than the reverse.

The sixth limitation is that the whole research, its findings, conclusions and recommendations are based solely on a Sri Lankan context even though parallel discussions are developed and analysed (see chapter four) within the contexts of developing countries.

**5.0 Significance of the Study**

The present study is relevant to both developed and developing countries alike as they introduce market oriented economic reforms into SOEs (Evaristo, 1998; Myers & Young, 1997; Broadbent et al., 1991). The then government of Sri Lanka introduced liberalised economic reforms in 1977. These economic reforms have resulted in significant expansion of the private sector, a reshaping of hierarchical structures, and transition of SOEs to the private sector.

One fundamental but important phenomenon in this transition is the change of ownership, which frequently leads to a change of information systems. One of the problems in the change process is the need to face a competitive environment incompatible with the older socio-culture of the organisation (Evaristo, 1998). Therefore, how change of ownership impacts on change of information systems development provides a fruitful context for empirical investigation. In order to fully understand the current practice of information systems development in organisations in Sri Lanka, this study investigated the changes resulting from the introduction of information systems that occurred before and after privatisation of a state owned industrial enterprise; namely, NCCL in Sri Lanka.

The intentions and actions of key participants in systems development processes were examined to understand their impact on the development and practice of information systems. The social context into which policies were being implemented, and the change processes enacted within wider contexts, has also been investigated. A critical social theory, particularly works of Habermas communicative actions, has been used as the major theoretical framework of this study.

Information systems development has been studied within a social setting using critical social theory by various researchers at organisational level in developed countries but not in developing countries (see section 2.5.3). Sri Lanka as a developing country provides rich contexts for information systems research (see chapter four). The literature on the Habermas's critical social theory in information systems, though growing in quantity and depth, has mainly adopted critical theory as it is 'received' in the philosophical literature (Lyytinene, 1992). Moreover, many of works are fragmentary (Lee, 1990; Ehn, 1988; Flensburg, 1985). Most research studies in the information systems field use critical theory in a rather mechanistic way by reiterating the key arguments of Habermas's thinking (e.g. Lyytinen & Hirschheim, 1988; Lyytinen & Klein, 1985). In these studies, authors often merely offer Habermas's actions typology/human interests to organise and evaluate research in information systems.

While these researches can be illuminating, they fail to look at information systems development issues in their totality. These studies often ignore the exploration of concrete situations in real world problems and studying how information systems actually function within a broad social context of a country.

Only a few studies have focused on how broader social issues, such as privatisation policies, influence information systems development (see for example, Myers & Young, 1997). Even in this study, authors did not study information systems development within a historical framework. Generally, Habermas's concerns about societal development within a broader socio-economic and political context, have been partially neglected by information systems researchers both in developed and developing countries.

Focusing on organisational and information technology contexts alone fails to acknowledge the degree to which information systems development plays a role in social transformation in organisations. For example, how different social settings engenders certain kinds of government policies such as privatisation and how and why these changes in turn reinforce or transform structural configurations over time has scarcely been examined in the literature. In other words, research studies have largely failed to locate information systems development within broader socio-cultural, economic, and political contexts of the country within which it is embedded.

For example, in critical theory, the understanding of the society must embrace the totality of objective and subjective worlds before analysing elements of organisations (Murray & Ozanne, 1991; Held, 1980; Burrell & Morgan, 1979). One current hindrance in making critical theory a more credible research area is the lack of empirical studies that emphasises the societal totality (Lyytinen, 1992). The emphasis of totality in research emerges from the idea that facts can not be separated from values in the process of social development. Therefore, the present research has significant implications for information systems research and it addresses this lacuna by examining it in a Sri Lankan context for information systems development. The study examines

real-world episodes to gain an understanding about real-world issues in relation to information systems development in developing countries such as in Sri Lanka.

### 6.0 Objectives of the Study

Information systems development in most organisations in Sri Lanka lacks a theory, which guides information systems development practice. Systems professionals and management still follow the positivist approach in information systems development (Williams & Gunatunge, 1999a, 2000a, 2000b; Gunatunge & Williams, 2000). This positivist approach to systems development is often inconsistent with the social and organisational reality (see Tinker & Yuthas, 1994). They do not take into consideration broader social, cultural, economic, and political aspects of a country within which information systems development is entrenched. As a result, many efforts to transform organisations through information systems development, not only in developing countries but also developed ones, have failed (Williams & Gunatunge, 2000a, 2000b, 1999a; Gunatunge & Williams, 2000).

Organisations in Sri Lanka have experienced massive failures in information systems development and implementations. However, there appears to be no declared commitment to address these issues in an empirical research. Therefore, there exists a wide knowledge gap in the literature between the desired and existing states of information systems research. The present research study is built on the above consideration by using Habermas's critical social theory. It aims to reveal empirical and interpretative understanding of information systems development and practice at NCCL in Sri Lanka. More specifically the objectives of the study are:

1. To understand the approaches used by organisations in Sri Lanka for information systems development.
2. To understand how these approaches contradict with organisational, socio-cultural, economic, and political realities of organisations in Sri Lanka.
3. To provide a theory to understand information systems development for organisations in Sri Lanka.
4. To make recommendations for successful information systems development and practice in organisations in Sri Lanka.

**7.0 Organisation of Chapters**

In this chapter, definitions for key terms used in this research have been given. An overview is provided reflecting on a failure of the data base system development in a University in Sri Lanka. Reflection on this research compelled me to investigate alternative approaches to information systems development in organisations.

Chapter two provides an in-depth examination of three approaches to information systems development practice using the framework of Orlikowski & Baroudi (1991). Orlikowski's & Baroudi's (1991) three approaches are the positivist, the interpretative, and the critical social theory. Recognising the limitations of the positivist and the interpretative approaches, I use Habermas's critical social theory in this study to understand information systems development practice in organisations in Sri Lanka.

Chapter three describes the theoretical framework uses in this study. Critical social theory in general and Habermas's theory of communicative actions in particular is

explained. Habermas's approach requires an understanding of the social phenomena within broad socio-cultural, economic, and political contexts of a country.

A critical review of socio-cultural, economic, and political contexts; the social context of Sri Lanka, for information systems development is provided in chapter four. An explanation is given about how information systems development in organisations is situated within a broad social context. This requires understanding of information systems development within a holistic framework.

Chapter five explains the research methodology used in the study. In line with the critical social theory, I explain how in-depth critical case studies provide a rich understanding about information systems development in organisations. In particular, I explain how an in-depth single case study can be used to understand the totality of information systems development and practice to generate knowledge closely related to the research participants and how that knowledge can link theory with empirical evidence.

Chapter six provides the case description and analysis at NCCL. The theoretical constructs and social contexts in Sri Lanka are used to describe and provide context to the analysis of empirical data. In line with critical social theory, the study is conducted within historical contexts of the evolutions of institutions in Sri Lanka. Thus ten episodes of information systems development are examined and analysed. Reflection on each episode is given at the end of each episode.

Finally, chapter seven provides a summary of each episode. I then reflect on current practice of information systems development at NCCL. Major research findings from the case analysis are discussed.

Theorisation of information systems development from the theory of communicative actions is given incorporating literature from several disciplines. Problems regarding the application of Habermas's communicative actions to organisations in Sri Lanka are then discussed. Finally, the chapter provides recommendations for successful information systems development in NCCL, conclusion for each research question, and overall conclusions of the thesis with some recommendations for future research.

# CHAPTER TWO

## LITERATURE REVIEW

### 2.0 Introduction

Since the pioneering work of Hirschheim and Klein (1989), there has been increasing interest in philosophical assumptions underlying information systems development approaches (see Hirschheim, Iivari & Klein, 1997; Iivari & Hirschheim, 1996; Hirschheim, Klein & Lyytinen, 1995; Hirschheim & Klein, 1992; Orlikowski & Baroudi, 1991; Iivari, 1991). A common finding of Hirschheim and Klein (1989), Orlikowski and Baroudi (1991 and Iivari (1991), was the identification of a single set of dominant philosophical assumptions about the nature of information systems development and what constitutes valid knowledge about the phenomena to be associated with information systems development and practice (Iivari, Hirschheim & Klein, 1998).

In this chapter, I present a review of existing literature in information systems development and practice in organisations referring to the framework outlined by Orlikowski and Baroudi (1991) based on the underlying research epistemology which guides the research. This framework is developed following Chua's (1986) works in classifying research epistemology in the accounting field. Orlikowski and Baroudi's (1991) research in information systems posit three perspectives:

1. The positivist approach
2. Te interpretative approach

3. Te critical social theory approach. This framework has been used by Myers (1997) to classify qualitative research in information systems and Ngwenyama and Lee (1997) to study communication richness in electronic mail.

The use of Orlikowski's and Baroudi's (1991) framework in this research will guide the study of various assumptions about knowledge made by researchers during information systems development in organisations and will facilitate understanding of the ways such knowledge can be obtained (Hirschheim, 1992). I discuss each approach in light of its ontology, epistemology and the relationship between theory and practice, together with information systems research conducted within each perspective. The chapter is organised as follows.

Firstly, underlying assumptions in information systems development and practice are examined. Secondly, the positivist perspective is examined. Thirdly, the interpretative perspective is examined. Finally, the critical social theory approach is examined. For each I discuss on the underlying assumptions oriented to information systems development and practice and the problems inherent in the approaches themselves.

## 2.1 Underlying Assumptions in Information Systems Development and Practice

### 2.1.1 Ontological Assumptions

Ontology is concerned with the structure and properties of "what is assumed to exist", the basic building blocks that make up the phenomena or objects to be investigated (Iivari et al., 1998). Ontology refers to the nature of the world around us; in particular, that slice of reality which the researchers choose to address. Researchers ontologically assume that the objective in any social science research, including the information systems filed, is to discover the underlying social realities (Orlikowski & Baroudi,

1991). Such a discovery becomes the output of the research and is presumed by the researcher prior to the discovery. The researcher has a general understanding about what really exists in social systems and how this reality affect the status of research outputs (Iivari et al., 1998; Burrell & Morgan, 1989; Chua, 1986). Such assumptions or belief-structures are philosophically termed "ontological assumptions". These vary between the various theoretical frameworks.

### 2.1.2 Epistemology

While ontology deals with the reality of knowledge, epistemology concentrates on how such knowledge is obtained. Generally, epistemological assumptions are concerned with the nature of knowledge and the proper methods of inquiry (Iivari et al., 1998). In other worlds, epistemology is concerned with the ways and means by which we can obtain knowledge (Hirschheim, 1992). With the determination of the ontological position, it is necessary to design a consistent mode of obtaining knowledge about the assumed reality. The way in which knowledge is obtained is philosophically termed epistemology and consists of concepts of the researchers' knowledge discovery, research methods, and the nature of data (Orlikwski & Baroudi, 1991; Burrell & Morgan, 1989; Chua, 1986). As in the case of ontology, epistemological positions vary between researchers.

## 2.2 Positivist Approach-Underlying Assumptions in Information Systems Development and Practice

Positivist perspectives to information systems development reflect much of empirical-analytic research agenda based on the views of positivism, with a focus in the

functionalist paradigm of objective worldview of society (Hirschheim et al., 1995; Orlikowski & Baroudi, 1991; Hirschheim & Klein, 1989; Chua, 1986; Burrell & Morgan, 1979). The term empirical-analytic refers to an organisational science based on the natural science approach, the aim of which is to "establish general laws" which can serve as instruments for systematic explanation and dependable prediction (Nagel, 1979, p. 450).

### 2.2.1 Ontological Assumptions

Ontologically, positivist approaches to studying the social world rely on objective views of the world. The position adopted by the positivist is realism, which postulates that the universe is comprised of objectively given immutable, objects and structures. These objects and structures exist as empirical entities, on their own, independent of the observer's appreciation of them. For example, positivist information systems researchers assume that there exists an objective physical and a social reality independent of human and whose nature can be relatively easily understood, characterised, and measured. Within this perspective, people are viewed as passive objects that can be studied using the laws of natural science (Negwenyama & Lee, 1997;Chua, 1986, p. 604).

This approach assumes that organisations have structures beyond the reality of the actions of who make the reality. Therefore, the role of researcher is to discover this objective and social reality that exists external to the creators of such reality, who have a passive role in the phenomena being investigated (Orlikowski & Baroudi, 1991; Orlikowski, 1991; Chua, 1986; Mingers, 1980; Bourrell & Morgan, 1979).

### 2.2.2 Epistemological Assumptions

Epistemologically, the positivist approach is based on reductionism. It is concerned with the empirical testability of theories to be verified or falsified through the logic of hypothetical-deductive reasoning of the phenomena being investigated.

Methodologically, research methods such as large-scale sample surveys and laboratory experiments and sometimes descriptive case studies (whose purpose is to formulate hypotheses) are used for the gathering of valid empirical evidence. It is assumed that valid knowledge can be obtained following these methodologies. Data analysis is preceded referring to inferential statistics whose objective is to discover causal laws. The result of the analysis is used as true knowledge (considered as rational knowledge) for the explanation of the behaviour of human affairs of the world.

Accordingly, prediction and control of physical and social reality can be made from the Research results of (Orlikowski & Baroudi, 1991; Orlikowski, 1991; Chua, 1986). The assumption is that scientism and its nomothetic *(reference to laws or rules that pertain to the general case, rather than the individual)* belief in the scientific methods are necessary and sufficient for discovering the truth (Introna & Whitley, 1997; Feyerabend, 1993).

Positivists often claim the positivist approach is the only form of valid knowledge and the only rational knowledge. In the last century, rationality and reason came to be identified with scientific knowledge and understanding. This empiricist-analytic form explicitly rejects value-judgements in the interest of objectivity. It is assumed ends are value free and limited it to technical questions; value questions become detached from

scientific thinking (Habermas, 1987b, 1984). If practical questions concerning norms, values, and objectives arise they are considered as irrational and can not be resolved scientifically and that researchers should not get involved in moral judgements. For example, DeMarco (1979) writes, "political problems aren't going to be solved. The most we can hope for is to limit the effect of disruption due to politics" (p. 13).

Positivist researchers strive to be fully independent from the actual situation of the study. Moreover, it is a widely held belief that researchers can objectively evaluate social actions or social processes. Attempts to deal with practical problems (or conflicts) in research often in some arbitrary methods such as using strategies (as means) in the form of appropriate controlling systems to achieve desired goals in the most efficient manner (Orlikowski & Baroudi, 1991; Chua, 1986, p. 611; Mingers, 1980, p. 42).

### 2.3 Information Systems Development Research within Positivist Approach

Initially, systems development methods were concerned with mainly technical issues of the systems development process, programming, design, and the detailed analysis of data and functions to be handled by the technical system (Reijswoud, Mulder & Dietz, 1999; Doherty & King, 1998; Wilson, 1997; Avgerou, 1996; Hirschheim et al., 1995). Examples of this approach are Gane and Sarson, (1979), DeMarco (1979), Weinberg (1980) and Yourdon (1989). In this approach, information systems development and practice were thought of as mechanistic views within organisations (Spaul, 1997, p. 79).

Using mechanistic views, the information systems development and practice is viewed as a technical processes in which systems are built from the requirements elicited by the systems analyst from the users through a variety of approaches. The user requirements are generally considered to be straightforward processes in which users simply state their needs (Hirschheim et al., 1991, p. 588). Systems development approaches based on this way are referred to as "classical approaches" (Hirschheim et al. 1991), "second or third generation systems development approaches" (Hirschheim, Klein & Lyytinen, 1995; Couger, 1982), "traditional approaches" (Wood-Harper & Fitzgerald, 1982), or the "positivist approach" (Myers, 1997; Orlikwski & Baroudi, 1991). In this study, I use the term "positivist approach".

Some research studies using positivist approaches recognise behavioural consequence of system development processes and describe the actual use of information systems (Lyytinen, 1992; Hirschheim et al., 1991). Many of these studies have relied on established sociological schools to study organisational life (Kling, 1980). In these studies, behavioural elements were managed using a variety of strategies such as implementation and counter-implementation techniques (Keen, 1981). Issues such as user-friendly interfaces and ergonomically sound design became key concerns of development in these approaches.

Following the behavioural consequences in systems development process, some structured approaches include tools for promoting user involvement (Hirschheim et al., 1991, p. 588). Consequently, socio-technical methodologies of Bostrom and Heinen (1977), Mumford and Weir (1979), Oppelland and Kolf (1980), Mumford (1983), and Mumford and Beekman (1994) attempted to include substantial user participation in the systems development process (Hirschheim et al., 1991).

Research using positivist perspectives to information systems development and practice appears overwhelmingly concerned with rational image to information systems (see Steinmuller, 1984; Kling & Scacchi, 1982; Shneiderman, 1981). In most information systems research, information systems development is regarded as a means for making the data processing tasks of an organisation more efficient and effective (see Senko, 1975, pp. 3-13). Engineering the information systems development activities in order to achieve organisational goals by influencing the responses of members of the organisation were seen as instrumental and strategic actions (Kendall & Kriebel, 1982; Bariff & Ginzberg, 1982).

Research using positivist perspectives usually assume that the information systems development process embodies a set of efficiency-maximisation imperatives determined by managers' perceptions of market forces. The concentration on efficiency and effectiveness stress from the ideological legacy of the 'enlightenment', which sustains the general belief that things can always be made more efficient (Probert, 1997). For example, management information systems in general focuses on the instrumental approach to design and development of computer based information systems to realise management goals that are rational to the point of excluding non-rational behaviour of human experience (see Gordon & Gordon, 1999; Davis & Olsen, 1985).

Much of management information systems research is technical, combing the theoretical work of computer science, management science and operational research with practical orientation toward building systems and applications (Laudon & Laudon, 1998; Foster & Flynn's, 1984). These models are mechanistically and technically

oriented (Avgerou & d Cornford, 1995) and do not take count of any conflicts of interest between participants in the systems development process (Klein & Hirschheim, 1991,1989; Lyytinen & Hirschheim, 1987). More generally, in these approaches, rationality is instrumentally interpreted through the instrumental actions of actors in organisational events (Klein & Hirschheim, 1991, 1989).

The technical and instrumental approaches almost always emphasise mathematically sound, normative systems to study information systems as well as the physical technology and formal capabilities of the systems using discrete entity models (Walsham, 1993). For example, discrete entity models focus on explicit economic, physical and information processing features of the technology (see Kling, 1987) being heavily based on scientific methods that attempt to derive "law-like generalisation" (Hirschheim & Klein, 1992; Orlikowski & Baroudi, 1991).

Technical ways of thinking about associated nomothetic techniques and methodologies has dominated the information systems discipline since its technological inception (Introna, 1996, p. 20). An almost universal assumption over the last 30 years is that an increase in scientific, natural, and social knowledge could be applied in an instrumental and technical manner to information systems development and practice (Wilson, 1997, p. 187). For example, structured analysis, structured design, structured programming, object oriented design and programming has resulted in a logical progression in information systems development methods that have roots in the engineering discipline and technical rationality (Avison et al., 1998, pp. 124-5).

What is common in the field of information systems development including up to the present is the emphasis on technical-rational methodologies such as information

engineering and computer-aided software engineering (Introna, 1996, p. 20). However, this technical rational approach creates problems when applied to development and practice of information systems in dynamic and emergent contexts, because the systems are often not flexible enough to cope with change (Hirschheim et al., 1995).

### 2.3.1 Problems of Positivist Approach

The limitations of the positivist approach to information systems development and use are widely discussed in information systems literature (see for example, Avgerou, 2000; Torvinen & Jalonen, 2000; Avison et al., 1998; Standing, 1998; Walsham, 1995, 1993; Westrup, 1994; Orlikwski, 1993; Hirschheim & Klein, 1992; Orlikowski, 1991; Orlikowski & Baroudi, 1991). Eason (1988) notes that structured design methods are devoted to the design of technical systems and give little recognition to the range of organisational changes that are also to be designed. Concurring with Eason (1988), Hornby, Clegg, Robson, McClaren, Richardson and O'Bein (1992) point out that these methodologies are still very technically oriented and they ignore the inclusion of humans in the development process. According to Hirschheim and Klein (1992), the ontological and epistemological background of information systems development methodologies often reflect the positivistic paradigm in that the world is seen as an objective reality characterised by order rather than a conflict. From this perspective, social structures of reality are found, observed or modelled rather than interpreted or re-created (Torvinen & Jalonen, 2000, p. 16).

Moreover, it is a widely held belief among systems professionals that organisational issues are not of concern to them (Hornby et al., 1992; Newman, 1989). These positivist approaches tend to disregard the interaction and actions of key players, the

process by which new systems are implemented and used and the social and contextual aspects within which such events occur (Avison et al., 1998; Orlkowski, 1993). They often ignore historical and contextual conditions as possible influences on human action (Orlikowski & Baroudi, 1991, p. 12). The everyday language usage of the study participants are not included in the development process (Gibbons, 1987, p.1) and people are generally discounted as self-interpretative beings whose input into these structures is not important (Habermas, 1987b).

Technical approaches can lead to an over emphasis on the design and constructions of computer-based activities (Avison et al., 1998, p. 125), whilst ignoring the social and organisational dynamics of system development (Westrup, 1994). For instance, mechanistic view of organisations often tends to consider information as a way of scheduling and automating procedures. Their application leads to systems development being overly formal and rational, placing little reliance on human intuition, judgement, politics and social processes. Politics is seen as irrational as it interferes with maximal efficiency or effectiveness (Hirschheim & Klein, 1989).

Researchers who acknowledge the existence of politics in information systems development view these systems as instruments for supporting the exchange process of control and co-ordination within an organisation (see Ciborra, 1984, 1981). They have not understood the actual functioning of information systems development within organisations and the interactions between such organisations and socio- cultural, economic and political context of the society (Gunatunge, 1998). These mechanistic and bureaucratic approaches originated systems development frameworks through "academic assumptions" but not through "real" social controversies (see Tinker & Yuthas, 1994).

Habermas criticised the accepted knowledge of science and its justification for what is being "truth". For Habermas, the principle tenant of science is the accepted view of the world and it is based on the reductionism, the logic of control and prediction based on the empirical facts. In this way science establishes its grounds on knowledge generation and the purpose of which is to formulate truth about the natural world (Scheffler, 1967, p. 8). Habermas (1979), observing the way that science seeks to establish rationality and truth of knowledge, suggests that science legitimates official intervention by introducing neutrality into political action. The positivist form of inquiry dominates reasoning in practical questions and thus reduces the intentional human actions of subjective actors to technocratic reasoning (Habermas, 1979).

Habermas (1987b, 1987c, 1984) suggests that the technical approach, emphasising instrumental action, is too narrow and not sufficient for the helpful intervention of social situations, thus tending to create rigid and inflexible systems which are ill suited to the need of adapting to changing circumstances (Walsham, 1993). The rationality inherent in this approach is guided by the purposive-rational or instrumental and strategic action (Klein & Hirschheim, 1991; Habermas, 1987b, 1987c, 1984, 1979).

The instrumental rationality of information systems methodologies tends to ignore conflict situations and social debate on the ambiguous goals of systems development activities, because most information requirement analysis methods have an inherent bias to preserve the status quo. This is a beneficial outcome for those who already possess power (Robey & Markus, 1984). Moreover, the assumption is that any conflicts are solved through the use of managerial power (Newman & Noble, 1990; Lyytinen & Klein, 1985, p. 227). Much of the research that takes a positivist view about

information systems development and practice, reflects a techno-scientific and economic rationality of organisational processes and social issues (Walsham, 1993).

Information systems have been overly dominated by technological and technical consideration at the expense of recognition of the human context in which information systems are used (Mingers, 1994). The most commonplace rationality is that of an objective reality of the world that exhibits cause and effect relationships, which can be discussed by structured objectives (Lyytinen & Klein, 1985). Kraemer and King (1990) state that:

> Supply-push view of technical development, coupled with a rational economic interpretation of managerial behaviour has dominated in management information systems research. These explanatory perspectives have considerable power, and have yielded useful results. However, they do not explain the variance observed in the patterns and process of adoption and routinization of information technology in various tasks, or the differences in successful use of the technology across organisations (pp. 582-3).

Historically, the development of technology and organisation alike has reflected the increasing pervasiveness of objective forms of knowledge, as part of the Enlightenment of the rationalisation of society. The fundamental principle in a modern Western society is the belief that the human condition can be improved by reason alone (Touraine, 1995). Technology has long provided a model for the pursuit of objectively efficient forms of organisation (Corbett, 1992, p. 18). The key issue is the extent to which this growth of technical expertise and use of computer-based technologies leads to a rationale which places too much emphasis on technocratic modes of organisational control (Habermas, 1979). For example, the "term office automation" is commonly used to describe the process of introducing computers and computer based information systems into offices. However, the current success of such automation is limited. A

detailed understanding of social and organisational context is now widely recognised as essential companion to the technical view of the organisational dynamics (Hirschheim, 1985). The solutions to problems in organisations' information systems often have far-reaching consequences within organisations and society (Probert, 1997, p. 23).

Lyytinen (1987, 1985) criticises the exclusive use of scientism that focuses on laws based on natural science and the application of engineering and technical knowledge to designing social systems problems such as information systems. Lyytinen (1987, 1985) argues that in order to obtain a better understanding of the context of information systems, a move away from the technical view of information systems and a rational decision-making view of the organisation is essential. This is because successful use of the approach itself depends on a broader tacit understanding of the worldviews of participants in the development process (Introna & Whitley, 1997, p. 31).

The strict application of a natural science model to information systems tends to ignore the human dimension such as 'lifeworlds' and social contexts within which communicative interaction functions (Ngwenyama & Lee, 1997, p. 5). Habermas (1979) argues that the exercise of power in this process can prevent the open and free discussion necessary for the success of human relationships. Therefore, the emphasis in decision-making about how to manage and organise human and material resources would benefit from broadening the focus from that usually employed positivist approach in information systems research (Alvesson & Willmott, 1992a, p. 437).

A broad social process allow researchers and practitioners to anticipate, explain, and evaluate different experiences and consequences following the introduction of new

technologies, such as new information systems, in organisations (Orlikowski, 1993, p. 26).

Despite the growing importance of the nature of information systems development as a social activity, few have attempted to define them in explicit terms (Clegg, Warr, Green, Monk, Allison & Lansdale, 1989; Eason, 1988). Even those who have attempted to define them explicitly did not properly addressed them in the information systems development process (Hornby et al., 1992; Clegg et al., 1989; Eason, 1988). The systems development within a complex, intertwined set of social and political interactions has been generally ignored (Myers, 1994, p. 188; Klein & Hirschheim, 1991, p. 158).

UKAIS (1995, p. 3) argues that "the study of information systems and their development is a multidisciplinary subject which addresses the range of strategic, managerial and operational activities involved in the gathering, processing, storing, distribution and use of information and its associated technologies both in the society and the organisation. For Keen (1987), the mission of information systems research is to study "the effective design, delivery, use, and impact of information technologies in organisations and society". However, there is only a few research studies which address the social, organisational, political and economic contexts, processes and their interaction and implications for systems development as a process of shared learning (see Torvinen & Jalonen, 2000; Beynon-Davies, 1994; Newman & Noble, 1990).

The negligence of social and organisational context contributed to the following:

1. Systems failures, undesirable results and the abandonment of information systems development activities (see Williams & Gunatunge, 2000a, 2000b, 1999a;

Lyytinen & Robey, 1999; Lehaney, Clarke, Kimberlee & Matthews, 1999; Ahn & Skudlark, 1997; Hayes, 1996; Myers, 1994; Ewusi-Mensah & Przasnyski, 1994, 1991; Hornsby et al., 1992; Lyytinen et al., 1991; Kelin & Hirschheim, 1991; Clegg et al., 1989);

2. Poor performance of systems (Poulymenako & Holmes, 1996)
3. Difficulties in implementation of information systems in real world situations following institutional forces which inhibit dramatic changes in existing work habits (Olesen & Myers, 1999, p. 331)
4. Lack of acceptance by the organisation's management and/or employees (Headrick & Morgan, 1999, p. 20)

5. User dissatisfaction, stress, quality of work life and other work-related outcomes significant to the productivity and efficiency of operations (Ryker & Nath, 1995; Robey & Azevedo, 1994; Kidwell & Bennett, 1994; Keen, 1991; Nelson, 1990; Newman, 1988; Markus & Robey, 1983; Alter, 1980; Bjorn-Anderson & Hedberg, 1978). For example, these researchers delineate the fact that the information systems development process is socially bound so that organisational performance are not only a consequences of technical validity of the systems but are also an outcome of social and organisational interactions with the systems (Joshi & Lauer, 1998; Markus & Robey, 1983).

Hirschheim et al. (1996) argue that the changes associated with systems developments are emergent, historically contingent, socially situated and politically embedded. The design and use of information technologies in organisations is essentially entrenched in social contexts, marked by time, locale politics, and culture (Hirschheim et al., 1996, Orlikwski & Baroudi, 1991; Hirschheim & Klein, 1989). Hence the basic assumptions about the rationality of the participants and the social process they engage in need to be

critically appraised (Hirschheim & Newman, 1991, p. 29). This is not to say that there is no place for technical rationality in information systems development. For example, Fitzgerald (1996, p. 5) identified a number of arguments for formalised information systems development methodologies. Avison et al.(1998, p. 125) argue that the technical desire to reduce the complexity and uncertainty of information systems development is understandable, however, there is a danger that the information systems requirements of the organisation are displaced by the information systems development method as the focus of attention (ibid, p. 125). In such situations, practitioners can avoid making a real engagement with the problem (Wastell, 1996, p. 34).

The idea of information systems development as a social activity within organisations requires a reconstruction of the knowledge that provides a social re-conceptualisation of information systems. Therefore the theories, methodologies and techniques of systems development need to be changed through this re-conceptualisation (Introna, 1996, p. 20). These changes gives practical form to what Mumford refers to as the philosophy of humanism, by providing employees with an opportunity to influence the work systems that surround them (1997, p. 309).

## 2.4 Interpretative Approach-Underlying Assumptions in Information Systems Development and Practice

The interpretative approach asserts that the positivist approach generally attempts to increase the predictive understanding of human behaviour through testing theories in a hypothetical-deductive manner, conceiving the world as a fixed construct by which to make sense of reality. Positivist approaches attempt to apprehend, characterise, and measure organisations, groups, and social systems in some objective way to discover an

objective reality largely independent of human subjectivity. Interpretivist researchers reject this objective or factual interpretation of events and situations (Klein & Myers, 1999; Lee, Liebenau & DeGross, 1997; King, 1997; King, 1996; Orlikowski & Baroudi, 1991, p. 5; Hirschheim & Klein, 1989, p. 1205).

In contrast to the positivist views, the interpretative approach attempts to understand human behaviour through social constructions such as language, consciousness and shared meaning from the participants who assign meaning to phenomena (Myers, 1997; King, 1997; Deetz, 1996; Boland, 1991, 1985; Orlikowski & Baroudi, 1991). According to Klein & Myers (1999, p. 69) ". . . our knowledge of reality is gained only through social constructions such as language, consciousness, shared meanings, documents, tools and other artefacts". Interpretative research does not generally predefine dependent and independent variables in a tight research design, but tends to focus on the complexity of human sense-making as the situation emerges (Kaplan and Maxwell, 1994). This view of interpretative approach to study social phenomena is consistent with many researchers (see Walsham, 1995,1993, 1991; Lee, 1991; Boland, 1991; Chua, 1986; Lincln & Guba, 1985; Burrell & Morgan, 1979; Berger & Luckman, 1967). For Burrell and Morgan (1979), interpretativism seeks an explanation within the realm of individual consciousness and subjectivity. Within this frame of reference "social roles and institutions exist as an expression of the meanings which men attach to their world" (Silverman, 1970).

The interpretative approach explicitly recognises the subject matter of inquiry, the 'lifeworlds' contexts. The social phenomenon is examined in a natural setting to discover a mutual understanding among participants in human interaction and action (Ngwenyama & Lee, 1997, p. 6). Practitioners can usually better relate to interpretative

research as the research is close to practice, involves actual case studies, involves real people in real situations, and is undertaken in real world settings (Klein & Myers, 1999). A collection of information systems research conducted using interpretative approach can be found in Myers (1997).

The interpretative approach is often aimed at understanding the inter-subjective meaning embedded in social life to explain human behaviour and takes into consideration the everyday language of human communication (Gibbons, 1987, p.3). It is assumed that reality should be understood from the perspective of the participants who make sense of situations and that social reality is interpreted by the researcher who examines it. The interpretative approach asserts that human knowledge of reality, including the domain of human action is a social construction by human actors and that this applies equally to researchers (Walsham, 1993, p. 5). Consequently the social reality is conceived as an emergent social process, as an extension of human consciousness and subjective experience (Burrell & Morgan, 1979, p. 253).

### 2.4.1 Ontological Assumptions

The ontological position adopted by the interpretative tradition of research is based on the premise that reality is a subjective construction of the mind. Interpretivism is linked with the idea that as socially transmitted concepts and names direct how reality is perceived and structured, reality therefore varies with different languages and cultures.

The question posed is "what is objective reality when experience is necessarily subjective, being apprehended through the observer's mind? (Chua, 1986) The actor "intrinsically endows human actions with subjective meaning and, always intentional,

actions cannot be understood without reference to their meaning and intention that are grounded in social and historical practice" (ibid, p. 613). Interpretative approach focuses on the idea of participants as intelligent human beings who create and recreate their reality through their interpretation and interactions of symbolic action in the process of reality construction (Mingers, 1984, p. 85; Morgan, 1983, p. 396). Humans reinforce this social reality through their action and interaction (Orlikowski & Baroudi, 1991, p. 14). Research in this tradition concentrate on the study of ways in which social reality is meaningfully constructed quo (Klein & Myers, 1999; Burrell & Morgan, 1979, p. 254).

### 2.4.2 Epistemological Assumptions

Interpretative approaches generally operate from an epistemology that understanding of social processes involves getting inside the world of those involved it. The approach asserts that there is a relationship between everyday social practice and the every day language in which social practice are embedded. Therefore, understanding of social reality requires an understanding of how practice and meanings are formed and informed by the language and tacit norms shared by humans working towards some shared goals (Klein & Myers, 1999; Orlikowski & Baroudi, 1991, p. 14).

Research methods such as in-depth field studies (case studies, ethnographic studies, and participant observation) are used to generate knowledge. The researcher takes an actively involved role in the research process to derive meanings of human actions and human interaction to understand the social reality (Walsham, 1995).

The interpretative approach recognises the questions of value-judgements in the process of human communication and that value question becomes implicated in the process of inquiry (Ngwenyama & Lee, 1997). The researcher begins with understanding assumptions, beliefs, values, and interests, which shape the process of investigation. The researcher's assumptions and values are generally thought to be deeply involved in the research phenomenon (Orlikowski & Baroudi, 1991).

Interpretative knowledge can be used to reveal to people what they and others are doing when they act and speak as they do (Fay, 1987, p. 88). By highlighting the symbolic structures and taken-for-granted themes that pattern the world in distinct ways, interpretative research aims to enrich participants' understanding of the meanings of their actions, thus increasing the possibility of mutual communication and influence (Chua, 1986, p. 615).

### 2.4.3 Problems of Interpretative Approach

Several authors pointed out the limitations of an interpretative approach whilst studying information systems development and information system use in organisations (see Probert, 1997; Ngwenyama & Lee, 1997; Orlikowski & Baroudi, 1991, Hirschheim & Klein, 1989; Gibbons, 1987; Fay, 1987; Chua, 1986; Minger, 1983; Burrell & Morgan, 1979; Giddens, 1979; MaCarthy, 1978). For example, MacCarthy (1978) suggests that the interpretative agenda is as suspect as the natural science approach because it, too, employs a monological form of reasoning of phenomena, which may exclude certain topics of discourse. The subjective approaches are especially vulnerable to bias implicit in the culturally conditioned perspective of the research (Steffy & Grimes, 1986, p. 323).

Habermas (1979) contends that the interpretative approach seeks to understand organisational laws through some form of "pure subjectivity", free from cognitive or motivating interests. The interpretative approach is unable to evaluate critically the forms of life which s/he observes and is therefore unable to analyse forms of false consciousness and domination that prevent the actors from knowing their true interest (Habermas, 1979). Moreover, it fails to be an "inquiry of change" (Habermas, 1979; McCarthy, 1978). For example, in the interpretative approach, the systems analyst reproduces a causal reflection of his internal perceptions of his own will rather than critically understanding the situations being studied (Probert, 1997, p. 48). In this sense, the interpretative approach resembles a natural science approach (Steffy & Grimes, 1986, p. 325). Thus, both natural science and interpretative approaches assume some dominant form of reasoning (Dallmayer & McCarthy, 1977).

The interpretative approach can easily ignore political activities and interests attempt to destruct a balance between individual and collective interest (Hirschheim & Klein, 1989, p. 1206). For example, interpretative research generally avoids conflicts in goals and attempts to achieve consensus among participants in the process of information systems development (Hirschheim & Klein, 1994). Such an attempt is considered as a "naive consensus" because the process does not look at how human understanding is distorted through false consensus, manipulation, and domination (Habermas, 1984).

The information systems development process within interpretative approaches is uncritical in that certain groups such as management, can manipulate and distort the communication to realise hidden objectives. Distortions in information systems

development can arise from biases and the limits of language use because "our implicit beliefs and assumptions cannot all be made explicit" (Winograd & Flores, 1986, p. 32).

Interpretivists generally fail to suggest what to do or how to improve matters in practice. Consequently, mutual understanding in the interpretative research tradition does not usually lead to improvements in social problems (Gunatunge, 1990). For example, interpretative approach generally fails to recognise the limitations and barriers to the improvement of the quality of the human conditions.

Fay (1987, p. 92) recognises four weaknesses in the interpretative research tradition.

1. It does not examine external conditions, which gives rise to certain meanings and experiences
2. It fails to explain unintended consequence of human action, such as action which reinforces the actions, roles, beliefs, and relative power of members of a group in order to sustain the structure and practice of that group as a whole over time (Giddens, 1979)
3. The interpretative approach does not usually address the structural conflicts that exist within society and organisations, thereby often ignoring endemic issues related to social systems (Alvesson & Willmott, 1992a)

4. It neglects to explain historical change such as how a particular social order came to be, what it is and how might vary over time. Thus, an interpretative approach can easily overlook the possible structures of conflicts within a society, and the symbolic structures that would generate change through the symbolic interaction of participants (Fay, 1987, p. 96).

## 2.5 Critical Theory Approach-Underlying Assumptions in Information Systems Development and Practice

In contrast to both positivist and interpretative approaches, the critical social theory perspective attempts to understand social contradictions and conflicts inherent in existing social structures of organisation and society through self-reflection in the hope of human emancipation (Alvesson & Willmott, 1992a, p. 434; Orlikowski & Baroudi, 1991, p. 19). It assumes a non-objectivist understanding of ontology and epistemology (Burrell & Morgan, 1979). Critical social theory asserts that established systems of domination, which alienate people from self-realisation, restrict human potentiality (Chua, 1986, p. 619). It takes into account the human construction of social forms of life and the possibility of their recreation in a historical context (Ngwenyama & Lee, 1997, p. 5; Ngwenyama, Truex & Davis, 1997, p. 2; Ngwenyama, 1991, p. 268). It aims to lay the foundation for explorations in an interdisciplinary research context of questions concerning the conditions which make possible the reproduction and transformation of society, the meaning of culture, and the relation between the individual, society and culture (Held, 1980, p. 16).

Research using this perspective to social science phenomenon contains both an empirical-analytic and interpretative component, however each is placed within a reflective system of epistemic inquiry (Steffy & Grimes, 1986, p. 325). Neither approach adequately analyses the actuality of information systems practice (Probert, 1997, p. 48). For example, referring to information systems research, Ngwenyama and Lee (1997, p. 7) identify four perspectives, differing from the positivist approach that in critical social theory is:

1. Sensitive to the 'lifeworlds' of the organisational participants and is oriented to interpreting and mapping the meanings of their actions from their perspectives
2. Adopts pluralistic methods of inquiry such as participation, observation, and the analysis of contextual data
3. Does not separate the subjects of inquiry from the organisational context within which they are situated

4. Recognises that the organisational context is not only important to meaning construction, but to social reality as well. Moreover, unlike the interpretative research approach, researchers in critical social theory endeavours to emancipate organisational participants from false or unwarranted beliefs, assumptions, and constraints in addition to the research quest for mutual understanding (ibid, p. 7).

Critical theory aims both to critique ideology in social theory and method, such as the identity of scientism and to develop an organisation science capable of changing organisational processes through dialectical approach (Adorno, 1973) or communicative interaction (Habermas, 1987b, 1984). Its main tasks are to bring to light the restrictive and alienating conditions of the status quo and to help to eliminate the causes of alienation and domination (Myers, 1997, p. 5). It explicitly states its purpose is to minimise the "objectification of organisational actors" life through restrictive conditions (Habermas, 1987b). Critical social theory focuses on the liberation of people from unnecessarily restrictive conditions, ideologies, assumptions, power relations and identity formation that inhibit or distort opportunities for autonomy, or clarification of genuine needs and wants. It hopes to contribute to greater and lasting satisfaction (see Fay, 1987; Habermas, 1987b, 1984; Held, 1980; Marcuse, 1964).

### 2.5.1 Ontological Assumptions

Ontologically, critical social theory asserts that social reality is historically situated and that reality is produced and reproduced by people through their interaction (Myers, 1997, p. 4). Unlike the positivist approach, critical theory does not assume that social relations are stable and orderly but are undergoing constant change (Habermas, 1987b).

Human actors are not seen to be restricted to exist in a particular state and thus their being and their object world (material environment) are not exhausted by their immediate circumstances (Held, 1980, p. 234). Instead, human participants have inner potentialities which are alienated through various forms of restrictive mechanisms such as social, economic, and political domination (Chua, 1986). Therefore, the material environment can only be understood through a study of their historical development and change within the totality of relations (Orlikowski & Baroudi, 1991).

Critical theorists understand empirical reality as characterised by objective, real relations, which are transformed and reproduced through subjective interpretation of human participants (Burrell & Morgan, 1979, p. 298). Human intention and rationality is critically analysed because of a commitment to understand in false consciousness and ideology. Critical theory assumes that fundamental opposition, conflicts, and contradictions are endemic to contemporary society. These conflicts arise "because of injustice and ideology in the social, economic, and political domination, which obscure the creative dimension in people" (Chua, 1986, p. 622).

### 2.5.2 Epistemological Assumptions

Epistemologically, critical theorists generally assume that knowledge is inter-subjectively shared and context bound and that knowledge is grounded in social and historical practice (Orlikowski & Baroudi, 1991, p. 20; Chua, 1986, p. 620). The belief that the knowledge and social reality is grounded in social and historical contexts, historical, ethnographic research and in-depth case studies are more commonly used to identify the social reality. In this way, knowledge about social reality is obtained and analysed critically through the particular theoretical framework adopted by researchers to conduct their work (Orlikowski & Baroudi, 1991, p. 21). For example, researcher needs to critically examine how power structures and knowledge interests are affected by information technology (Ngwenyama et al., 1997, p. 2).

In critical social theory, theory has a critical imperative in that the identification and removal of domination and negative ideological practice is highlighted in existing social orders of societies and organisations (Chua, 1986, p. 622). Ngwenyama et al. (1997) states that:

> Critical theorists seek to improve human conditions and they should not limit themselves to critiquing the ideology behind certain styles of information systems research. Rather, they need to become involved with real life situations where power is manifested, for example, issues of power may be observed in situations of information systems development or information use. (p. 1)

Four basic assumptions of critical social theory are generally recognised.

1. It is assumed that people can change their world and that organisational participants and/or researchers have the capacity to transform organisational situations

2. All social knowledge is value laden, and all scientific knowledge is a social construction
3. Reason and critique are inseparable and are reflective in practice.
4. Theory and practice must be interconnected (Ngwenyama, 1991).

Habermas (1973) differentiates between the use of critical theories to initiate a process of self-reflection among human participants, as compared to the actual selection of appropriate political action. His critical social theory, the theory of communicative action, can be fruitfully used to elucidate social phenomena in practice through critical reflection. Habermas (1973) asserts that the critical researchers can be responsible for initiating a process of self-reflection but that only participants in the community can carry out the necessary political action to change the existing structures (Chua, 1986; McCarthy, 1978).

The following section outlines information systems development research conducted using Habermas's approach. In order to avoid the duplication of work, section 7.3 in chapter seven provides critical reflection on problems and limitations of applying Habermas's critical social theory to systems development in organisations.

### 2.5.3 Habermas's Critical Social Theory in Information Systems Development

The application of Habermas' critical theory to information systems development in organisations is becoming increasingly popular. For example, Williams and Gunatunge (2000a, 2000b, 1999a), Gunatunge and Williams (2000), Myers and Young (1997), Ngwenyama et al. (1997), Hirschheim et al. (1996), Kelin and Hirschheim (1996), Hirschheim et al. (1995), Hirschheim and Klein (1994), Truex (1993), Lyytinen (1992,

1986), Hirschheim and Newman (1991), Lyytinen, Klein and Hirschheim (1991), Ngwenyama, (1991), Lyytinen et al. (1991), Hirschheim and Klein (1989), Lyytinen and Hirschheim (1988), Klein and Hirschheim (1987), Lyytinen and Klein (1985), widely discuss the use of Habermas's critical social theory perspectives in information systems development, and their implications to organisational life.

Several authors (Lee, 1990; Ehn, 1988; Ngvenyama, 1987; Lyytinen & Klein, 1985) use Habermas's critical social theory in discussing and evaluating the positivist research perspective. Most of this work emphasises that the practical interest in mutual understanding is necessary if one wants to grasp how organisational agents actually use information systems in making sense of their environment (Boland, 1980). Until recently, there has been little discussion on work place autonomy and the empowerment of the employee in information systems development Lyytinen, 1992).

Lyytinen and Klein (1985) use critical theory to take into account the 'lifeworld' and the social context in which information systems development and practice is situated in organisations. These authors assert that most information systems focus on the technical aspects of systems design, seeing the outcome of the design merely as the delivery of a technical system without considerations of necessary organisational change. It would therefore be said that most information systems development and practice come under a model of purposive rationality in Weber's (1978, pp. 24-6) sense. Most of the information systems research follows scientific research, which tends to ignore the social context of information systems development because these approaches are based on purposive-rational actions (Habermas, 1987b, 1987c, 1984).

Lyytinen and Klein (1985) contend that the narrow technical approach is aimed at increasing efficiency and effectiveness, at the expense of general human concerns to meet the vested interest of certain groups in power. From a narrow technical approach, information systems become part of the rational-technical approach to our society, which is derived from the ideology of scientism (McCarthy, 1978, Habermas, 1973). Therefore, it is necessary and important to look at information systems as means of increasing human understanding by foster criticism and reflection and as means to free people from undesirable constraints, distorted communication, misapplied power, and repressive domination (Lyytinen & Klein, 1985, p. 219).

Critical social theorists contend that for participants to come into a shared understanding should base rationality on communicative interaction, through the "force of better argument". Moreover, human 'lifeworlds' influence the forms of communicative rationality in the information systems development process (Ngwenyama et al., 1997, p. 2). Such an approach tries to reflect and critically examine the conditions and scope of our practical "tacit" knowledge of how to engage in organisational conversations and constitute our social world (Dietz & Lyytinen, 1998, p. 2). It emphasises what people do while communicating, how they create common reality by means of language and how communication brings about the co-ordination of their activities (Reijswoud et al., 1999, p. 118; Kelin & Hirschheim, 1991, p. 166).

Central to communicative rationality (Klein & Hirschheim, 1991, p. 166) is mutual understanding and consensus formation in the form of symbolic interaction. Information systems form constitutive elements in organisational conversations in which actors establish shared social worlds (Thompson, 1982, p. 123) and represent themselves to others and themselves (Dietz & Lyytinen, 1998, p. 2).

The communicative process is one in which any knowledge claim of participants is open to challenge (Spaul, 1997, p. 83). In this reflective inquiry, participants achieve a therapeutic self-understanding which also contributes to improving knowledge, feeling, and practice (Lyytinen & Klein, 1985, pp. 229-30).

Hirschheim and Kelin (1989) discuss four roles of the information systems analyst as systems expert, facilitator, labour partisan, and emancipator. The first of these relates to the purely technical role of the systems analyst in developing systems to agreed specifications. The second role of the analyst as facilitator is an approach which would be natural when using methodologies such as effective technique and human implementation of computer systems (ETHICS) and consensual versions of soft systems based methodologies (for example, Checkland, 1981).

From this perspective, Hirschheim and Kelin (1989) assert that any system that then meets with the approval of the affected parties is legitimate. In the third role, the systems developer acts as an advocate of labour to redress the balance of power between management and labour. This third role can be argued as a morally superior course of action. The need for a labour partisan aspect of analyst's role is explained in some of the information literature (Newman & Noble 1990; Robey & Markus, 1984).

The final role of the analyst is that of emancipator. In the role of emanicpator, the analyst makes an effort to create conditions for free and open discussion that lead to shared understanding. This discussions must include a critical examination of existing barriers to emancipation such as authority and illegitimate power, peer opinion pressure, social differentiation, and the bias and limitation of language use (Hirschheim & Kelin, 1989, p. 1208).

Lyytinen et al. (1991) argue for a social action perspective to understand office information systems development. These authors suggest that most of the existing office information systems and development methodologies assume that system development is a sequence of instrumental actions to achieve predefined ends. Thus, they propose that "office information systems should be analysed as social action systems, the behaviour of which is strongly affected by social determined forces and constraints such as the behaviour-channelling influences of authority, norms, customs, habits and precedence" (p. 56).

Hirschheim (1985) desires to see information technology adopted in the office, with a focus on a plurality of benefits demonstrating social and ethical responsibility. Hirschheim contends that an authentic consensus can be achieved in its proper use and objectives if a participatory approach is used during design and implementation of information systems.

Lyytinen et al. (1991) analyse office information systems referring to Habermas's classification as social actions of instrumental, strategic, communicative, and discursive, in the context of technology, language and organisation. Further, these authors propose that, in order to be successful, office information systems must handle the informal nature of office activities, which include conversations, friendly and adversarial social relationships, spontaneous interaction, and organisational culture which embraces myths and rituals in a distortion free environment. Lyytinen et al. (1991) assert that the informal nature of office activities result "spontaneous social interaction that contributes to creativity and learning"(p. 42). These authors argue that,

by adopting the social action perspective of Habermas, a better understanding of both the office and office information systems development is possible.

Klein and Hirschheim (1987) call for the explicit use of emancipatory research that focuses on human well being and emancipation in information systems development and use in organisations. Hirschheim and Klein (1994) argue for a plurality of rational arguments in the information systems development process suggesting that traditional information systems development practices are too functionalist concentrating merely producing designed systems (see Burrell & Morgan, 1979) for their theoretical basis (Hirschheim & Klein, 1989, pp. 1203-4).

Hirschheim and Klein (1989) suggest that relying solely functionalism form positivist perspectives promote the ideals of efficiency and effectiveness in information systems development. Information systems development comes to be seen as instrumental reasoning of human behaviour making organisational life overly rationalistic.

Rationalism leads to merely choosing the best instrumental means as the primary emphasis for achieving given ends. Information systems development approach follows the rules of scientific method, which ideologically attempts to improve a technical solution on complex human problems (pp. 1203-4). Moreover, the systems analyst adopts inappropriate value neutrality with regard to goals. The design system becomes one of concealed use of power in the development process by certain groups to realise their often concealed objectives, particularly narrow economic objectives at the expense of other participants (Myers & Young, 1997). In contrast to the functionalist approach, neohumanistic approach takes into consideration human values, norms, and perceptions

of all the participants in a free and open discussion that leads to shared understanding (Hirschheim & Klein, 1994, 1989; Burrell & Morgan, 1979).

Consistent with these arguments, various methodologies have been proposed in systems design. For example, Flood and Jackson (1991) identified the "critical systems heuristic" as a means of opening up and making transparent the manner in which systems practitioners frame and manage problems in social systems design. In information systems development methodologies such as institutional democracy design (Hirschheim et al., 1996), consensual communication development (Hirschheim &.Newman, 1991), rational argument design (Klein & Hirschheim, 1996; Hirschheim & Klein, 1994), and participatory approach (Hirschheim and Klein, 1989; Hirschheim, 1985) have been proposed.

Fundamental to all these methodologies is that their focus on reducing barriers to emancipation such as distorted communication, power and psychological compulsions and social constraints. They also deal with change and emancipation of human potential. These methodologies stress the role that different social and organisational forces play in understanding change through the effective development of information systems in organisations (Wilson, 1997, p. 103).

**2.6 Conclusion**

In this chapter, I present research accounts of the three approaches to studying information systems development and practice in organisations. The positivist approach is premised on the assumption of objective worldviews to design information systems for controlling human behaviour through instrumental and strategic actions in the

development process. The social context, within which information systems development functions, is often ignored. The interpretative approach is based on subjectivist understanding of human behaviour in organisations. This approach recognises the 'lifeworlds' context in information systems development and practice.

The interpretative approach is aimed to reaching mutual understanding among participants in an inter-subjectively shared worldview of participants. However, the approach lacks critical bite. Finally, the chapter discussed the ontological and the epistemological positions adopted in critical social theory approach to information systems development and practice.

Critical social theory approaches attempt to understand social contradictions and conflicts inherent in existing social structures of organisation and society by including self-reflection while taking non-objectivist understanding of ontology and epistemology. Human construction of social reality of human life and the possibility of their recreation in a historical context are taken into consideration. A further account of critical social theory and Habermas's theory of communicative action is presented in chapter three.

# CHAPTER THREE

## CRITICAL SOCIAL THORY-THEORETICAL FRAMEWORK

### 3.0 Introduction

The chapter describes the theoretical framework used in this research. The chapter begins with an general exposition of critical social theory perspective in referring to the work of the members of Frankfurt School of social research. Secondly, is an explanation of the major theoretical underpinning expounded by Jurgen Habermas in his theory of communicative action. He describes the major themes of 'lifeworlds' and systems, colonisation of lifeworlds, human cognitive interests, human conscious rationalities, human actions, universal validity claims of speech acts, ideal speech situation, breakdown of communication, and rational society through communicative interaction. A final concluding chapter ties these theories anad concepts together as whole.

### 3.1 Critical Social Theory

Critical social theory refers to the work of members of the Frankfurt school of social research. The most prominent figures in this tradition are Max Horkheimer (1895-1973), Theodor Adorno (1903-1969), Erich Fromm (1900-1980), Herbert Marcuse (1898-1979) and currently Jurgen Habermas (1929-) (see Held, 1980). Their concerns have been to better understand and provide meaning for human conditions taking different positions to mainstream traditional social theorists, whose ideas are, especially these based on positivism. Habermas convincingly argues that positivism is not, as it claims, the one and only non-biased application of cognitive mental functions to the knowledge and control of nature in order to obtain human betterment and progress

(Habermas, 1987c). The critical social theory focuses on understanding human social actions within a broad social context extending observation into a reflective viewing of unwarranted and inequitable conditions of social situations from which people seek relief (Ngwenyama & Lee, 1997; Orlikowski & Baroudi, 1991;Hirschheim & Klein, 1989).

The adjective "critical" refers more to self-reflective examination and an unmasking of pretences rather than to that which is critically important or to criticism as such (Habermas, 1987c, p. vii)). The concern of critical social theory has been to understand and help better a twentieth century plagued by mass war, cruel totalitarianism, technocratic exploitation, vast inequality and, now, ecological collapse. They have provided powerful insights by advocating critical self-examination, by constantly unmasking unexamined pervasive ideologies in capitalism and communism and, more recently, especially in the work of Habermas, by evaluating the social importance and foundation of everyday language. For example, it can be argued that the "free market" is profoundly not free, "rational bureaucracy" has an instrumentally unbalanced rationality, and "democracy" is not only partial and fragmentary but increasingly determined by technology and mass media (Park, 1991, p. 174). They have worked together from the 1930s to produce a viable alternative social theory to fascism, authoritarian socialism and capitalism. Their shared concern has been to provide a new way to use reason, a liberating reason, to promote equity, freedom and an outworking of the good in human affairs. As such their social project is still basically within that of the enlightenment project of creating a better society through the application of reason. At the inaugural address of the opening of the Institute for Social Research, Horkheimer (1937) outlined the goals of critical social theory as follows.

> The critical theory of society on the contrary [to the positivist views of social science] has its objects men as the producers of their total historical forms of life. The conditions of reality from which science starts out, appears to it not as given to be established and calculated purely on the basis of laws of probability. What is in each case given, depends not solely upon nature but also upon perception, the statement of the problem and the interpretation of the answers are created from human activity and the degree of its power (cited in Ngwenyama, 1991, p. 268).

Following insights from Marx and Hegel, critical theory contends that the domination of nature and people through scientific consciousness was at the heart of the intellectual world of the enlightenment (Held, 1980, pp. 151-2). They argued that the enlightenment was associated with the various intellectual movements, which contributed to and informed political ferments, such as the French revolution, in Europe, the late eighteenth century. In *Dialectic of Enlightenment* Adorno and Horkheimer explored why the enlightenment project, with its scientific agenda, has created "a new kind of barbarism" instead of "a truly human condition" (Adorno & Horkheimer, 1992, p. xi). They understand magic, Olympian Greek mythology, and certain ways of understanding Judaeo-Christian religion and elements of the Reformation and the Renaissance, as early expressions of the unbalanced dominance of instrumental rationality.

This unbalanced instrumental rationality became a strategic rationality leading to coercion and social manipulation for ulterior purposes of certain dominant persons or classes. Although initially liberating from superstition and repression, the seeds of totalitarianism and repressive orthodoxy were located within this instrumental rationality and universal technocratic consciousness which came to dominate an increasing number of areas of everyday life.

A common tenet of critical social thought has been that the values associated with instrumental rationality have increasingly and destructively dominated business, industry, government and education in modernity (Agger, 1991; Held, 1980). Adorno characteristically illuminates the kernel of instrumental rationality in his famous essay, "Education after Auschwitz": "First, men become the kind of persons who make themselves in some degree the same as a thing. Then, if it is possible, they make others into things, too" (cited in Young, 1989, p. 60).

Horkheimer and Adorno (1972) related instrumental rationality to all forms of positivism and even empiricism, which they claim simply accept the societal status quo. There is no critical self-reflection in this acceptance which serves and endorses the radically diseased instrumental domination of modernity. Civilisation has thus been threatened by the cancerous growth of a technology driven by the instrumental rationality of the empirical sciences with declining discourse on human values. Adorno spoke of the rise of instrumental, or "means-end", rationality as a part of standardised, opaque, and overpowering social processes (Held, 1980, pp. 65-70). Marcuse likewise asserts that: "Not only the application of technology but technology itself is domination (of nature and man) - methodical, scientific, calculated, calculating control" (Marcuse, 1969, p. 223).

Instrumental rationality abstracts persons from the world and from others, it blocks them from truly experiencing life to the extent to which it is adopted. **Ziauddin Sardar**, speaking of Western domination of other cultures, asserts that instrumental reason: "unleashed ruthless violence, in the shape of instrumental science, capitalist technologies, agribusiness and instrumental nation-states, at traditional societies" (1993).

However, there is a common hope in the work of Horkheimer, certainly Marcuse and even Adorno, that there is a "possibility of a fully liberating reason" (Held, 1980, p. 157). Although reason has been used as a capitalist weapon of social control (Adorno & Horkheimer, 1992), there is a way open for the destructive domination of instrumental rationality to be tempered and even balanced by critical reason. Within this assertion, Habermas's theory of communicative action (1987b, 1984) builds a fruitful theoretical foundation for empowering human communication to enable what he terms a "counter-factual reconstructed practical rationality." This is a type of *balanced rationality*, a fully liberating reason, in which technical, ethical and emancipatory human interests are appropriately balanced through a free interpretation (in unrestricted social interaction) of situation under consideration (Pusey, 1987, p. 92).

### 3.2 Habermas's Theory of Communicative Action

A fruitful platform for thinking of information systems development practice in organisations is provided by Jurgen Habermas's theory of communicative action (1987b, 1984). Habermas's theoretical approach is derived from his theory of social evolution. Habermas's critical theory is most succinctly defined as an empirical philosophy of social institutions (McCarthy, 1978). As the leading contemporary thinker in critical social theory (Held, 1980), Habermas argues that, with the growth of industrial society in science, technology and rigid bureaucracy, reason itself is now used in a narrowly instrumental manner. Reason is no longer liberating, as it was during the enlightenment when thinkers used reason to expose the oppression and debased authoritarianism of the decadent European monarchies and institutional religions (Park,

1991, p. 174). Reason, Habermas contends, is no longer used for discovery, or to generate meaning or values. Rather, reason is used as a means of a new oppression and authoritarianism with modernity characterised by positivist science and dominating technocratic consciousness (1987c). Thus it is untenable to suggest that facts and values can be rigidly separated, as the case in positivist philosophy, and that science can be apolitical and value-free-truth. The truth and knowledge are interwoven with political context and can emerge only from freedom to dialogue and exchange ideas (Abercrombie, Hill, & Turner, 1984, p. 87).

Habermas contends that only by using open, free and uninterrupted dialogue can valid knowledge come about in a balanced rationality, which takes account of all areas of human interest and action (Abercrombie et al., 1984, p. 99). In his recent work (1987b, 1984), Habermas develops his notion of a liberating reason by giving fundamental insights into the unconsciously understood 'lifeworlds' and into the nature of an undistorted communicative action (Dews, 1986, p. 151). The use of balanced reason in human affairs can be freed from its overtones of complicity in positivist, technocratic, bureaucratic, hegemonic domination.

Habermas understanding was that positive and constructive change could only occur through social movements. He asserts that the current major social problems lie in areas of cultural reproduction, socialisation, and social integration concerning "the grammar of forms of life" (Habermas, 1987b).

Habermas provides a fruitful theoretical position for this discussion of the politico-socio-economic and cultural context for information systems research within modernity. He understands his task as developing foundational theory on which can be

based specific practice to help marginalised people free themselves from domination (Held, 1980, p. 250) and in helping deal with social problems such as "social reproduction of society".

The basic question that Habermas has grappled with has been how to understand modernity (in particular the capitalist modernisation of society) by drawing jointly on the resources of philosophy and the social sciences. Habermas is a *rationalist* in that his project is to ground a balanced practice of reason in inter-subjectivity, notably applied to truthful communication, rather than in the individual subject. By balancing instrumental rationality with intersubjective communicative interaction, his project has been to provide a positive platform from which to apply social theory.

Crucial to critical theory is reflection and self-understanding. Habermas commends self-reflection as this "leads to insight due to the fact that what has previously been unconscious is made conscious in a manner rich in consequences . . . " (1973, p. 23). He for sees a situation in which a balanced rationality, or liberating reason, can occur. In this, communication is free of domination; self-reflection and practical action fruitfully combine in democratic political awareness and action; people think and act in a balanced rational way to determine the shape of their own lives individually and in community in a fully inter-subjective way. Thus communicative action that complements instrumental action as people, groups and nations discourse and act in a balanced rational approach through communicative interaction, through action that is genuinely oriented to reaching an understanding (Pussey, 1987, p. 120).

Habermas's theory attempts to resurrect a major theme of the enlightenment - that of providing a potentially empowering theoretical framework for a balanced rationality

within public debate. This could, he hopes, be part of the process of enabling individuals, groups and whole communities to free themselves from coercion, oppression and domination by destructive hegemonic ideologies. Such an ideology is technocratic consciousness in advanced capitalism marked by technocratic and instrumental solutions.

Questions of justice, or of freedom, or of truth seem increasingly unreal as economic rationalism defers to technical solutions to guarantee minimum welfare, manage the economy and sustain economic growth. The end result of technocratic consciousness is a society autonomously governed by technical cybernetic systems control mechanisms concealing the dominating interests of certain groups and classes (Held,1980, pp. 64-5).

The notion of *discourse,* within communicative interaction, in the context of lifeworlds is centrally important in his theory. This is part of his 'linguistic turn' to address, along with most contemporary social theory, the problem of language rather than the flawed problem of consciousness (Held 1980. pp. 132-3). Discourse is understood as that activity in which humans communicate with an expectation of understanding and with the hope of reaching a genuine consensus.

Inherent in this is attentive listening and opens an explanation of, both verbal and non-verbal, of outer observation and inner values, goals and understandings. The overall goal is "an inte-rsubjective mutuality of reciprocal understanding, shared knowledge, mutual trust, and accord with one another" (Held, 1980, p. 3[illegible]). Human communication can be distorted by communicative incompetence, by domination or by unbalanced 'strategic interaction' of indoctrination and propaganda. In the ideal,

agreement should be reached by an acceptance of the position that has the better argument (Held, 1980, chapter 12).

### 3.2.1 'Lifeworlds' and Systems

Central to Habermas's theory of communicative action (1987b, 1984) is 'lifeworlds' and systems. Every human group has its 'lifeworlds'. 'Lifeworlds' contain the background knowledge that is shared by the members of a group. It is the background consensus of everyday life and often the storehouse of knowledge that is passed from one generation to the next. This includes common understandings - "what everyone knows" - as well as common beliefs and feelings. Language is a part of 'lifeworlds'. Particular colloquialisms can be part of group 'lifeworlds. For Habermas (1984) a lifeworlds is:

> An implicit knowledge that can not be represented in an infinite number of propositions; it is a holistically structured knowledge, the basic elements of which intrinsically define one another; and it is a knowledge that does not stand at our disposition, inasmuch as we can not make it conscious and place it in doubt as we please". (p. 34)

Every human has 'lifeworlds' understandings, which may differ from group to group. Even to be verbally understood in a group means that some 'lifeworlds' understandings must be common. To be fully accepted by a group one must share 'lifeworlds' understandings. Furthermore:

> Each actor draws from a common stock of knowledge, which is provided by a cultural tradition shared with others. It is this background-knowledge which represents the context of the lifeworlds, and in which any communicative interaction is embedded (Habermas, 1980, p. 129)

For Habermas, the 'lifeworlds' is the context within which communicative actions occur and the horizon within which people refer to aspects of the three worlds as an interpretative framework for their situation definitions of communicative interactions. They are the objective, the inter-subjectively shared social world and the subjective world of individuals and other collectives. Habermas (1984) contends that:

> It comprises more or less diffuse, always unproblematic, background convictions which serves as a source of situation definitions that are presupposed by participant as unproblematic and it also stores the interpretive works of preceding generations. (p. 70)

In its border sense, 'lifeworlds' are the communicatively formed (overtime) life experiences and beliefs (consciousness and humanly created) which guide attitude, behavior and action (Broadbent et al., 1991; Myers & Young, 1997; Ngwengama & Lee, 1997). In Habermarsian term, lifeworlds is a type of cultural space, which gives meaning and nature to social life (Laughlin, 1987). It is the context in which social actions and social structures are manifested (Pusey, 1987, p. 59).

In modern society, the 'lifeworlds' is undergoing a profound process of rationalisation in the spheres of *culture*, *society* and *personality*. Thompson (1983, p. 285) interprets these as the 'symbolic space', as it were, within which cultural tradition, social integration and personal identity are sustained and reproduced. Habermas (1987b, p. 138) understands the three elements of 'lifeworlds' as follows.

> The term culture for the stock of knowledge from which participants in communication supply themselves with interpretations as they come to an understanding about something in the world . . . . the term society for the legitimate orders through which participants regulate their membership in social groups and thereby secure solidarity. [The term

> personality for] the competences that make a subject capable of speaking and acting, that put him in a position to take part in a process of reaching understanding and thereby to assert his own identity.

The cultural reproduction of the 'lifeworlds' ensures that newly arising situations are connected up with existing conditions in the world in the semantic dimension. It secures a continuity of tradition and coherence of knowledge sufficient for daily practice. Continuity and coherence are measured by the rationality of the knowledge accepted as valid. If not situation would be created disturbances of cultural reproduction leading to loss of meaning (Habermas, 1987b, p. 140).

The social integration of the 'lifeworlds ensures that newly arising situations are connected up with existing conditions in the world in the dimension of social space. It takes care of coordinating actions by way of legitimately regulated interpersonal relations and stabilises the identity of groups to an extent sufficient for everyday practice. The coordination of actions and the stabilisation of group identities are measured by the solidarity among members. If this does not happen, situation would be the disturbances of social integration, which manifest themselves in anomie and corresponding conflicts (Habermas, 1987b, pp. 140-1).

The socialisation of the members of a 'lifeworld' ensures that newly arising situations are connected up with existing situations in the world in the dimension of historical time. It secures for succeeding generations the acquisition of generalised competence for action and sees to it that individual life histories are in harmony with collective forms of life. Interactive capacities and styles of life are measured by the responsibility of persons. If not this happen situation would be the disturbances of socialisation

process, which are manifested in psychopathologies and corresponding phenomena of alienation (Habermas, 1987b, p. 141).

The systems emerge from the 'lifeworlds.' These systems are expressions of 'lifeworlds' as functionally definable, tangible organisations. According to Habermas, the principle systems are the economic and administrative systems. The behaviour of these economic and administrative systems is guided by 'lifeworlds.' They are tangible expressions of the cultural 'lifeworlds.' These systems are held together and coordinated by steering media such as money and power, which take over areas of the 'lifeworlds' and then reconstitutes them as the objects of control. " It is these two media (money and power) that shape and extend the technocratic consciousness over lifeworlds" (Pusey, 1987, p. 107). According to Habermas (1987a), that:

> The technocratic consciousness reflects not the sundering of [particular] ethical situations but the repression of 'ethics' as such as a category of life. The common positivist way of thinking renders inert the frame of reference of interaction in ordinary language . . . as the refined models of the sciences migrate into the socio-cultural lifeworlds and gain objective power over the latter's self-understanding. The ideological nucleus of this consciousness is the elimination of the distinction between the practical and the technical. . . . Technocratic consciousness makes this practical interest disappear behind the interest in the expansion of our power of technical control. (pp. 112-3)

Systems as self-regulating action contexts, which coordinate actions around specific mechanism or media become concretely represented in and through defined societal institutions (Broadbent et al., 1991, p. 3; Thompson, 1983, p. 285).

In capitalist society, the economy through money and market and the state through power and bureaucracy constantly subjugate the 'lifeworlds' to the colonisation. Through the steering media of money and power, social relations in the 'lifeworlds are

monetarised and bureaucratised and adapted to the functional requirements of the system (Pusey, 1987, p. 107).

However, individuals develop their language skills which enables them to differentiate of the 'lifeworlds' and systems and the development of both (Laughlin, 1987). Habermas understands that the societal evolution takes over time through a process of increasing differentiation and increasing discursive skills when the elements of the 'lifeworlds' develop, leading to shifts in both steering media and institutional systems.

### 3.2.2 Colonisation of 'Lifeworlds'

Central to Habermas's theory of societal development is *internal colonization* of the 'lifeworlds' (Habermas, 1987b, p. 332). This is the situation where what Habermas calls that the steering media 'get out of hand' and steer the systems into domains, which are not locked into, or reflecting 'lifeworlds' demands (Broadbent et at., 1991, p. 5). The result will be the appearance of pathological side effects, loss of meaning, loss of hope, alienation, depression, stress, anomie and withdrawal of legitimation and these become the norm. Habermas (1987b) noticed the situations in advanced industrial societies and state that:

> Modern societies attain a level of system differentiation at which increasingly autonomous organisations are connected with one another via delinguised media of communication: these systematic mechanisms-steer a social intercourse that has been largely disconnected from norms and values, above all in these sub systems of purposive rational economic and administrative action . . . have become independent of their moral-political foundations. (p. 154)

When steering media begin to colonise sub systems become more and more complex as a result of capitalist growth and penetrate deeper into the symbolic reproduction of the 'lifeworlds' representing society as a social confusion (Habermas, 1987b, p. 367).

Further Habermas deeply looked at the colonising tendencies; whether or not the steering media is of a "regulative" or "constitutive" character that constitutive form has more colonising potential. Regulative rules regulate some pre-existing, on-going activity whereas constitutive character consists of some form of activity. Regulative rules are claimed to be "freedom-guaranteeing" (Habermas, 1987b, p. 367). They moderate systems behaviour to reflect existing 'lifeworlds' norms and values.

Constitutive effects deemed to be 'freedom-reducing' and actually reflect attempt to moderate behaviour through changing the accepted norms and guiding 'lifeworlds' (Habermas, 1987b, p. 367). The constitutive rule of Habermas concerns whether the steering media can be either amenable to "substantive justification" or can be only "legitimised through procedures" (Habermas, 1987b, p. 365). White (1988) summarises this situation as follows.

> [For regulative rule], since law is embedded in the lifeworlds context, it is more comprehensible to the average individual and must be defended by elites on material grounds. [For regulative rule], law becomes far less comprehensible and easier to defend purely on the grounds that it has been appropriately enacted by competent and responsible elites. (p. 115)

Broadbent et al. (1991, p. 7) suggest that officials or elites will direct all steering media. If these are understandable to "average individual", it will not need much defending by the elites and they are amenable to substantial justification. If these circumstances arise, the particular form of steering media will be following 'lifeworlds' demands. If the

particular legislation is far less comprehensible with more questions raised about the appropriateness of the elite to formulate the rules, Habermas believes these particular media have colonising potential.

Habermas (1979) commends that systems world is made up of the abstract systems that shape human interaction is controlled by rational scientific and technical decision using normative rules, procedures and structures. The defining feature of this growth of technical expertise and so much control, which is placing over the faiths of 'lifeworlds,' can be justified rationally. Habermas (1979) argues the exercise of power in this process limits free and open discussion necessary for human development. Therefore human beings have a 'practical interest' for mutual understanding and an 'liberating interest' in freeing from constrained imposed them by power structures that results human beings seeking processes of participatory democracy to control their own sincerity which could genuinely represent their own free-will (Wilson, 1997).

### 3.2.3 Human Cognitive Interests

Springing from 'lifeworlds,' Habermas sees three fundamental human interests arising from work and communicative interactions. It should be noted that this categorisation is seen as helpful in elucidating his recent work in arguing for a balancing on instrumental action with communicative action (Habermas, 1987b, 1984; Outwait, 1987). Thus human interests can be categorised into three areas - *technical, practical and emancipatory.*

The technical interest is based on empirical analytical knowledge, which is aimed at prediction and control of event. The technical knowledge is used to manipulate human knowledge (Habermas, 1973). The practical knowledge constitutes historical hermeneutic knowledge which is aimed at achieving inter subjective communicative (symbolic) understanding within an ethical and political dimension.

The technical and practical interests are organised as formal knowledge. The emancipatroy interest aimed at liberating from act of naturalistic interventions and constrains. The emanicpatory interests emanate from imbalance in social relation of power, domination and alienation and seek the realisation of autonomy and freedom from distorted influences such as distorted communication.

The emancipatory interests are concerned with the basic morale pursuit of human emancipation. As part of methodological approach, it criticises the power and ideology in existing social arrangements that distorts moral relations within social interactions, unnecessary and non-transparent constrains on human freedom and well being, the liberating interests. Habermas (1973, p. 22) explains this situation as the emanicipatory interests can develop to the degree to which the repressive force, in the form of negative exercise of power, presents itself present permanently in structures in distorted communications- that is to the extent that domination is institutionalised.

That knowledge and rationality guided by the technical and practical interests will locate reasons it self (Habermas, 1987b). Therefore, there is an internal demand for the conditions of free and open communication. Habermas (1987c) contends that an adequate epistemological understanding of the empirical-analytical sciences must include the existence of open community of self-critical inquires.

### 3.2.4 Human Conscious Rationalities

Habermas (1987b, 1987c, and 1984) provides a useful categorisation of instrumental, strategic and communicative rationality. He categorises human conscious rationality as instrumental, strategic, or communicative. If instrumental rationality, necessary for work, is not balanced by communicative rationality people are led into misguided strategic rationality to dominate and control people as if they were mere objects. As Habermas (1973) rather scathingly contends, under the pressure of unbalanced instrumental rationality:

> The hitherto undisputed attempts of the great theories to reflect on the complex of life as a whole is henceforth itself discredited as dogma . . . the spontaneity of hope, the act of taking a position, the experience of relevance or indifference, and above all the response to suffering and oppression, the desire for adult autonomy, the will to emancipation, and the happiness of discovering one's identity - all these are dismissed for all time from the obligating interest of reason. (pp. 262-3)

Habermas thus contends that a consciousness dominated by instrumental rationality reduces human reflection, hope, witness and self-discovery. An ideology of 'technocratic consciousness' becomes dominant which 'not only justifies a *particular class's* interest in domination and represses *another class's* partial need for emancipation, but affects the human race's emancipatory interest as such" (Habermas, 1987a, p. 111).

### 3.2.5 Human Actions

Habermas's (1987a, 1987b, 1987c, 1984) emphasis on communication was in response to a critique of the philosophy of positivism, which he understood as buttressing and reinforcing scientific and technocratic consciousness. For Habermas, the nineteenth and twentieth century's "preoccupation with science and, in philosophy, with an examination of its methodology, impaired the understanding of the 'meaning' and 'import' of knowledge" (Held, 1980, p. 300). In reinstating the importance of these notions, Habermas makes the fundamental distinction between instrumental, strategic and communicative actions.

#### 3.2.5.1 Instrumental Action

For Habermas (1987b, 1987c, 1984), instrumental action is behaviour which treats natural objects as instruments to achieve success by accomplishing set goals in the most efficient way. For example, the person who uses instrumental action expects to behave others according to his wishes. The objective of this action situation is to control and manipulate human behaviour in social situations for achieving rational goals that will serve the actor's self interest while ignoring the human qualities (Lyytinen et al., 1991; Lyytinen & Hirschheim, 1988). People who subject to the instrumental actions attempt to enact coherent meaning for the action and the action situation and will normally reflect upon the contextuality or appropriateness of the action. For instance, the person who receives order asks whether the person who has issued the order has an authority or knowledge to issue orders or actions (Ngwenyama & Lee, 1997).

### 3.2.5.2 Strategic Action

For Habermas (1987b, 1987c, 1984) strategic action is an improper use of instrumental action (purposive rational action) in human communication, which involves a person's desire for influencing and transforming the behaviour of others. People who use strategic action make use of best strategies to achieve their rational objectives for their self-interest or the organisation or the institution concern (Lyytinen et al., 1991; Lyytinen & Hirschheim, 1988).

People who are involved in strategic actions manipulate organisational processes, influence policies, and 'rules of the game' to their advantage (Ngwenyama & Lee, 1997). The type of rationality associated with this model is the "cognitive-instrumental" rationality of a subject capable of gaining knowledge about contingent environment and putting it to effective use in intelligently adapting to and manipulating that environment (Habermas, 1984, p. xi).

Strategic actions may be overt or hidden. The well-known example for strategic action is organisational politics. When actors are engaged in strategic actions they make use of their personal and other sources of power and status to manipulate the opponents. When a strategic action is issued as an order, the actor being an intelligent person who receives the order reflects on it claiming its contextual validity. Strategic actions deemed legitimate and valid when it confirms to organisational norms, policies, authority structures and the unwritten rules of the game. When it does not confirm, the person who is subject to the action can consider it 'dirty trick' (Ngwenyama & Lee, 1997).

### 3.2.5.3 Communicative Action

Communicative action is a system of reference that cannot be reduced to the framework of instrumental action (Habermas, 1987c, p. 137). When instrumental action is used to control nature without self-reflection, an unbalanced instrumental rationality can eventuate. Communicative action springs from communicative rationality. It is oriented to reaching understanding while being marked by openness of discussion (no hidden agendas), freedom to speak and be heard, and the reaching of consensus through the *validity* of the arguments (Habermas, 1987b, 1987c, 1984; Pusey, 1987). Reaching understanding is considered to be a process of reaching agreement among communicating participants that meets the conditions of rationally motivated agreement to the content of an utterance.

A communicatively achieved agreement has a rational basis; it can not impose by either party (Habermas, 1987b, pp. 286-7). The objectively obtained agreement by forcing participants or influencing opponents or use of violence is not counted as genuine agreement. Agreement reached on common conviction (i.e. recognition or rejection of speech acts of participants) can be used as rational reasons for potential decisions making. Communicative action takes place through language and sign systems in general (Lyytinen et al., 1991; Lyytinen & Hirschheim, 1988).

Communicative interaction is that type of structured human activity involving language and reflexivity necessarily within a moral framework (Held, 1980, p. 259). It embodies a moral concern for the rights of participants to remain free from coercive and distorting influences while participating in a discourse that aims to attain genuine

understanding and consensus (Pusey, 1987, p. 81). Communicative actions are drawn up from our shared lifeworlds. They are historically structured and only amenable to consciousness because it is ever 'behind our backs' (Pusey, 1987, p. 84).

For Habermas (1987b, 1987c, 1984) communicative action is inter-subjective and co-operative reflexivity in building mutual understanding and co-operation towards, that, which is true, free, just, and fair. It is the most comprehensively rational form of communication, which is oriented to reaching an understanding across all the three dimensions (objective, social and subjective) of the worldviews of 'lifeworlds.' The understanding is arrived based on the recognition of corresponding validity claims of comprehensibility, truth, truthfulness, and rightness . . . coming to an understanding about something in the world is the process of bringing about an agreement on the presupposed basis of validity claims that can be mutually recognised. Coming into a fully understanding of action situations delimit in the areas of incomprehension and misunderstanding, intentional and involuntary untruthfulness, concealed and open discord; and, . . . pre-existing or achieved consensus (Habermas, 1979, p. 3).

Social actors are engaged in communicative action, in every day activities, in social context and they communicate with each other about the state of affairs, decision taken, organisational events and the like. They use a common language and shared understanding from a background consensus pertaining to those interpretations taken for granted among participants (Habermas, 1979, p. 3). For example, in communicative situation when the listener or reader fails to understand the communicative acts of senders, the listener would reflect upon it and try to enact so coherent meaning for it. This process of enacting coherent meaning from the 'text' is a crucial reflection cycle in which the reader/listener test the validity claims of comprehensibility/intelligibility,

truth, truthfulness and legitimacy (rightness/appropriateness) associated with the type of communicative action (Ngwenyama & Lee, 1997). In ordinary, simple conversation these four claims are usually taken for granted, however they tend to be highly problematic when addressing complex social issues such as design ideals for information systems development (Klein & Hirschheim, 1996).

### 3.2.6 Universal Validity Claims

Habermas argues that linguistic meaning is constituted communicatively. In every utterance a speaker makes entails its own specific validity claims or assessment that is raised in speech-acts. With every utterance a speaker makes a *truth* claim relating to the objective world of states of affairs, *rightness* claim concerning the rightness, appropriateness, or legitimacy of his speech acts in relation to the social world of normatively regulated interpersonal relations (i.e. intersubjectivity). It includes truthfulness or *sincerity* claims relating to the subjective world of experiences to which the speaker has privilege access (i.e.. sincerity or authenticity in regard to the manifest expressions of the speaker's inner intentions and feelings in the subjective world (Habermas, 1984). Mingers (1995) summarised the validity claims of communicative actions as follows.

| Validity claim | Reference world | Purpose | Type of speech act | Forms of argument |
|---|---|---|---|---|
| Truth | Objective world -that which obtains ↑ (external nature) | Presentation of knowledge | Constative<br>- propositions<br>- explanations<br>- predictions | Theoretical discourse |
| Rightness (legitimacy) | Social world -normative relations and practice (society) | Establishment of social relations | Regulative<br>- promises<br>- orders<br>- requests | Practical discourse |
| Truthfulness (sincerity) | Subjective world -private experience ↑ (inner nature) | Expression of self | Expressive<br>- beliefs<br>- intensions<br>- desires | Therapeutic critique |
| Comprehensibility | Language | Understanding | | Explicative discourse |

*Figure 1*. The Validity Claims of Communicative Actions (after Habermas, 1984) (Adapted from Mingers, 1995, p. 298).

Habermas says they are universal formal features of linguistic communication. The validly that is claimed cannot be restricted to "validity for the speaker," or "validity for a specific group". Validity means validity for every subject capable of speech and action (1992, p. ix). In ordinary, simple conversation these claims are usually taken for granted, yet they tend to be highly problematic when addressing complex social issues such as designing ideals for information systems for a wider acceptance to interested parties (Klein & Hirschheim, 1996).

In social interaction situations, when doubt arises about the validity claims of any interaction, these validity claims can be contested, criticised, defended and revised in the hope of reaching to an understanding using reasons or grounds along to gain intersubjective recognition for the validity claims (Habermas, 1984). The social actor tests the validity claims of an issue(s), drawing upon knowledge from the social

context, the particular action situation itself, and the orientation of the other person whose action is being disputed. In this manner, by critically reflecting on the validly claims, the actor can free himself from false or unwarranted beliefs and assumptions about the action whilst redeeming the claims through personal reflection (Ngwenyama & Lee, 1997).

The task of the self-reflection is to achieve a new definition of the situation, which all participants can share. If the actor fails his attempt to free from the action situation, then communicative actions do not continue and the action is called into an open debate to regain the validity claims.

### 3.2.7 Ideal Speech Situation

In the context of "ordinary communication", questions are raised when the truth or correctness of background validity claims become disputed by speakers and when the mode of interaction of actors shift to discursive actions whilst testing every word that the speaker utters referring to the validity claims of communicative interactions (Ngwenyama & Lee, 1997). In the situation of discursive action, actor's agreement about a shared background is no longer taken for granted, but various assumptions concerning communication background are carefully examined, clarified and their validity tested. In this situation, legitimacy of moral value choice can be checked, or as Habermas puts it, the claims underlying such choices can be "redeemed". These principles relate to rational discourse.

In relation to information systems, a rational discourse can legitimise the selection of a design ideal because it assumes that the arguments of all interested parties are heard

and that the choice results in an informed consensus about the design ideal. It is also understood that the formal value choice is made by the force of better argument (Klein & Hirschheim, 1996). The ultimate idea of such discursive communication is to come into a common understanding through a critical debate while treating all the parties equally. Agreement is based on recognition of the corresponding validity claims of comprehensibility (uttering something understandable), truth (giving [the hearer] something to understand), truthfulness (making himself thereby understandable), and rightness (coming to an understanding with another person) (Habermas, 1987b, p. 120).

When actors take part in argumentation, they must assume that certain norms hold in order to ensure that arguments and discussions have a particular *form* inasmuch as the participants reciprocally assume the right to question the grounds and motives of those who affirm contrary positions to their own. In an argument situation, actors are allowed to express fully their opinion and must honour the outcome of open rational debate. The situation is defined as "ideal speech" (Kelin & Hirschheim, 1996), it constitutive of following rules. Klein and Hirschheim (1996) outline:

1. All potential participants in a rational discourse must have an equal opportunity to begin a discourse at any time and to continue it by making speeches and rebuttals and by questioning and answering. Habermas calls this an equal chance to use communicative speech acts.

2. For all participants there must be an equal opportunity to interpret, to assert, to recommend, to explain and to justify as well as question to give evidence for or against the validity claim of any of these forms of speech. The purpose of this condition is to assure that in the long run, no presupposition or opinion can escape from becoming the centre of discussion and criticism.

3. All participants are presumed to be equally able to express their attitudes, feelings, and intensions. These Habermas calls representative speech acts. They serve as a guarantor against self-deceit, illusions, and insincerity of members among the speech community towards one another.

4. All participants are presumed to be equally able to give and refuse orders, to permit and prohibit, to promise or ask for promises, to account and ask for accounting, etc. Habermas refers to these as regulative speech acts. They guarantee that the formal chance of equal distribution of opportunity to begin or continue a discourse is realised. (Habermas, 1973, pp. 255-6)

The debate situation is needed to occur in perfectly symmetrical and reciprocal relationships between participants who neither dominate nor deceive one another. In such a situation, Habermas (1975) writes:

> The bracketed validity claims of assertions, recommendations, or warnings are the exclusive object of discussion; . . . participants, themes, and contributions are not restricted except with reference to the goal of testing the validity claims in question; . . . no force except that of the better argument is exercised; and . . . as a result, all motives except that of the cooperative search for truth are excluded. (pp. 107-8)

In an ideal speech situation, all participants in the debate must have an ambition to achieve a rationally valid agreement and such agreement is arrived only through the consensus. This is a form of democratic political decision-making in which all decisions are made equally, i.e. rationalising decisions is arrived at through discussion free from domination (Habermas, 1987b, pp. 7-10). Habermas further says that "we need to bring both attitudes of human actions and motives to a critical discussion to disclose the mix of basic methodological assumptions and action-orienting self-understanding" (self-understanding means a person's or group's own interpretation of its motives, norms, and goals) (Habermas, 1987b, p. 10). This is the area where inter-subjectively shared background knowledge of participants is critically examined.

In this discussion, the consensus is arrived through shared knowledge and mutual trust between participants defining the formal properties of the specific mode and level of discourse but not by the domination or exercise of power over one another (McCarthy,

1978, p. 291). Habermas concludes "we can be sure that consensus about a recommendation to accept a norm . . . expresses a 'rational will' in relation to a common interest ascertained without deception. The interest is common because the constraint free-consensus permits only what all can want (Habermas, 1975, p. 108

### 3.2.7.1 Breakdown of Communication

The problems arise when distortions resulting from selfish motives of participants and breakdowns of communication occur. Breakdowns of communications can occur due to concealed strategic action of a participant who is so assented to instrumental success that manipulation occurs. On the other hand, not appreciating the unconsciously understood lifeworlds, can also systematically distort reaching an understanding among participants in communicative interaction (Habermas, 1987b). Breakdown in communication can also occur when an actor in communication fails to observe the norms or fails to apprehend the actions of others arising from false, incomplete, insincere or unwarranted acts. Habermas's systematically distorted communication within a framework of communicative action can be seen in figure 2.

In social situations of concealed strategic action, at least one of the participants behaves with an orientation to success manipulating others. In unconscious deception, at least one of the participants is deceiving himself about the fact that he is acting with an attitude oriented to instrumental success and only keeping up the appearance of communicative action (Habermas, 1984, p. 332).

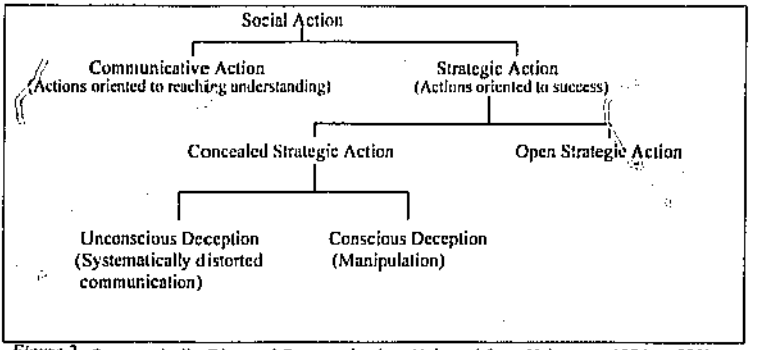


*Figure 2.* Systematically Distorted Communication (Adopted from Habermas, 1984, p. 333).

Habermas (1979) says that even in the most distorted of communicative situations there remains something of the basic impulse behind all utterance: "the intention of communicating a true proposition . . . so that the hearer can share the knowledge of the speaker" (p. 2). Habermas says the ideal speech situation could be approximated if we can eliminate coercive intentions such as deception or manipulation through discourse.

Habermas (1984, p. xi) asserts that "If we assume that the human species maintains itself through the socially co-ordinated activities of its members and that this co-ordination is established through communication-and in certain spheres of life, through communication aimed at reaching agreement-then the reproduction of the species *also* requires satisfying the conditions of a rationality inherent in communication".

### 3.2.8 Rational Society through Communicative Interaction

As I understand it, Habermas's rationalisation of society through communicative interaction in the sphere of 'lifeworlds' context is schematically depicted in figure 3. Habermas argues that communicative rationality can only be achieved through

communicative interaction and communicative action that is genuinely oriented to reaching an understanding as a process of shared learning (see figure 3). This can be achieved through discussions oriented towards challenging systems rationalisation through technocratic consciousness and lifeworld understanding of symbolic structures of communication can be expressed through ordinary language arising from hermeneutic interpretation of the subjective worldview of participants. In other words, in these discussions, intersubjectively shared knowledge of participants is sought based on "rational" arguments in a distortion free-environment (middle box in figure 3).

In this discussion have a particular form inasmuch as the participants reciprocally assume the right to question the grounds and motives of those who affirm contrary positions to their own. Moreover, the discussion and the level of justification become reflective. The interaction results in an emergence of communicative rationality (two solid arrows from the middle box to systems and lifeworlds in figure 3); the consensus expresses a discursively formed "rational will" for all the participants who have resisted distorting factors such as technocratic consciousness, manipulation, deliberation and domination. That communicative rationality can only arise in the 'lifeworlds as an achievement of communicative reason.

The communicative reason might eventually, lead to more "rational structures" as alternative to the existing "structures of domination" and to changed organisational principles that would be based on the interests of all and so deserve the genuine legitimacy of consensual agreement reached at the discussion.

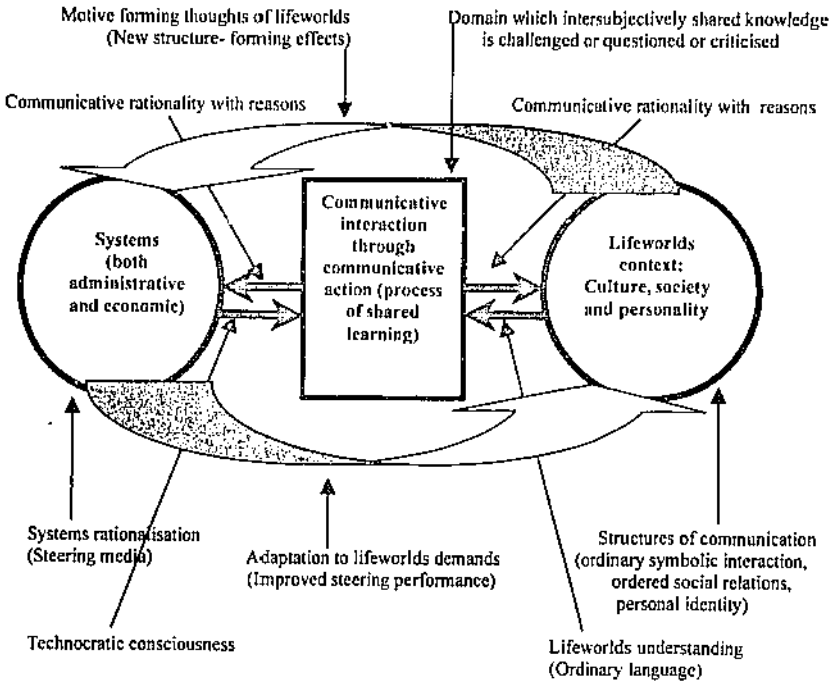


*Figure* 3. Habermas's Theory of Societal Development through Communicative Interaction (Adopted from Pusey, 1987)

Moreover, the newly emerged systems structures have to be re-appropriated through communicative action into the 'lifeworlds.' In this manner, the problems between the 'lifeworlds' and the systems will be resolved through improved adaptation to 'lifeworlds' demands that reduce distorting influence such as technocratic consciousness, deception, domination, illusions, and deliberation (the big arrow from systems to lifeworlds in figure 3).

The communicative rationality that surfaces from 'lifeworld' understanding may, through new forms of communicative action, produce new "communicatively achieved

agreements" with new "structure-forming effects" with "motive-forming thought" in 'lifeworlds' contexts bringing system and lifeworlds into balance (the big arrow from 'lifeworlds' to systems in figure 3) (Pusey, 1987).

Instrumental and strategic actions usually from a technocratic consciousness exerted in the current practice of information systems development could be counterfactually restated as communicative rationality, a balanced state of rationality that takes into consideration the better arguments and worldview understanding of participants. This communicative rationality is achieved through an increased understanding and knowledge among the participants in an open discussion as a process of shared learning.

The "truth" generated in this manner about the systems development process is the "true-knowledge" where participants could free (emancipation) themselves from all forms of constrains such as inflexible bureaucracy, purposive rational actions, distorted communication, inner and outer conscious or unconscious distortions, delusion, illegitimate use of power and domination.

In an open, distortion-free communicative interactions people develop on clarity of self-reflection whist developing a mutual understanding and trust of each other. This situation could be defined as a state of collective autonomy in which the participants have the power to determine rationally and freely the nature and directions of their collective existence (Fay, 1987, p. 205). Consistent with these arguments, Fay outlines three basic claims about human existence that:

(a) humans are typically unfree, dominated by conditions which they neither understand nor control, a situation which results in their leading unsatisfactory lives

(b) human life need not be this way

(c) An increase in knowledge is the way the oppressed can liberate them and thereby better their lot (Fay, 1987, p. 203).

Habermas holds that an adequate theory of society must integrate philosophy and empirical social science to alleviate social problems (Habermas 1984, p. ix). Such a theory which aims and guides improvement of human conditions is important for researchers as they have vested interest in providing solid theoretical foundations for societies including the areas of management and use of information technologies in organisations (Zmub, 1995).

### 3.3 Conclusion

In his theory of communicative action, Habermas explains a rational approach to human communication through communicative interaction. He introduces communicative rationality with communicative reasons as a balanced approach that takes into consideration all the major forms of human interests in human communication. He discusses both the problems of technocratic consensus and unconsciously understood lifeworlds in communicative interactions.

Habermas's theoretical framework helps solve the problems between technocratic consensus and 'lifeworlds' in a manner rich in consequence where all the participants in

communicative interactions free themselves through critical reflection and understanding.

Habermas's theory of communicative action focuses on freeing participants through critical reflection of conditions arising from domination, misapplied power, alienation, bureaucracy, distortion in communication and other unequitable situations within the social contexts associated with systems development process. His approach promotes an understanding of the systems development process within a distortion free environment as a shared learning practice, whose aim is to design a system based on the genuine consensus of the demands of all the participants, in the activities of development through communicative action and interaction.

Thus the theoretical frame work outlined in this chapter, and the social context of Sri Lanka explained in the chapter four, iterate with empirical data developed into an in-depth cas at NCCL in chapter six.

# CHAPTER FOUR

## SOCIAL CONTEXT: SOCIO-CULTURAL, ECONOMIC AND POLITICAL ENVIRONMENTS

### 4.0 Introduction

This chapter explores the social context for information systems development in Sri Lanka in the context of developing countries. This chapter examines the role of information technology and information systems in conjunction with information systems development and practice in developing countries. This is followed with a critical examination of information systems research and practice in developing countries, accounts of socio-economic, political environments and cultural contexts for information systems development in Sri Lanka, with a conclusion about modernisation of Sri Lanka through information technology and information systems.

### 4.1 Role of Information Technology and Information Systems

Advances in information technology have played a prominent role in improving organisational effectiveness (Robey & Azevedo, 1994). In particular, information systems in organisations have come to be seen as strategic resources, which provide potential competitive advantages (Laudon & Laudon, 1998; Feeny & Willcocks, 1998; Earl & Sampler, 1998; DiRomualdo & Gurbaxani, 1998; Ross, Beath & Goodhue, 1996; Rockrt, Earl & Ross, 1996; Porter, 1985; Porter & Millar, 1985).

Information systems can deliver better quality products, enhanced control, reduced costs, and increased flexibility (Odedra-Straub, 1996). They can be used as a strategic

weapon to defeat or frustrate competition (see Laudon & Laudon, 1998; Applegate, Cash & Mills, 1988). Organisations can better survive using information systems, and hopefully thrive in an increasingly competitive environment (Doherty & King, 1998).

Information systems have profound effects on organisational structures, processes, culture, and working procedures (Doherty & King, 1998). Moreover, these information systems have an impact on most aspects of human lives, especially in economic activities, education, entertainment and communication.

The US Labour Department announced in early December 1999, that productivity has risen by 4.9% in the third quarter of 1999, its biggest gain in almost seven years (cited in Splettstoesser & Kimaro, 2000). Consequently, many businesses tend to view information systems development as shaping their future (Keen, 1991). Additionally, prospects of using new information systems techniques to achieve a greater organisational effectiveness have impacts on quality of work life and general expectations of socio-economic development (Davison, Vogel, Harris & Jones, 2000; Robey & Azevedo, 1994).

Many nations all over the world, particularly in Western societies have adopted information technology for socio-economic development in their countries (Corea, 2000). Application of information technology is considered as one of the most significant forces of modernisation (Avgerou, 2000). Computer-mediated communication networks, such as the Internet and World Wide Web, offer tantalising possibilities of global communications (Ess & Sudweeks, 2000).

Information technology has also been inextricably linked with economic prosperity and power, exerting revolutionary impact on the way that the world does business and the way in which its citizens communicate (Davision et al., 2000). Individuals and governments are using information technology to gain political and economic advantage (Hawkridge, 1991). It has the potential to narrow the gap between the advanced industrial nations and those developing, in that developing countries could leapfrog developmental stages (Odedra-Straub, 1996).

### 4.1.1 Information Technology and Information Systems in Developing Countries

In the current discourse on national development, there is assertion that policy makers and managers in developing countries should focus on achieving pervasive information and communication technologies so that societal benefits will permeate to equivalent degrees of saturation as in developed countries (see Talero & Gaudette, 1995). A belief in the direct social and economic value of computerisation (Kling, 1996) presumably informs such counsel.

Most developing countries exploit the potential benefits of use of information technology for improved results in productivity, organisational effectiveness, and business competitiveness (Avgerou, 1996). Researchers and practitioners both in developed and developing countries assume that the use of information technology together with information systems lead to improved management decision making in productivity, effectiveness, and competitiveness because information available to decision-makers reduce uncertainties that confront managers (Spleltstoesser & Kimaro, 2000). In developed countries, usually Western societies, the development and use of

information systems is aligned with their cultures, value systems, norms, capacities to afford the technology, and the market dynamics of individual economies (Corea, 2000).

Policy makers and managers in developing countries focus on achieving socio-economic development in their countries using information technology applications (Bhatnagar, 2000; Waema, 1996; Avgerou, 1996).

Information technology is recognised as a means for offering more efficient socio-economic development in the least developed countries (Meso & Duncan, 2000). Both information technology and information systems are often identified as the key to the re-invention of the governments in developing countries in a free market, following failures in the state bureaucratic models of socio-economic development (Samaranayaka, 1999). For example, information technology can facilitate economic development through availing information to make choice of development priorities easier and to plan and manage development activities better.

Information and communication technologies are considered as new possibilities and enabling technologies to attack problems of rural poverty, inequality, and environmental degradation (Human Development Report, 2001; Bhatnagar, 2000). It is believed that development of information systems such as document management, electronic data interchange, group ware for computer supported group work, and Internet and intranets in these countries, can lead to improve service quality. They make planning more effective, and thus become a means of empowering citizens (Bhatnagar, 2000; Kiangi, 1996; Traunmuller & Lenk, 1996) and "informate" employees to play a more substantial role in their organisations (Zuboff, 1988).

### 4.1.2 Problems of Information Technology and Information Systems Adoption in Developing Countries

In contrast to the developed countries that have been steadily capitalising on the rapid pace of information and communication technologies, a large number of developing countries, particularly low-income countries have failed in the adaptation of these technologies. This is mainly due to prevalent constraints in cultural, socio-economic, and political contexts (Waema, 1996; Avgerou & Cornford, 1995).

Developing countries may be seen to be missing out on the much vaunted potential of computer technologies to promote product and service quality (Davenport, 1993), and to permit implication in a global economy increasingly penetrated by technology based information flow (Odedra-Straub, 1996). Moreover, it is a well-known fact that information systems implementation often creates states of flux which challenge innate and established ways of functioning in organisations in developing countries (Powell & DiMaggio, 1991).

One of the most important problems of information technology, information systems development, and implementation in developing countries is the difference to the dominant Western culture (Thanasankit & Corbitt, 2000; Jayasuriya, 1999; Madon, 1992;Walsham, Symons & Waema, 1990). For example, culturally formed structural human characteristics can inhibit information systems development and implementation efforts in most of the developing countries. Avgerou and Cornford (1995) note that various structural and behavioural obstacles restrain many of the information systems development and implementations projects in developing countries.

Common obstacles to be found in developing countries are official restrictions for security reasons as well as the rigidity and compartmentalisation of government bureaucracies, which consider certain types of information as their property (Fox, 1991). Azad and Erdem (1998) note that in many cultures, information is still equated with power, which restricts personnel willingness to share data and information through integrated databases and systems. Usually databases are managed on the basis of information being secret rather than a valuable source of information that could be readily accessible (Sofield, 2000).

Power and politics has been widely discussed in information systems literature (see Standing, 1998). Some examples are:

1. The politics of organisational change related to information systems (Marks & Pfeffer, 1983)
2. Power in the decision and implementation of accounting and control systems (Marks, 1983)
3. Post implementation politics related to material requirement planning systems (Kling & Iacono, 1984)
4. The type of power that information systems professionals exercise over users (Marks & Bjorn-Andersen, 1987)
5. Political activities and the use of power in the formulation and implementation of information systems (Waema & Walsham, 1990)
6. Use of computerised information systems to serve the interests of those in power (Danzinger, Dutton, Kling & Kraemer, 1982) and as a tool that changes the power balance (Barley, 1986)
7. Colonisation of 'lifeworlds' in organisations through information systems (Broadbent et al., 1991)

8. Realisation of hidden agendas of managers in organisation through the development of information systems (Myers & Young, 1997).

Similarly, a case study of implementing a computerised rural information systems project in India reveals that information systems served to reinforce the cultural context maintaining the power of the higher levels over the lower levels of administration (Madon, 1992). This case study reveals that information systems by itself cannot force the abandoning of long established ways of administration (Jayasuriya, 1999). To successfully implement a computerised system, the implementors identified that a key factor was the need to reinforce the organisational (administrative) structure whereby issues of power and territory had to be taken into account (Foltz, 1993).

The appropriateness of the technology and the creation of an environment favourable to the introduction of technology were considered critical in Foltz's (1993) study. Hofstede (1991) identifies, in most of the developing countries, present greater power dependence by subordinates on bosses (a greater power distance) and a higher degree of collectivism as opposed to individualism than in the developed countries. People are mainly unwilling to take risk in these countries and thus uncertainty-avoidance behaviour is predominant (Hofstede, 1980).

Compared to developed countries, communication via information systems and language differences can also trigger some information systems development and implementation failures in most of the developing countries (De Boer & Walbeek, 1999; Kirlidog, 1996). The majority of managers in developing countries have paternalistic and authoritarian attitudes (Jaeger & Kanungo, 1990). Consequently

information flows are mainly from top to bottom in the form of directions and commands (Kirlidog, 1996).

Most developing countries have the difficult task of internalising the procedures and products of alien cultures. Perhaps the most important realisation is that technology is *not* culturally neutral, which points to the importance of the social, cultural, economic, and political context of technologies (Castells, 1996).

Although the value of information technology infrastructure in business has been well recognised (see Brancheau, Janz & Wetherbe, 1996; Broadbent, Weill, O'Brien & Neo, 1996; Duncan 1995), many developing countries are disadvantaged by lack of advanced technology such as telecommunication infrastructures (Kirlidog, 1996). Additionally, developing countries are characterised by shortages of managerial skills, lack of computer knowledge, fear to use modern technologies, socio-economic and political instabilities, economic depression, low per capita income, lack of development policies, and persistence of market failures (Davison et al., 2000; Palvia, Palvia & Zigly, 1992; Hoselitz, 1964).

### 4.2 Information Systems Research and Practice in Developing Countries

Before examining the information systems research environments of developing countries it is important to explain the meaning given to the term "developing countries" for the purpose of this research, as it is able to be defined in a variety of different ways. The countries referred to here are those in the so-called Third World.

The Third World refers to countries that do not belong to the Western world centred on the US (Perera, 1989, p. 141). Some writers even distinguish a fourth world composed of the poorest or least developed countries of the world (see Meso & Duncan, 2000; Palvia & Palvia, 1996).

An examination of information systems development practice of most developing countries reveals that they have had little chance to evolve information systems practices, which would truly reflect the local needs and circumstances. In many developing countries, information systems development practice have operated under the rubric of scientific and economic reasoning, that forms the foundation of Western modernity (Avgerou, 2000; Thanasankit & Corbitt, 2000; Avgerou & Cornford, 1995). These are characterised by a dominant positivist approach, which itself is based on purposive-rational economic rationalities in social situations (Habermas, 1987a, 1987b, 1987c).

The important assumption, made both in the Western and in the developing countries, is that the positivist approach used in developed countries is appropriate for developing countries (Williams and Standing, 1994; Madon, 1994). This assumption is associated with the belief that the human condition can be improved by reason alone (Touraine, 1995). This assumption tends to ignore or not recognise the idiosyncrasies of organisations in developing countries with their own socio-culture and economic and political environments (Jayasuriya, 1999).

Avgerou (2000) notes that many of the widely known problems faced in developing countries are constituted within the techno-economic and scientific rationality of development which stemmed from the Western societies' experience of modernity.

This techno-economic and scientifically rationalistic concepts dominate over 'lifeworlds' in developing countries (Tsoukalas, 1989). For example, the adaptation of a computer system by the State Bank of India, along with the packaged banking software proved not to be suitable because banking practice in India is organised on a "social responsibility" ethos, quite different from the Western modernisation concepts. The package has remained largely unutilised (Banerjee, 1981).

In Sri Lanka, this same principle was evidenced in the demise of database development effort in a Department of Management Studies in a University (Williams & Gunatunge, 2000b). More generally, certain indigenous managers in organisations in Sri Lanka tend to perceive socio-culture, beliefs systems, and social values as important determinants of success in organisations. However, these values are often suppressed by the purposive rationality of organisations (Gunatunge & Jayeratne, 1992; Gunatunge, 1991). Often Indigenous managers tacitly accommodate certain socio-cultural 'lifeworlds', values, beliefs, and myths in solving problems, which has serious ramifications for information systems development and practice in organisations in Sri Lanka (Gunatunge, 1996).

The positivist approach developed for information systems in the West and its adaptation in developing countries is based on *priori* assumptions about the research enterprise, which do not take into account peoples' behaviour within socio-cultural and 'lifeworlds' contexts. For example, although several models of national culture are suggested in the literature (see Schwartz, 1994, 1992; Hofstede, 1991, 1980; Schwartz & Bilsky, 1987; Glenn & Glenn, 1981; Rokeach, 1973; Kluckhohn & Strodtbeck, 1961; Parsons & Shils, 1951), they are overly structural and suggest only narrowly prescriptive constructs to study culture (Thanasanki & Corbitt, 2000).

Most of the culture-based studies in management and information systems research conducted in developing countries adopt Hofstede's (1991, 1980) four-dimensions framework (i.e. power distance, uncertainty avoidance, individualism/collectivism, and masculinity versus femininity). The popularity of Hofstede model comes from its large sample and use of empirical data to demonstrate cultural differences. Researchers who use Hofstede's framework accept the results of the research on face value without a critical reflection of their findings. These researchers tend to become 'jailed' within Hofstede's priori framework, which is subject to little or no critical reflection.

Several researchers recognise Hofstede's model as an insufficient framework to study all aspects of cultural differences in developing countries (Wickramasinghe & Hooper, 2000; Rahamati, 2000; Thanasankit, 1999a; Shore & Venkatachalam, 1996). Examples of information systems research conducted using Hofstede's framework can be found in Rahamati (2000), Katz and Townsend (2000), Shane (1994), Morris, Davis and Allen (1994), Ueno and Sekran (1992), Rodriguez (1991), Kedia and Bhagat (1988), Kogut and Singh (1988), Tricker (1988), and Sekaran and Snodgrass (1986).

Within Hofstede's framework, important 'lifeworld' understanding tend to be ignored in an institutionalistic fashion (Habermas, 1987b), resulting in information systems failure and poor political decision-making (Thanasankit, 1999a, Shore & Venkatachalam, 1996; Randall, Hughes & Shapiro, 1994; Luff, Jirotka, Heath & Greatbatch, 1993). Alternative ways of perceiving the value of human innovation often manifested in the social context of developing countries are poorly understood by the researchers. Newly arising situations for the researcher, especially in the state and organisational situations are often poorly understood in the context of existing

conditions and value systems in the semantic dimension. This disorientation erodes continuity of tradition and coherence of knowledge, which leads to a breakdown of management and employee relations in organisations (Habermas, 1987b).

Researchers who adopt Hofstede's framework ignore meanings of subjects, not captured within their models, and often tend to view such information as irrational and unimportant material. Western scientists and experts regard such understanding as methodologically questionable or at best of merely localised importance (Brodnig & Schonberger, 2000), or implicit and *terra incognita* (Ngwenyama & Klein, 1994), or irrational (Avgerou, 2000). The underlying and deep problems of developing countries as a result of Western modernisation through information systems largely fails to understand, capture, and explain using Hofstede's framework.

In many developing countries, organisational adoption of techno-scientific and economic rationalities of technologies has often been stifled by their perceived incompatibility with traditional value systems, belief systems, and cultural practice (Brodnig & Schonberger, 2000). This incompatibility can lead both management and employees to a loss of meaning, anomie, alienation, and a loss of cultural identity (Habermas, 1987b, 1984). More importantly, socio-cultural 'lifeworlds' are often suppressed especially those appropriate for industrial production using information systems in modernity (Peter, 2000). Above all purposive rational economic and administrative action have become independent of their moral foundations (Habermas, 1984).

This incompatibility, between Western techno-scientific and economic rationality and socio-cultural lifeworlds and their socio-economic and political contexts in developing

countries, plague many information systems development and implementation projects (Brodnig & Schonberger, 2000; Avgerou, 2000; De Boer & Walbeek, 1999; Jayasuriya, 1999; Waema, 1996; Odedra-Straub, 1996; Avgerou & Comford, 1995). Many of the failed information systems projects are constituted within the techno-scientific and economic rationality of development and knowledge, which stemmed from Western societies' experience of modernity (De Boer & Walbeek, 1999).

In the context of developing countries, the techno-economic rationality of Western modernity which is instrumental in narrowly defining a series of problems and determining their solutions, proves to be unsuccessful in streamlining people's behaviour (Avgerou, 2000). Real changes in social systems such as information systems development need to spring from social context and historical experiences in developing countries (Avgerou, 2000; Jayasuriya, 1999).

Korpela, Soriyan, Olufokunbi and Mursu (1998) suggest that information systems development must be aligned with national cultures and local practice. Another study of Palvia and Hunter (1996) suggest that promoting one methodology or a single technique for development of information systems, within multinational organisations operating in developing countries, is not necessarily a good idea due to culture differences between headquarters and branches. Specifically, information-sharing systems are not generalisable or transported across borders (Ein-Dor, Segev & Orgard, 1993). Socio-economic and political issues in a developing country are important and can decidedly influence the development and use of information systems (Waema, 1996; Walsham, 1992), and effective management and information systems development require creativity, largely driven, by the interests of an organisation's participants (Ciborra, 1991).

Korpela el al. (1998) suggest that the 'nuts and bolts' of information systems are likely to be the same in industrialised and developing countries, but the users and preconditions differ. The information systems development methods and methodologies need to be adjusted from country to country to take the socio-economic and political differences into account (p. 276), because every problem situation in which a participant in systems development engages is situated within a social context.

Such innovative ideas compelled information systems researchers to explore alternative approaches to the dominant positivist approach for information systems development in developing countries to suit the needs of these countries (Thanasankit & Corbitt, 2000). Information systems must be developed with an understanding of local factors (Barker, 1993), because culture, value systems, beliefs, myth and so on are unseen, and implicit in 'lifeworlds' understandings. They often come most dramatically to the surface when change at a technical or social level are suggested or implemented (Laughlin, 1987).

### 4.3 Social Context in Sri Lanka

Sri Lanka is an island in the Indian Ocean. It was ruled by Sinhalese Kings for more than two thousands years, followed by 500 years of Portuguese, Dutch, and British colonialism. Sri Lanka (then Ceylon) won independence from the British in 1948.

Presently, the country is a democratic socialist republic with an executive presidency and Westminster-type Parliament. Since independence, two major political parties governed the country: United National Party (UNP) (regarded as the most right-centred party) and the Sri Lanka Freedom Party (SLFP) (regarded as the most left-centred

party). Additionally, there are about twenty-five minor political parties currently in operation in the country. Ruling power of the country has shifted between the two main political parties with the introduction of remarkable changes in the sphere of state affairs since independence. However, revolutionary social and economic changes were brought about due to the 1956 and 1977 elections.

In 1956, the People's United Front (PUF), a coalition of the SLFP, formed a government under the leadership of S.W.R.D. Bandaranayaka. Their election victory unleashed new forces hitherto held in check by a colonial-style bureaucracy operating within relatively detached political processes (Wilson, 1977). The PUF fought for social reforms to restore age-old cultural, religious, economic, and social values in Sri Lanka (Yodhasinghe, 2000). It broke the prevailing laissez-faire state economic doctrine and led to Sri Lanka becoming a mixed economy with an emphasis on state-controlled sectors (Wickramasingher & Hopper, 2000).

In 1977, UNP, the main right-centred political party won the election on a manifesto committed to the liberalisation policies of its leader, J.R. Jayewardena. They introduced major changes for monetary and fiscal policies, science and technology, exchange rates, trade and balance of payment policies, and the privatisation of the public enterprises (Abeysekara, 1984). These reforms remarkably changed the socio-economic life in Sri Lanka (Indraratna, 1992).

Sri Lanka is presently a plural, multi-cultural society with a persistent caste system (Samaraweera, 1977). The population is about 18.8 million. There are three main ethnic groups. (Sinhalese 74%, Tamils 18.1%, Moors 7.1%) Sinhala and Tamil languages are used for official purposes whilst English is considered as a link language (Gunasekara,

1999). Although Sinhala and Tamil languages are proclaimed as official languages, most of the higher rank officials in the government organisations and the majority of employees in the private sector organisations (not privatised) use English in all forms of communication.

The majority of Sinhalese follow Buddhism (69.3%), but other religions such as Hinduism (15.5%), Muslim (7.5%), and Christian (7.6%) also receive an equal recognition. Per capita income in Sri Lanaka is $823 per annum while inflation remains at a rate of 7.3%. The unemployment rate is 10.4 % of the labour force but the literacy rate remains at 91.8%, the second highest in South Asia region. Economic growth rate is 4.7% (Central Bank of Sri Lanka, 1998). About 1.2 million families, receive (about US$ 10 per month) subsidiary benefits from the major welfare program- "Samurdi"- launched by the government (Ratnayake, 1999).

The Sinhalese and Tamils claim distinct ethnic identities with respect to their history, language, and religion. For over two decades the struggle of 'Tamil Tigers' for a separate state drained state resources (i.e. 26% of GDP in 1998) and constrained development. The war between official troops of the government and Tamil Tigers killed about 90,000 persons including innocent civilians and the war still continues. The efforts of both present and previous governments to arrive at a politically negotiated solution with the Tamil Tigers have failed up till now, because the Tamil Tigers renounced discussions with the government. Mediation from foreign governments such as from Norway, to bring these parties together has been so far failed. Moreover, normal life in major cities such as Colombo is at a risk due to unexpected attacks such as suicide bombers from the Tamil Tigers.

The economy is largely agricultural (84%), but current development policies continue to emphasise markets and industrialisation (Indrarathna, 1992). Sri Lanka is located physically and culturally in South Asia but, being a trading colony, it has diverse languages, literature, technology, arts and crafts, customs and beliefs (Peris, 1977).

Colonialism introduced urbanisation, but Sri Lanka culture is still largely village oriented, traditional, ethnocentric, and rooted in the institution of Kingship (Wriggins, 1960). The later began in 543 B.C. with the first King Vijaya and ceased when Britain annexed the last Kingdom in 1815. The Kingship institution permeated Sri Lanka society (Kapferer, 1988), containing three elements central to Sri Lanka traditional culture These elements were an agricultural economy, a caste system, and a Buddhist-Sinhalese ideology (Paranavithana, 1961).

An effective agricultural economy underpinned the emergence of Sri Lanka's institutions (Paranavithana, 1961). Villages emerged alongside rivers and artificial reservoirs. Land and water were the major forces used in agricultural production. The agricultural economy was normally self-sufficient (Adagama, 1997). The role of Kings was to maintain this self-sufficiency (Nicholas & Paranavithana, 1961). As the owner and controller of land and water, the King was responsible for efficiently providing both for agricultural development. The King financed this through taxes on lands and water, and was entitled to the free labour of the subjects. The King's powers operated through traditions and customs, which entailed considerable ceremony (Silva, 2000; Moore, 1985).

Practice and beliefs associated with Kingship, which are family based and involve relations between land, landowners, and farmers, continue today in agricultural villages.

In Weberian (1947) terms they were basically family-based economic structures of traditional societies. Land is a scarce resource with ownership concentrated amongst aristocratic families, Buddhist temples, and some government servants. Owners cultivate their fields for their own profits: tenant farmers working on a share-cropping basis cultivate others. All use traditional farming operates with simple instruments and cultivation involves all family members. Yields depend upon the quality of soil and seeds, rainfall, and the degree of protection of crops from animals. Farmers usually organise their economic activities around continuing traditional rituals deemed crucial to villages' every-day life. Villagers are reluctant to change their every-day life with the change of modern technologies (Wickramasinghe & Hopper, 2000).

Cultural practice and customs such as starting the season at auspicious times, praying for better harvests, respecting tools, ceremonially celebrating the harvest, are still prevalent. There was little separation between those that worked and those who owned capital although some aristocrats paraded their wealth. The harvest was mainly for farmers' own consumption with any excess being exchanged with neighbours in a traditional barter system (Wickramasinghe & Hopper, 2000).

The agricultural production process was not subject to particular control or the exercise of political power relations with ordinary villagers. Communication was embedded in cultural values, customs and heritages. Villagers worked on mutual understanding with each other. Cultural collusion and integrity was deemed to have been maintained through consensus, which prevailed in every day affairs. Villages paid little attention to market concentrations of with other domestic affairs being deemed to be more crucial (Wickramasinghe & Hopper, 2000).

Women in these social units were expected to be involved in child caring, cooking, helping on the farm, and above all, respecting and helping their husband with rice cultivation. Villagers were tied in to extended family relations. The father, being the head of an extended family, had the responsibility of caring, feeding and bettering the family. The father's decisions were hardly challenged by the family. Day to day life proceeded on mutual understanding and consensual manner, which still remains part of the culture.

Every one understood the ordinary language used for communication. The whole family worked together to raise money if the family wanted additional income to maintain their lives. Thus day-to-day life was embedded in work values: agriculture, family relationships, and Buddhist cultural ceremonies, as it had been for centuries. Industrial activities, in so far that they existed, were married to the traditional culture - the most prevalent practice was the reciprocal understanding of actions by each other. All the interactions in the agricultural society were enacted within the context of a commonly experienced 'lifeworlds.'

Social relations in the village were centred on feudal cast-based family structures that originally classified people according to the service rendered to the King. The King's extended family constituted the highest caste (Geiger, 1960; Paranavithana, 1961); political and religious counsellors and astrologers formed the second rank; and other ranks were based on people's crafts and occupations such as cultivation, smiths, potters, barbers, tailors, drummers, and washerwomen. Role differentiation of these people was not based on specialised skills. Single households of a man, wife, and children were the basic socio-economic units within extended family relations that included grand parents, cousins, uncles, nephews, and nieces. The eldest male was predominantly a decision-

maker on economic issues. The family unit promoted social unity and individual esteem, as one's social status was largely derived from one's caste identity rather than individual achievements. This system of social structure was maintained through marriage, occupation, ceremonies, and social gatherings (Wickramasinghe & Hopper, 2000).

Supporting this social structure was a well understood system of status and mutual obligations between families and neighbours governed by trust relationships. For example, employees in a paddy field were normally family members, though in the seed showing and harvesting seasons neighbours help on a basis of *aththam*. This is where neighbours worked for other farmers in a reciprocal relationship without any wage negotiations. On the workdays in question the farmer provides outside employees with sufficient food and drink. Women were busy serving, helped by their children, grandparents, and relatives. Each working session was a cultural ceremony (Ariyaratne, 1999).

Unlike capitalist industrial organisations, social relations were formed not for extracting surplus labour for realising the objectives of owners in a detached labour relation and political process, but to maintain traditional ways of living (Hindess & Hirst, 1977). The village was, and still largely is, a social organisation linked by reciprocal relationships.

People were conscious of one another's lives. Villagers take pains to meet requests to participate in activities ranging from farming to cultural ceremonies. Unlike a capitalist society, such human actions (communicative actions in Habermas's terms) are perceived as being part of village life rather than constituting distinct production relationships, economic calculation, price payments and wages. Indeed, unlike a capitalist society,

work and leisure, work and family, and economic and social relations were not distinctly separated but interwoven in day-to-day life in a system of reciprocal relationships (Wickramasinghe & Hopper, 2000).

The ancient village culture had been based on deeply rooted value systems (Silva, 2000). The political problem-solving unit at village level was called a "Village Council", the purpose of which was to resolve day-to-day village problems such as boundary disputes of land plots and other forms of disputes of villagers in the village. The functions, responsibilities and the ways of solving problems by the Village Council were not documented but governed by norms embedded in the culture.

The collectively available situation interpretations were stored by all participants and could be narratively called upon when required. This social grammar was reproduced as a whole in every single interaction with other members in the society. By implication, the process was understood by every person in the village. The trust and the mutual understanding of human actions were vested in the customs and traditions, which formed the fundamental ideologies of human behaviour (Ariyaratne, 1999). Villagers solved their problems by recourse to core Buddhist principles such as agreed-upon consensual truth, equality, selflessness, no objective truth as such which could be grasped by reason alone (Amarasekera, 2001).

In fact these were the core values which formed the culture of Sri Lanka (Amarasekera, 2001; Ariyaratne, 1999). The idea of the chief of the village council was neither to control fellow villagers nor to gain personal status but to facilitate the solving of day-to-day problems for better life. The social structure was stamped by prestige. The Village

Council functioned as an autonomous entity at the village level (Adagama, 1997). This system of council worked on a family model and was committed to its own partially independent process of development at the village level linking the whole society.

Buddhism was, and still is, central to Sinhalese culture. Sri Lanka's culture is the expression of civilisation built by the majority ethnic group, the Sinhalese over thousands of years (Amarasekera, 2001). Sri Lanka Kings had to be Sinhalese-Buddhist and their role was to protect the Sinhala-Buddhist nation (Silva, 2000; Senevirathnae, 1996). This tradition had been constant historically, was homogeneous throughout Sinhala villages (Kepferer, 1988). People in the villages were (and still are) religious and believed those natural disasters such as deaths, floods, or drought could be averted through cultural ceremonies. Buddhist festivals such as *vesak* (full moon day of May in each year associated with Buddha's birth, enlightenment, and death) were, and still are, celebrated intently as an integral part of peoples' lives.

People in the villages maintained important Buddhist customs, such as not working on every full moon day and not harming animals through rice cultivation on every full moon day (Wickramasinghe & Hopper, 2000). Buddhists believe in predestination and reincarnation. According to Buddha's teaching, one's future state depends upon one's behaviour in the present and previous souls (*Karma*). Thus there is no way of refraining or escaping from suffering except by diminishing desires (Sekhera, 1995).

Such beliefs, and the fatalism so engendered, do *not* tally easily with modern creeds of self-improvement, change, efficiency, effectiveness, and market models presumably being adopted in developing countries, such as in Sri Lanka. These market models largely followed a Western positivist approach which is based on the doctrines of

technocratic-scientific and economic rationality or purposive rationality of management in organisations (Wickramasinghe & Hopper, 2000).

Although villagers do work for and appropriate economic gains, this neither dominates daily activity nor is it necessarily linked directly to individual actions. People often perceive their poverty from a karma perspective and consequently do not actively seek ways to improve economic activities with the belief that "more desire for accumulation of wealth leads to the extension of [undesirable] life" (Sekhera, 1995). Instead people use religious ceremonies within the village to 'collect good account' for the forthcoming life in the next soul.

Human action is purposefully geared towards overcoming miseries through the teaching of Buddhism and this process is enacted in their day-to-day lives (Wickramasinghe & Hooper, 2000). Such ideas are the major obstacles to transformations of developing countries such as Sri Lanka through computerised information systems and their development or otherwise. Monks and well-established religious culture were, and still are, powerful antidotes to non-conformity. The modern day discourse such as encouragement, efficiency, and systematisation are far from the normal life style of Sinhalese villagers (Foster, 1961).

This traditionally deep-seated culture in the traditional villages began to change due to Portuguese, Dutch, and British colonialism which began in the early 16$^{th}$ century (Adagama, 1997). During these colonial periods, the agricultural society changed into a commodity-based export and import economy. Political domination became the crystallising nucleus of the state. The colonial states mediated the lives of people acting as an arbitrator through administrative organisations. However, the new political order

of the colonial states was incompatible with the social structures of the agricultural society. The state increasingly mediated the traditionally established customs, social value systems, and living patterns of people including their day-to-day lives through institutions, administration, education, religion, and law. This process constituted a new legality and rationality, giving rise to the formation of new social structures based on Western values and culture. The traditional ways of life increasingly surrendered when the state introduced purposive rational actions and the central functions of power and control of human life in the villages (Adagama, 1997).

The colonial ruling system of control in Sri Lanka (before known as Ceylon) developed an elite social class who imitated and embraced modernisation programs styled on the Western countries. This social class enjoyed wealth and power at the expense of the ordinary people. Education, often in English, was limited to a privileged group, most notably students from the elite class that were trained in Western ways and held posts in the administration and catered for the need of the colonial states (Yodhasinghe, 2000). Administrative systems were constituted on bureaucractic, scientific and rational principles. This system of administration relied upon the creeds of capitalism and managers trained in these western principles to buttress the status quo (Gunatunge, 1994).

Sri Lanka gained independence from the British in 1948. Post-colonial politics spawned modern ideologies, often derived from the West, embracing education, industrialisation, and changed social attitudes to urbanisation. The national ideological pressure to modernise and industrialise began in the late 1950s following a balance of payment crisis. It was part of the country's then industrial development policy of import-substituting industrialisation (Vidanapathirana, 1999). This included a program for

industrialisation based on public ownership (Lakshman, 1976) leading to the foundation of SOEs under the state ownership.

The rationale for such SOEs were outlined by the Committee for Public Enterprises as follows: "These ventures had a long gestation period, a high risk element and required tremendous venture capital" (Karunatilake, 1987). The SEOs were expected to fulfil certain social obligations:

(a) To make goods and services available at low cost to the public

(b) To assist regional development

(c) To create employment

(d) To induce industrial discipline among employees.

These objectives were implemented in the existing political culture of the country. Some of these state owned-manufacturing enterprises were established in rural villages.

The proliferation of SOEs continued from 1960-70. The size of the SOEs as a share of GDP increased from 5.7 per cent in 1961 to 12.2 per cent in 1974 and to above 15 per cent in 1977 (Lakshman, 1979). The control structure of SOEs stemmed from statutory documents regulating from the State Industrial Corporation Act No. 49 of 1957 and the ten-year plan of 1959. This defined a public corporation (public enterprise), as a legal entity owned by the government with considerable financial independence within a system of accountability to the public through parliament. The assumption was that public corporations could be controlled by a "universal model" (Amarasinghe, 1978).

Formally the control of public enterprises embodied a philosophy of legal-rational principles and bureaucracy (Weber, 1947), that owed much to the statutory corporation model underlying the structure of British nationalised industries (Kelegama, 1991).

Management principles followed the tenants of scientific management principles. Accounting systems, such as organisational budgets were used as instruments for controlling the activities of corporations. The systems were largely manual. Computer based information systems did not appear up until this period, in the late 1960s.

A left-centred government came to power in 1965 uncommitted to expanding public sector enterprises: instead they sought to encourage small and medium sized private firms (Karunatilaka, 1987). Managerial issues in public enterprises were low on their agenda despite the large amounts of public finance diverted to this sector (Balachandran, 1977). When another left-centred government entered power in 1970, committed to expanding public enterprises, they inherited an "empty Treasury" (Budget Speech, 1970) and an incipient financial crisis.

This situation resulted in introducing a legal framework to control public finances in the public Finance Act 38 of 1971, which required public corporations to have budgets and associated financial procedures in an attempt to bring economic rationality principles to the sector (Kelegama, 1991).

The use of computers in corporations began in the late 1960s when the first computer was installed at the State Engineering Corporation, which was followed by the Insurance Corporation, the Petroleum Corporation and the Department of Census and Statistics. The rationale for introducing computerised information systems to the SOEs was to efficiently monitor and control government funds, while exerting close control over the workforce. They were largely installed in Accounting Departments to process payrolls and prepare accounting documents on a batch-processing basis. Managers used budgets to control employees by committing them to production targets. The efficiency

criteria used to judge the success of corporations. However, paradoxical social movements within corporations emerged. The budgets provided production targets and monitors but they were difficult to implement.

Employees' cultural resistance remained and became inflamed by an economically rational and unduly purposive-rational actions of bureaucrats (Karunatilaka, 1987). Thus the modernisation efforts attempted through the SOEs model of government using computerised information systems development, proved unsuccessful due to resistance stemming from socio-cultural values, economic and political context in Sri Lanka.

In 1977 a new government introduced market-based open economic policy (Colombage, 1993). The initial reasons for State ownership had come to be seen as unimportant. Technological advances required the introduction of computerisation and market forces into previously monopolistic business areas such as Cement manufacture, telecommunication and electricity. The election of a right-centred government committed to market economics was a separation in Sri Lanka politics and brought fundamental changes to the industrial development policy (Karunatilleke, 1993).

Policy makers now promoted a more competitive environment in an attempt to induce greater organisational efficiency (Kelegama, 1993). Stimulated by IMF and World Bank initiatives towards a policy of privatisation, the government perceived public enterprises as a burden upon the economy (World Bank, 1987).

In general the government hoped to privatise inefficient enterprises. However, the policy stipulated that enterprises that were visibly profitable should be given priority in order to make privatisation programme attractive. Two important legislation acts were

enacted to support the privatisation, the Conversion of Government-Owned Business Undertaking into Public Corporation Act, No. 22 of 1987,2 and the Conversion of Public Corporation or Government Owned Business Undertaking into Public Companies Act, No. 23 of 1987. These enactments were made in order to provide the legal framework for the "commercialisation" of SEOs (Kelegama, 1997).

The government changed the name of the privatisation into 'peoplisation' to attract the imagination of lower middle class voters. The UNP manifesto of 1988 stated that peoplisation would be used as a strategy to achieve management recovery and rehabilitation of public enterprises. Accordingly, peoplisation signified an attempt to introduce commercial norms into public enterprises by converting them to public companies and subsequently by transferring their ownership to the employees and to the public in addition to the corporate investors (Kelegama, 1997).

The objectives of privatisation programme were:

1. To reduce the fiscal burden and to permit industries to raise funds from the capital market
2. To increase competition and efficiency which, in turn, would induce technological modernisation and lead to better consumer service
3. To encourage widespread share ownership in the society
4. To create an enterprise culture (Kelegama, 1997, p. 457).

The government introduced a separate unit under the Ministry of Industries to expedite the privatisation programmes. The World Bank funded the unit. In 1989, the name of the unit changed Company from Public Investment Management Board into Public Management Investment. In 1990, the unit transfereed to the Ministry of Finance due to

slow progress made by the PMIC (Jayewardena, 1994). Its role was to provide institutional leadership to the privatisation process by preparing SOEs for privatisation and by managing them till divestiture (Kelegama, 1997).

As part of the privatisation processes the following various measures were undertaken:

1. To strengthen the capital market
2. To facilitate labour retrenchment and compensation in public enterprises
4. To reform the taxation structure to create and maintain environment conducive to privatisation
5. To facilitate necessary regulatory activities (Kelegama, 1993).

However, the authorities did not provide information to the public (Jayewardena, 1994) assuming that the move would be opposed. The government controlled the flow of information to the public to reap the benefits of privatisation. Even nowadays the government censors information. As a result people do not trust the truthfulness of government efforts, particularly the privatisation programme. Moreover, negative response by the public towards privatisation was silenced through the use of state power such as the suppression of public participation in discussions.

In the implementation of the privatisation process, priority was given to those investors who had the ability to introduce capital and technology into the enterprise and to provide access to foreign export markets. The rationality was that the issue of all, or the majority of shares, to the public was not a viable option to achieve the priority objectives of technological modernisation (Kelegama, 1997).

In the offer of sale of shares, 10 per cent was gifted to the employees of the enterprise on the basis of the length of their service, 30 percent to the public and the 60 per cent to

corporate investors on the basis of open tenders and competitive bidding. It seems that the real motive of offering shares to the employees was to avoid employee resistance for the privatisation by giving them token ownership of the privatised enterprises (Kelegama, 1997, p. 463).

By 1994, most of the privatised enterprises were not relatively large in value. For example, 22 enterprises out of a total of 43 valued at less than Rs. 100 million. Five enterprises were valued over Rs. 750 million, one of which was the NCCL Company. The total estimated earning was accounted for 12 billion. This amounted to 2 per cent of GDP and 10 percent of state revenue. The investors came from both domestics (Rs. 5.25 billiion) and foreign (Rs. 4.07) sources in the case of the sale of the majority share holding. This was in addition to what was realised from public share flotation (Rs. 2.5 billion). Foreign purchasers of shares in privatised enterprises came from a range of countries including Japan, South Korea, India, UK, Singapore, Hong Kong, Pakistan, Switzerland and Norway (Kelegama, 1997, p. 466).

The profits of privatised enterprises have increased with the modernisation and technological upgrading including the introduction of new information technologies. It is reported that one of the privatised companies (of the 43 that were sold all went to corporate investors) appears to have come up with the record of best performance after privatisation. This information led policy makers to emphasise the importance of having a single investor to create strong management performance (Kelegama, 1997, p. 467).

International donors, such as the World Bank and the International Monetary Fund, made foreign aid conditional on the pace of implementation of privatisation. Moreover, pressures from these donors forced the government to privatise profit making SOEs

such as NCCL and Sri Lanka Telecommunication. The government used money from the sale of such profit-making SOEs to reduce annual government budget deficits.

Although the modernisation efforts with open market principles led the public and employees to oppose the government policy, the process still continues. For example, in the parliament, the opposition parties questioned the process adopted in privatising such SOEs as Air Lanka, Gas, NCCL, and Telecom enterprises. Certain Ministers were charged with corruption. The government did not impose any social obligations or any other restrictions on private owners in the management of SOEs. This was one of the reasons leading to greater profitability of firms after privatisation (Jayewardena, 1994).

Nonetheless, the regulatory framework prepared to manage the privatisation does not address crucial socio cultural lifeworlds problems such as the traditional value systems in Sri Lanka. Rather, these legal frameworks enacted by the government and other fiscal and infrastuctural facilities were based solely on Western-type narrowly purposive-rationalist principles such as base-line accounting. The above processes were established to support those who were in power so as to realise their rational objectives often at the expense of employees and the general public (Kelegama, 1997, p. 467).

### 4.3.1 Socio-Cultural Lifeworlds

Cultural anthropology and history have produced a substantial literature on transformation in developing countries that meshes together cultural, political, and economic factors (e.g. Nissan, 1997; Danniel, 1997; Schwatz, 1997; Kaferer, 1988; Williams, 1981, 1958; Althusser, 1970). These researchers, often rejects positivistic

science, understand culture as an important, independent factor in historical and socio-economic analyses of change and knowledge creation.

McCarthy (1996) defines knowledge as "any and every set of ideas and acts accepted by one or another social group or society of people - ideas and acts pertaining to what they accept as real for them and for others". Radnitsky (1970, p. i) has provided such a broader view: "we conceive of science essentially as a knowledge improving enterprise".

Knowledge in this sense is not limited to what can be learned from empirical data collection or mathematical deduction, in positivist sciences, but includes all human insight and wisdom that can be exposed in morale discourse (Klein & Hirschheim, 1996). Knowledge is a matter of community acceptance. The criteria for acceptance are an agreed set of conventions that must be followed if the knowledge is to be accepted by the community. The set of conventions is not arbitrary, as in positivist sciences, but is well thought out and historically produced knowledge claims.

In any society there are a myriad knowledge claims. Habermas contends that theory which should be accepted are those which can be supported by the force of better argument (Habermas, 1984). The body of thus accepted knowledge claims forms an agreed best understanding by a community at a particular point of time (Goles & Hirschheim, 2000).

In Habermas'ss understanding, knowledge is grounded in 'lifeworlds.' The working premise is that social reality is in process and is formed out of the prevailing knowledge of a society or group of people. In order that knowledge be a convention, it should be

related to societal norms, expectations, values – which is used to engage in a search for understanding (Goles & Hirschheim, 2000). The sociology of knowledge is thus the sociology of culture, values, beliefs, and myths redefined and represented as a synthesis between the "social determinants" (i.e. knowledge is socially determined) and the social "orderers" (i.e. knowledge constitutes a social order).

The social reality is not a social fact, in its own right, but something produced and communicated, its meaning derived in and through these systems of communications (McCarthy, 1996). It is the "greater autonomy" over how people in a society are represented and how they can construct their own social and cultural models. In developing nations, social reality form an inertia which prevents to some extent, a take-over by Western epistemics and historicity (Escobar, 1995).

Snyder (1978 cited in Goles & Hirschheim, 2000) discusses science as " something that people do. It is not a particular set of assertions or theories, but a set of activities that may or may not produce organised theories".

Science, for all intents and purpose, is a problem-solving vehicle. Science "essentially a process of consensus formation" (Anderson, 1983, P. 25 cited in Goles & Hirschheim, 2000). . The consequence of this conception of science is that virtually any scholarly attempt at acquiring knowledge could be construed to be "science". It is important to note this notion of science places the emphasis of knowledge acquisition on the "community" (Goles & Hirschheim, 2000). Truth knowledge is therefore a communal achievement. It is what the community agrees to bestow the label of "knowledge" or "truth" upon (Goles & Hirschheim, 2000).

In traditional Marxist analysis, ideology is an element of supra-structure and the role of culture is de-emphasised. For Marx, culture was just an insignificant factor that belonged to the supra-structure while productive materialistic forces formed the infrastructure on which that supra-structure rests (Amarasekera, 2001).

In the face of cultural analysis, such economic determinism is questionable. If ideology is the formal and conscious beliefs of a class, or other social groups, then culture must be the ground for ideologies. Thus culture is more fundamental than ideology and culture is a pre-existent and ubiquitous preunderstanding as recognised in Habermas's conceptualisation of communicative action (1987a, 1987b, 1987c, 1984) and William's neo-Marxist conceptualisation (1983, 1980, 1958) which place culture as fundamental to social systems. In this respect, culture remains as an important supra-structural phenomenon and ideology should be understood as one of various socio-cultural reproductions.

In his analysis of 'lifeworlds,' Habermas (1987b, 1979) identifies culture as the first structural component, defined as "the stock of knowledge from which participants in communication supply themselves with interpretations as they come to an understanding about something in the world". Culture signifies a "shared understanding" of actors in communication, a "state or habit of mind" giving rise to a "way of life" and "a general reaction to a general and major change in the conditions of our common life" (Williams, 1958). Culture encapsulates patterns of meanings of distinct peoples or other social groups (Palmer, 1994), including the processes of giving meaning to structure, power, identity, and values (Althusser, 1970). Thus culture creates a particular "social order" in which cultural practice and cultural reproductions are the

main elements through which participants regulate their memberships in social groups and thereby secure solidarity (Habermas, 1987b, 1979).

Culture is a signifying system through which a social order is communicated, reproduced, experienced, and explored (Williams, 1981). Interest in the problem of meaning is linked to a methodological framework that is neither causal nor explanatory but *semiotic*. The semiotic study of culture is directed towards the study of symbolic and signifying systems through which a social order is communicated and reproduced. These signifying systems and social practice are what make up a culture and it structure of meaning (McCarthy, 1996, p. 20). It involves the study of the general context and culture of communication and the shared assumptions underlying communication and understanding (Beynon-Davies, 1994).

The study of 'lifeworlds' is crucial for understanding the role of information technology and information systems development in social transformations in organisations in Sri Lanka. Capitalism and industrialisation has penetrated Sri Lanka unevenly, leaving important segments relatively free of Western domination and allowing traditional cultural practice, value systems, beliefs, and myths to survive and predominate. These socio-cultural 'lifeworlds' may see as major inhibitors to a wider application of emergent Western knowledge through information technology.

Thus socio-cultural practice associated with a non-western societies, such as Sri Lanka, provide the starting point for understanding the development of information systems through information technology and whether or not they become subsumed into a non-western or a Western culture.

### 4.4 Modernisation through Science and Technology in Sri Lanka

A nucleus of modernisation, especially through scientific and technological activities, began to appear in an organised fashion in Sri Lanka during the 19th century within the Department of Agriculture and the crop research institutions through the Tea Research Institute, the Rubber Research Institute, and the Coconut Research Institute (Wijesekara & Wijesekara, 1999). First, these scientific and technological activities were directed towards servicing the requirements of British colonialism. Later, these activities expanded into other institutions such as government departments, corporations, and universities after Sri Lanka gained independence in 1948. A commitment towards modernisation through scientific and technological activities appeared in policy formulations of all the governments elected after independence (Wijesekara & Wijesekara, 1999, pp. 400-14).

#### 4.4.1 Modernisation through Information Technology

The use of computers in Sri Lanka began in the late 1960s and the early 1970s when certain state corporations and departments introduced computers at work for processing financial activities such as payroll, inventory, financial, and cost accounts on batch processing basis. The rationale for introducing computers to the state enterprises was the efficiency principle applied to the monitoring and controlling of government funds. Generally, during this period, information systems development and practice was largely ad-hoc, with software vendors providing systems for state corporations and departments. These systems produced in developed countries mainly the USA and the West, are promoted, sold, and served by agents in Sri Lanka. The state organisations were mainly concerned with the reliability and accuracy of data maintained on their

systems. Many of the state sector organisations began their computerisation projects with little in-house capabilities (Samaranayaka, 1989). Concentration was given to hardware acquisition rather than developing necessary information systems infrastructure in-house. A number of projects introduced in this way did not have a significant impact on the improvement of performance of government corporations and departments in Sri Lanka.

However, the expansion of computer application for commercial and administrative purposes in Sri Lanka began with the liberalisation of the economy in 1977, resulting in more computers being used for financial and business applications. For example, in the 1980s, service oriented organisations such as Banks and most of the private sector institutions introduced information technology for commercial activities (Samaranayaka, 1999).

#### 4.4.1.1 Government Policy on Information Technology

In the mid 1980s, the need for a national computer policy for Sri Lanka was recognised. As a result the government established the Computer and information technology Council of Sri Lanka (CINTEC) by an Act of Parliament in 1984. The national information technology policy objectives as stipulated by the CINTEC, involve the following:

(a) To harness computer technology in all its aspects, for the benefit of the people of Sri Lanka, and to further the socio-economic development of the nation;
(b) To promote and guide the development of computer-related resources and their application, to anticipate and meet the future needs of the national economy;
(c) To enhance and supplement manpower resources and increase the efficiency and productivity of management and employees at all possible levels;

(d) To improve the quality of life of the people of Sri Lanka, including the job satisfaction and working conditions of employees;
(e) To increase the flexibility and dynamism of Sri Lanka society to enable it to successfully meet the challenges of the future, arising from the ever-increasing pace of world wide scientific and technology. (CINTEC, 1984)

These initiatives gave wide scope for information technology being used within both state and private sector organisations in the country. The apparent motivation was, and still is, the rationalisation of work practice by the use of information technology, rather than cost displacement (cost displacement is realised by substituting technology for people, see Davis, 1992, p. 384). For example, in 1986, the Administrative Reform Committee of Sri Lanka recommended the extensive use of management information systems and information technology to ensure efficiency in the state sector organisations for rapid socio-economic development (Samaranayaka, 1999).

#### 4.4.1.2 Information Technology for Socio-economic Development

Information technology was, and still is, deployed in the context of enterprises striving for efficiency, productivity, and competitiveness in a liberalised market economy in Sri Lanka. It is conceived as one of the most significant forces of modernisation that drives a "technology push" for socio-economic development in the country (Samaranayaka, 1988).

The development of the information technology sector occupies a very important element in the annual budget (Budget Speech, 2001). The implicit assumption is that information technology will promote socio-economic development. Following this assumption, over the last two decades, Sri Lanka government has created an environment to promote information technology use in organisations through various

policy measures. For example, the government has removed tariff embargoes on imports of computers and computer-related accessories. Certain companies on information technology related business, which engage in such areas as development of software for foreign markets, have been granted permission to operate in the Free Trade Zones (FTZ).

Significant progress was made in the application of digital technologies in Sri Lanka during the 1990s. Telecommunication infrastructure developments through liberalisation have included an increase in land phone users (36 people per telephone), cellular telephone services organisations (currently 4 companies offering a combination of analogue and digital networks), paging services (5 operator companies), Internet service providers (9 companies), and implementation of modern communication technologies such as integrated services digital network (ISDN), Frame Relay, and very small aperture terminal (VSAT). There are five web site providers, who operate as resellers of licensed operators (Kularatna, 1999).

Presently, about five organisations are engaged in e-business and about 17214 e-mail and Internet subscribers (Central Bank, 1999). The development of telecommunication infrastructure signifies an indication of the "emerging digital economy" in Sri Lanka (Ranasinghe, 1999). However, these developments are limited to Greater Colombo region. Nearly 80% of the population living in rural areas have no access to modern information and information and communication technologies. They are neither aware of the benefits of information and communication technologies nor are able to obtain them because of their poor living conditions.

The government has initiated major projects with the collaboration of foreign countries (e.g. Australia and Switzerland), to establish an institution to train skilled personnel in information technology to meet the manpower requirement of both the state and the private sector organisations. Moreover, the government has announced the year 2001 as "the year of information technology" to promote information technology based economic development of the country. Recently, the government established a separate Ministerial portfolio for information technology development within the country (Abeywardena, 2000). The objective of this new establishment was to prepare groundwork which will serve as a firm basis for future socio- economic development (Peiris, 2001).

#### 4.4.1.3 Problems in information technology Adoption

The government expects to introduce information technology-based solutions in business and administration, both in the state and the private sector, as enabling and promising technology for the 21st Century, despite widely spread problems such as dysfunctional bureaucracies, lack of management orientation to the market system, lack of co-ordination and outdated work systems, and procedures in many institutions of state departments and corporations in Sri Lanka (Budget Speech, 1996; Jayaweera, 1996). These problems remain major obstacle to the country's economic growth and to effective implementation of social programmes in spite of the political will of successive governments to reform organisations. For example, some major computerisation projects such as the introduction of computers to schools, have proved unsuccessful in making a modernisation impact on students using computers to date (Samaranayaka, 1999).

This is mainly because Sri Lanka lacks organisational capacities to accommodate and manage change to make effective use of technology. It alaso lacks the ability to move towards more modern forms of operations, lack of skills to develop and maintain new technology, and its inability to see change in a wider socio-economic and political context of the country. For example, more than half the schools do not have adequate infrastructural facilities such as electricity, roads, water treatment networks, and telephones, nor adequate teacher trainers. Students are taught in national languages such as Sinhala and Tamil. English, "the language of computers" is hardly understood by students, particularly in rural areas, since there is no adequate teachers to teach English language.

More generally, students seem to be reluctant to learn about computers, as they are interested only in the formal examination subjects. Neither computer education included as an examination subject nor adequate computers were provided for schools. Although prevailing infrastructural facilities are inadequate, students in poor families, particularly in rural areas, use education as a means to secure jobs to eradicate poverty in their families. Achieving highest results in G.C.E O/L and A/L is the only target of many of the students.

In this background environment, it is hardly fair to expect students living in rural areas to learn about computers, something they may never have heard about in their life. Also, many school principals fear damage to the computers with student use and certain principals use computers as symbol of status to maintain the power distance between teachers (Samaranayaka, 1999). The failure of this project proves that existing information systems knowledge and professional practice are insufficient to motivate

students to use computers in schools and thus to derived skills for the effective use of information systems in Sri Lanka.

At the University level, computer-oriented programmes have been introduced, as part of mathematics and engineering degree courses, with assistance provided by the British and Japanese governments. The Departments of Computer Science, Statistics, and Engineering at the Universities of Colombo, Peradeniya, and Moratuwa offer courses such as computer programming, systems design, and systems development through undergraduate level degree programmes. The University of Colombo introduced a Master of Science (M.Sc.) in computer science in 1990. Additionally certain other Universities, such as the University of Sri Jayewardenapura, the University of Kaleniya, and the Open University, offer computer courses as subjects within their social sciences degree programmes. These courses include management information systems, information technology, data processing, computer literacy, and computer application in accounting, marketing, and human resources management (Various curricula in degree programmes, 1998).

Similarly, certain MBA and M. Sc. in management programmes have also introduced management information systems and information technology subjects as part of their degrees. The National Institute of Business Management of the Ministry of Industries and Scientific Affairs, offers diploma course in Computer Systems Design in addition to the private institutions which provide computer courses in programming, systems analysis, design, and systems development and information technology related education.

> If I were to look back reflectively, I would say that during the greater part of my career as a university lecturer, the role of a centre of learning was understood by the local academic community in terms of dissemination of "modern knowledge" generated at Western centres. This approach is more pronounced in information systems areas. The emphasis was decidedly on mere knowledge dissemination rather than on contributing through knowledge creation.

The common feature in computer education in Sri Lanka, both in the state and the private sector, is an orientation towards teaching courses as technical subjects to generate experts knowledge in computers (Williams & Gunatunge, 2000b, 1999a).

Teachers adopt expert and an all-knowing posture in teaching computers to students. The teacher deposits knowledge into students who are viewed as empty vessels. Those students who meekly accept the knowledge are the better students. Such an education is oppressive because it does not teach students to inquire actively and reflect critically about the world of learning computers relating to practical problems.

In most of the universities, curricula are generally oriented towards computer science and software engineering rather than towards information systems. An information system has not emerged as a separate discipline in all of the universities (Various curricula in degree programs, 1998). There is no information systems Department in any of the universities, nor an academic journal dedicated to addressing information systems issues. In certain universities, management information systems are a subject within business degree courses but the focus is in information technology rather than information systems. Certain lecturers who teach management information systems

equate it with information technology. Most texts and teaching methods in the field of information technology and management information systems (e.g. Laudon & Laudon, 1998) draw heavily, if not completely, from an analytic and instrumentally rational notion of education. These approaches place considerable emphasis on techniques and methods as the major form of knowledge required for management in this area (Williams, 1996). These courses do not address, for example, how information technology could be developed and used for socio-economic development, rather information technology is mealy taught as technical subjects to develop technical information systems (Williams & Gunatunge, 2000a, 2000b, 1999a). This can lead to staff and management problems in those organisations who employ personnel trained by the universities (Wijesingher, 1988).

It appears that narrow technical education alone is inadequate for generating balanced knowledge among students (Williams, 1996). For example, Asian Development Bank (ADB) studies related to Sri Lanka (1989) point out that "facility for technical training is grossly inadequate both in terms of output and occupations focus" (p. 23). This inadequacy is particularly due to a tendency to ignore the existence of non-positivist knowledge in Sri Lanka.

Presently most organisations in Sri Lanka have introduced computerised information systems for word processing, spreadsheets and databases for payroll, sales, inventory, accounting, marketing, and human resources management. Organisations such as banks, insurance, and NCCL have introduced management information systems. NCCL, for example, has planed to introduce enterprise models to address strategic issues as an overall framework for the development of corporate applications and

databases (i.e. the Germane "SAP"- Enterprise resource Planning Systems). About 1000 organisations have their own web pages in the World Wide Web (WWW).

These organisations perceive that the introduction of new information systems, largely technical systems, acts as enabling technology to derive benefits such as systematisation of work, increase efficiency, productivity, flexibility, sharing of information across departments, head office and branches, and competitiveness within the liberalised market model of socio-economic development while employing persons trained in Sri Lanka (both in the state and private institutions) and foreign universities (Samaranayaka, 1999).

There have been numerous failures in developing information systems for organisations in Sri Lanka (Williams & Gunatunge, 2000a, 2000b, 1999a; Gunatunge & Williams, 2000). Part of the reason is that information systems practitioners tend to ignore social context as important determinants of success in systems development.

Information systems practitioners in Sri Lanka usually evaluate information systems success from the standpoint of technical and economic rationality criteria only. A lack of information systems awareness among managers and a narrow technical focus in information technology professionals have prevented them from coming together to identify and implement meaningful information systems development for organisations. This limited framework often results from positivist training within the dominant model of knowledge acquisition stemming from Western societies' experience of modernity.

The dominance of the Western centred model of knowledge in information systems development often result in a marginalisation and disqualification of non-Western

knowledge within Sri Lanka society. Practitioners who ignore the existence of non-Western values in Sri Lanka may do so partly because their training ignored the existence of non-positivist knowledge rationalities, such as communicative rationality, which could guide them beyond Western reductionistic thinking (Escobar, 1995). For example, development studies conducted in developing countries conclude that "systems of knowledge" should include not only the rules and values of Western cultures, but also ways of knowing within the lifeworlds of indigenous communities (Sachs, 1992).

Indigenous versions of socio-economic development and modernity are formulated according to complex processes that include traditional cultural practice, histories of colonialism, and contemporary location within the global economy of goods and symbols (Dahl & Rabo, 1992). Societies in developing countries may have better chances to improve their life conditions if they recognise the limitations of the validity of Western techno-economic rationality and pursue alternative rationalities stemming from their socio-cultural and value systems (Avgerou, 2000).

#### 4.4.1.4 Transfer of Information Technologies

Information technologies together with their information systems development approaches are transferred to Sri Lanka from developed countries. The steering media are transnational corporations and knowledge transfer agencies, professional organisations (e.g. British Computer Association and Australian Computer Society), foreign consultants, text-books, graduates trained in foreign universities and institutions, consulting projects (e.g. UNESCO mission in 1985) and aid projects (e.g. Swedish, and British aids to equip and train staff in universities, with values embedded in the modernity of the West.

#### 4.4.1.5 information systems Research

Information technology and information systems research occur mostly by participation in various projects funded by Western agencies, with expertise from countries in the European Community such as, the U.K and Switzerland (Samaranayaka, 1999, **News, 18.03 2001 Island**). This is considered to be the most significant vehicle for transferring technology from technologically more advanced countries, such as the Western communities and North America, and for producing original research results (Avgerou, 2000).

This process results in conventional thought and practice being heavily influenced by the rationality of modernity in organisations in Sri Lanka. For example, although the urgent need is to deal with the management of the technology transfer problems, vendors of information technology, mostly from developed countries, through their agents, tend to focus on technical issues for solving information problems in developing countries (Mohan, Belardo & Bjorn-Anderson, 1990; Samaranayaka, 1988). The results of these interventions are disappointing. Many projects have failed (Samaranayaka, 1988), and a number of those, which succeed to deliver a technical system, did not have a significant positive impact on the performance of many organisation in Sri Lanka (Samaranayaka, 1999; Williams & Gunatunge, 2000a, 2000b, 1999a).

Information technology vendors and information systems researchers in the West and the North America fail to fully understand the poverty problem in developing countries including Sri Lanka. These practitioners, not understanding the prevailing socio-cultural, economic, and political contexts for information systems development, believe their practice and prescriptions are valid for Sri Lanka. These practitioners', including

information systems researchers in developed countries, are relatively wealthy and has little experience of poverty of underprivileged groups in developing countries. Although development concerns are apparent in Western societies, their relative severity is different from that of developing countries. For example, privatisation issues in the UK are concerned with cost-effectiveness (Hodges & Wright, 1995). In Sri Lanka, privatisation is a matter of neocolonialisation, which emerged from foreign investment mechanism (Kelegama, 1993; Vidanapatirana, 1993).

In Sri Lanka, the planning and implementation of information technology and information systems have largely been characterised by some form of elitism whereby the users and affected parties are often not involved. These parties have been taken to be passive recipients, resulting in their further marginalisation with regard to their having the requisite skills and experience to effectively utilise and benefit from the information technology and information systems investment. For example, information systems researchers in developed countries, in general, and information systems researchers in Sri Lanka have not studied the behaviour of peasant employees in multinational companies operating in Sri Lanka. Therefore, this technology does not contribute significantly to the sectors that impact the majority of the citizenry, often the poor. The result is that the application of information technology in Sri Lanka, actually benefits only those who are in power. Seen in this light, the transformation of organisations through successful information systems development become illusive.

Information systems researchers inadvertently neglected, or usually forget to address development issues in developing countries where 80 percent of the world population lives (Davison et al., 2000). Comparison with developed countries show, poor use of the information and communication technologies in developing countries. For example,

developing countries account for only 2 percent of the total expenditure on informatics (Hanna, 1991). They are concerned about the availability of technical skills for information systems development (Jayasuriya, 1999), are focused on the reliability and accuracy of data maintained by their information systems, and have a low appreciation of the benefits and potential of management information systems (Palvia & Palvia, 1996). Consequently developing countries are unable to take up information technology opportunities to the "knowledge economy" (World Bank, 1997).

For example, Internet users in all of Africa and Middle East together account for only one per cent of global Internet users in contrast to 90 percent of Internet users in industrialised countries, with the US and Canada alone accounting for 57 percent of the total (ILO's World Employment Report, 2001). Despite the improvements in labour market performance in industrialised countries and the growing potential of information technology to create jobs and spur development, the global employment picture remains "deeply flawed" for employees in many parts of the developing countries. This results in a widening global "digital divide" (ILO's World Employment Report, 2001).

Although information technology and information systems have come to play a vital role in organisations and societies in developed countries (Avgerou, 1996; Davision et al. 2000), and the information and communication technologies revolution offers genuine potential for socio-economic development (ILO's World Employment Report, 2001), the domain of information systems research has not been adequately explored by information systems practice in the context of developing countries (Avgerou, 2000; Corea, 2000; Avgerou & Doukidis, 1993). In many developing countries, including Sri Lanka, information systems development was not originally a local profession, but was imported mainly from imperialist, Western countries and the North America, through

various steering media (Abdat & Pervan, 2000; Corea, 2000; Broudnig & Schonberger, 2000; Thanasankit & Corbitt, 2000; Jayasuriya, 1999). Although the use of information systems development and practice is being called into question in the west and the north (see for example, Ngwenyama, Truex & Davis, 1997; Lyytinen, 1992,1986; Orlikowski & Baroudi, 1991; Iivari, 1991), policy makers and practitioners in Sri Lanka have used the imported models uncritically. They have assumed that information systems development is a neutral profession, independently functions from the socio-cultural, economic and political contexts in Sri Lanka.

Western technocratic and economic rationality in information systems tends to ignore the significance of socio-cultural lifeworlds, economic, and political contexts in Sri Lanka's society, assuming the practice and culture of large multinational organisations of the West. The main concern of information systems development is for narrowly defined success in a market environment through information systems solutions with modern information technology. However, there is little doubt that information technology is penetrating every sphere of organisational activity in Sri Lanka, even if more slowly than in developed countries, given the socio-culture, economic and political context of Sri Lanka (Williams & Gunatunge, 2000a, 2000b;Gunatunge & Williams, 2000; Samaranayaka, 1999).

The validity and the socio-economic and political significance of information technology diffusion, and new information systems development and practice has, not been critically examined in Sri Lanka's social context by either researchers in developed countries or in Sri Lanka. There has been no substantial research carried out to evaluate the broad socio-economic development feasibility of the use of new information systems, supported by information technology in Sri Lanka nor to study

what impact new technology-based information systems have on organisations and society. In effect there has been no significant thought on how to understand the ways in which information systems could be developed and practised within organisations to spur socio-economic development in Sri Lanka.

Present information systems development and practice in Sri Lanka organisations underpin technocratic-scientific and economic rationalism to control human behaviour for the benefits of the owners of organisations to realise economically rational objectives following the positivist approaches (Williams & Gunatunge, 2000a, 2000b, 1999a; Gunatunge, 1992). These approaches assume systematised, purposeful, effective, unproblematic, and value-free information systems development and practice in organisations in Sri Lanaka. However, this is questionable in the context of 'lifeworlds,' socio-economic, and political contexts of Sri Lanka.

Following Habermas's framework, I have three main concerns. Firstly, the imposition of technocratic and economic rationality into a traditional culture may produce cultural dissonance. A discourse that privileges a modern culture of Western values, modes of knowledge, and action could lead to discontinuity of cultural values and a fundamental incoherence of knowledge necessary for daily practice of managers and employees in organisations. Western-based information systems development and practice can lead to confusion in Sri Lanka culture with unanticipated consequences leading to personal anomie and conflicts in organisations. This process also can create disorder in the socialisation process of employees in organisations leading to alienation (Habermas, 1987a, 1984).

Secondly, participants involved in systems development process and practice are not value-free. They are culturally influenced and socially organised. When culturally determined aspects such as personal contacts and informal communication, for example, become dominant modes of communication (Yavas, Luqmani & Quraeshi, 1992, p. 76), communication via information systems may face strong resistance. This is because in these cultures, information is implicit in the physical context or is internalised within the people's lifeworlds understanding. In these cultures, resistance may stem from a widespread perception those computers and modern information systems degrade their personal communications (Kirlidog, 1996, p. 58). As a result, information systems development and practice in organisations in Sri Lanka may impede rather than facilitate the utilisation of information systems.

Finally, information systems geared to control human behaviour in these cultures resist controls, rendering them untenable for managerial purposes and managers faced with conflicting experiences.It appears local cultures, predominant values, socio-economic environment, power, and politics can contribute to failure (Williams & Gunatunge, 1999a, 1999b, 2000a, 2000b;Gunatunge & Williams, 2000; Gunatunge, 1992, 1991).

The question, whether or not a Sri Lanka's social context - understood as culture, value systems, beliefs, myths, symbols, and behaviour patterns (i.e. 'lifeworlds') - and socio-economic and political contexts are favourable to information technology adoption through information systems development for socio-economic development need to be further investigated. Within unique histories, cultures, socio-economic and political contexts, how can the state become effective? Part of the answer is that state should match its roles to response to the needs and interests of their citizens through consensus building in national policy formulation (Stiglitz, 1998). The development programmes

needs to enlarge to include a range of people's choices and make development participatory and more democratic (Human Development Report, 1991).

Within theses interpretations, Habermas's (1987b, 1984) communicative action provides a framework for analysing changes induced by cultural, socio-economic, and political contexts of Sri Lanka for information systems development and practice. His theory of communicative actions provides powerful framework for practitioners to understand the focal things and practice that sustain social life and culture in Sri Lanka, to what Borgmann (1984, p. 29) calls for "focal things and practice" that can "centre and illuminate our lives".

The essential point is that the state's interventions of modernity into organisational affairs, that impact upon the development of information systems and practice in organisations, pays little or no attention to the historically derived socio-cultural value systems that sustain social systems (Avgerou, 2000). These socio-cultural value systems are the implied knowledge that participants draw *meaning* during the systems development process.

Meanings are "the symbolism associated with specific objects or activities" (Alasuutari, 1995, pp. 26-35). Meaning is intersubjective, i.e. based on shared agreement and understanding rather than purely subjective. Meanings are shared among different groups of people, living different forms of life (Wittgenstein, 1958, pp. 8-12). Information systems exist within wider context of these meaning or sense making (Mingers, 1995). Looking for such meanings is crucial as symbolic relations between people and information systems shape culture. They are important for developing cultural patterns about the information systems being studied.

From 'lifeworlds' perspectives, such meanings underpin every-day social practice, which have been created and recreated through cultural reproduction, social integration, and socialisation of participants in a community (Habermas, 1987b, 1984). Therefore, if the socio-economic development in a liberalised market through information technology application in information systems is the fundamental objective of Sri Lanka, it is imperative to understand how information systems practice have been evolved, developed, interpreted, questioned, constrained, experienced, and used in various social contexts of different modes of socio-economic development. Thus, policy makers and mongers in Sri Lanka need to fully apprehend the complex webs of interactions operating in the lifeworlds, socio-economic, and political contexts within a holistic framework for information systems. Without these commonly agreed beliefs about social interaction and role expectation by participants within information systems development process could not be sustained.

If information technology and information systems are to be used to enhance socio-economic development efforts in a meaningful way in Sri Lanka, it is of paramount importance to invest in the architecture of patterns of behaviour of people through communicative action, i.e. in the 'lifeworlds contexts'. These are oriented toward the cultivation of various technological innovations based on the social context of Sri Lanka. The said cultivation requires new patterns of communication [i.e. communicative rationality], co-operation [i.e. consensus building among participants], and communicative interaction [i.e. shared learning] necessitated by change (Kuhathasan, 2000).

This understanding of information systems development and practice within broader dynamic social contexts stimulate Sri Lanka to cope with the resulting organisational changes and to adapt information systems to avoid falling further behind and risk exclusion from socio-economic development (Splettstoesser and Kimaro, 2000).

### 4.5 Conclusion

Information technologies together with their development and implementation are considered as much vaunted technology for achieving socio-economic development in Sri Lanka. These technologies and their development approaches are often developed in the West following the positivist approach of technocratic and economic consciousness. These are exported to Sri Lanka through various steering media such as textbooks, consulting projects, professional agencies, donor projects, information systems research, and training programs. Consequently, information technology professionals use these imported approaches in Sri Lanka without critical examination for information systems development.

In Sri Lanka, information systems development was not originated as a local profession. As a result, adaptation of these imported positivist approaches has failed due to the prevailing nature of the social context - lifeworlds, economic, and political contexts in Sri Lanka. This is examined in chapter six developed into an in-depth case study at NCCL in Sri Lanka.

# CHAPTER FIVE

## RESEARCH METHODOLOGY

### 5.1 Introduction

In this chapter the research methodology, holistic approach and research processes I've employed in my thesis are described and examined. These include selections of research sites, information about participants interviewed, access issues, data collection, documentation and validation, and data analysis and reporting of evidence from the research findings.

### 5.2. Research Methodology

The research methodology selected for my study had to be congruent with critical social theory perspective to study social phenomena. Therefore, my research methodology was a contextualised, interpretative one, with the techniques of critical case study methods (Myers, 1997; Myers & Young, 1997; Orlikowski & Baroudi, 1991; Hirschheim & Klein, 1989; Chua, 1986; Lyytinen & Klein, 1985). I studied an in-depth case at a large privatised industrial organisation (NCCL) to reveal empirical and interpretive understanding of information systems development and practice within historical and social contexts in Sri Lanka. I critically examine ten episodes in information systems development and practice over a period between 1958-2000. In this study, I attempt to show how critical social theory could be seen in practice by providing evidence from an empirical case study conducted over a period of six months.

### 5.2.1 Research Method

I used critical case study methods (see Myers, 1997). Case studies contribute in important ways to our knowledge about information systems development whether applied to analyse a single case or multiple case studies (Yin, 1994; Hirschheim et al., 1991). Yin (1994) asserts that a single case study is appropriate where it represents a critical or unique case (pp.38-40). My single case study approach helped me to investigate information systems development and practice in depth to provide rich description and understanding. It helped me to investigate and understand social structures which existed beyond the participants' perception (see Maseman, 1982). Selecting a single case study for an in-depth analysis for social phenomena has been well accepted in information systems literature (see for example, Porra & Hirschheim, 2000; Klein & Myers, 1999; Odedra-Straub; 1996; Walsham, 1995; Hirschheim & Klein, 1989; Lee, 1989; Markus, 1983) and for doctoral studies (Remenyi, Williams, Money & Swartz, 1998, p. 162).

Case studies arise out of a need to understand and explain complex phenomena (Remenyi et al., p. 162). Case study methodology is increasingly used as a qualitative research method in information systems research to understand and explain the contexts within which they are being developed, implemented, and used (Darke, Shanks & Broadbent, 1998; Cavaye, 1996; Walsham and Waema, 1994). It is the most common qualitative method used in information systems research (Darke et al., 1998; Alavi & Carlson, 1992). Yin (1994) defines the scope of a case study as "a case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used" (p. 13).

Case study research focuses on understanding the interactions between information technology-related innovations and the broad social contexts (Darke et al., 1998, p. 273). Case studies provide the best field research in understanding the problems and issues of information management (Jayasuriya, 1999; Craig Smith, 1990). The case study methodology provides an opportunity to understand organisational phenomena (Benbasat, Goldstein and Mead, 1987). It has the potential to yield multiple constructions of reality in an organisational setting (Standing, 1998, p. 7). Therefore, the significance of employing case study method in information systems has now been established.

Case study approach is often used in information systems research to apply social theories in the context of the "whole" (see for example, Avgerou, 2000; Olesen & Myers, 1999; Myers & Young, 1997; Montealegre, 1997; Walsham, 1993; Hirschheim et al., 1991; Walsham & Han, 1991). In these studies, analyses are made observing the iteration of theory with empirical evidence, rather than a superficial rejecting or accepting of theory based on empirical data. The validity of an extrapolation from one or more individual cases depends not on the representativeness of such cases in a statistical sense, as in the case when using the positivist approach, but on the plausibility and cogency of the local reasoning. This is further used in describing results from the case, and in drawing inferences and conclusions from those results.

Craig Smith 1989, and Orlikowski & Baroudi (1991) make a similar point in the specific context of information systems research. They argue that researchers critically analyse social phenomena through theoretical framework which they adopt to conduct their work. Being in line with this new trend of epistemology, Habermas's theory of communicative action can be used as a social theory for information systems research

in developing countries and the holistic case study approach can be employed as its epistemology to overcome the problems of survey methods such as questionnaire-based research to information systems.

The questionnaire-based research generally assumes an objective reality can be discovered through a "falsification" or "verification" process of hypotheses. This approach to information systems research includes reliance upon the "sampling logic" for statistical generalisation by testing hypotheses derived from predetermined theory (Orlikwski & Baroudi, 1991; Chua, 1986). It is commonly assumed that reality is objectively given and can be described by measurable properties, which are independent of the observer and his or her instruments. An associated belief is that scientific methods enable researchers to explain and predict objective and value-neutral records of events of the subjects investigated.

Generally, most researchers employ questionnaires in surveying phenomena using predefined variables by the researcher (see Doherty & King, 1998; Hofstede 1991, 1980). The survey methods are limited in their ability to investigate the social contexts or to obtain information not specifically sought (Jayasuriya, 1999). For example, King (1996) has noted how research on computer-aided software development has been dominated by survey methods are routinely evaluated by questionnaires that seek to elicit managers' and professionals' perceptions of the usefulness of systems' tools. The basic assumption is that properly designed questionnaires appear to deliver valid and reliable quantified information. As he puts it "surveys do not reveal the context in which the tools are used" (King, 1996, p. 174).

In contrast to the questionnaire-based research approach, close experiential research can generate new understanding more consistent with the actions, meanings, values, perceptions, and beliefs of its participants. It is focused on understanding actual practice of information systems development in its natural setting (see Darke et al., 1998).

Knowledge is sought through studying more closely to the participants of research and that knowledge is replicated through linking theory with empirical evidence than "logic of sampling." In this way, the researcher is able to question, interpret, talk, reflect, and iterate his data theoretically within a set of situations and issues (Myers, 1997). Such an approach is provided by holistic research (Scapens, 1990).

### 5.2.2 Holistic Approach

The holistic approach to research is based on the belief that social systems develop a characteristic wholeness or integrity where any part of this wholeness is largely determined by the whole social system. It's inappropriate to study their individual parts taken out of context (Flood, 1999; Standing & Standing, 1998; Keys, 1991; Checkland, 1981).

Holistic research methods seek to explain this holistic quality and to locate social systems in their particular contexts (Scapen, 1990). Social reality is to be viewed as an integrated whole, not detachable behaviour and all their underlying myths and meanings are to be understood by linking them to the context (Wickramasinghe & Hopper, 2000). Although such parts are interrelated, the whole determines all of them (see Checkland, 1981).

Epistemologically, holistic approach researchers understand the whole by, studying interrelated parts individually and very closely, looking for analytical themes. They find theoretical generalisations, instead of statistical generalisation (Scapens, 1990), by applying the analytical themes to other parts of the whole system. In this way, social reality lies not in any of the parts but in the whole. The researcher, however, is free to attach any particular interpretation about a part until such time as it is contextually validated (ibid, p. 270). At the same time, tentatively, the researcher has to depend on the explanation of the whole system until an alternative pattern is found.

In this context, theory would act as an explanation for the whole system and through the studying of parts, the researcher can determine whether the theory iterates or not (Diesing, 1972). Once researchers understand a social context in this way, they identify universal theories emerging from comparative analysis which can determine whether the same themes are found within the context (Scapen, 1990). This results in the holistic "general theory" (Diesing, 1972).

Holistic methodology can be applied to Habermas's theory of communicative actions. As mentioned earlier, given the holistic nature of society, one has to understand any part in the light of its totality in the context of historical evolution and social contexts. Focusing on such parts, the researcher can determine whether the part is reflected by the total contexts. In this way, the researcher can understand the nature of information systems development and practice embedded in this specific social context.

### 5.3 Research Process

#### 5.3.1 Research Site

The research site chosen for my study is a privatised industrial organisation (NCCL) in Sri Lanka. I used anonymous names to protect the good name of the organisation and the people. NCCL was and still is engaged in manufacturing and distribution of Cement in Sri Lanka. It started as a government department in 1950s. It converted to a state owned enterprise in 1958 under the State Industrial Corporation Act of 49 of 1957. Until 1993, it remained under the ownership of the government. In 1994, 90% of it shares were sold to a single partner; Yawakkal (Yawakkal is an anonymous name) in India while 10% of shares were transferred to employees. In 1996, a multinational Company; Goldernbank group of companies (Goldernbank is an anonymous name) acquired it from Yawakkal with the intervention of the Sri Lankan government. NCCL was selected for my study on the basis that:

(1) NCCL was one of the few industrial organisations in Sri Lanka had introduced information systems at some late 1960s and continued to be introduced. It enabled me to study information systems development and practice within the evolution of social institutions in Sri Lanka.

(2) Change of ownership from the state to a single Owner Company, and finally, from the single Owner Company to a multinational Company, brought fundamental changes to information systems development and practice at NCCL.

(3) Privatisation of NCCL was criticised by NCCL employees and the general public. Its issues were brought to the public attention through parliament debates (Parliament Hansards).

(4) It was possible to access and study a variety of participants who directly or indirectly involved in systems development both in the head office and in the factory (see below the number of participants being interviewed).

### 5.3.2 Research Participants

In order to obtain a balance view, a range of participants from Chief Executive Officer (CEO) to ordinary shop-floor employees were interviewed. 90 personnel participated in the three phases of interviews (see section 5.3.4 below) both in the head office and in the factory. These participants included senior managers (CEO, Vice Presidents (VPs), and Chief Factory Officer), middle managers, operations managers, engineers, accountants, information technology personnel, work superintendents, foreman, supervisors, clerks, trade union leaders, and shop-floor employees. 3 past employees, 2 outside information technology consultants working with current information systems projects at NCCL, and 1 high official (Deputy Director) in the Treasury department were also interviewed.

### 5.3.3. Access to the Research Site

I became interested in doing my research at NCCL when I talked to one of my students who were working as an information technology consultant to NCCL. He suggested me some other privatised organisations but I could not secure access to those organisations.

Initially, getting access to the research site (NCCL) was quite difficult. I contacted the Chairman of NCCL through a friend of my brother and explained him my need to do a research and the reasons (see above 5.3.3) why I wanted to conduct my study at NCCL. I had a lengthily discussion with him. He then passed my request to a decision of the CEO.

The CEO is empowered to take all administrative and management decision on behalf of Goldembank Company. After a lengthy discussion (about forty-five minutes) with the CEO, he allowed me to conduct my research at NCCL. I have given an undertaking that confidentiality of the information collected from the Company will be ensured, and such information will be used only for research purposes. He circulated a letter among all the heads of departments informing them to cooperate with me giving relevant support and information to conduct my research.

### 5.3.4 Data Collection, Documentation and Validation

Data were collected using an in-depth interview method, policy documents, minutes, memos, e-mails, financial reports, Parliamentary Hansards, and physical observation. These methods are well accepted and recognised methods for data collection in case study research (Remenyi et al., 1998; Myers, 1997; Yin, 1994). Interviews were conducted in three phases. The objective of the first phase was to understand the issues of information systems development and practice and become socialised into the Company. One and half months took to complete the first phase.

The second phase of interviews were focused on asking questions regarding the issues identified in the first phase of interviews. The emphasis was given to episodes of

information systems development. Information was sought about the history of information systems development and transformation of NCCL focusing on issues that influenced and shaped information systems development, how and why and in what ways information systems development contradicted with the social reality of NCCL. The second phase of interviews took another three and half months.

The third phase of the research started after seven months of the second phase of interviews. It took me about a month to complete the third phase of interviews. The objective of the third phase of interview was to identify some unclear information and to secure views from interviewers on the issues identified in the first and second phases and to further validate data.

Initially, some participants suspected me because the CEO directed me to research participants though I explained them the objectives of the research. I assured them anonymity and their identity would not be included in my research. Later they agreed to participate in the research. Interviews were conducted using a non-directive technique, which allowed participants to focus on specific issues but permitted them the freedom to expand on areas of personal interests and issues. Participants were encouraged to explain the development process through critical incidents, episodes, examples, metaphors etc. that were crucial in their view to shaping information systems development and the way they contradicted with the social context of NCCL.

Interviews were documented. Interviews with top and senior managers, some middle managers, and some Information Technology Managers were conducted in English whereas others with Sinhala (native language). The majority of participants did not agree tape recording but allowed manual notes taking. Therefore, each interview lasted

about one and half-hours to two hours. Although interviewing, taking notes and transcribing them was a lengthy process, I understood as an appropriate method to collect contextual aspects of information about systems development and practice. Interviews conducted using Sinhala (native language) were paraphrased in English. The documented interviews were discussed with the participants in the following days. The objective of this endeavour was to identify whether participants missed out information and used it as validation of interviews. A further validation was secured by interviewing a variety of participants concerning the same information.

Cross checking was achieved by comparing documents, financial reports, policy reports, minutes, memos, Hansards reports, and e-mails. The extended relationship with some research participants through e-mails enabled me to more closely understand their inner worlds and actions. Physical observation provided me further valuable insights and checking. I attended to three green area meetings and listen to interpersonal communications (explained in chapter six). Moreover, I spent several days in the research site listening to participants during breakfasts, luncheons, and dinners. In this way, a triangulation of data was obtained (see Darke et al., 1998; Yin, 1994; Walsham, 1993; Alavi & Carlson, 1992; Orlikowski & Baroudi, 1991).

### 5.3.5 Data Analysis and Reporting Results

A detail case description was prepared and these data served as the basis for critical analysis. Data analysis was performed by iterating theoretical constructs outlined in chapter three and social contexts of Sri Lanka outlined in chapter four with empirical data. Data was presented and analysed in episodic forms. Thus, ten information systems development episodes were described and analysed in chapter six between 1958-2000.

An observation was given by reflecting on each episode. Results of the analysis were used to theorise information systems development. Literature from various disciplines were incorporated in the theorisation of information systems development.

### 5.4 Conclusion on Research Methodology

The research methodology I used was a critical case study method in congruence with the critical social theory approach to investigate social phenomena. I explain how theoretical constructs could be iterated with empirical evidences within holistic research and make observations about social phenomena. Thus in chapter six, I use this approach to show how critical social theory can be seen in practice of information systems development in the organisation I studied.

# CHAPTER SIX

## NCCL CEMENT COMPANY

## CASE DESCRIPTION AND ANALYSIS

### 6.0 Introduction

In this chapter, I describe and analyse an in-depth case study of information systems development and practice at NCCL in Sri Lanka. This includes scrutiny of historical aspects of information systems development and practice as well as current usage using Habermas's theory of communicative action and the social contexts of Sri Lanka as outlined in chapters three and four respectively.

The first subsection provides a background of both NCCL and the Cement industry in general over the period 1958 to 2000. The NCCL case presented in this chapter was examined within two phases of socio-economic development of Sri Lanka. Thus, information systems development and practice at NCCL is examined and analysed within historical context of:

(1a) The state control phase (*Phase 1a*);

(1b) The state control phase with open economic policies (*Phase 1b*);

(2) Government privatisation which resulted in NCCL becoming a single owner Company (*Phase 2a*); and

(3) NCCL under the control of a multinational Company (*Phase 2b*).

Within these two phases of socio-economic development in Sri Lanka, ten episodes of information systems development and practice are described and analysed. Of these ten episodes, three occurred in the state control phase 1a of NCCL:

- (*Episode 1*) budget as a steering medium in a shift system.
- (*Episode 2*) the punch card system
- (*Episode 3*) budget with the punch card system. Two occurred in the state control phase 1b with open economic policies
- (*Episode 4*) Wang computerised system for management accountability
- (*Episode 5*) preventive maintenance system for management accountability. One occurred in the privatised single owner Company (phase 2a)
- (*Episode 6*) computerised time and attendance system after privatisation of NCCL.

Four episodes occurred when a multinational Company (phase 2b) controlled NCCL:

- (*Episode 7*) new work shift-plan in computerised time and attendance system
- (*Episode 8*) computerised information system for factory maintenance
- (*Episode 9*) management information for factory control
- (*Episode 10*) outsourcing information systems for NCCL.

### 6.1 NCCL Cement Company and Industry Background

NCCL was started as a government factory in 1950s. It converted to a State Owned Enterprise (nationalised) corporation, based on public ownership in 1958 following national ideological pressures to modernise and industrialise, especially in rural areas. The politicians had initiated large industries, one of which, was NCCL, to provide employment opportunities mainly for their political supporters in villages. An employee

stated. "Mr. [M] initiated this factory. He wanted to provide jobs for his political supporters. You see, "if he was not initiated you would have never seen a factory at Singerb".

The Cement factory was located at Singerb, a rural village near a suburban town centre in the northwestern province of Sri Lanka. It is located about 125 kilometres away from the head office in Colombo, the major Commercial City and capital of Sri Lanka. The people in the village believed the Cement factory as an opportunity to alleviate their poverty and unemployment problems.

The NCCL had a national monopoly both in manufacturing and distribution. Raw materials were locally obtained from quarries near to the factory. Cements were distributed through private dealers and government sector organisations such as co-operative societies. Cement supply was controlled through a permit system during times of shortages. Thus, the price of a cement bag was not determined through free market demand and supply or through costs and profits calculations. The price of a cement bag was partly subject to the influence of politicians in power.

NCCL was unionised through the activities of unions controlled by politicians in power. This division of employees based on party politics led to acts of inter-union rivalry within NCCL. A union leader, referring to a major reason for the poor performance of NCCL commented that "our division to fulfil the various aspirations of politicians was the *kodivinaya"* (Kodivinaya in Sri Lankan word meaning, being hold up).

Marketing, financial and personnel activities were carried out at the head office in Colombo. Manufacturing was organised under a factory manager. Accounting

personnel, a human resource manger, production managers, operations managers, maintenance managers and engineers, electrical engineers, and sales managers were located at the factory. Cement manufacturing was semi-automated and works in the factory were organised on a shift basis.

In 1960s, the government introduced new financial regulations and tight financial controlling came into operation. As a consequence, the focus of NCCL shifted to efficiency and effectiveness criteria. NCCL during the corporation regime (between 1958-1993) was controlled within state control model of socio-economic development making an average profits of about Rs. 300 million annually.

Theoretically, during the corporation period (i.e. 1958-1993), NCCL followed a formal hierarchical power structure in organising and managing work. As will be documented, in certain situations, the politicians influenced the formal decision making process such as the recruitment of employees, their transfers, and the introduction of information technology. NCCL operated in a legalistic and bureaucratic manner, which was typical of the public sector of Sri Lanka (Kelegama, 1997). As a state owned corporation, various successive modernisation reform programmes at NCCL did not manage to substantially change as a better organisation but only superficially affected social structures and work processes. The reforms were subverted by prevailing socio-cultural, economic and political conditions.

Since 1958, NCCL has undergone many changes in ownership, administration, management, and information technology. The changes have been somewhat more radical after 1977 when the government was introducing open economic policies following a market model for its socio-economic development in Sri Lanka.

Consequently, superficial changes to the socio-cultural, economic, and political structures at NCCL were carried out.

Privatisation of SOEs was introduced as part of these open economic policies of the government in 1977. The government had experienced budget deficits in many years and thus could no longer fund SOEs from the Treasury. SOEs were identified as a burden to the Public Treasury due to their inefficiencies in the management and the poor productivity performance in operations (Kelegama, 1997, 1993, 1991). Moreover, the government experienced pressure from the donor agencies. One senior official in the Public Treasury Department in the Finance Ministry stated that "you know, what is happening is, the government was and still is engaged in selling public assets to close the annual budget deficits following the recommendations of the World Bank".

NCCL in Sri Lanka, up to the end of the 1980s, occupied a monopoly dominating the market for the manufacturing and supply of cement, for the local construction industry. The monopoly position of NCCL started to change in the early 1990s when the government created a competitive market allowing other competitors to enter into the cement market.

SOEs have been openly trumpeted as the application of market practice by the government as the most appropriate way to encourage efficiency and effectiveness of SOEs. As a result, Toky Cement (TC) and Mahavali Marine Cement (MMC) started manufacturing and distribution of Cement in Sri Lanka. Additionally, some businessmen began to import low priced cement at a large scale from India, Malaysia, Middle East Countries, and China.

Over its history, NCCL had gained the reputation of being the highest quality cement manufacturer in Sri Lanka. NCCL faced a severe threat from two other competitors and from cement importers when the new open economic policy was implemented. With the appearance of competitors' products in Sri Lanka's market, NCCL market share began to sharply decline. At the time of privatisation of NCCL, market share declined from 100% to an average of 50% of the total Cement market. The decline of market share severely disrupted the internal functioning of NCCL.

The introduction of market principles into the cement industry in general, and privatisation issue specifically, was strongly opposed by most of the other political parties, the employee unions in corporations, and the general public. Opposition leaders opposed the move at parliamentary debates (Parliamentary Debates, 1990, 1992, 1994, 1996). Employees, through their unions, often vented their anger and frustration in the forms of strikes and mass media. They urged the government not acquiesce to the recommendation of the external funding agencies such as the World Bank and to sell public assets to the private companies. However, the government carried through its commitments to open economic policies and the privatisation of SOEs. A former General Managers of NCCL commented regarding the privatisation of NCCL:

> Despite the mass resistance from various interests groups such as employees, opposition party leaders and the general public, the government had decided to privatise NCCL. You know, a mission came to discuss an aid package for Sri Lanka during 1990s and forced the government to privatise NCCL. If the Sri Lanka government did not listen to the World Bank's recommendations, it would not have been granted funds for development.

Government perceived privatisation of SOEs as essential if the organisations were to be successful in the open economy and newly emerging competitive environments

(Kelegama, 1997). The government privatised many SOEs, including NCCL, in adherence to its market model. NCCL was seen as burden to government Treasury. In 1993, government decided to privatised NCCL. It was kept under the administration of the Treasury of the Ministry of Finance and National Planning, until the government found a suitable partner to sell NCCL. Thus NCCL was intimately tied up with the government's reforms.

In privatising NCCL, the government did not appear to consider the 'lifeworlds' of the organisation. Privatisation was used as a steering mechanism to steer the lifeworlds of NCCL in a direction, which was aligned, to the goals of the Sri Lanka government. The government assumed that NCCL could be transformed into an effective and efficient business enterprise following market principles.

In December 1994, NCCL was sold to Yawakkal, an Indian Company, following an open tender procedure at a price of Rs. 2.2 billion. Yawakkal, a single Owner Company, focused on buying and selling of cement. But as an NCCL employee commented, "Yawakkal did not have experience in the cement manufacturing industry".

After taking over NCCL, Yawakkal appointed a Board of directors with Mr. Yawakkal as both the Chairman, and the Managing Director, of NCCL. Upon the purchase of NCCL, Indian managers were appointed as the chiefs of the finance and marketing departments. Among other changes introduced by new management included an introduction of two payroll systems and a computerised time and attendance system for monitoring and controlling employees at the factory.

After major problems due to the Yawakkal's changes, NCCL was sold to Goldenbank in 1996. Goldenbank is a leading multinational Company, which comprises more than 80 cement plants in 27 countries. In addition, Goldenbank hold more than 500 ready-mix concrete and concrete of building materials as well as variety of services (i.e. providing management consulting) relevant to the cement and building products plants along with more than 150 quarries. Goldenbank is considered to be one of the most advanced users of high technology and information technology in the cement manufacturing industry (Goldenbank Policy Guide, 1998).

The changes in NCCL, outlined above, were intimately connected with information technology and its application in NCCL since the late 1960s. Advances in information technology-notably, hardware and software capabilities, and communication technology-gave rise to undertake a range of information systems development projects at NCCL.

The above description provides a general history of NCCL. It is important to understand information systems development and practice in NCCL in the historical context of social institutions in Sri Lanka. In order to understand the history of information systems development, the description and analysis begin with manual information systems development. Ten episodes outline below explain what happened in information systems development at NCCL between 1958s and 2000.

**6.2 Information Systems Development and Practice under a State Control Model: Phase 1a**

Independence in 1948 led to a commitment to centrally planned development following socialist principles. A balance of payment crises in the mid 1950's caused the import

substituting industrialisation policy to be implemented in Sri Lanka (Vidanapathirana, 1999, Lakshman, 1976). This included a program for industrialisation based on public ownership (Lakshman, 1976) leading to the establishment of NCCL in 1958 as a nationalised SOEs.

State Industrial Corporation Act No. 49 of 1957 defined a public corporation as a legal entity owned by the government with considerable financial independence, within a system of accountability to the public through Parliament. Accordingly, accounts of NCCL were to be kept according to the Companies Act No. 17 of 1982. These accounts were audited by the Auditor General, and sent to Parliament. Profits of NCCL needed to be remitted to the government-consolidated fund. The Ministry of Industries and Public Treasury controlled NCCL. Similar to other public corporations, NCCL was focused on budgets for political and management accountability.

Budgeting concentrated on production and costing. The factory was responsible for preparing and executing budgets approved by the head office. Administrative matters were governed by the general administrative regulation. Thus NCCL's controls formally embodied a philosophy of bureaucracy, employing legal concepts that owed much to the statutory corporation model underlying the structure of British nationalised industries (Kelegama, 1991). In particular the legal and administrative concepts were influenced heavily by technical, scientific and rational concepts. These concepts did not match with the employees' 'lifeworlds' of NCCL. In the initial phases of this state control model, preparation of budgets, payroll, and other personnel matters were carried out using manual information systems. Factory management used information for control of behaviour of employees.

Factory management established a hierarchy of authority relationships between head office, the factory, and its production departments that defined tasks and responsibilities. Their instrumental rationality gave rise to a distinctive management culture within the factory. Employees from the village were controlled on a day-to-day basis by supervisors from the village. Factory employees realised that the factory management was attempting to dominate their 'lifeworlds.'

These employees negatively reacted to managers' instrumental actions that embodied formal controls of employees' lives. Realising employees' legitimate 'lifeworlds' needs and their resistance towards instrumental actions and formal controls, factory management gradually developed opportunities that permitted employees to fulfil their traditional commitments to the village culture, whilst meeting the requirements of factory managers for reports to the senior management in the head office. Thus factory management employed communicative rationality by allowing NCCL 'lifeworlds' to evolve in a balanced way.

### 6.2.1 Budget as a Steering Medium in a Shift System: *Episode 1*

Initially, budget was used as a steering medium to make employees' work harder in the factory, rather than as a means of reporting to head office. Thus a production budget emerged that operationally linked supplies and production shifts daily and scheduled working hours through time cards. This steering medium required that supervisors who monitored production targets, checked employee productivity, and closely supervised employees. As part of budget planing, a shift was defined as a slice of the budget portioned into eight-hours of production. The control following budget as a steering medium began to achieve the desired production during each shift.

Production managers encouraged employees to be committed to the shift. The shifts became the focus of factory life and the budget was steering medium to control of work by using instrumental actions.

Production managers at the factory legitimised their instrumental actions by employing the production budgets. However, the employees were uncertain about their instrumental actions of this budget justification. They found it difficult to accept the overly controlled work patterns used by managers to dominate them. They realised that managers using budgets attempt to threaten their traditionally established culture, values and social pattern of their everyday living in their various lifeworlds. A shop-floor employee commented:

> We were surprised about the management, their orders and machines. They thought we like machines ourselves. We actually did not like production managers to control us. We used to be free within our village. We wanted to work and earn but not in that way.

Employees continually recollected their everyday life in the village. A shop-floor employee remembered. "Working in village life is enjoyable. Neighbours and family members worked together without any supervision or control but we were collective and harmonious".

Employees found it difficult to adjust to instrumental actions and control of managers because work discipline in village life was communicatively controlled. A shop-floor employee recalled:

> We were highly controlled. People had to work inside large buildings with mysterious machines. Timetables, bells, supervision, checking, and above all, working without talking were difficult for people. People wanted to work and earn but not in that way.

Employees in the village continued to define their lives by referring back to traditional ways and still wishing to engage in reciprocal village relationships and accompanying ceremonials. A shop-floor employee recalled:

> We have our own lands. If we neglect them we do not have a living. We used to live on them but we want to earn an additional income. You know, otherwise it is difficult to live. Living is expensive. We are poor people seeking extra money for our living. We really only work here for money. Otherwise we could stay at home.

Village life is full of cultural ceremonies and factory life interfered with employees participation in these. A shop-floor employee commented:

> We can't just ignore our traditional customs such as the full moon days of *Vesak, Poson, Asala Pinkams* and *Bali Thovil, village marriages, funerals, New Year*, and customs are parts and part of our life. All are in our mind. The factory is not the only part of our life.

Culturally, employees could not relate to a modern Western, fast-paced society. Many employees had low commitment and motivation to formally define controlling methods. The factory managers realised that they must help village employees adapt to factory life, especially the shift system. A former factory manager explained:

> It was their village. They did not bother about the new life in the factory. Shop-floor employees were uneducated and rural. Politicians appointed some shop-floor employees. Their traditional beliefs and attitudes were difficult to change easily. Some of our major problems were maintaining punctuality, continuous work by a target, preventing them from material frauds, and enormous absenteeism. Putting them to a right rack of work could not be easily done.

A production manager commented. "The problem was we should not interfere in their lives. The result was a high level of absenteeism. Shop-floor employees did not inform whether they were coming for the following day work shift. It affected the production process very much".

Another production manager explained the effects of frequent traditional ceremonies. "Our employees were and still are active in all traditional ceremonies. We have to manage our production to accommodate these circumstances". Managers also had to recognise the anxiety of employees and their lack of commitment. A production manager commented that:

> There were unsatisfied employees. They thought they did not have a future. The problem was we couldn't help. What we could do was that we didn't force them to do more work. We thought about sensible amounts in the budget.

Production managers and supervisors understood the attitudes of employees and they discretely adjusted production targets to meet the 'lifeworlds' needs of employees in the factory.

Generally, the efficiency of employees adversely affects Company budgets, but this did not happen in NCCL. A production manager explained. "The production managers knew that the employees were not efficient. So they did not promise the top management very much through the budget". A former factory manager explained that "we knew when absenteeism would be high. Then we changed our production schedule. The production departments' targets were set accordingly". The production managers managed external difficulties by including 'lifeworlds' in budgets. Managers at the factory used budget to accommodate employees' conflicts, which arose from the different perspective of their 'lifeworlds' and the requirements of management at the head office. A production manager stated that "the budget was there but we had to consider the demands of employees [lifeworlds] in the factory. They were more important than the budget. We took into consideration employees' problems when we prepared the budget".

Managers at the head office realised that good industrial relations relied on the production manager's budget. A former general manager commented:

> If we had different views about the budgets we cordially resolved them. Sometimes, the budget committee asked us to alter targets, as they would not be harmonious within the factory. But basically, it was the production manager who was competent at deciding budget targets [taking demands of employees' lifeworlds].

The factory management treated lifeworlds concerns as everyday management issues. Strategies of everyday controls through on-going *ad-hoc* solutions emerged. For instance, when employees were unexpectedly absent, duties were reallocated to other employees. Although this resulted in low production and discontinuity of work, the factory still made profits as it had a monopolistic market protected by the government.

The head office was located far from the factory, and viewed employees' lifeworlds concern as factory matters. This ignorance created conflicts between the staff in the head office and the staff in the factory. Factory employees believed that staff in the head office enjoy luxury life at the expense of employees in the factory. The perception of the head office was that it should secure financial resources for the factory through effective lobbying in the Ministry and manage through political interventions. Senior management in the head office realised that the key to resources and decisions lay in the hands of politicians and that their powers were weak.

Control and power in NCCL was formally vested in Board of Directors. However, the Minister had exclusive power to appoint and to remove the Board, Chairman, and the General Manager. The ability to appoint and dismiss people gave considerable power to

politicians. NCCL managers could not remove any employee without the approval of the Ministry. The Minister was sufficiently powerful to appoint political nominees to the Board and as Chairman and General Manager. A senior manager commented, "it has been the Minister who controlled the corporation, not the Board. The Board acted as the agents of the Minister, not the government".

Each change in government resulted in a new Chairman, General Manager and Board members. Consequently Board members took little interest and pain in the future development of NCCL. Instead of looking to the good of NCCL, Board membeis concentrated on cultivating relationship with politicians. In other words, these people acted in the best interest of politicians than NCCL.

National policies directed the factory and the head office through party political pressures to employ party supporters and extend party influence through trade unions. Most employees were appointed on the recommendation of politicians. A senior manager commented "the number employed was much more than actually NCCL wanted to run both the factory and the head office". In this way, an average of 2500 employees was employed in NCCL. Frequently these employees were not competent in the jobs they were appointed for. Consequently, supervisors spent considerable time instructing and training them, and maintaining close control. Many supervisors remarked upon this. A senior foreman commented that:

> When we had new shop-floor employees we always had problems. They were unskilled and untrained. Sometimes, they came from another corporation, which was completely different from this. But we had to keep them with us because they were useful for politicians.

Upon joining NCCL these employees became members of the government party trade union. Managers experienced difficulties in controlling trade union employees because of their political influence. A former factory manager remembered. "The employees' co-operation was difficult to achieve. On the one hand you have to tackle the trade union's demands. On the other hand you have to make these political men work efficiently. It's very difficult".

Evaluating the performance of NCCL was difficult as the government's politicians, whose primary concern was to fulfil promises given to voters, directly influenced pricing decisions. As a factory cost accountant observed:

> Prices of cement were very important to the Ministry [by implication, the Minister]. They insisted us on fixing prices. Therefore, we did not rely on our own pricing decisions. We did not have any method of doing so.

Seen in this light, budgeting as information systems failed to establish clear operational goals for NCCL under these circumstances. A senior manager recalled that "the management did not have such clear-cut goals or objectives. We were not in a position to maintain them. The reason was we had to adhere to the government and Minister's orders". Corporate planning and budgeting was not effective as head office officials and Board members acted in the interest of Ministers rather than plans.

#### 6.2.1.1 Reflection on Episode 1

The above description and analyses show that the management in the head office and the parliament had little interest or expertise in regarding factory problems due to conflicts between lifeworlds and budget implementations. These conflicts remained as factory matters. The Ministers approved budgets without considering their contents;

Board members approved budgets if they met ministerial concerns; and the head office budget committee accepted them if they offered industrial peace. Factory management through production budgets sufficiently included 'lifeworlds' problems in production budgets to tranquillise conflicts between factory management and employees. Thus, budgets took place within interlocking causes and relationships within broader socio-cultural, economic, and political structures at NCCL.

## 6.3 Information Systems in Regulatory Paradigm

In the late 1960s, the Sri Lanka government initiated a new control discourse around a "public financial control regulations". A control of attendance and discipline of employees was one of NCCL's managerial issues resulted from new public financial control regulations instigated by the government. The managers at NCCL considered that the need of controlling employees' attendance was essential if the factory was to be effective with the new financial control paradigm. In essence, manually processed information systems were replaced by the punch card systems. Information systems began to be utilised automated systems as part of the new regulatory paradigm in NCCL since the late 1960s.

### 6.3.1 The Punch Card System: *Episode 2*

The punch card system was viewed as an efficient and effective system by which employees' attendance could be controlled to implement budget targets for each of the factory shifts. In the late 1960s, a newly appointed Chairman, with the help of senior management, introduced an IBM punch card batch system for recording and controlling employees' attendance. This system was located at the entrance of the factory with a

staff of twenty personnel employed as time and attendance clerks to process information. The office was referred to as "time and attendance" coming under a supervisor of the accounting and finance department.

Factory management used the punch card system as a management tool to control attendance irregularities of employees. Factory personnel officer commented:

> Many employees did not report to work in time. This caused problems for arranging shifts in the factory. Lot of employees went for leave without taking prior approval. Some employees used to sign attendance books without physically coming to work.

Employees viewed the punch card system as another means by which factory management controlled their working lives. Being villagers, they were dubious about the merits of the proposed punched card system. The general sort of feeling among the factory employees was that the punch card system was being to further control their day to day social life. Employees opposed the proposed systems through their party unions.

However, being a powerful representative of the Minister, the Chairman overlooked the resistance of employees. An older shop-floor employee recollected his past experience regarding the punch card system:

> We realised that the management was planning to control us using a new machine. We did not know what it [the punch card system] looked like! However, we realised it was going to threaten and dominate our social life [lifeworlds] in the factory. Therefore, we opposed to it.

This control was antithetical to employees' traditional working culture in the villages. Another shop-floor employee remarked. "We opposed the punch card system but we could not change the Chairman's decision". Using Habermas's theory, the punch card

system utilisation could be described as a "colonisation" of employees' 'lifeworlds' by the steering media of the time and attendance techniques and technology and to objectify employees' 'lifeworlds.'

#### 6.3.1.1 Reflection on Episode 2

The punch card system was an example of NCCL management using purposive rational action (both instrumental and strategic) to achieve success in regulating employees' time and attendance. This purposive rationality emanated from the new financial control regulatory paradigm adopted by the government. In effect, the punch card system was a steering medium of the factory management to steer the 'lifeworlds' of employees in directions that were aligned to the goals of the government. Through the punch card system, NCCL management affected the government's economically rationalistic policy in the management of the factory so as to realise push for "value for money" in NCCL (value for money concept is adopted from Beynon-Davies, 1994).

### 6.4 Information Systems in Financial Control Paradigm

A new left-centred political party formed the government in 1970. It was committed to expanding public enterprises but they inherited financial crisis (Budget Speech, 1970). Responding to these problems, the new government introduced a legal framework to control public finance through the Public Finance Act 38 of 1971. The Act required public corporations to have budgets and associated financial procedures in an attempt to bring economic rationality to the sector (Kelegama, 1997). The objectives were to control government funds through budgets, to control production targets, and to introduce work discipline for the factory employees.

The new framework to control public finance had direct consequence for NCCL as financial controls and internal budgets, because audited financial statements in public enterprises became legal necessities. A factory cost accountant stated that "financial controls were the major concern of the Ministry. We had to go to this office every week to seek approval or advice. So the Treasury officers were the chiefs in deciding allocations for us". Officials in the Treasury implemented the government objective of limiting public spending and consequently cutting money granted from Treasury to corporations. They had to ensure that managers at corporations used government's funds in the best interest of the public following the legal enactment stipulated in the Finance Act. They exercised power over accountants in the negotiation process.

### 6.4.1 Budgetary System with the Punch Card System: *Episode 3*

The budgeting gained legal status and NCCL had to manage the factory within budgetary control. Committing to the new financial regulations, preparations of budgets and implanting them at factory became mandatory. Production managers interpreted that the new controlling budgetary systems were an improvement on previous systems. Managers used budgets to control employees by committing them to production targets at each shift.

The punch card system was used as a tool to control employees' shifts. Head office was delighted with the new controls, believing that they reflected the new financial regulatory paradigm. NCCL senior management in the head office enjoyed cordial relationships with politicians presenting reports to the Ministry which where them passed them to the public through Parliament.

Paradoxical movements emerged within the factory. The budgets provided production targets and the punch card system monitored employee attendance. However, these systems were difficult to implement. Employees' cultural resistance began to appear with economic crisis. During this period there arose political tensions in Sri Lanka, which impacted, on NCCL through trade unions. Trade unions organised against the NCCL control systems by means that were not always visible. A shop-floor employee commented:

> In the early 1970s, the government prohibited a lot of important consumer goods. Salaries were not sufficient for the minimum living conditions of employees. Managers attempted to control us using modern machines [e.g. the punch card systems]. We protested management's actions via trade unions. Trade unions were very active and national trade union leader was a Minister of the government during those days. The national union controlled our union.

**A former Factory Manage** recalled the period:

> Trade union activities were radical at that time and they had considerable amount of power within the corporation because they were the official representatives of the Minister in NCCL. We had to listen to everything from them. I mean even for 'short leave' it was a matter for trade unions. I must admit that they made lot of decisions. However, budgets, and the punch card system, were beyond their realistic targets.

The Factory Manager further said:

> If an employee was reprimanded for his late attendance, he came with a trade union leader and questioned us. Even though the punch card system had recorded actual time of attendance, we could not take disciplinary actions against employees because of the activism of powerful trade unions and the relationships they had with the government Ministers. Often Ministers influenced our decisions.

Factory trade union leaders, often being the leaders of villages sought to protect their cultural integrity and 'lifeworlds', by demands through trade union agitation. Employees' depression in the factory was linked up with a vast array of economic, political, and cultural intricacies. It was political because trade unions were linked to national political parties; it was economic as employees wanted freedom to supplement their factory income by participating in the village economy; and it was cultural as employees wanted to protect their 'lifeworlds' from the economic crisis and management control.

The situation raised broad issues of social, economic, and political contexts of systems development and practice. Both the budgetary and the punch card systems penetrated deeply into the social and cultural control of employees, leading to loss of culturally embedded value systems of employees.

Generally, trade union leaders are not aggressive in Sri Lanka. This is consistent with their traditional culture. Politicians use trade unions as instruments to achieve their politically motivated objectives. Organisations' unions are linked up with national trade unions. Either Ministers or a representative of elite groups become leaders of national trade unions. In this manner, the leaders of national unions, being from educated and wealthy families, find it difficult to understand and to empathise with the problems of shop-floor employees. Therefore, being from a different social class, they do not genuinely represent employees' rights in the working places. Often, union leaders little more than merely carry out the wishes of politicians helping to implement some government changes in organisations while ignoring the damage these changes could make to broad cultural and socio-political structures.

Thus, the trade unions, whilst supposedly acting as vehicle for social and economic justice, in the work place, they also provided for access to political and exercise of traditional kingship (Wickramasinghe & Hooper, 2000).

In periods of economic downtown, some employees worked additional hours during the weekdays and weekends at the factory. This could always be done because as a shop-floor employee remembered that "there were ad-hoc arrangements on shifts in the factory for production. In fact employees controlled the production. In certain days, we used to work in others' shifts by negotiating with factory supervisors". This attitude of employees was widespread indicated by a foreman remarking that:

> We knew shop-floor employees' problems. We were disappointed about their economic problems. When we wanted 25 employees for a shift, there were about 18 men. On the following day also we have the different number but with different people. They had such an informal arrangement. We sympathised about this. We could not take disciplinary actions against this because trade unions worked against us. If we took disciplinary actions against employees, some times the Minister questioned us about these actions.

Mangers found it difficult to implement budgetary controls because of political, economic, and cultural constraints. However, they were aware that politicians were more concerned about political survival and responding to political disturbances rather than imposing financial regulations in the public sector. These punch card and the budget systems were linked with the development and implementation of government objectives in NCCL within the regulatory framework of financial control of government enterprises.

Politicians increasingly influenced factory affairs thus causing difficulties for factory managers to realise production targets using budgets and the punch card system. The

punch card system was subject to political decision making. Politicians thought that they could provide more jobs for employees if the punch card system was removed. In 1979, the Chairman, whom was appointed by the then Minister of Industries and Scientific Affairs removed the punch card system and reinstalled manual system for processing employees' attendance.

Consequently, sixty new employees were recruited and assigned to the time and attendance office. The operation supervisor of the time and attendance section was redesignated as an accountant and appointed as the head of manual operations to administer employees attendance in the factory. Employees viewed the removal of the punch card system provided with a relief. An older shop-floor employee recollected his memories about the reinstallation of the new manual system for processing employees' attendance as follows:

> Removing it [the punch card system] was good for us because, we thought machines would never monitor our life again. In the villages, we are free and we are not monitored. No outsider controlled us in the village. We control ourselves.

#### 6.4.1.1 Reflection on Episode 3

Village life evolved over centuries. Work, family and leisure were integrated, as was ownership and control of the means of production. The control resided in social relations at the village level. Villagers were mostly unaware of the modernisation efforts of the government. Trust, mutual understanding, and traditional kingship practice governed village life. Formally processed information to control work, family and leisure via machines and techniques such as punch cards and budgetary systems were not needed. Information was informal and implicit in village culture, which operated

within a system of reciprocal understanding. The government Minsters and their representatives in the head office had little idea about how the activities of the factory disturbed traditional values and conflicts spawned in factory socio-cultural 'lifeworlds.'

**6.5 Reflection on State Control (Phase 1a)**

After independence in 1948, the new Sri Lanka government introduced modernisation and industrialisation following the state-control model of socio-economic development. This resulted in the establishment of public owned enterprises in Sri Lanka following the Western bureaucratic, scientific and rational planning methods. Politicians, to support their political promises about enhanced employment opportunities, initiated industrial initiatives and factories. In the minds of politicians, the establishment of factories was understood as traditional kingship rather than a vehicle for mobilising socio-economic development in the country.

Managers used formal information systems to steer socio-cultural 'lifeworlds' of the factory through techniques and machines such as budgetary and punched card systems within a bureaucratic model of rational planning to realise political objectives of the government. This approach was based on technocratic modes of organisational control with rational-legal, economic and purposive rationalities.

Employees interpreted budgets and the punch card system as instruments of domination of their lifeworlds. Information systems therefore appeared to endanger the employees' lifeworlds inside the factory. Though politicians promised socio-economic development through industrialisation using the state-controlled model, their development planing did not adequately address broad issues of socio-cultural, economic and political contexts of Sri Lanka. Thus information systems development

within the state control model did not improve NCCL and did not assist the socio-economic development of Sri Lanka.

### 6.6 Information systems Development and Practice under the State-Control Phase with Open Economic Policies: Phase 1b

Information systems development and practice at NCCL changed once again following the market-based model introduced under the open economic policies by the right-centred government which swept into power in 1977. The government commitment to market economics brought fundamental changes to the industrial policy based on import substitution and central planning (Karunatilleke, 1993). Policy makers believed that this market economics policies would result in a more competitive environment and thus greater organisational efficiency (Kelegama, 1993).

This was realised in the push for value for money amongst the public sector. One of the major components of the government ideology during 1977-1993 was the objective of improving the efficiency and effectiveness of public corporations. The consequence of this improving efficiency and effectiveness was the government policy was framed in terms of beliefs that internally generated savings should finance part of NCCL. This led to ideas of improving the political and management accountability of NCCL, both of which pointed in the same direction: more and better information. Management was put under pressure to improve performance and reduce operation costs at NCCL.

This political and management accountability ideas required NCCL to implement a fully developed management budget approach. Information was clearly cast as the currency to be used in decision-making and to monitor and improve the performance of tasks on which a new market system for NCCL was to be developed. These new

changes were resulted from successive government's objective of limiting public spending and consequently cutting money granted from the consolidated funds to corporations. However, the changes did not resonate with broad agendas of socio-economic development.

The political and management accountability ideas provided a foundation for the introduction of computerised information systems both at the head office and at the factory with the support of newly arrived information technology. Thus the management introduced the computerisation project in a context of financial and performance problems at NCCL. Computerised information systems were considered by NCCL management to be techniques and strategies that would solve their problems and decision to develop computerised information systems was taken. However, the development of these information systems was constrained by deeply rooted socio-economic and political structures within NCCL

### 6.6.1 Computerised Information Systems for Accurate Information for Management Accountability

In 1983, with a decision made by the Chairman, batch processing Wang computer systems were purchased at a cost of Rs. 1.9 million from DBMS, a local supplier of IBM computer systems. An information technology manager revealed that this amount was far more than the amount what actually NCCL could be afforded during those days. Of these computer systems, an IBM LVP 2200 computer, compatible with BASIC programming, was installed in the head office whereas an IBM VS 25 computer, compatible with COBOL programming, was installed in the factory. Accordingly, two

computing units for data processing were created both in the factory and in the head office.

The factory data processing unit was organised under the factory chief accountant in a highly secured "machine room" which denied unauthorised access. Similarly, the data processing unit in the head office was kept under the headship of an accountant, designated as operational supervisor, within the finance department. Both systems remained under the control of the finance manger who controlled overall financial matters of NCCL. These batch-processing systems were expected to process applications such as payroll, supplies, sales, and accounting to provide accurate information for newly emergant financial controls employing market principles.

Systems analysts and programmers were recruited by using an intelligence quotient (IQ) test. However a former computer programmer, who was later promoted to a systems analyst, recollected that "only few programmers and systems analysts passed the IQ test and others were appointed by the Minister". Politicians were more concerned about their party supporters than actual performance in systems development projects at NCCL.

Initially, the supplier of Wang computer systems, DBMS, organised training for accountants, systems analysts, and programmes in the data processing units who did not have previous work experience in computer applications. The training, as commented by a systems analyst "was provided about one and half months for programmers and just two to three days for systems analysts and accountants". The training was difficult. A programmer, who was later promoted to an information technology manager of operations, explained. "We could not understand the meanings of what the trainer was telling us, his language, terms used, data structures, data files, fields, codes, etc., not

only computers but all these were new to us". An accountant, while *laughing* stated that "we heard the term 'fields' in our village paddy fields rather than in an office. These new terms were strange to many of us".

The content and manner in which the training was conducted resulted in staff not being able to develop and use information systems properly manner within NCCL. Training was conducted with little or no interaction with participants, followed an instrumental approach, with no open and free discussions which are usually necessary for the success of information systems development and practice. A systems analyst that participated in the training programme commented that "we were told rather than taught in the course". The training was unable to properly trained trainees to develop computerised information systems. However, management entrusted the task of information systems development to these trainees.

In systems development, all the analysts and programmers adopted technical and instrumental approaches assuming the role of "experts". These experts assumed that the knowledge possessed by them was not available to users, or other involved parties, in the organisation. Users and other involved parties were forced to consent to the proposed actions of systems analysts. These experts believed that systems development is a neutral action. They ignored social contexts operating at NCCL when developing information systems. As a result, many information systems development projects eventually failed. Thus, management attempted to steer NCCL in line with the objectives of the ruling government's market principles, through information systems development, in a direction that was not commensurable with the demands of employees' 'lifeworlds' at NCCL.

#### 6.6.1.1 Wang Computerised Information System for Management Accountability: *Episode 4*

The Wang computerised information systems was used to process applications such as payroll, sales invoice analyses, inventory and supplies, and preparing statutory accounts to streamline and rationalise NCCL's business transections. Two data processing units, with newly trained information technology staff, were expected to generate the necessary information. Factory management, using such information, was supposed to transform NCCL towards becoming a more effective public corporation.

The government and senior management at NCCL assumed that NCCL was thus being transformed through new computerised information systems. However, the dynamics operating within socio-economic and political structures at NCCL complicated the development process in that new conflicts appeared when the newly introduced computerised information systems began to appear and influence employees' work and 'lifeworlds'.

NCCL management realised that they needed accurate information. However, the information systems development at NCCL, since its inception, whether manual or computerised, has tended to be patchy and piecemeal. Each analyst was given a job of developing information systems for a specific area such as sales, payroll, accounting, and inventory both at the factory and the head office. All the analysts conducted their development in a similar manner. Analysts were given information requirements by senior management, software vendors provided software, users and other stakeholders were not involved nor was their participation considered important, and systems development was mainly ad-hoc.

With all of these, what is interesting is that information systems development was taking place in often highly turbulent socio-political contexts at NCCL. One consequence of this was that any computerisation project carried out in NCCL had to consider the many forms of relationships that were going to be affected by the computerisation project and what activities had to be undertaken to ensure that those relationships helped the project. However, there were numerous socio-economic, and political relationships placed constrains upon information systems development and practice at NCCL.

Since its inception, management of NCCL lacked experience in developing and managing a computerised information systems project. Like many other public sector organisations, computer technology was new to NCCL. Almost all the employees, including senior managers, had never worked in, or been exposed to a computer environment. Initially, with the announcement of the new computerisation project by the senior management, many employees expressed opposition through their trade unions. A systems analyst recalled that:

> Huge employees' agitation was generated against the computerisation project. Some feared about loosing their jobs. Others thought their importance would be reduced within organisation if computers were to take over their jobs. Still others believed their work was going to be taken over by the data processing unit. More employees believed that their work would be monitored and controlled using new information processed by the computer systems.

It has been asserted previously that, in Sri Lanka, informal communication appears as the dominant mode of communication. Informal communication includes much tacit information that is internalised within the 'lifeworlds' of communities. Traditionally, Sri

Lankan communities were largely informally controlled through communicative actions. A shop-floor employee in the factory stated, "no one controls us in the village".

Employees continued to work at NCCL in a rather informal manner. Computerised information systems were not valued, and indeed were subverted by informal communication of employees. Employees perceived that computerised information systems degraded their personal communication. Employees feared that the use of computerised information systems would lead to their being dominated by an over-emphasis on technocratic modes of organisational control, which threatened their 'lifeworlds.' NCCL management introduced the computerisation project to change the organisational culture and to improve the overall performance without considering 'lifeworlds' of employees at NCCL.

This use of power by senior management, driven by government objectives, prevented open and free communicative discussion with employees about the introduction of computers in NCCL. The management legitimised their introduction of computers by asserting that their decisions were inevitable, being forced by economic circumstances of improving efficiency and effectiveness, and thus were politically neutral. However, employees understood that management decision to introduce computers was politically motivated to change their conditions. Employees expressed their opposition and they feared that computer systems would threaten their cultural values. Employees organised against the computerisation project through their unions. Unions were thus used by employees as a medium through which their socio-cultural value systems could be protected from the domination of management.

The employees were dubious about the merits of the new computers. They realised that their work-shifts would be closely monitored thorough computerised information systems and thus the factory management would control them. Employees perceived new computerised information systems as a threat to their job security. Some employees believed that computerisation of their work would lower the standards of their living patterns. Many who did overtime for additional earnings were particularly fearful and actively opposed the computerisation project.

After the introduction of computers, many employees used derogatory terms such as 'complicated machines' and 'compactor'. A shop-floor employee stated that, "they [computers] were brought here not to help us but to threaten our lives". An information technology manager recollected reasons for introducing computers at work:

> Apparently, there was no identified reason for moving from manual to computerisation of work as such. However, the idea of introducing computerisation project was to introduce remarkable control over finance, production targets, factory shifts, and everything with a minimum number of employees rather than actually transforming NCCL towards a better organisation.

Sri Lanka's culture reflects a collective society where members of the society construct social structures which express concerns with each other in a well-understood system of statutes and mutual obligations between families. Traditionally, families and neighbours were governed by trust relationships. They supported each other within villages without any wage negotiation. When employees realised that their jobs were going to be threaten by new computerisation projects, they organised against the projects, as they were concerned about their own and fellow colleagues' job security.

Senior management controlled employees' resistance using covert strategic actions, thus indirectly fulfilling the promises of politicians and by implication the government objectives. They offered salary raises for those who were joining the data processing units, thereby suppressing employees' agitation against the computerisation project. An information technology manager recalled, "in order to overcome resistance from employees, the management increased salaries for those employees who were willing to join data processing units". As a consequence, many employees who suffered from economic problems and were unable to maintain their families with low income joined the data processing units as data entry clerks. Many of those who joined the data processing units did not have sufficient knowledge about the tasks of the data processing units.

Employees had never seen computers before. Another information technology manager commented that "all employees who joined with the data processing unit as data entry clerks were concerned only the salary increase for their own interest, but not because they liked the computerisation project or they were aware of how to work with computers". On the other hand information technology professionals had promised employees that the proposed information technology solutions would transform NCCL into a better organisation. An information technology manager stated that "unions were opposed, but management persuaded many employees that the computerisation of works would benefit them". In this way, NCCL management used covert strategic actions to realise its purposive rational objectives in the computerisation project.

While NCCL's systems analysts and programmers were legitimised by management as developers of information systems, an outside specialist from DBMS was brought in by the management and introduced software for processing payroll, inventory, sales

invoicing, and general accounting, despite a mass protest by the trade unions. Although, the software vendor did not have prior experience of introducing such a large project, he expected NCCL to modify its information needs according to the processing facilities and capabilities available in the software package.

An understanding of a nation's culture as part of requirement elicitation is considered as an important determinant in the information systems development success (see Thanasankit & Corbitt, 1999a). There are many researchers who suggest that during elicitation, systems analyst should "acknowledge the socially organised character of work and its environment" (Randall, Hughes & Shapiro, 1994). Luff, Jirotka, Heath and Greatbatch (1993), suggest that inadequate attention is paid to the social context within which computer systems function, resulting in many systems eventually failing. However, recognition of social contexts in systems development did not happen at NCCL.

Neither outside experts, nor internal systems analysts, had conducted proper requirement identification for any of the modules of the software package introduced at NCCL. Rather the senior management dictated the requirements. Senior management was not properly educated regarding information requirements because they were subject to whims and fancies of politicians' self interests which were not related to the actual performance of corporations. A system analyst recollected his experience.

"Senior management expected from us to develop such a system that could meet their information requirements for controlling production scheduling and factory work-shifts, however, they were also little aware about their needs". Recalling traditional Sri Lankan culture, he said, "I didn't want to create conflicts with my superiors, because

our culture is to respect them". However, the information system introduced by the software provider was incompatible with the information requirement of management. A former data-controlling officer explained the process adopted by the external expert during the introduction of a payroll system at NCCL as follows.

> What happened was, before introducing the system, one day, an expert from DBMS came to our organisation. He just asked what information we want from the system? We gave our requirements. We thought, he would bring us a system that we need, but the system, he introduced was completely different from the one we wanted.

The software provided by DBMS was incommensurable with the needs of NCCL's payroll processing requirements. NCCL payroll system was complicated by massive links operating with production shifts, targets, overtime payments, leaves bonus, performance bonus, incentives, loan, and advance payments. Users found very difficult in producing required management reports using this software system. A systems analyst remarked. "We also could not do much to improve the system because we were not aware what he [the external consultant] was doing!" He acknowledged that he lacked knowledge about both software and payroll structure of NCCL. "I also did not have much idea about NCCL's payroll system. I had to listen to what he [the external consultant] was telling me". However, the systems analysts had realised that users could not generate reports. "Users also could not generate employees' pay sheets and other reports for the use of management". A former data-controlling officer explained:

> the package introduced at our organisation was originally developed in the USA and consequently used in some other organisation before. It was not the system we wanted. Our system is totally different. He initially agreed us to provide our own system. Now he wanted us to adjust our requirements according to the facilities available in the software. Can we do that? It's going to be another nightmare.

The consultant from the software provider (DBMS) together with NCCL's systems analyst introduced modifications to the system. "After introducing software, we had to introduce lot of modifications", remarked another systems analyst who was manning for inventories and supplies systems. A systems analyst stated that "we didn't involve users in designing of systems. They came to know only when we were trying to put systems into work". He further explained his instrumental and technocratic approach, used in systems development, stating that:

> Users did not have ideas about systems development. Until users saw the system and began to work with it, they didn't know what the system looked like. When they began to work, then only they realised what they wanted from the system.

Users were considered as unintelligent and passive objects to be manipulated and controlled by instrumental actions of systems analysts. When users were experiencing problems in use of systems, they were "users who lacked expertise" but not the systems analyst. "Once the system has been developed, users believe that's the end. They expect everything to be done by computers". He further said, "they don't make any attempt to generate anything creatively. Most users didn't have background of computing, because those who joined data processing units were transferred from other sections where they worked as manual clerks".

In Habermas's terms, rather than employing communicative action to cultivate employees' capabilities to use information technology, these experts acted inappropriately in an instrumental manner, serving their own best technical interests and the perceived technical interests of senior managers at NCCL. In this way, they objectified the systems development by dominating the lifeworlds of employees at NCCL.

In general, employees who joined the data processing units as data operating clerks found it hard to use information systems developed by both external and internal experts. The existing manual procedures dependent on a whole series of human decisions and judgements for which rules were tacit and located within the lifeworlds of employees. In such an environment, these staff members could resist any attempt to translate their intensions and actions computerised information systems. They opposed systems development in various ways. They perceived that the technical and instrument approach of experts in introducing comprised systems appeared to threaten their values systems and 'lifeworlds.'

Even though they opposed the computerisation project, they believed that they were ignored during the system deign and modification of the payroll system. Forced by their economic problems to accept the higher salaried positions in the data processing units, these employees experienced cultural clashes with modern technology introduced by NCCL's management.

Users repeatedly refused systems development projects that were dominated by systems analysts. A systems analyst explained how:

> I developed a credit control module as part of a sales and accounting information system. The finance department gave the information requirements to me. Sales clerks refused to use the system when it was implemented. They continued to work with manual system for recording credit information about sales.

Users and other affected parties, such as employees in other divisions, were reluctant to change their everyday life to fit in with the change of computer technology, which faced

employees' scepticism. Generally, employees at NCCL proved that the development of technical information systems were unsuccessful without their participation.

Users perceived that their participation in systems modification was essential if it was to be successful. However, user participation was restricted by the power of systems analysts and outside consultants. It was found that, employees perceived that a system of knowledge lies in collective decision making where members of the community express concerns with each other. They perceived that trust and mutual understanding of human actions are vested in customs and traditions. In general, the everyday life of most of employees was built into cultural values of working as a family with equity, trust and reciprocal understanding. This everyday life was fused with Buddhist teaching. Most of the interactions in employees working lives were enacted within understandings, which arose from contexts of commonly experienced 'lifeworlds.'

However, systems analysts and external consultants ignored this social grammar that influenced as a whole in every single interaction between employees at NCCL. The former data-controlling officer who worked for the payroll section recalled. "Although we don't like to see the computerisation of our work, there is always a way forward". Recalling how they make decisions in villages, he explained. "We were not given opportunities to involve in the design and modifications of system nor we were consulted for our views about the system design. It was only by experts doing everything". If we are involved, he explained, "we know lot about NCCL's payroll structure. We know how to get it done".

Referring to the socio-cultural values of Sri Lanka, he continued to explain how information systems could be developed. "It is we who should work together to develop

information systems". He understood the fact that information systems development should be carried out as a knowledge-sharing activity among different parties in a free and an open environment.

A great deal of criticism arose from the staff in general over the long development times and manpower resource implications for the computerisation project. Several factors contributed to this charge as information technology manager explained.

> When there were technical problems in computers in the factory we had to bring the matter to the notice of the head office. Our matters were not priority concerns within their agendas. The head office had little understanding about factory affairs. It took many days to come and sort out factory problems. They also not took much interest because the factory was located in a remote area. We could not work with computers until they come and solve those problems.

Generally, ever since the inception of NCCL, employees in the head office viewed employees in the factory as of an inferior status. The perception of factory employees was that the employees in the head office enjoyed luxury life at the expense of factory employees. They believed that the factory staffs, but not the staff in the head office, were undergoing hardship in cement production with the minimum facilities. This division was reflected in the organising of data processing units in the factory and head office.

While information technology people in the factory were struggling in developing information systems, information technology people in the head office exercised a considerable amount of power over the information technology staff in the factory. A factory systems analyst recollected. "As far as status are concerned there is no difference between people who worked both in the head office and in the factory, but

they thought that they are superior to factory information technology staff, because they had access to many information technology resources".

The control of power exercised by information technology staff in the head office, over the information technology staff in the factory, created conflicts between these two groups. These conflicts plagued information systems development in the factory, which were further exaggerated by hardware and software failures. An information technology manager of operation explained. "We had to depend on our suppliers for maintenance". Additionally, the factory computers repeatedly made hard disk errors due to electricity fluctuations.

Moreover, information technology personnel were not skilled enough to properly develop information systems. All these added to the slow progress made by the computerisation project in the factory. An information technology manager explained that "information technology people were and still are not competent enough to implement change through information systems development. This is why many people in other sections didn't trust on the works carried out by the employees in the information technology units".

The inability to develop successful information systems is mainly related to the lack of understanding about the social context of NCCL by information technology personnel. Since the late 1960s, computer education in Sri Lanka has been developed as a technical profession.

Software vendors, who mainly provided standard Western technical solutions, used their own experts who had been trained as technical staff. These information technology

personnel lacked understanding about major social issues and complex intricacies operating within NCCL. They could not appreciate the idiosyncrasies of operations operating in Sri Lanka. A systems analyst commented that "it was very difficult for them [outside information technology consultants] to implement their solutions because they lacked social knowledge in systems development. That's why computerisation projects took unusually long time to implement and some projects were abandoned".

Employees perceived that the main reason for the introduction of computerised information systems to change in the political and economic climate in which NCCL operated. Despite the proposed benefits of the computerised information systems, the employees feared disruptive changes in work and social life. These employees' fears regarding the computerisation of work became reality when management announced a compensation plan to remove the excess staff. A shop-floor employee explained:

> This was what happened after the introduction of computerisation project. The payroll section, previously 60 employees, was reduced to two. Similarly, the number of employees in other divisions was reduced significantly. The management removed excess staff, offering compensation of Rs. 20000 per employee, following the government's recommendations of removing excess staff in public corporations.

NCCL had ignored the social cost such as unemployment problem and the resultant economic problems of employees of information systems development. These retired employees added to increase the unemployment problem in Sri Lanka worsening their living conditions.

#### 6.6.1.1.1 Reflection on Episode 4

One of the main claims made for the development of computerised information systems was that it provided valuable information for decision-making tasks. This idea was inspired by the early writings of Herbert Simon (1977) who wrote that information systems reduce the complexity of decision-making rationality by relaxing the bounds that prohibit informed optimisation of the decision problem. Management actions at NCCL were framed by Herbert Simon's conceptualisation of economics of information processing. Their ideas were heavily influenced by the open economic policies introduced in 1977 by the Sri Lanka government. Following these ideals, computerised information systems were designed to improve the efficiency and effectiveness of NCCL.

The introduction of Wang computerised information systems clearly adhered to these ideals. However, management did not take into account many important aspects such as the nature of the organisation, its social, economic and political structures, experience in management and organisation of computerisation projects. Neither did it identify the skills necessary for information technology professionals, and infrastructure facilities required for the computerisation of works. It was partly unable to meet the interests of various employee groups and assumed that computerisation of work could be undertaken with no disruption underlying socio-cultural 'lifeworlds.'

Consequently, management ignored the importance of practical problems of employees whose voices were suppressed by dominating managerial actions. As a manager explained, "computers were just introduced without considering social aspect of life of employees". In this light, it can be argued that information systems were adopted to

strengthen the narrow instrumental and strategic concerns of management of NCCL rather than actually to transform NCCL towards a better organisation.

### 6.7 Computerised Preventive Maintenance Information Systems for Management Accountability: Episode 5

In 1987, senior management recognised that maintenance of factory operation was central to its modernisation program at NCCL. Consequently, introduction of computerised preventive maintenance information systems for maintenance activities in the factory plants was regarded as essential in addition to computerising the payroll, sales invoicing, inventories, and general accounting system. The responsibility for the development of the computerised preventive maintenance information systems remained under the factory data processing unit but took place in a highly turbulent socio-cultural and political contexts. Factory engineers saw this new system, although developed for their use, as a threat to their professional status and their conditions of employment. While engineers were fighting to preserve their professional status, systems analysts gained states as experts in the development of the plant maintenance system.

Engineers saw the newly appeared information technology profession in general, and people who worked in data processing units, as a threat to their already established engineering culture. This gave birth to conflicts in both an organised and passionate manner, by engineers with information technology people in the data processing unit. Conflicts appeared as factory engineers sought to preserve their professional status within the factory. Engineers were considered as experts in production, maintenance, electrical, and other engineering works. A shop-floor employee commented.

> When there was a problem in the plant, we always had to see an engineer through our supervisors. Though we knew how to get the machines to run quickly, we were not allowed, we had to wait till an engineer came and said OK.

Engineers thus used technical, scientific and bureaucratic techniques and methods to control work in the factory.

A significant number of engineers opposed the proposed plant maintenance system that was to be developed to put the senior management initiatives into practice. A systems analyst commented that engineers' support in the development of computerised preventive maintenance information systems as essential part of the project: "it was essential for engineers and technical staffs to support the development of plant maintenance information system. Their participation was also essential because the proposed information system was meant for their use in plant maintenance".

Briefly the computerised preventive maintenance information systems was expected to monitor breakdowns of plants and take preventive actions to effectively control production and employee-shifts. Management believed that the introduction of the computerised preventive maintenance information systems could provide a means to direct attention to the maintenance of factory plans, and thereby management could organise employee-shifts accordingly. By using computerised preventive maintenance information systems, management believed it would get reliable and objective information about plant maintenance activities and thereby reward employees for grater efficiency. This information, in turn, could be used for the financial control at NCCL.

Engineers, as users of computerised preventive maintenance information systems, were annoyed that they had not been consulted earlier by the senior management. However, engineers were refused the right to participate in the requirement identification process initiated by the systems analyst. The general feeling among the engineering staff was that computer, and by implication, people in the data processing unit, was being used, yet against, to further control professional people and engineering culture. Engineers believed that systems analysts did not have sufficient understanding about plant maintenance and that they should develop the proposed system. A systems analyst, working with the computerised preventive maintenance information systems stated:

> Engineers did not co-operate by giving information. They viewed that they could develop it [computerised preventive maintenance information systems] if training was given to them. They believed that engineers, not computer people, should develop the proposed system. Moreover, engineers felt that systems analysts do not have an idea about plant maintenance to develop a better system for their use.

Engineers feared that systems analysts and the data processing unit, by way of computerised preventive maintenance information systems development, would gain control and power of their work within the factory. They realised that their recognition as experts would be reduced if data processing unit controlled the plant maintenance system and, by implication their engineering expertise within NCCL. Engineers questioned the legitimacy of systems analysts' developing system for engineers' work. A factory engineer commented:

> They [systems analysts] pretended to know everything. Who are they to come and ask questions, I mean from engineers, what information do we need from the computerised system? What they know about factory maintenance? What they know about us [engineers]? They knew nothing about plant maintenance. They might have been familiar with a bit of computing but nothing about plant maintenance. Plant maintenance is a completely different business.

The development of computerised preventive maintenance information systems in general and the involvement of systems analyst in the development of computerised preventive maintenance information systems in specific were annoyed by engineers. This agitation was further increased when the management increased salaries of information technology people in the data processing unit by 40%. This salary increase of information technology personnel went up above the salary level of engineers and some other executives such as accountants and technicians. An engineer stated that "computer staff had neither gained qualification on a par with us, nor were they competent in their profession. How could they be considered as superiors to us?"

However, the fact that engineers and technicians opposed the raise resulted in a decreased raise of pay, which led to bad feelings and poor morale among computer professionals. The computing staff perceived the decrease as a low appreciation of the information technology function within NCCL, mainly due to structural design of the organisation. An information technology manager stated:

> Computing in general, and staff who worked in the sections have not received due recognition right from the beginning to now because it [computing section] was and still is an instrument of finance department. Managers who used information processed by the computing units were esteemed but the people who made available such information to them [i.e. people who produced such information while working behind the screen], were devalued.

The information technology manager further said, "however, a systems analyst who had a deduction from his salary subsequently left the Company for a higher salaried position in an another Company".

Like other computerisation projects, the development of the computerised preventive maintenance information systems was significantly affected by party politics. Factory

employees opposed the proposed system through their trade unions. This organised resistance resulted in a personal clash between the senior systems analyst, in the factory data processing unit, and the trade union leader. As a result of this clash, the senior systems analyst, who belonged to the opposition party, was transferred to the head office on the request of the trade union leader who had ties with the Minister of the then ruling government. A systems analyst commented that "we came to know later that engineers also supported Mr. [X's] transfer".

The development of computerised preventive maintenance information systems ostensibly taken a political nature. Engineers' agitation towards computerised preventive maintenance information systems was defeated through organised politics within NCCL. They realised that systems analysts acting as experts attempt to implement hidden agendas of senior management through the development of computerised preventive maintenance information systems. However, systems analyst could not develop a type of computerised preventive maintenance information systems required by the senior management, as explained by a programmer who was working in the data processing unit in the factory. She explained that:

> Senior management began to inquire about the plant-maintenance system [computerised preventive maintenance information systems], but we didn't have one . . ., because we didn't receive support from engineers to develop such a system required by senior management. However, we developed one according to our knowledge, though it was not the same information system that the senior management wanted, so we also had to work with a bit of frustration.

When the development of computerised preventive maintenance information systems was failed, the systems analyst interpreted engineers' resistance as incapable management group within factory who didn't perform in their task efficiently and

effectively. The systems analyst in the factory explained that, "they didn't like others [senior management] seeing their weakness". However, engineers interpreted proposed computerised preventive maintenance information systems as a management-controlling tool to closely monitor their works in the factory. Because there was no proper ways of evaluating their jobs at that time and some engineers would have thought their weakness could easily caught by the management and accordingly they would be disadvantaged. A maintenance manager (engineer) explained, "once information become formal, it is easy for them [senior management] to control us within our factory life. It [computerised preventive maintenance information systems] was totally a new controlling device emanated from the government's reforms".

In 1991, with a newly promoted programmer as a systems analyst recommenced the computerised preventive maintenance information systems. Senior management later realised that proposed computerised preventive maintenance information systems could not be developed without the support from engineers. The former Factory Manager:

> Engineers deeply felt that they were ignored from the decision making process, I mean, the development of the computerised plant maintenance system. I realised, without their support, implementing the project would be impossible, so I finally decided to send a team, including an engineer for training".

Realising that management decision-making process was hampering due to lack of information about the plant maintenance, it was subsequently used such information for financial controlling. The management had decided to send a team consisting of senior engineer (maintenance), systems analyst, and programmer for a training at the Engineering Corporation in Sri Lanka hoping that training would develop an understanding among these employees. The training was aimed at demonstrating a

sample computerised preventive maintenance information systems that could be used in the cement industry. Systems analyst recollected their training. "It was really interesting, only for the first time in my factory life, we understood each other. We developed good relationships with the maintenance engineer". The team together realised that the demonstrated computerised preventive maintenance information systems would not meet the requirements of the corporation, all agreed to develop a suitable computerised preventive maintenance information systems in-house.

Since the team members comprised from various stakeholder groups (systems analyst, programmer, and senior maintenance engineer), the team members developed more loyalty to each other as time went on. The same process occurred when design and development of the system was started. Engineers continued to invest their time and effort in the development of the computerised preventive maintenance information systems, they spent more time in it. Seen in this light we can conclude that the team members had employed communicative actions in understanding the problems of demonstrated computerised preventive maintenance information systems.

Engineers began to support the development of computerised preventive maintenance information systems when their involvement and participation were recognised by the senior management, systems analyst, and programmer. A former programmer commented that "the second stage of the project [development of computerised preventive maintenance information systems] was successful hence the senior engineer involved in the design and development of the system". With his support, "we shared our knowledge about the development of system [computerised preventive maintenance information systems]", and later the system analyst designed a four-module computerised preventive maintenance information systems, which comprised of

machine-maintaining module, preventive module, job catalogue module and condition monitoring module. Engineers, systems analyst, and programmers agreed on the design proposed by systems analyst and management approved it.

In 1992, the team decided to develop the first of the four-module design, i. e. machine-maintaining module. Once the team approved the design of machine-maintaining module, a problem appeared as to where and by whom it should be developed as maintenance engineers opposed to develop proposed system by the data processing staff in the data processing unit. The systems analyst explained. "Engineers wanted to develop it in their section by their people, but not in the data processing unit by information technology staff".

Realising the importance of the machine-maintaining module, and the agitation of engineers to develop the system in the data processing unit, senior management decided to develop it in the maintenance section. However, management faced with a problem of developing it on the Wang computer as it was installed in the data processing unit.

During this period, small PC's were available in the market. In 1992, Wang systems of the head office were converted to a PC environment but the conversion of factory systems was excluded. Head office was delighted with new PCs and enjoyed in the head office believing that the factory was running smoothly following newly introduced market principles of the open economic policies of the government.

When the factory management sought approval from the head office to buy a PC to develop a factory maintenance system, it was delayed. A factory systems analyst stated, "they didn't worry about the things happening in the factory. We wrote several letters to

the head office asking a PC". Staff in the head office exercised a considerable amount of power in use of money about the factory activities. The conversion of head office system form Wang to PCs was rationalised along the line of high maintenance cost of Wang computer systems but the exclusion of conversion of factory Wang computer systems into to PCs could not be rationally justified.

However with the support from the General manager, the factory management was able to secure a PC and it was installed in the maintenance section. The maintenance system was developed using Clipper programming in a DBASE. The systems analyst recollected her experience in the development of computerised preventive maintenance information systems:

> We [design and development engineer, foreman and systems analyst] jointly developed the system [computerised preventive maintenance information systems] and it was successful, because of the participation of engineers. Both design and development engineer and foreman had good understanding about the computerisation of maintenance work. We worked as a team and shared our views when we were working [developing] in the system. It was good, because they knew what is really happening in maintenance. Other engineers such as maintenance manager [an engineer] also supported us though he did not have knowledge about computerisation of work.

Seen in this light, the engineers were not opposed to the introduction of new system *per se* rather, they were more concerned about preserving their engineering culture within NCCL. They were more concerned about how the computerised preventive maintenance information systems and their involvement with it would be perceived by senior management. Systems analyst stated that "with the inputs and support of engineers and technical staff, it [computerised preventive maintenance information systems] was later successfully implemented". This is not to say that all the engineers and engineers

in the factory supported for the development of computerised preventive maintenance information systems, but the development was legitimised by the support and participation of engineers who did so.

The development of computerised preventive maintenance information systems by engineers within maintenance division served to reinforce their already established engineering culture whilst maintaining the power of engineers over the production employees revealed that information systems by itself can not force abandoning of long established social structures within NCCL. A shop-floor employee in the factory commented, "they [engineers] realised that they were loosing their status. Now they can more easily control our life within factory using computerised information systems. We become victims of the system". These ideas are consistent with many critical accounts of computing in organisations (see Rule et al., 1980; Mowshowitz, 1976; Briefs, Ciborra & Schneider, 1983). These authors view information systems as a new device to reinforce control and surveillance of the workforce leading to an organisational "iron cage" (Weber, 1947) with increased alienation.

The computerised preventive maintenance information system was legitimised by the senior management with the ideas of engineers' scientific and bureaucratic ideals (culture). Information technology fused with engineers' scientific and bureaucratic culture to control employees facilitating the modernisation efforts of NCCL. Thus it can be argued the information systems development served the interest of government rather than the general interest of employees and other affected parties in the NCCL.

### 6.7.1 Reflection on Episode 5

The management purist of efficiency and effectiveness through technocratic and economic rationality dominated over 'lifeworlds', transformed social action to context of action bound by the requirements of the technology itself, and ultimately imposed its own authoritarian system. The adoption of technocratic and economic rationality in information systems development in the context of modernity is a political system of domination, which aimed to serve the interest of government's modernisation programme.

The computerised preventive maintenance information systems project went on within deeper political and cultural contexts within which it is embedded. Thus information technology adoption within political and management accountability paradigm model of modernisation for socio-economic development proved unrealistic with the prevailing social, cultural values systems, economic and politics in Sri Lanka.

## 6.8 Reflection on State Control with Open Economic Policies (Phase 1b)

Generally, the inability to develop information systems as communicative rationality and become as an institutionalised practice was symptomatic to the existence of scientific and bureaucratic rationality which fundamentally at odds to the communicative rationality. This scientific and bureaucratic rationality was rooted in the historical context of management of SOEs in Sri Lanka. As many other SOEs in Sri Lanka, NCCL followed the ideal model of formal scientific and bureaucratic rationality of the Western countries to plan and manage organisational affairs. While the state was acting as a provider of an infrastructure of services necessary for technological

modernisation, the covert but highly institutionalised and politically manipulated apparatus for employment followed an uneven industrialisation. The politicians were effective in the manipulation than the declared objectives of government's socio-economic development. Modernisation of NCCL frustrated with the interventions of politicians, institutionalised scientific and rational bureaucracy. These were coexisted and hampered information systems development projects.

Generally, Sri Lanka's public service has not been structured in such a manner in consonance with the socio-economic development needs of the country. From this perspective, it is quite natural that employees at NCCL have been unwilling and incapable to employ communicative actions and to sustain modernising reform interventions of the government through information technology.

Seemingly, modernisation efforts of the government through the introduction of computerised information systems following open economic policies did not make any impact on transforming NCCL towards effective organisation but significantly influenced on change of social, economic, and political structures. Employees' lifeworlds were insufficiently linked up with the open economic policies of the government leading to loss of cultural traditions, customs, and values.

Additionally, availability of competitor products and inefficient management of competition reduced market share by 50% leading to financial crisis. NCCL's machines were obsolete. Moreover, the government had no funds to replace machinery due to financial crisis of the government. The government faced with fiscal difficulties and with the recommendation of the World Bank, the government persuaded to privatise NCCL.

### 6.9 Preparation for Privatisation

From 1993-1994, NCCL became a public Company under the Treasury supervision with making legal and institutional arrangements for privatising NCCL and making it attractive to potential investors. It was the first step of privatisation of SEOs. The secretary to the Treasury appointed a Board of directors. During these period employees' agitation towards privatisation was developed. It affected for poor performance of NCCL. Market share of NCCL reduced to an average of 50%.

Initially, the Treasury instructed NCCL management to prepare a Company profile to attract investors to sell NCCL. It was considered as a document, which contained critical information about corporation to help buying decisions of investors. NCCL management gained little experience in preparing such a document. The former Factory Manager explained why:

> Since all of us were working in a government corporation, we did not have knowledge about how to prepare a Company profile, what information is to be included? How to generate information from data, and so on. Until, the early1990s, information requirement was not felt. We operated in a protected market by the government.

The prevalence of an inflexible adherence to rigid bureaucracy, impractical top-down approaches in decision-making and communication, use of overly authoritarian power structures, and unrealistic intervention by politicians in corporation affairs constrained employees to engage in critical examination and self-reflection of their work. This rational scientific, technical decision making and control was a defining feature of NCCL and was deeply employed in the course of management practice since its inception. As a whole, many NCCL employees were not aware of their objectification by rational scientific and technical decision making processes. NCCL managers became

myopic masters of use of bureaucracy leading to a self-imposed ideology that bureaucracy is the ideal form of management and control of organisations. In other words, managers imposed distorted forms of rationality upon themselves by continually reproducing the normative, objectifying structures that distort communication and constrain practical application of their knowledge.

### 6.9.1 Reflection on Preparation for privatisation

The use of power in the process of scientific and technical decision making and authoritarian control within bureaucratic organisation of work prevented free discussions necessary for creativity of employees in NCCL. On the other hand the management worked in a relatively stable environment buttressing the status quo. Bureaucratic culture employed within NCCL restricted information sharing across departments.

This management and administrative culture of NCCL strengthened managers' power within their departments. Information was interpreted as an instrument to be used to control employees and to exercise political power over employees rather than facilitating to change NCCL towards a better organisation. Both manual and computerised information systems initiated were used as devices to reinforce control and surveillance of the workforce and to buttress the status quo than actually transforming NCCL for an effective organisation. This culture has annihilated employees' momentum for change through information systems development. From this perspective it is quite natural to believe why innovative ideas did not cultivate in managers' minds and why information systems did not develop using communicative actions.

### 6.9.2 Privatisation of NCCL

NCCL was privatised under the conversion of Public Corporations and Government Business undertakings into Public Limited Companies Act. No. 23 of 1987. NCCL was valued at Rs. 1475 million. The value based on the trading potential and adjusted for non-performing assets and liabilities was Rs. 1017.2 million, however the Chief Government Valuer has recommended a floor price of Rs. 1250 million for the transfer of the ownership of the Company. In 1993, calls were made for sale of 90% of the shares of NCCL. The balance 10% of the shares, valued each at Rs. 10, was owned by the Treasury on behalf of the interest of employees. Employees viewed that, "free offer of 10% to employees was a political trick of the government. It used as a strategy to hide information about privatisation and to suppress employees' resistance towards privatisation".

In selling of NCCL, six major investors who had vested interest on NCCL forwarded bids. Yawakkal Group of Companies offered the highest bid. Their bid was Rs. 2.2 billion (US$ 41.1 million). Other bids offered included, John Keels Holdings Limited Rs. 1080 million 21.9 (US$ million), Goldenbank Rs. 1056.1 million (US $ 21.4 million), Gujarat Ambuja Limited Rs. 991.9 million (US$ 20.1 million), Specialist Centre (Private) Limited Rs. 968 million (US$ 19.6 million), and Free Lanka Trading Company Limited Rs. 520 million (US$ 10.5 million).

Finally, 90% of NCCL shares were sold to Yawakkal Group of Companies in 1994 and the enjoyed selling. A letter to the President on February 15$^{th}$ 1966, the Director General of Securities Exchanged Commission had stated that, "the government obtained the best

price for the country. Twice the bid offered by the second bidder". (Cited in Parliamentary Report 19 March 1996, p. 763)

Due to an unknown deal, Yawakkal had paid Rs. 1128.3 million (US$ 22.5 million) in foreign currency and the rest Rs. 900 million (US$18.6 million) being paid in Sri Lanka Rupees by obtaining a loan, which is known as leverage buy out. A senior manager stated that, "even this payment had not been made up front". Purchase of shares by using Company funds is a violation of Section 55 of the Companies Act (Parliamentary Report, 19 March 1996).

> Section 55. "It should not be lawful for a Company to give, whether directly of indirectly, and whether by means of a loan, guarantee a provision of security or otherwise any financial assistance for the purpose of or in connection of, or for any shares in the Company".

The offer to Yawakkal had violated the procedures stipulated in the report dated 18 August 1993 of the Technical Evaluation Committee of privatisation of Cement Corporation (Parliamentary Report, 19 March 196). The report says:

> Section 5 (ii) . . . "the entire purchase consideration should be paid up front, on the award being made".
> Section 7.2 . . . "If the successful bidder is a foreign organisation, the price offered should be paid to the Treasury in freely convertible foreign currency".

However, the government rationalised its selling of NCCL along in the line of improvement of production capacities using modern technology such as the introduction of new Cement plants and information technology. The Former General Manager stated that, "the objective of government of privatising NCCL was to increase production using modern technologies". This purposive rationality of government was challenged when it was unable to legitimise its actions of the privatisation of NCCL and the courses

of actions thereafter followed by the privatised organisations. The covertly motivated strategic actions, often hidden, of Yawakkal inhibited taking an effective transformation of NCCL towards a better organisation thus proved the government's objective of privatising of SEOs was problematic through information technology in a free market economy.

**6.10 Information Systems Development and Practice after Privatisation: Phase 2a**

Information systems development and practice at NCCL changed once again with the change of ownership from the government to a private businessman. This change of ownership resulted due to the government policy for privatising SOEs introduced in 1977 in line with the open economic policies. Upon the acquisition, Indian management's focus shifted to tightly control financial management and call for analytical reports.

Information was clearly seen as instrument to be used to aid decision-making and to monitor the financial performance through controlling production and employee shifts. Their concern was short-term profits rather than achieving a long-term transformation of NCCL. For instance, Yawakkal sold 50% of NCCL shares to investor in Hong Kong. Former General Manager remarked, "being a businessman, Yawakkal did not want to transform NCCL rather his hidden idea was to sell NCCL at a higher price later". Yawakkal's purchase of NCCL was motivated by covert strategic actions for realising his hidden objectives. The shortsighted policies of Yawakkal in respect of NCCL created many problems in the social context of NCCL.

Indian management implemented various strategies to realise their hidden objectives. For example, the selling price of a bag of Cement, which was Rs. 182.50 prior to privatisation, increased to Rs. 215 after privatisation.

In addition, the buyers of Cement in bulk had to pay a deposit of half the value of purchase, which was refunded at the time of purchase. This money was then invested in the bank to reduce interest payment on Company's debt (Kelegama, 1997). Consequently, utilising employees for higher productivity turned to their close scrutiny. Production control using shift systems expressed through budgets was re-established. Production manager commented that:

> the Indian managers were so surprised about the ways in which the employees used to work in the factory. Their low commitment, leave, day-to day affairs and absenteeism were strange to them. But they ignored them. For them, changing behaviour of employees and control of production using shifts matter.

Yawakkal's instrumental (i.e. tunnel visioned) approach to management of NCCL assumed employees as objects to be manipulated to realise his hidden objectives. He considered lack of commitment and irregular patterns of attendance of employees and their relationship as causes of low production in the factory.

Additionally, factory Human Resource Manager explained, "Indian managers realised that there were some frauds in recording employees' attendance. Some employees through their colleagues and with the support of some heads of sections signed on attendance registers without physically attending to work". For example, a production manager stated, "one day, a factory employee [shop-floor employee] was marked on the attendance registry of his wedding day while his immediate supervise was on leave to

attend the said employee's wedding on the same day". Some sectional heads and supervisors supported such informal arrangements to work during corporation period to accommodate employees' lifeworlds within work. They accommodated communicative actions tacitly within formally defined production budgets to tranquillise employees' problems in working on formally defined production shifts in the factory.

Yawakkal believed a price of cement bag determines cement competition in a free market, as low-priced cement bags were available in Sri Lanka cement market after 1990. Consequently, high labour cost due to excess hours of overtime was considered critical in determining price of a Cement bag. However, factory employees worked overtime to supplement their low salaries and to overcome economic crises due to low salaries and increasing cost of living. Among others, overtime cost of labour was considered as a major issue for lowering the cost of Cement. Factory Human Resource Manager commented:

> Indian managers worried about high overtime cost. It was around 100000 hours per month. In fact those days [during corporation period], employees controlled production shifts in the factory than managers. Some employees did overtime as a habit without actually being needed. If management appear to control their overtime work, that would be a disaster, because you see, you don't get adequate number of employees to run the factory shifts in the following day. To certain extent, they used their power to control work.

During corporation time, some sectional heads organised such informal work arrangements to accommodate employees' socio-cultural lifeworlds to help employees' economic problems. Traditionally, they were free in organising their work as a family. Villagers help each other's work as a family within a system of reciprocal relationships without any wage negotiation. Social structure was linked with well-understood system of statues and mutual obligations between families and neighbours governed by trust

relationships. They employed communication actions in their everyday work and the life. Indian management did not understand this social structure operating within NCCL.

Indian management had realised that budgetary controls were difficult in the face of employees' cultural resistance and feared that local managers might form coalitions with the employees. These situations led Indian managers to introduce two payroll systems, one for executives and another for non-executives, to seek trust from indigenous managers for pursuing their objectives which resulted executives salaries being increased and left their salaries confidential. Consequently, processing of accounting functions previously done by data processing units transferred directly under the control of accounting department. An accountant stated that "taking over of processing activities from the data processing units was to maintain confidentiality of financial matters from the rest of the employees".

### 6.10.1 Reflection on Yawakkal Management at NCCL

The push for value for money for investment and strategic rationality of Yawakkal in the form of manipulation of employees severely affected their lifeworlds in NCCL. Indian management concentrated on achieving proper control of production and thereby efficiency by imposing control on production shifts rather than addressing the apparently peculiar problems of employees' lifeworlds. Indian managers did not take into account the internal causes of a "systematic" overloading of control capacities or of a "structural" insolubility of control problems of employees. For instance, control of work by employees through informal arrangements was rooted in their traditional value systems. They did not understand employees' problems as structurally inherent socio-

cultural imperatives that are incompatible with formal control linked with modern information systems. They did not understand employees' problems were linked up with broad relationships operating within economic and political structures of Sri Lanka. For example, an attempt to introduce computerised information system for controlling time and attendance of employees in the factory was challenged by socio-cultural, economic and political conditions which were as odd as with the covertly motivated strategic rationality of Indian management.

### 6.10.2 Computerised Time and Attendance Information System after Privatisation: *Episode 6*

In the mid 1995, the management of NCCL purchased hardware and software from Barcode Automation Lanka Limited (BALL) to introduce computerised time and attendance information system for controlling time and attendance of the factory employees and thereby to reduce labour cost. Group Human Resources Manager explained, "main purpose for installing a computerised time and attendance information systems was to reduce cost and increase efficiency by controlling employees frauds".

This purposive rationality of management in the form of control of behaviour of employees emanated from the free-market model of modernisation programme of the government and it was included in the computerised time and attendance information systems as its objectives: processing of accurate information for control of production work. This computerised time and attendance information system once again appeared to threaten employees' socio-cultural 'lifeworlds.'

During the corporation period, factory employees used to work eight hours per shift including an hour for lunch/dinner leading to 48 hours per week. This law was enacted by the Factories Ordinance of NO. 45 of 1942. Since this law was enacted, working eight hours per shift became a norm in the factory. On the other hand, with ad-hoc organisation of factory shifts to accommodate employees' culture, there mainly 19, eight-hour shifts were operating before the privatisation of NCCL.

Realising low commitment of employees towards production and shifts and resulting high cost of production, the Indian management proposed new shifts-plan, each shift consisting of eight hours per shift with fifteen minuets break for lunch/dinner. The new shifts-plan included only five shifts instead of twelve shifts operating before.

1. 6.00 a.m. to 2.00 p.m. 2.00 p.m. to 10. 00 p.m. and 10.00 p. m. to 6.00 a. m. for shop-floor employees.
2. 8.00 a.m. to 4.00 p.m. for other employees (e.g. clerical and aligned) , and
3. 8.00 a.m. to 3.30 p.m. for executives.

Employees were dubious about the merits of the proposed shifts-plan of Indian management and it created much dissension among employees. They realised that Indian management was attempting to dominate their lifeworlds emphasising too much control on their work using computerised time and attendance system to realise their hidden objectives.

Employees feared once again, that their personnel communication would be interfered with by the formally processed information via computerised information systems. As we've already discussed employees' traditional culture was oriented towards mutual

understanding through informal interaction. They were not subject to control in their traditional villages. A shop-floor employee recollected:

> Employees realised that Indian managers attempted to control their day to day life using new machines in a new way [using a computerised time and attendance system]. They also realised that Indian managers were attempting to deprive their factory income through stiff control of production by way of monitoring their time and attendance. They knew that they would be disadvantaged when the proposed controlling system begins to appear and monitor and control their attendance.

Employees interpreted computerised time and attendance information systems as a system of domination of their socio-cultural values and lifeworlds. Senior managers promised employees additional benefits from the proposed computerised time and attendance information systems and pushed the computerisation project ahead through systems analyst. For example, systems analyst stated that, "we convinced employees that the proposed computerised time and attendance information systems would give more chances to work more shifts for employees". However, employees did not trust management explanation because they appeared as mere agents of implementing Indian managers' covert strategic actions. Rather employees continued to work in the factory following their traditional work practice.

Employees cultural relativism and ethnocentric attitudes appeared against the technological domination of their every day lives. They organised against the introduction of time and attendance system focusing on their poor salaries and high expenditure of Indian managers. A factory supervisor explained:

> Shop-floor employees did not change their working culture after Indian managers taking over NCCL, rather they were much more angered with them. You see, poor employees were not given a salary increase, but salaries of executives and foreign managers were increased and made

> unavailable to the public. How do we survive with our poor salaries? How could we trust our managers?

Employees did not seek support from politicians, as they knew that the ownership of NCCL remained in the hands of Indian management. They did not want to close the factory either. What they wanted was to opposed the unduly authoritarian actions of Indian management. Human Resource Manager explained. "Fundamentally, employees opposed controlling their attendance, but using it [controlling attendance] as a reason, they did not want to see the closer of the factory as they knew they would be loosing their factory income". However, Indian managers' economic rationality became inflamed by political crises that linked to broad economic issues of NCCL and employees themselves. Employees pressured Indian management through national trade unions by focusing on their high salaries, fringe benefits, and selling of properties belonging to NCCL. A union leader commented:

> Upon purchase of NCCL, three was no proper management of finance and their expenses, salaries, fringe benefits, foreign visits and so on were very high. In the same time, they removed millions of worth spare parts, ion bars and metals and other valuable properties such as machines owned by NCCL. He [Yawakkal] really made no commitment to improve the factory rather he wanted to sell the properties owned by NCCL and earn as much as he could do within a short period.

While employees' strong opposition towards time and attendance system was spiralling, an internal systems analyst and an outside expert from BALL with the support of senior management carried out the development of computerised time and attendance information systems. A trade union leader stated that, "management supported them because Indian management increased their [executives] salaries". The management legitimised its action introducing neutrality into political action context of employees.

The manner in which computerised time and attendance information systems was developed and implemented caused little to change employees' attitudes towards the use for information technology in their working culture and broader conditions for work. For example, a systems analyst with an outside consultant was assigned for developing the system, Indian management gave information requirements for the computerised time and attendance information systems. Software vendors provided software. Employees were not involved nor they were considered as intelligent actors who could provide sufficient knowledge for design and modification of the computerised time and attendance information systems.

Information systems development at NCCL followed positivist approach which assumes a seemingly objective, instrumental relationship to the object of study. It refrained from being included value judgements of employees as design ideals of information systems development.

The development of computerised time and attendance information systems commenced in the factory data processing unit. Systems analyst was taken an expert role. Systems analyst explained the process adopted in developing the computerised time and attendance information systems as follows.

> While the development was going ahead, we did not allow others to come inside the computer room, and allowed only to the people those were authorised. We thought employees would disturb and destroy attendance-recording machines as they were opposed to it.

Employees were considered as passive objects to be manipulated by systems analyst's superiority of technical knowledge. The exercise of power by systems analysts in the designed and development of computerised time and attendance information systems

prevented necessary discussion with employees to be included in the designed system. Information systems development did not focus on the demands of employees' 'lifeworlds.'

The proposed system was expected to link complex administrative, maintenance, production, and payroll systems. Neither software was compatible with the needs of NCCL nor outside expert was able to integrate these major activities together. The systems analyst explained:

> Software provider did not have a better understanding about our needs. He did not know how to modify software to our needs. It was first time, he introduced this software to an organisation in Sri Lanka. He used our organisation to experiment his package hoping that it could be sold to other organisations later. It took long time to put into work.

The technical experts, as products of technically driven education and training, could not understand broad phenomena operating in Sri Lanka society. The technical training of information systems development included by the belief those technically superficial information systems outperform in organisations. These experts focused on technical and instrumental solutions rather than constituency politics, a concern for expertise rather than employees, a concern with available training rather than with a network of social relationships, which might be brought into play. This technical and instrumental knowledge is insufficient to design and develop information systems for the use of organisation understanding the lifeworlds demands. Therefore information systems development is understood largely as "work" rather than "interaction" in Habermas's sense (1987a).

Hoping that computerised time and attendance information systems could be implemented, management purchased six machines for recording time and attendance from BALL (three machines for shop-floor employees, two machines for supervisors and clerks and one for executive managers). Machines for shop-floor employees, clerks and supervisors were installed at an office near to the main entrance while executive machine was employed inside the factory. Managers refused to go to the time and attendance office with other employees because Group Human Resources Manager explained that, " managers have the mentality that they are superior to others and should be treated separately".

The superiority and imperiority which was fused with bureaucratic ideals and hierarchical powerto control labour, aimed at extracting maximum output to realise objectives of organisations while maintaining high power distance between managers and subordinate was a defining feature of management and control of work in NCCL during the corporation period. This division of work according to management strata separated an integration of managerial actions with the requirement of 'lifeworlds' of employees in NCCL. Narrow focused of instrumental actions to management and control of work by management had forgotten the existence of collective symbolic structures of the lifeworlds. Rather these instrumental systems imperatives contributed to systematically distort communication with employees.

Machines to record employees' time and attendance were linked up with two PCs installed in the personnel office in the factory. Two data processing clerks were employed and was expected to generate analytical reports for controlling production and shifts of employees in the factory. Systems analyst explained the procedure for recording attendance. "It included swiping a card using a machine readable barcode card

issued to each employee. Once card is swept, the machine automatically verifies employee's pay code number and issues a beefing sound with a blinking light". Management planed to implement both manual system and computerised system concurrently as a strategy. Group Human Resource Manager explained. "We planed to run both systems parallel about six months to reduce the resistance of employees' towards the new computerised system". However, this computerised time and attendance information systems could not implement as was predicted by the Indian management at NCCL.

Seen in this light, information systems were employed in the context of management control to realise aims of Yawakkal management. Systems analyst and external consultant acted technically on "scientific" basis as legitimated enablers of transformation of NCCL through the development of effective computerised time and attendance information systems to aid decision making by monitoring employees' attendance and to execute production in a shift system.

This technical expertise and use of computer-based technology lead to instrumental rationality placing too much emphasis on technocratic modes of organisational control. The use of power by experts in this process prevented the discussion necessary for the success of good industrial relationship through effective information systems development and practice for the betterment of NCCL. The use of positivist information systems development in the manipulation of individuals within organisation to realise technical interest of designers revels itself to be ideological in terms of the aims of the designers.

The purposive rationality of Indian management was as odd as with the reality 'out there' in NCCL. Information systems development once again disturbed by socio-cultural, economic, and political contexts of NCCL within which it was situated. Accommodating technical innovations in the form of computerised information systems for work and broader work conditions of employees left little thought towards modernisation effort of the government operating in a free-market economy of Sri Lanka. Yawakkal's purposive rationality, taken for granted social reality of NCCL and value neutrality of employees actions were not in line with the established social reality of NCCL.

Yawakkal's performance at NCCL had been criticised by the employees and the general public through parliament. Former Factory Manager stated that:

> After Yawakkal took over NCCL, they just conducted business. There was no much benchmark. They haven't done anything to improve the performance of NCCL. No any capital expenditure projects have been undertaken at NCCL's works which would substantially increase the value of the plants in the factory and NCCL.

In contrary to what it was at the time of the initial privatisation, the balance sheet of NCCL was debt-loaded and hence, the net value of the Company substantially reduced creating a huge financial crisis (Kelegama, 1997).

In the meantime a dispute had arisen between Yawakkal and foreign investors whom he brought in. Yawakkal was charged at Colombo district court with the breach of agreement. Opposition party members brought Yawakkal's matter to the parliament. Minister was charged on corruption and insincerity of dealing of NCCL. However, latter the Minister denied the charges at a parliamentary debate (Parliamentary reports on 19,

20, 21, March 1996). The government interfered affairs of NCCL for a fresh evaluation to be carried out hoping to offer NCCL to a new buyer. After the failure of Yawakkal management at NCCL, Former General Manager remarked:

> The government should not select a partner like Yawakkal to sell its public properties like NCCL. Yawakkal group are only importers, who have no knowledge what so ever of the Cement industry. His operations at NCCL aimed at short-term profits only while selling the properties owned by NCCL, and not at a sustainable development of NCCL, with all the related plant rehabilitation, modernisation and training plants.

#### 6.10.2.1 Reflection on Episode 6

The attempt to introduce computerised time and attendance information systems proved that information systems development could not be separated from economic, political and socio-cultural contexts. Information systems development took economic nature because it attempted to deprive of income of employees. It took economic crisis of the state as the selling of NCCL was linked up with the financial difficulties of the government. It was political because employees protested against the computerised time and attendance with their counterparts in national unions; the whole matter was brought to the public attention through the parliament. It was socio-cultural, because employees faced with erosion of their inherent cultural values in the course of modernity, which was ascending from free-market model.

The communication infrastructure of 'lifeworlds' of employees which is constituted by understanding oriented action, is displaced by an objectification attitudes of Indian management leading to much dissension and further erosion of employees' 'lifeworlds.'

## 6.11 Information Systems Development and Practice after Privatisation: Phase 2b

Information systems development and practice at NCCL changed once again with the change of ownership from a single owner Company to a larger multinational Company; Goldenbank. While investigations into the practice, applied in the privatisation process of NCCL, and the course of actions which followed by Yawakka, I were carried out by the officials in the government. Goldenbank influenced the Minister and the President to assert its interest in buying NCCL (Letters dated, 30.3.1995 cited in Parliamentary Report 19.3. 1996). After the purchase of NCCL by Goldenbank, former Factory Manager stated that:

> Goldenbank had an interest in buying NCCL quite long ago. You know, from 1990 to 1993, Goldenbank's Management and Consulting Ltd. conducted a modernisation study strategy for NCCL. It has acquired an in-depth knowledge of the entire Sri Lanka Cement industry. Goldenbank would have convinced of Sri Lanka market and fruits of buying NCCL.

With this purposive rationality in mind, Goldenbank transferred a series of management techniques and methods, information technology and systems, and experts to NCCL as steering media to management and control operations to achieve its rational objectives. Goldenbank's bid for NCCL was geared towards:

1. The integration of NCCL into Goldenbank's global network of Cement producers.
2. A sustainable development and expansion plan for NCCL, which was in line with government policies [of privatising SOEs] and the development of Sri Lanka.
3. Investments for technical improvements and know-how transfer to the local staff in line with the findings of the modernisation strategy study [conducted during 1990-1993], and
4. Development and training of human resources to improve operating performance and efficiency of NCCL (Goldenbank bid document, 1993)

This modernisation plan of NCCL was emanated from the strategic management and corporate culture of Goldenbank. Clearly, as will be documented later, these modernisation programs severely affected the working culture of employees in NCCL.

These initiatives created much dissension in the general interest of employees of NCCL. Moreover, these modernisation plans conflicted with the locally established socio-culture, economic, and political structures of NCCL and deeply penetrated into values systems of employees and consequently symptomatic to further erosion of their 'lifeworlds.'

Goldenbank believed that NCCL could be transformed to an effective and efficient organisation following technological modernisation and thereby to realise its rational objectives. This belief is attributed to the understanding of scientific and technical improvement of management in positivist ideology. Habermas (1973, p. 281) cited:

> Science as a productive force can work in a salutary way when it is suffused by science as an emancipatory force, to the same extent as it becomes disastrous as soon as it seeks to subject the domain of praxis, which is outside the sphere of technical disposition, to its *exclusive* control. The demythification which does not break the mythic spell but merely seeks to evade it will only bring forth new witch doctors.

This positivist ideology is aligned with the government's objective of modernisation program of upgrading SOEs through technological improvements. Some senior managers who were frustrated both with Yawakkal management and poor performance of NCCL mostly welcomed the purchase of NCCL by Goldenbank. Former Factory Manager:

> This factory was some forty yeas old, its machines, spare-parts everything obsolete. During corporation time they were not replaced due

> to finical crisis of the government. Yawakkal did not improve plants due to his short-sighted vision, his hidden agenda of selling NCCL.

The VP of Finance stated that, "Goldenbank is one of the best high-tech and information technology solution users in the Cement industry in the world. We are fortunate to have a partner like Goldernbank". They presumed that NCCL could be transformed through effective design of information systems towards a better organisation adopting management practice embodied in the corporate culture of Goldenbank whose purpose is geared by narrow technical or technocratic images and ideals of management of work-process relationships at NCCL.

### 6.11.1 Cement Competition in Sri Lanka in the late 1990s

In the late 1990s, Cement competition in Sri Lanka was switched into a price competition. Selling price of a Cement bag of all the three local manufactures (NCCL, MMC and TC) remained at Rs. 290. When a competitor increases its price of Cements, other two competitors also followed the increase and vice versa. This price competition was intensified due to availability of low-priced imported Cement. For example, a bag of imported Cement was sold at Rs. 265-270. Marketing information systems Manager observed the situation.

> Cement buyers simply now compare prices of Cement bags when making their buying decisions. Now we can not keep high profits margin, simply because we are the leaders. It is true that our locally manufactured Cement has a reputation among our customers, but that along is not sufficient. Price of a Cement bag is now very important.

All the three competitor Cement manufactures have introduced imported Cements to the market using different brand names in addition to their locally manufactured and

marketed products. For example, a brand named 'Sevana' Cement was introduced by NCCL, however it acted against the Company because, marketing information systems manager stated that "people have lost their fear of using imported cement because this Company also marketed imported cements using a different brand name under the name of NCCL".

By the end of 2000, NCCL maintained its market leadership holding 40% of the total Cement market, TC held 18%, and MMC held 17% and the balance 25% remained with the direct importers. NCCL expects to increase the production capacity of the factory from 480000 tonnes to 600000 tonnes per year.

Cement competition in the market is concerned to gain an objective view of the competitive environment in which NCCL operates. This knowledge mainly derives from information of the demographic, attitudinal and behavioural characteristics of the Cement buyers. It seeks to generate predictive and explanatory behaviour of Cement buyers and how they can persuade to buy more Cement. This objective knowledge of marketing has become the basis for Goldenbank operations at NCCL. This approach is firmly based on positivistic view of the world

A positivist view of marketing has been implemented through developing information systems to realise rational objectives of the Company such as profits and market share. Marketing Manager stated that "our marketing objective is to better off the market leadership. We are in a competitive situation now and to edge out this situation, we need good information".

The Company aims to edge out this Cement competition through adopting integrated information technology solutions and transferring management practice of Goldenbank to NCCL in Sri Lanka.

Goldenbank has invested nearly Rs. 2 billion to upgrade Cement plant at Singerb in 2000 after it purchased from Yawakkal in 1996. It is planning to invest another Rs. 1 billion for further improvement. During the first four years after taking over NCCL, Goldenbank has earned high profits however the Company was expected to declare Rs. 750- 800 million at the end of 2000.

### 6.11.2 Restructuring of NCCL

#### 6.11.2.1 Organisation of Work

Goldenbank adopted a global, but hierarchically top-down power structure at NCCL. The CEO, four VPs, and the Chief Factory Manager make up the senior management. The CEO has with all the executive powers to run the business of the Company. Foreign managers employed in key positions. For example, CEO from Australia, VP, Manufacturing from Austria, VP, Marketing from South Africa, and the Chief Factory Manager from the United Kingdom. The VPs of Human Resources, Finance and the Chairman were locally appointed. This change was stimulated by the belief that transfer of Goldenbank management practice together with newly advent technologies will transform NCCL for an efficient and effective organisation.

#### 6.11.2.2 Vision and Objectives

The policy of Goldenbank is designed to adopt similar management practice throughout its group of companies all over the world (Goldenbank Policy Guide, 1998). The VP of manufacturing of NCCL, consistent with the group policy, stated that "manufacturing process of Cement is as same as everywhere in Goldenbank group of companies and Sri Lanka has no option". Following this policy, operations at NCCL were organised

around a broad "business plan" which comprised of annual plans to be implemented each year. According to NCCL's annual plan (2000), the Company vision, overall objectives and cash-flow objectives are as follows.

> **NCCL's Group Vision:** to be the leading supplier of Cement and related materials in Sri Lanka by effectively meeting the needs of our partners.
> **NCCL's Group Objectives:** cost leadership and market leadership.
> **Cash flow Objectives:** Rs. 700 million
> **Market Share:** 39%
> **ROE:** 18%

The above ideals for vision were directly transferred from Goldenbank to NCCL without negotiating with employees and employees in NCCL. Training Manager observed, "certainly these ideals were transferred from Goldenbank than internally generated". Managers and other employees were not allowed opportunities to participate in jointly designing the ends of NCCL. In contrast, ends were to be realised by using computerised information systems as means.

The unilateral transfer of Goldenbank's vision and objectives had ignored normative structures embedded in communication, understanding and shared meaning of employees actions at NCCL. It prevented necessary discussions with employees to take place and to incorporate in the business plan. Rather, order, efficiency and effectiveness as values aid the reproduction of advantages already vested in Goldenbank.

For example, some of the terms used in business and annual plans were strangers and hard to understand to many of the employees including some middle level managers. Factory Personnel officer commented:

> Some of these [new] concepts, I mean, vision, mission, business plan, annual plan, key performance indicators, etc. etc. were not heard before

> many of us. We don't know the real meaning of these concepts. Even if a translation of these concepts using our language [Sinhala], would give nothing. I mean, it is hard to understand the actual meaning of these concepts [vision, mission, business plan, annual plan etc.]. You know, why? We were not working in a business culture before.

However, the business plan of Goldenbank was to be realised by improving efficiency and effectiveness of NCCL in a competitive market operating within open economic policies in Sri Lanka. The VP of Finance, "foreign investors are coming here mainly for making profits than for social services". This push for value for money objectives of Goldenbank pointed in the direction of seeking more and better information. Information was seen as corporate resource to be used to edge out the Cement competition and information technology as enabling technology to be employed to process this information (Goldenbank information technology Policy Guide, 2000).

#### 6.11.2.3 Budget and Cost Centres

As a consequence under new vision of Goldenbank call for fully developed centralised management budgetary approach within NCCL. It was being used as a tool to control overall operations of NCCL linking to the factory production targets. Financial Controller explained:

> Under new financial management, budget uses as a tool for controlling all the financial performance of NCCL. Initially, we start with sales forecast given to us from the marketing department. These figures then incorporate to production schedule and accordingly factory budget will prepare. We use factory budget as a basis for financial calculation. In budget meetings, we take a group decision on the best available information to rationalise figures.

Overall costs of operations in NCCL was highly monitored and controlled through cost-centres. Cost centres in the factory were linked to the budget through sales and

production targets based on shifts. Various reports were prepared on each cost centre on monthly basis to monitor and control the overall financial performance of the Company. Financial Controller explained:

> We have 70 cost centres, 50 at factory and 20 at head office. The objective of cost centres is to have a better control over the Company. For each cost centre, there is a responsible person [head of each section] who will, at the end of each month, receive a report showing the budget, actual and the variance. We identify everything in terms of costs: people, material, and capital expenditure, spare parts and so on. The purpose of budget is mainly to monitor and control overall cost of operations of NCCL.

Goldenbank used budget as an instrument to provide information for economic decision making for managers to steer economic activities of NCCL to realise its rational objectives. Budget and cost centres emerged as a new organisational language, which was displaced by previously employed dominant culture in relation to the use of budgets at NCCL.

Today budget gains commercial status rather than a legal document prepared during the corporation period. It appears that strict control of financial matters through budgets and cost centres in the name of improving efficiency and effectiveness is becoming influenced on carrying out works of employees despite their resistance. For example, an accountant stated:

> Now foreign managers are tightly controlled the factory matters using budgets than before. During the corporation time, budget was used as merely as a statutory document to report to the public through parliament. To certain extent, those days, production managers had freedom to alter budgets to accommodate shop-floor conflicts of employees, but today employees' freedom is replaced by Company culture [Goldenbank's management practice].

#### 6.11.2.3.1 Reflection on Budget and Cost Centres as Steering Media

Budgets and cost centres as steering media are becoming influenced on employees' lifeworlds by new accounting initiatives introduced by Gldernbank to NCCL operations in Sri Lanka. As consequences, current practice of Goldcnbank's management restricted communicative actions to take place at NCCL environment. Employees' spiritual freedom, shared understanding, informal communication, and reciprocal relationships are being restricted by dominant management and corporate culture of Goldenbank leading to colonisation of employees' 'lifeworlds' at NCCL.

#### 6.11.2.4 Retrenchment Policy

Following its rational objectives, the Company continued to reduce its staff of NCCL. The high man-hour per Cement metric ton was considered as a major determinant of the cost of production. The Company policy was to maintain a ratio par with that of Goldenbank companies in other countries. Push for value for money was ubiquitous in every management action. The Human Resource Manager at the factory explained the Company policy as follows.

> During the corporation period, man-hours per metric ton was 7-7.5, which was far ahead with the standard of Goldenbank group of companies. The labour cost of Cement production during that period accounted for 15-20%[of the total cost of production]. After laying-off employees, we reduced it [man-hours per metric ton] to a ratio of less than three, but still our rate is very high. For example, in certain countries it [the ratio] is about 0.3. We expect to improve the efficiency with a minimum number of employees to further bring down our ratio.

By the end of December 2000, the number of employees employed at NCCL reduced to 1200 personnel. This number was after a major retrenchment program introduced by Goldenbank to reduce employees at NCCL since it was acquired in 1996. The Company strategy for reducing employees purely based on reduction of labour cost in production following the principles of economic rationality. The number of staff currently employed is about two times less than the number employed during the previous corporation period. The Group Human Resources manager stated:

> We need to further reduce our work force. We offer a compensation package worth of Rs. 1 million per person for voluntarily retired people depending on their service. Under this scheme, in 1999 along, about 425 people including 188 executives left the Company. Our idea is to keep the minimum number of employees required to make this company a profitable organisation.

#### 6.11.2.4.1 Reflection on Retrenchment Policy

The modernisation program of Goldenbank at NCCL left out its significant effects on employees' lives. The past-track reduction of employees of Goldenbank policy affected to increase high pressure on remaining employees and increasingly affected their lifeworlds. The objective of running NCCL operations with a minimum number of employees interpreted to stabilise and legitimise Goldenbank's control and domination of work.

### 6.11.2.5 Management Techniques and Methods

#### 6.11.2.5.1 Dialogue

Management techniques such as *Dialogue* and *Green Area Meetings* have been implemented in 1998 with the business plan of NCCL to support the policy of the Goldenbank. The Dialogue system is a method to initiate discussions between superiors

and subordinates to set targets to be achieved by the subordinates, the focus of which is human resource development (Guidelines for the Dialogue, 1997). The outcome of the implementation of these techniques and methods are related to employees' performance appraisal system. Salary increases and promotions to employees are given on the successful achievement of targets of each employee. The Training Manager explained the objectives of the Dialogue system:

> Dialogue is a top-down, target-aimed, approach on employees. The pressure goes from the top to the bottom levels. We have an annual plan for each year in which we establish targets for each and every employee of the Company. From an evaluation, we identify whether an employee has achieved his targets against the standard decided by the management, which in turn uses as controlling tools to monitor the actual targets achieved by employees. Accordingly, salary increases and promotions are granted. A dialogue between superiors and subordinates decides targets to be achieved by employees on given Company objectives and these objectives are derived from Goldenbank's vision.

However, the way the Dialogue system executed did not provide opportunities for necessary discussions with subordinates. Rather, management used it as a steering mechanism to extract the maximum output from the employees to achieve the Company rational objectives. Factory electrical engineer commented that:

> Rather than using 'Dialogue' as a method of facilitating employee-manager relationship to improve the performance of the Company, it is being used to control employees by the management to achieve its targets. There is no discussion in setting targets. Goldenbank provides targets for employees and employees have to work for them.

The Dialogue system was forcefully executed method to implement the parent Company policy. Neither the method nor the policy was negotiated or open to discussion. The policy states that "each Goldenbank Company must implement a working Dialogue to explain the Company's objectives, to translate them into individual

goals, and to help each individual to reach those goals which are essential for success" (Guidelines for the Dialogue, 1997, pp. 2-3). Furthermore, as can be detected on the quote below, the CEO forced the employees to use the system. In a message to all the employees, the CEO stated:

> I can't understate the value and importance of the Dialogue process. For us, both as individuals and as NCCL group, to achieve our goals, we must clearly identify our objectives and monitor our progress towards them. Dialogue [system] provides the process for the measurement and management of progress. It provides for regular feedback, allowing for ongoing coaching and encouragement in the behaviours needed for success. This document is yours. Use it!

Dialogue as a steering medium acts as social domination of employees' 'lifeworlds.' The ideology of Goldenbank's management was defined to mean ideas that serve to legitimise the underlying social structure of NCCL, which was still to use the benefits of Goldenbank.

This irrationality of Goldenbank was geared to partial interests rather than to collective needs of employees. For example, middle and supervisory level managers were under stressed to achieve the targets of top management. They were also under stress because they needed to threat subordinates to achieve these goals. The senior managers did not consult middle level managers and shop-floor employees for their views when setting overall Company targets. Rather the Company unilaterally decided targets. An electrical engineer disclosed the following about the Dialogue system.

> What is happening is, senior managers are forced us [for middle level managers and supervisors] to implement targets of the Company. We have to force our subordinates to complete their targets. If not they take disciplinary actions against us due to non-compliance of senior managers' orders. If we take disciplinary action against employees, they threaten us at night over the phones.

According to Habermas, the 'lifeworlds' understanding based on collective self-representations of employees of NCCL were dried up by covert strategic actions of Goldembank management. These actions were reduced to mechanically conceived idea of economic criteria of profits. In this way suppression of employees by management have produced a negative results such as social instability caused by steady erosion of standards and values (anomie), withdrawal of legitimation and motivation by employees to work leading to alienation and psychopathologies. Steering media such as Dialogue steered a social intercourse that has been largely disconnected from norms and values of employees. Above all the purposive rational economic and administrative action have become independent of their morale-political foundation (Habermas, 1987b, p.154).

In Habermas's terms, the forced social change, the manipulation of employees' worldviews, desiccation of traditions and the forced acceptance of partially defined targets through Dialogue combine to distort "the communicative structures" and "ego-securing structures" upon which mass motivation of employees depend. It seems that the management actions defined through Dialogue were no longer effective in sustaining the legitimacy of the social structures of NCCL. Rather management actions affected to colonise employees' 'lifeworlds.'

**6.11.2.6 Manager-Employee Relationships**

The senior managers consider their subordinate as inanimate constraints, which can be manipulated in ways that will serve the advantages of both managers and the Company. The work place relationships were defined by focusing on closer monitoring and controlling of employees' behaviour at the factory. For example, when I was

interviewing the planning engineer at his office, suddenly the Chief Factory Manager stepped into his office and the following dialogue occurred.

> **Chief Factory Manager:** Kumaran [the planning engineer], do you know plant is closed now?
> **Planning Engineer:** No
> **Chief Factory Manager:** You should know about it . . . see, I went to the factory, but it was stopped. You don't know what is happening there. You must inform me immediately about the shutdowns.
> **Planning Engineer:** How should I know unless somebody informs me?

The planning engineer spoke to several officers, using his national language (Sinhala), to discover reason(s) for the closure of the factory. The Chief Factory Manager did not allow the planning engineer to explain reasons for the closure of the factory and thereby to take place communicative actions in the discussion between the Chief Factory Manager and the planing engineer himself. The result of these instrumental actions of senior managers appears to be high levels of stress in middle level managers. For example, some of the managers have encountered severe diseases such as eye problems, accidents and sickness. Moreover, two engineers died recently. It was widely thought that high stress led to their death. An engineer in the planing division who frustrated by the coercive instrumental actions of senior management stated:

> I am working here because I can't find a similar job. My doctors advised me not to work under sever pressure, which was badly affected for my eyes weakened. But, how can I do that? The factory manager issued me several warning letters. Similarly other managers also have received warning letters form the factory manager. We are treated in the factory as slavers [passive objects]. Last year two engineers were died inside the clinkering mills of the factory. The immediate reason for their unexpected demise was the high pressure of the senior managers to achieve Company targets, profits.

The rationalisation of work processes through technical and instrumental actions of management has created pathological side effects, which endangered the symbolic reproduction of organisation. This intense pressure for achievement of Company goals

and for the utilisation of values which destryoed the employees traditionally established culture and values systems.

Human understanding based on shared knowledge in a reciprocally arranged social structure was being replaced by instrumental and covert strategic actions of Goldembank management. Norm-conformative attitudes and identity-forming social memberships were not considered necessary by Goldembank management; instead they considered peripheral.

In Sri Lanka, legal enactments that deal with privatisation, little mention is made of employees affected by the privatisation programs which has created a social cost (Kelegama, 1997, p. 477). After the privatisation, the new Company reduces employees employing information technology. This act of new companies led to reduce the employment opportunities for the poor. Those who do not have proper education are in trouble in this path. For example, a shop-floor employee commented:

> Some employees who went for retirement due to the retrenchment policy of Goldembank have faced grate economic difficulties due to lack of income to maintain their families and to survive their lives. They could not find new jobs because some of them were old and not acquired adequate educational qualification to find new jobs.

Many employees had lost their interest and withdrew motivation to work due to communication barriers, unrealistic expectations of senior management, and unduly authoritarian style of management culture at NCCL. The use of instrumental and covert strategic action by senior management in the course of employee control appears to be symptomatic to the steadily erosion of 'lifeworlds' of employees. Factory operations manager stated:

> Many employees have lost their interest and withdrawn talking to management. You know, VP of manufacturing is so tough. He never wants to listen to others ideas. For him, if something is black, then it is black. If it is white, then it is white. To him, no black and white.

Various practice such as Dialogue system act as steering media for the Company to realise its objectives. Training programs are ideally used to educate employees so as to improve their efficiency and effectiveness. However, training programmes, run by the Company, were seen to be merely instrumental to inform treating employees as passive objects. It did not provide opportunities to take place communicative actions. The factory personnel officer mentioned that:

> People have lost their interest of learning these practices [Dialogue system and daily *Green Area Meetings*] because all these practice are top-down rather than shared. At the training, executives too couldn't understand these concepts. For instance, a foreign consultant gave training on Dialogue system, but hardly any could understand what it is and what it is supposed to do in an organisation. Most of them [the executives] could not understand due to their language problems . . . in communication, there is no balance. People work according to orders . . . and freedom to speak, a basic human right of expressing ideas, was taken away by the Company management. As far as I understand, speaking [human actions] and thinking is interrelated.

#### 6.11.2.6.1 Green Area Meetings

Another practice, known as daily Green Area Meetings, was a participatory approach introduced by the Company to share the views of employees with the management. The objectives of daily Green Area Meetings, held every morning are:

(1) to inform senior management decisions to employees

(2) to review the performance of previous day work

(3) to plan targets for the day using the reports generated by management information systems division in the factory

(4) to direct employees' problems to the attention of senior management.

These meetings are implemented through the middle level managers. I attended to these meetings to understand the manner these meetings are conducted by the middle level managers. At meetings, the middle level managers talked about the first three objectives of the daily green area meetings whilst employees listen to their talks.

From my observation, I understood that the Company employs daily Green Area Meetings as another steering mechanism to control the behaviour of employee to achieve its objectives. Both 'Dialogue' and Green Area Meetings" were too narrowly focused on economic rationality and organisational control objectives of Goldembank management than to focus on employees' practical problems.

### 6.11.3 Reflection on New Forms of Management Techniques

Generally, new work practice and new forms of scientific management of NCCL have atomised the workforce in a way that invisibly secure control from above. The power is effectively embodied in the design of management techniques, control, production targets, and application of information technology relating to economic calculations while ignoring the needs of 'lifeworlds', which are independently rooted from their traditional values systems and culture in Sri Lanka. The purposive rationality of Goldembank management were shaped and included in the design and development of information systems at NCCL. The organisation of information technology and the development of information systems were focused on transferring Goldembank's vision to NCCL to control employees' socio-cultural 'lifeworlds.'

### 6.11.4 Organising of Information Technology Function

The socio-cultural, political and economic context has clearly influenced the current shape of NCCL's information systems development and practice. Ever since the 1983, the head office and the factory maintained two computing centres. The primary focus of these computing centres was to process data processing requirements such as sales, accounting, payroll, and inventories of other departments. These data processing units mediating as servicing units had been in operation until Goldenbank started its operations at NCCL. In 1997, the data processing unit in the factory was dissolved. Staff who worked in the factory data processing unit was transferred to the head office. The name of the data processing unit of the head office changed to management information systems and it was kept under the control of the VP of Finance.

Management information systems manager, two information technology managers, four systems analysts, and a data processing manager were employed in the management information systems section. The management information systems and data processing manages were externally recruited but two former systems analysts were promoted as information technology managers. The VP, Finance is professionally qualified in accounting and finance. With this new changes, some of the employees who served for the data processing units as systems analysts, programmers, and data controlling officers left the Company and some transferred to work in other sections of NCCL. A retired data-controlling officer stated that:

> Those who worked for the data processing units felt the new management neglected them because Company policy was changed to introduce software packages for every application. Management would have thought it was cheap and cost effective. One day former VP of Finance summoned me to his office and said 'your service is no longer required by this Company', meaning of which was that he directly insisted us to get away the Company.

The change of name of data processing to management information systems caused little to change the attitude of employees towards the use of information systems at work rather the change diminished the morale of employees who worked in the data processing units.

The new change is linked up with the economic orientation of Goldernbank management and it continues to erode the technological leadership of organisational information technology, for better or worse. After changing the name of data processing units to management information systems, Goldenbank introduced several information systems development projects independently in the late 1996. They included an implementation of computerised time and attendance information systems with a revised shift-plan, development computerised work-order information system for the factory maintenance, and the development of management information systems for monitoring and controlling of factory operations.

### 6.11.5 Implementation of Computerised Time and Attendance Information Systems

Management's attempts to control employees' attendance in the factory using manual systems, punch cards systems, and computerised information systems were radically opposed by employees long before Goldenbank gained ownership at NCCL in 1996. Computerised time and attendance information systems initiated by Yawakkal management was delayed due to employees' agitations and the questions raised about NCCL' selling at the Sri Lankan parliament. After the take over of NCCL, Goldenbank introduced the delayed computerised time and attendance information systems in the

late1996. The objective of the introduction of computerised time and attendance information systems was to monitor and control employees' attendance to implement production schedules through a rigidly controlled shift-plan. The newly introduced shift-plan was scheduled to implement with a minimum number of employees running each shift. Factory Human Resource Manager commented:

> Goldenbank management was not happy with the way employees used to work. Employees never changed their way of life in the factory. Most of our employees were not normally punctual to work. Foreign management realised that employee absenteeism and unplanned leaves could be disturbed for organising factory shifts because the management planned to run the factory shifts using a minimum number of employees. Therefore, changing employees' attitudes towards the new shift-plan was a seriously contested matter by Goldenbank management.

Goldenbank management did not understand employees' behaviour in the context of existing conditions in the semantic dimension; NCCL was steered using purposive rational actions instead. This disorientation of management prevented initiating communicative actions between management and employees at NCCL. Management actions were driven by purposive rational actions to control employees through manipulation of their behaviour. Goldenbank adopted taken for granted attitudes in the public domain of NCCL and intervened NCCL's affairs by introducing neutrality into political action context.

This ideology was framed in management actions and included as part of the implementation of computerised time and attendance information systems. The implementation of computerised time and attendance information systems was motivated by technical interests of Goldenbank management to predict and control of NCCL affairs including employees' 'lifeworlds.'

### 6.11.5.1 New Work Shift-Plan in Computerised Time and Attendance Information System: *Episode 7*

After the successful take over of NCCL, Goldenbank's management proposed a new shift-plan, each shift consisting of 12 hours per day for four days work for a week continuously and the rest of days in the week as holidays instead of previously employed 8 hours work in a shift. This newly proposed plan was to be implemented through computerised time and attendance information systems. The new shift-plan was entirely based on increasing production targets by controlling employees' behaviour in the factory. Management legitimised the introduction of computerised time and attendance information systems and the new shift-plan in line with increasing production targets in the factory. Factory Human Resource Manager stated:

> Employees were entitled to claim 42 days leave annually together with every full-moon day off from work. Company had some problems of organising shifts under this leave scheme of employees. Some employees went on leave without taking prior approval. This had been badly affected for organising factory shifts. Some of the employees who had to work long hours to cover absent employees' work also affected to lower the Cement production.

Management's desire for increasing production through employee control could not easily be legitimised and rationalised because the new shift-plan was strongly opposed by employees. The new shift-plan significantly affected to further erode employees' lifeworlds. Assistant Factory Human Resource Manager stated:

> Employees opposed the new shift-plan arguing that working eight hours a day is a human right and working long hours cause physical and mental disturbances. Some employees opposed due to their transport problems, because they used to report to work from remote villages.

Employees opposed to new shift-plan because working eight hours a day was an accepted norm both by employees and management since the inception of NCCL. Goldernbank used the new shift-plan to translate employees' behaviour in line with the demands for improved efficiency and effectiveness. The new shift-plan introduced new rules and procedures, which were contradictory to the existing work arrangements of employees.

Employees were sufficiently incorporated their socio-culture within the existing work arrangement. They controlled the shop-floor work arrangements with the help of some production management in the past. They employed their lived experience in arranging work. In other words, they employed their tacit knowledge in decision making in regard to the arrangement of work in production shifts. They realised that the new shift-plan takes away of their control of work. They realised that they would be unable to fulfil their social life within factory with the proposed shift-plan and the control of senior management. Therefore, it can be argued that Goldenbank management employed power in management actions to executive 12 hours of work instead of previously used eight hours work per day.

However, Goldenbank implemented the new shift-plan despite the employees' resistance by objectifying their lifeworlds. Instead of changing shift-plan, the senior management pushed local managers to use the new shift-plan in arranging employee shifts in the factory. Senior managers promised additional benefits such as more off-days for employees by manipulating them. Factory Human Resource manager stated:

> We explained employees that they benefit if the proposed shift-plan will be implemented and asked them to work at least three months with the new shift-plan to see how it was going. The Company organised

> transport facilities for employees who were reporting to work from remote villages. We promised them a more secure economy with the new ownership.

Goldenbank management realised that changing attitudes of employees towards new management culture was uneasy. They strategically planned to remove unproductive and old employees to realise its objectives. Factory Operations Manager stated:

> Changing attitude is a major problem. Reluctant to change their attitudes hampers our production targets drastically. What we are doing is to offer them a voluntary retirement scheme so that those who couldn't adapt to the Company environment can leave the Company. Our strategy is to reduce little by little unproductive employees.

Goldenbank's policies do not adequately address the issues of protecting the older employees in particular with respect to learning opportunities and guarding against age discrimination in the workplace. The older employees were seen as an unproductive workforce and incapable employees who couldn't change their attitudes towards the Company. The Company did not understand employees' ethnocentric attitudes towards modernisation programs. As a result, many employees have lost their motivation to work. A trade union leader commented that:

> In the name of modernisation of NCCL through information technology, Goldenbank has been engaged in reducing workforce drastically without ignoring their social life. Most of the employees have lost their motivation to work as a result of the past pace policy of reduction of employees. We opposed several times but foreign managers unheard to our voices and the Company still continues its policy of removing employees.

The VP of Manufacturing stated:

> Machines are planned to run 24 hours with a minimum number of employees but it is not happening due to various shutdowns recording low profits for the Company. Changing attitude of people is a major problem for them to be punctual. The family concept is very strong here [in Sri Lanka]. For example, to attend funerals, wedding, taking children

> back and forth to schools, and other social occasions, people ask leave, which is the biggest problem for running factory shifts.

In the implementation of new shift-plan in computerised time and attendance information systems, employees had to sign in an office registry in addition to sweeping their cards on machines. Two data processing clerks together with a human resources office were employed to produce reports. These personnel in the human resources department in the factory forwarded those reports for the verification to respective heads to physically check whether an employee is actually reported for duties. Late arrivals were penalised according to Company rules.

The computerised time and attendance information system was linked to Company performance appraisal system. Group Human Resource Manager commented, "both late reporters to work and early leavers have bad marks as their attendance are linked to the Company performance appraisal system. Incentives and promotions for employees are granted on the basis of final appraisal of their performance". This systematic use of instrumental and strategic actions in the form of objectification of employees' lifeworlds through information systems development to achieve rational objectives of management were directed towards the colonisation of 'lifeworlds' of employees at NCCL. Such a goal of Goldenbank tends to negate and inhibit a balanced social development. The imbalance social development denies the possibility that management receive "symbolic guidance" from lifeworlds via steering media, which are grounded in, and controlled at, the level of employees' 'lifeworlds' at NCCL.

Employees opposed Goldenbank managers' unrealistic actions. They realised their traditionally established working culture is being challenged and replaced by newly introduced changes. A shop-floor employee recollected:

> We opposed both new shift-plan and time and attendance system. Foreign managers were attempting to control our factory life more than ever before reducing our freedom and taking off our factory income. What they planed was to reduce our overtime work. On the other hand we had to work more hours like machines. Company also attempted to monitor our life using computerised system. We never ever in our village life controlled by others like this. If a person dies during a working day we can't attend to his funeral because factory is scheduled to run with a minimum number of employees. We have to be free to enjoy our social and cultural life while working in the factory. Because that's our culture [emphasis added].

The presupposition uses of "we" and "our" by employees presume the recognition of their shared acts. As employees speak together, they act together. This ordinary action context can not understand just only we listen to their words, but listening to people. We must attend not only to what is said, but also why employees opposed to the changes introduced by the management. Within villages, employees were not subject to any control mechanism. Villagers worked as a family in a system of reciprocal understanding that was governed by trust relationships. Goldenbank management did not understand this social context of Sri Lanka that produced and reproduced in every action and interaction of employees' remained unchallenged over many centuries.

The opposition of employees has multiple meanings emanating from their socio-cultural, economic, and political contexts. For example, the unrealistic management actions began to clash with the fulfilment of employees culturally embedded value systems. They affected to breakdown of collectivity of decision making, loss of their traditional value systems and the erosion of their traditional culture. Employees understood that they would keep away from the management interaction when computers beginning to monitor and to control their behaviour within the factory. They perceived computerised information systems degrade their personal communication.

The use of informal communication is consistent with traditional village culture of Sri Lanka.

Employees opposed management actions because it affected to further deteriorate their main income from the factory leading some employees to earn low income. Some employees lost their jobs after the introduction of information systems. For example, the number of employees who worked in the previous time and attendance office reduced from twenty to two. Ostensibly, employees through unions opposed the proposed shift-plan and monitoring and controlling of their works through computerised time and attendance information systems. From these perspectives, it can be natural to believe that the development and implementation of computerised time and attendance information systems went on within socio-cultural, economic, and political contexts at NCCL.

#### 6.11.5.1.1 Reflection on Episode 7

What is interesting is, with all these changers were taking place in the social action context of NCCL, management regarded such actions as irrational and unimportant disturbances to realise their rational objectives. They ignored the collective symbolic structures of employees' 'lifeworlds'. They did not understand employees' resistance as a result of unresolved steering problems.

Crisis situations in the socio-cultural, economic and political contexts occurred much owed their objectivity to the fact that they issue from unresolved steering problems introduced by Goldembank at NCCL. These steering problems affected and endangered social integration of NCCL. Rather than understanding 'lifeworlds' demands,

management rationalised its actions through interpreting financial and production figures to realise its objectives, meanings of employees' actions was interpreted at best of localised importance or irrational behaviour rather than understanding the behaviour is resulted from the unsolved steering problems of Goldenbank. The adoption of science-based innovations and technologies by Goldenbank management at NCCL has often been stifled by the employees' perceived socio-cultural lifeworlds.

### 6.11.6 Maintenance for Cement Systems (MAC) for Factory Maintenance

As part of the modernisation program of Goldenbank at NCCL, a project named, maintenance for Cement (MAC) was introduced at the factory in the late 1996. MAC is a manual system which has been implemented in other Goldenbank group of companies. Simply, MAC project was focused on the maintenance of factory machines to improve the efficiency of the operations of factory performance. Former Factory Manager explained the objective of MAC project. "The focus of MAC was to reduce maintenance cost with the improvement of overall maintenance activities, to reduce net operating assets, and to improve overall equipment efficiency".

Goldenbank management assumed that MAC could be implemented at NCCL as it had been in other Goldenbank companies. However, employees were strongly opposed the introduction of MAC project through unions. Employees who previously divided into various political parties united through their national union leaders to protest against the introduction of MAC project. A union leader recollected:

> Employees organised to protest the implementation of MAC project despite their pretty differences in politics. After the take over of NCCL, Goldenbank Company highly controlled us through various systems. We

> have no freedom within factory. Employees in the factory use as slavers to realise the Company targets. They reduced a number of employees employed in each shift. We have to carry out their works too and we are now over pressured.

However, the management ignored employee resistance but expected a massive attitudinal change from employees. Former Factory Manager stated:

> To introduce MAC, Goldenbank expected an entire attitudinal change from people, but employees viewed MAC project negatively. It took nearly three months including a month to select a task force to study the project. Another two months to give awareness. Company introduced past-track reduction of employees. Employees were monitored and controlled through computerised time and attendance information system [as previously explained]. People thought all these changes were emanating from MAC project and they opposed to it.

Management perceived employees' resistance as disturbances in the social system to realise rational objectives of Goldenbank rather than understanding cultural problems of employees' lifeworlds. MAC as a steering medium did not match with the established working culture, socio-economic and political contexts of NCCL. However, management organised training program for some employees hoping to change their attitudes towards MAC implementation and to improve their condition for use of MAC. Goldenbank perceived social life of employees as a technical issue, and its improvement was entrusted to technical experts, capable of rational decision making and management.

Management organised training for a task force selected among employees to implement MAC project. The group comprised of 12 employees including a systems analyst. Foreign consultants conducted training on MAC implementation. However, the way training was conducted could not cultivate new ideas about the use of MAC at NCCL. It did not provide opportunities to learn MAC concepts by employees. The

training followed an instrumental approach. A planing officer in the factory planing division stated:

> Though training was aimed at changing our attitudes towards MAC implementation, it did not happen because it was just conducted. We could not understand many of the concepts he [foreign trainer] taught us. We have never heard of those concepts before. We had problems of his language [English] [emphasis added].

The presumptive use of "our" and "we" in planning officer's use of language presumes the recognition of learning as a set of collectively shared knowledge generation process. These "our" and "we" words appear as quite ordinary expression, or presumptions altogether unchallenged the solidarity of employees in the face of practical communication. What we see here is the practical relevance of use of communicative actions in training of employees. This use of social grammar of ordinary communication is still remained unchanged in Sri Lanka's culture.

English as a medium of instruction also inhibited learning by employees of concepts associated with MAC project. Many of the employees who employed at NCCL had completed their pre studies in schools and universities using national languages such as Sinhala and Tamil as medium of instructions. This resulted due to the recognition of *swabasha* (swabasha refers to a nation's own language) medium education policy adopted in teaching in 1944 (Ruberu, 2001). This adoption of swabasha policy in teaching students was inspired and convinced by the universally accepted principle "the mother tongue of a child is the medium most appropriate for a child to learn effectively" (Ruberu, 2001). It considered that the mother tongue as the natural medium of education and the genius of a nation finds full expression only through its own language and literature. Once a person is socialised in his mother tongue and has been instructed as

such, he does not proceed subject to transcendental rules, but at the level of transcendental structures themselves because he is concerned with the a priori or intuitive basis of knowledge as independent of experience (Habermas, 1987c).

#### 6.11.6.1 Reflection on MAC

The transfer of the purposive rationality of Goldenbank carried with it the transfer of values and institutions embedded in corporate and management culture of the Western societies. The application of instrumental approach in the course of employees' training towards the use of MAC inhibited to take place employees' discussions necessary for the inclusion of the requirements of lifeworlds. Rather, this instrumental approach further eroded employees' ability to define and take care of their own lives further than the erosion of past periods of corporation and Yawakkal management at NCCL.

### 6.11.7 Development of Computerised Work-Order Information System for Factory Maintenance: *Episode 8*

In the MAC project, one of the areas, namely, work-order information systems, required computerised information systems development to implement in the maintenance of factory plants. Simply, the objective of computerised work-order information systems (computerised work-order information systems) was to design preventive information systems for monitoring maintenance activities in the factory plants on a scheduled basis. It was scheduled for 13 week monitoring plan of plants. Thus, information technology and management information systems managers went to Thailand to study those systems use by the sister companies of Goldenbank expecting that the similar systems could be used at NCCL. The managers realised that the computerised work-order information systems used by Thai companies did not meet NCCL requirements, because

Thai manufacturing of Cement process was highly automated and equipped with modern machines and technologies. Hence, the management information systems and information technology managers requested NCCL management to develop computerised work-order information systems in-house that met Company requirements. The management information systems manager explained insufficiency of Thai systems to meet NCCL requirements:

> We observed the way that Thai manufacturing process and the way plants were monitored and controlled. Thai machines were absolutely new. We realised the same system [computerised work-order information systems] and the approaches used in Thailand would not be effective with our some forty years old and obsolete machines [emphasis added].

Consider the above three presumptive uses of "we" and "our" in management information systems manager's expressions, 'we observed', 'we realised', and 'our some . . .' recognise the collectively shared knowledge in managerial actions. Realising the importance of computerised work-order information systems and believing the recommendations of information technology and management information systems managers were correct, the senior management decided to develop computerised work-order information systems in-house. This situation could be considered as a culmination of communicative actions in decision making between employees and Goldenbank management. However, a consultant from the parent Company headquarters was brought in rather than trusting locally available experts to develop the proposed system in-house.

With the MAC project, a new planning division was created with four planning offices together with an engineer as the head of the division to look after the implementation of the computerised work-order information systems. A systems analyst was appointed as

the coordinator of the project. The system development process was largely ad-hoc. The consultant did not conduct a systematic study to identify information requirements of NCCL rather the head of MAC project provided requirements for the development of the system. Foreign expert presented himself, as en expert who is in a possession of knowledge that is not available to users and other affected parties at NCCL from the computerised work-order information systems. Users were not consulted nor they were involved in the design and the development computerised work-order information systems. The consultant developed the computerised work-order information systems within three weeks using Microsoft ACCESS database software package and he left the country leaving the responsibility of implementation with the staff in the planning division of the factory.

The foreign expert followed purely scientifically rational, technical and instrumental approach to design computerised work-order information systems while introducing neutrality into political action contexts in which NCCL operates. The foreign consultant would have assumed that information systems development could be carried out painlessly to underlying social and cultural structures of NCCL in which information systems development takes place. However, it is impossible to argue that public domain is objective and value neutral. For example, the VP-manufacturing whom needed using the computerised work-order information systems for maintenance activities in the factory urged the planning division to make use of the computerised work-order information systems developed by foreign consultant and to produce required management report to monitor and control maintenance activities in the plants. However, the users could not produce the required report using the computerised work-order information systems. Systems stated:

> We had hell of problems using it [computerised work-order information systems] including, creating documents for management. We identified a list of problems, we had, when we were using the system and handed over it [the list] to the head of the MAC project. He then faxed the list to Edinbara [name of the consultant]. Edinbara came back to work out the problems. However, he just gave me a training about ten minutes before he was leaving the country. We experienced another set of problems even after correcting the earlier list of problems. We brought those problems again attention to the management.

The group collectively employing communicative actions identified difficulties regarding the use of computerised work-order information systems developed by the foreign consultant. However, senior management, particularly, the VP of manufacturing ignored such understanding of the users of the computerised work-order information systems, because he was inculcated with the belief that foreign expertise was superior to locally available knowledge of information systems development. Instead, he suspected that the employees who worked in the planning division assuming that these employees were sabotaging factory work by not committing to work with the computerised work-order information systems developed by foreign consultants. A planning officer explained:

> Chief factory manager suspected us. He thought that we [users] sabotaged the computerised work-order information systems since a foreign consultant developed it. For example, one day, the operation manager asked us to create reports whilst he was sitting with us, but we could not produce any single report he required. All planning officers were also fed-up and frustrated with the computerised work-order information systems. Then only they [management] realised that the computerised work-order information systems could not generate necessary reports for their [management] use. Later, it was given up.

Later the system was abandoned leaving a huge cost (Rs.30 million) to the Company. Commenting on the failure of the computerised work-order information systems, the planning engineer in the planing division stated:

> The computerised work-order information systems was designed for preventive maintenance of plants. It was scheduled for 13-week monitoring of plants. But our machines were nearly forty years old. There are frequent shutdowns and stoppages that require immediate attention and repairs. We can not maintain them on scheduled basis because failures take place before the scheduled days. Goldenbank has not considered these aspects of machines before considering the development of the computerised work-order information systems.

The purely instrumental approach of the consultant denied the possibility to engage in critical examination, self-reflection, and awareness of the development process of computerised work-order information systems relating to employees of NCCL. The instrumental approach adopted by foreign consultant restrained the development of information systems according to the understanding of local employees about the factory maintenance activities. For example, planning engineer recollected, "when factory systems analyst sought to take part in the design of computerised work-order information systems, he was told by the head of MAC that his service was no longer required by the project." The process adopted by consultant in developing computerised work-order information systems inhibited a critical awareness of the conditions of factory machines to be included in the development. Furthermore, making comments about the failure of the computerised work-order information systems, Former Factory Manager stated:

> Goldenbank expected a massive behavioural and attitudinal change from the part of employees to implement the computerised work-order information systems. However, the approach was top-down and the Company neglected listening to the voices of bottom-levels. The poor knowledge about computer use of planners was further added to the failure of the computerised work-order information systems.

Both Goldenbank management and consultant assumed that instrumental and technical approach used in the development of computerised work-order information systems would help to implement MAC project to transform NCCL towards a modern

organisation. However, the developer neither had an idea about the Company requirements nor he involved in the implementation of computerised work-order information systems with the planning officers. The developer followed an instrumental approach which is embodied in the philosophy of positivist science. He concealed the problems of world constitution of user employees at NCCL.

The positivist designer, taking an expert position, ignored the social grammar of employees that produced a system of knowledge as a shared learning process, which allowed interaction with other employees at NCCL. A superficial adoption of instrumental approach and the use of power in the process of development of computerised work-order information systems prevented contesting the normative context of information systems development and its possible consequences for lifeworlds of employees at NCCL. Both Goldenbank management and foreign consultant did not understand the fact that modern scientific knowledge and the knowledge possessed by local employees are grotesquely unequal in leverage.

#### 6.11.7.1 Reflection on Episode 8

The domination of Western positivist science ignored knowledge and wisdom in employees' lifeworlds in Sri Lanka. They did not believe that they could have anything to learn from local people or to recognise that there is a parallel system of knowledge to their own which is complementary, that is usually valid and in some aspect superior than scientific knowledge adopted in positivist science. From these perspectives, it is important to understand that knowledge producers, knowledge users and knowledge recipients such as affected parties must communicate, because knowledge products possess latent sociopolitical characteristics that surface and activate when changes are

implemented in practice. The inner motive that all the parties share is needed to better understand and effectively employ in information systems development if it is to be productive in organisations. However, this shared knowledge in information systems development was missed out both by the management of Goldenbank and the consultant who developed the computerised work-order information systems. Seen from these perspectives, transfer of instrumental science and technology, management techniques and methods, and experts' knowledge from the Western countries to Sri Lanka as steering media prove problematic and unsuccessful in the prevailing socially constructed lifeworlds of people in Sri Lanka.

### 6.11.8 Management Information Systems for Factory Control: *Episode 9*

After the closure of data processing unit in the factory and the introduction of MAC project, the planning division was regulated, as the management information systems unit in the factory, to produce various management information systems reports. These wee to enable factory management to closely monitor and control factory production to achieve Company targets.

The objective of management information systems development was clearly linked up with the Company's rational objectives. A system analyst in the head office had developed a database system using fox programming language. Additionally, using Microsoft EXCEL software package various reports are produced. Planning officers independently operate database and EXCEL systems. Neither database system nor EXCEL system is integrated on-line with information systems in other departments, units or head office. The planning engineer stated that, "our system is not yet integrated but we interface information manually to database and EXCEL systems from

other departments and sections to generate various management information systems reports required by the factory management. Each manager decides what information he wants".

Both database and EXCEL systems were developed to control the workforce in the factory. Similarly, neither users nor other affected parties were involved in the design and development of management information systems. Systems analyst stated:

> Things are different here; there were no many interactions with the users and other parties who affected management information systems. We can't take their priorities into considerations, because management requirements are different. Therefore, we develop management information systems to meet management requirements.

The systems analyst employed an instrumental approach of which was aimed at the production of technically exploitable knowledge in management information systems development. This instrumental approach discloses reality from the viewpoint of possible instrumental control over objectified processes of nature. This approach has regressed behind the level of reflection represented by the worldviews of users and other affected parties from management information systems development. The systems analyst ignored the social context of NCCL within which management information systems development occurs. Rather, objectives of Goldenbank were included within the objectives of management information systems, for possible control of behaviour of employees in the factory. The objective of each management information systems report produced by the planning division is as follows.

1. Daily plant maintenance and review reports. Objective is to review the past performance of the maintenance department against the plan, identify sources of a deviation to adapt to daily plant production needs.

2. Weekly maintenance report. Objective is to review the attainment of last week plan and to develop the plan for the coming week.
3. Shift hand-over report. Objective is to ensure a smooth transition between shifts, discussing problems that need specific focus as well as potential problems.
4. Weekly management review reports. Objective is to review the results of the past week of all sections, reporting to the Chief Factory Manager, identify variance, analyse them and take appropriate action.
5. Daily deviation report. Objective is to review day-deviations.

Factory managers in turn use these reports as purposive-rational means to control the operations at the factory to achieve Company objectives. For example, the Chief Factory Manager stated that:

> I am looking after operations both in the factory and the quarry. I receive daily, weekly, monthly and annual reports about the operations from the planning office. I use these reports [as management controlling devices] to see whether the factory is running smoothly. I closely look at every movement of the factory . . . and tightly control the operations using management information systems reports. For example, we closely monitor employees' arrival and departure time to work. This is very essential for us as the factory is scheduled to run with a minimum number of employees. I forced supervisors to take disciplinary actions for late arrivals, which is their responsibility to make the employees disciplined. I pressured all the superintendents and other sectional heads to issue warning letters for them [for the late arrivals]. If a person reports repeatedly late, 'sack' him. . . . then employees will realise that this Company is tough. We have to have disciplinary workforce to achieve our targets. The Company has to make money to keep going.

Management information systems development at the factory planning division reflected the prevailing managerial ideology of Goldenbank, which strengthened the instrumental rationalisation of work process of NCCL. Employees are considered as objects to be manipulated by management actions. Information system was used as an instrument to monitor and the control of performance of both employees and other departments. By using management information systems, Goldenbank management believes to obtain reliable and objective measures about the performance of both employees and other departments. Information is used as a new management-

controlling device by management to reinforce control and surveillance of the workforce leading to increased alienation.

Goldenbank assumed that management information systems development could be carried out painlessly to the underlying socio-cultural contexts at NCCL. The use of instrumental actions by factory management through management information systems to control and surveillance of employees in the factory threatened the communicative actions that had reconciled their traditional way of life. The traditional way of life was surrounded by the purposive rational actions of management. A shop-floor employee commented that:

> Earlier [during corporation period] we did not see the factory differently. Factory had become a part of our every day life. Many things occurred in a manner we were used to. Trade unions were always with us in our everyday life. Our managers used to know our situation [traditional way of life]. We fully supported them and they fully supported us. Mutually we understood each other.

Employees believed that Goldenbank management would not interfere to continue their customary shop-floor customs and practice. Unlike privatisation of other SOEs (e.g. Kalaney Tyre Corporation) in Sri Lanka, the employees at NCCL did not resist through prolonged strikes realising that they would be disadvantaged from the instrumental and strategic actions of management. However, employees heavily suffered from the new disciplinary controls introduced by Goldenbank management through management information systems.

In their traditional village culture, naturally villagers employed communicative action in their everyday affairs. Their everyday affairs and experiences were not subject to the transcendental conditions of action itself. Reality is constituted in a framework that is

the form of life of communicating groups and is organised through ordinary language. What is real is that which can be experienced according to the interpretation of a prevailing symbolic system. Villagers produced their lives both through learning processes of socially organised labour and processes of mutual understanding in interactions mediated by ordinary language. In this use of language social interactions and understanding was predominant. Everyone understood the language used in ordinary communication.

However, new control initiatives of Goldenbank through management information systems suppressed the employees' lifeworlds leading to alienation and to an organisational iron cage as referred by Weber (1947). The introduction of targets made employees more aware of the pressures for increased controlled leading to loss of socially organised knowledge. Employees never used to work in the villages under a sever control by external parties. In the villages, controlled was communicatively formed. A work-superintendent explained changes occurred in the factory after the initiatives of Goldenbank management.

> During corporation period, employees were somewhat free with usual habit of work. Now the factory is very busy. Attendance, timing, and targets are very important priorities of the factory. People normally don't like that type of control. They prefer to work freely without such rigid control.

During corporation period, employees had amicable relationship with production managers because they understood the circumstances of employees. Goldenbank managers ignored this cordial relationship between production managers and employees and the effects of their relationship to the production in the factory. Rather than understanding the employees' behaviour and the importance of keeping good industrial

relationship with employees, Goldenbank management ignored the demands of every-day life of employees. When employees' everyday life clashed with management priorities, it considered as irrational behaviour of employees and became a matter of investigation and discipline. A work-superintendent explained:

> When employees are absent the Chief Factory Manager asked us to take disciplinary actions against employees. Good example is that about a month ago one employee in the clinkering division told me that he was absent because he had a family ceremony. The Chief Factory Manager's reaction was not like local managers. He is more serious about factory discipline and wanted us to take disciplinary actions against absentees. Employees now should be serious about their work. They have to select either factory or family, not the both, because the Company policy is very tough now.

Another shop-floor employee stated that "now everybody is busy working but we do not like it. It's very difficult for us to have leave. Now we don't have freedom to talk much. We do not like it". The work intensification through management information systems had pressured and increased employees distressed in the factory. An operation manager said, "the freedom to talk with people had withdrawn here. People do not talk. They carried out orders with fear psychosis. And negatively respond". It seemed that with the stiff management control, employees' attitudes have become hardened. As a result, employees opposed senior management actions by focusing on their high salaries and expenses. An accountant commented:

> Executing the plans of the expatriates proved expensive for NCCL, which veered between low profits. The foreign mangers (according to local managers) were paid hight salaries a scale higher than local managers. Their salaries are far ahead with the salaries paid for other employees. They were provided luxurious benefits such as vehicles and accommodations at the Company cost. The Company had to satisfy them with all facilities. For example one of VP's telephone bill for one month exceeded Rs. 200,000, which means the Company can pay twenty shop-floor employees of this bill alone. You know, our output is to local market and we are severely attacked by other competitors. We could not

increase prices as the cost increases. I am concerned whether these additional costs provided substantial returns to the NCCL. My understanding is they didn't.

#### 6.11.8.1 Reflection on Episode 9

Within this social milieu, therefore, management information systems development was incapable of being legitimised at NCCL. Employees opposed management actions as means of expressing their discontent. Employees' 'lifeworlds' demands were not dealt with democratic and rational means. Rather they have been suppressed or dictated by managerial endorsements. Goldenbank' perception about management information systems development was technical and instrumental to obtain better and accurate information to monitor and control work-place relationships.

In developing management information systems, systems analysts adopted an instrumental approach for realising technical interests and supported in realising the purposive rationality of Goldenbank management. Management information systems were aimed to get reliable and objective measures to predict and control of performance of individuals and departments and NCCL itself without integrating employees' lifeworlds demands in information systems development. It can therefore be concluded that information systems development at NCCL represented the positivist approach emanated from the Western cultural and value systems.

### 6.11.9 Outsourcing information systems: *Episode 10*

The CEO at NCCL believed that information and information technology was critical to sustain and in pursuing Company vision. Therefore, in the late 1999, Goldenbank considered employing information technology for gaining strategic advantage in the

cement market. The implication of this thinking is that NCCL required a sophisticated computer communications infrastructure for the daily activities. This view of information and information technology is reflected in the information technology policy and strategy formulated in the 2000.

According to information technology policy, Goldenbank endeavours to develop fully integrated, enterprise-wide information system. Goldenbank assumed that the development of effective information systems could be used successfully to enhance the competitiveness in the Cement market of Sri Lanka and thereby to achieve sustainable development for NCCL.

According to information technology policy and strategy, Goldenbank was to increasingly use of computer based solutions to improve the efficiency and effectiveness of NCCL. NCCL endeavours to reduce the reliance on manual systems and to implement fully integrated, enterprise-wide information systems with Goldenbank standards. In theory, NCCL relies on e-mail, Calendar and other Group-ware applications for improved communication and coordination while looking upon and managing data as a confidential corporate resource (NCCL information technology Policy Guide, 2000). The information technology strategy was cast to give much concerned on the e-commerce and fully integrated and automated information systems in all the aspects of operations to take advantages over competition. Goldenbank management assumed that integrated information infrastructure would provide management with accurate and reliable information. The VP of Finance stated that:

> We were looking at fully integrated information system on line with factory, head office and other locations. Our strategy was to outsource standard-licensed software in all the applications including

> administration and to introduce fully integrated and automated systems such as SAP to edge out the competition. The Company, following its information technology strategy, had introduced new outsource software (information systems) for accounting, payroll and inventory applications and a Lotus Notes net work for both internal and external communication. Moreover, the Company uses Goldenbank space web-site for sharing and comparing information with other Goldenbank companies.

Information technology policy and strategy was highly linked to Company vision and objectives of cost and market leadership. The underlying belief of Goldenbank is that it suffers from unclear, ambiguous and complex co-ordination problems, which require a lot of communication and documentation. Goldenbank perceived that employees in every location should share information accurately and in a timely manner. Implicit in this policy and strategy is that information must be systematically gathered on people and their activities. Thus, information systems development were tied up with and focused on realising the interests of Goldenbank of monitoring and controlling performance of employees and their activities at NCCL.

In the selection and the deployment of information technology resources, the Company relied upon the principles of economic calculations for obtaining value for money. Goldenbank believed that information systems have a direct impact on the economics of information processing. Prevalent belief in the direct social and economic value of computerisation (Kling, 1996) presumably informs such counsel. Information and communication technologies were understood to improve the quality and productivity of information processing and reduce labour cost. For example, VP, Finance stated:

> We have external communication systems. We are now able to communicate with remote areas such as with Goldenbank and with the factory people. We internally communicate using Lotus Notes. As far as cost is concerned these technologies are cheap and they serve lot of money to the Company. The selection and deployment of information

technology solution is based on value for money to obtain a grater economy.

Although Goldenbank has been grappling with the problem of information since 1996, albeit with a conspicuous lack of success, cheap and easily accessible information technology only appeared on the NCCL scene after the Goldenbank has started its operations at NCCL. On the other hand, the development of piecemeal information on the integrated information systems to support information requirements of user departments substantially changed socio-cultural, political and economic climates in which NCCL operates. Outsoucing of information systems from different vendors and assigning the task of information systems development to external specialists following the information technology policy and strategy continued to erode the technical leadership of organisation of information systems within NCCL. In many cases, the partnership between vendors and NCCL experienced sever problems leading to information systems failures in user departments at costs.

Following the Company information technology policy and strategy, different versions of application software from different vendor firms were set up in user departments: "ACCPAC" in the head office's Finance and Accounting department; "ACQUIRE 7" in the factory's supplies and inventories department; and "Shenide" in the head office's payroll section. These application softwares were products of developed countries. Though Goldenbank perceived integrated information systems as powerful and significant forces of modernisation program of NCCL, the developed nature of the integrated information systems has been uneven and piecemeal. Neither specialists from vendor firms nor information technology personnel of NCCL conducted formal information requirements elicitation study identifying needs of the Company. The

specialists from vendor firms excluded users, internal information technology staff and other employees and carried out information systems development independently adopting technical knowledge with narrow instrumental approaches for the best interests of the Company management and the specialists themselves.

User departments purchased their own software and hardware and frequently developed their own information systems. Each department was starting to implement small, standalone applications on PCs. Many of such systems directly vied with those available from the market and have no formally linked with other departments. Because of their very nature, integrated information systems needed to run on large, centralised multi-user systems. However, this did not happen up till the end of 2000.

The practice of piecemeal information systems development fostered a boom on the piecemeal development at user departments. These piecemeal information systems in users' department acted as major barriers on the development of integrated information systems. While software installed at different user departments was incompatible to link to function as a unified information systems, these information systems reinforced the traditionally established bureaucratic culture of managers in user departments. The development of information systems served the needs of some managers at the expense of employees. The ends of information systems development in user departments were in question to many employees. Information systems development has not been guided by the demands of employees' 'lifeworlds.' Clearly, socio-cultural, economic and political aspects of NCCL influenced information systems development at NCCL.

Frequently, settings up of small data processing units have been created to satisfy the needs of user departments who generally felt dissatisfied with former data processing

units. Shifting information technology responsibility from information technology section to the user departments seemed like a good solution for all. According to Habermas this situation can empower users and emancipate them from the power of information technology staff. These departments welcomed information systems development within their departments as answers to the applications backlog.

This is mainly because, over nearly three decades, two computing units in the head office and the factory served for those who were in power. Throughout the history of NCCL, staff and the data processing units were subject to instrumental use of senior management and politicians. In many instances, information technology staffs followed narrow instrumental and technical approaches to design and development of information systems. They were considered as legitimate experts in information systems development. Their main concerned was to develop technical information systems necessitated by management decision making to monitor and control lifeworlds of employees at NCCL.

This narrow focus of information systems development within NCCL not only alienated employees at work but also annihilated wide assimilation of information systems used in other departments. Its access was denied to overall employees as a whole. Therefore, information systems development did not have any impact of transforming NCCL towards an efficient and effective organisation it initially emulated for. Rather the development of information systems frustrated NCCL transformation.

Though competition for Cement has been changed since 1990s, until the end of 2000, NCCL and its information systems followed relatively formal and stable structures. Therefore, they can be viewed as machine-like structures with fixed relationships that

produce purposeful results (see Porra & Hirschheim, 2000). Information systems function received little recognition in compared to other business functions such as accounting and finance within NCCL.

In the late 1999, Goldenbank transferred the responsibility of information systems development from the management information systems section to external specialists. The management information systems manager commented that "the monopoly of information technology division was broken by introducing software packages for various applications in user departments". This can be seen as evidence of the information technology personnel being considered as an inferior organisational class by Goldenbank management (Porra & Hirschheim, 2000).

However, outsource policy has created poor morale of information technology personnel in the management information systems section leading to alienation and apathy. For example, an analyst who was greatly suffered from the Company's decision to outsource information systems function mentioned that "we are now ignored and cornered by Goldenbank management". The poor morale of internal information technology specialists was symptomatic to a lack of information technology vision for NCCL management.

The vast array of information systems that developed at NCCL has been developed largely through the initiatives of particular individuals in user departments. The expectations of handing over information systems development responsibilities over to the user departments were too optimistic, because it created much conflict between user departments and the management information systems section. In many cases, the management information systems section was excluded from the selection process of

software and hardware for user departments. Deputy General Manager in the accounting and finance department stated that "things are quite different here now. We feel information systems need to come up from us". In many instances, these ideas led personnel in the user departments to depend on personnel who initiated and introduced such information systems. The project manager stated that "in every section, there is an information technology person. Others have to depend on them and have to accept what they say correct". An information technology manager in the management information systems section stated that:

> If mister [X], an accountant in the accounting and finance department, leaves the Company, then that it would be the end of 'ACCPAC' [accounting software package] because he initiated, he trained himself and he is being used it now by him. Information systems became properties of individuals rather than the property of the Company.

This practice of information systems development by individuals in user departments fostered to maintain power and to dominate over the staff within and outside the departments. In certain instances, user departments recruited internal or external information technology specialists. For example, a systems analyst that worked in the management information systems section was transferred to the accounting and finance department by the VP of fiancee to strength the information system in the accounting and finance department (Gunatunge & Williams, 2000).

In many occasions, information systems initiatives in user departments did not occur following a dialogue between stakeholders, i. e., user departments, and specialists in the management information systems section and other employees. According to Habermas, communication brings people and their knowledge together and it provides a forum for exchanging their intersubjective knowledge in a mutually understand manner. However,

certain user departments excluded communication with personnel in the management information systems section and other stakeholders. Management information systems manager commented that:

> Managers in user departments are now responsible for buying information technology products and services from suppliers; they are absolutely critical in giving us control of information technology. Management information systems section was just informed about such decisions by user departments even though it didn't make much difference.

Similarly, management information systems section had little coordination about the information systems initiatives in users' departments. User departments handled such information systems developments with external software vendors. Very often, external specialists from vendor firms appear in NCCL's premises. Accordingly, user departments' received little direction by management information systems section in helping users and ensuring user satisfaction in use of information systems developed by external specialists.

The lack of relationship between user departments, information technology personnel in the management information systems section and employees in other departments affected creation of mutual confidence, understanding, trust, harmony, and successful communication. Moreover, Goldenbank management deemphasised the work carried out by internal information technology personnel. As a result, when technical problems arise in user departments, a systems analyst stated that "information technology people do not actively involve in correction of those problems because they were not involved in developing such systems".

The Management information systems manager commented on being informed about such problems by user departments, "information technology people in the management information systems section used to contact external vendors who supplied software and hardware for user departments to correct every minor problem in users'. In some situations, users requests were neglected". For example, management information systems manager continued:

> Recently, secretary to the CEO had informed the management information systems section that she had problems in reading her e-mail account, but about a week, information technology staff had not attended to correct her problem. What happened was that she had brought the matter to the attention of the CEO? After few days, CEO soughtted at me telling that I'm not serious about information technology functioning at NCCL.

This practice of many information technology personnel in the management information systems department impaired the speciality of the information technology people within NCCL as being experts. The project manager stated that "most of the information technology personnel were not acquired adequate information technology skills and business skills. As a result, information systems development was not generated innovative solutions". What is interesting is that the new organising of management information systems function, information technology, and information technology application in information systems has ignored the existence of such socio-politics between management information systems section, user departments, and other involved parties in systems development. Personnel within NCCL were not considered as valuable and capable human assets in solving business problems and opportunities through information systems development.

Following Company information technology strategy and policy, software selection for various departments at NCCL was made purely relying on rational criteria such as

obtaining information for rational decision making and controlling. This belief of management was aligned with the idea that information systems produce fuel to the organisational decision making (Lyytinen, 1992). Several factors contribute to this belief: reduce cost to access and manipulate information, a faster decision cycle, which permits more alternative to be explored, and higher information quality such as accuracy and timeliness, which allowed for more informed decisions. The Deputy General Manager of accounting and finance stated:

> Now we can make good decisions [rational] and have a better control all over the operations at NCCL. After introducing ACCPAC, the culture of the Company has changed, for example, now only a single person is doing works of five persons.

In this role of information systems have substantially shaped the prevailing managerial ideology by strengthening the instrumental rationalisation of work processes at NCCL leading to increased alienation of employees. According to Habermas, the application of information technology has not addressed social needs that are recognised as justified by an informed democratic consensus. It ignored the effects of application of information technology on workforce. For instance, an accountant who works with the ACCPAC system at the head office stated:

> Now we don't have social-life within the Company. All are busy with targets, because poor performances affect our promotions and pay increases. We don't have a lunchroom to share our feelings and sentiments with others but we used to have one before [during the corporation time].

Information systems were employed to monitor the performance of individuals and other organisational units without considering their everyday life. This belief about information systems serves several objectives of management: information systems

provide a means to direct attention to important aspects of organisational performance; and information systems provide an explicit contract or implicit rules to evaluate the performance of employees and compensate accordingly (Lyytinen, 1992). By using information systems, Goldenbank management believed that it would get reliable and objective measures to reward employees and shapes their perceptions and behaviour towards the implementation of modernisation programs of NCCL.

Increasingly, these new ideas of information systems were fused with instrumental and strategic rationality of management actions and reinforced the existing traditional power bases of senior managers to control and surveillance of the workforce leading to increased alienation and apathy rather than developing motivated workforce within NCCL. The Project manager stated that:

> People use information as power to control others. Some managers have created their own power bases within the Company. You see, more people you call, you love them. I don't get information. Giving information is considered as something that you favour others. You know why, still traditional bureaucracy remains unchanged here. Some senior managers who have been worked for the corporation time still remained in the Company and they became more powerful than before because of setting up small computing units within their departments.

At present, throughout the Company remains the traditional state corporation culture where the focus was to target functional objectives using information systems set up within each department. Many of them have not been exposed to working in a changing business environment. Factory Human Resource Manager stated. "We have to go outside and see what is happening there". Introduction of new information systems in user departments supported to growth of bureaucratic infighting and the loss of flexibility through the entrenchment of the status quo (Alvesson & Willmott, 1992a).

### 6.11.9.1 Reflection on Episode 10

Information systems development and practice did not match with the needs of various stakeholders and it ignored the inclusion of their value choices as design objectives of information systems following their socio-cultural 'lifeworlds.' Information systems were not developed considering the social context of Sri Lanka. Changing information systems development from management information systems to user departments therefore did not change the direction of information technology development for the betterment of employees and the NCCL itself.

Overall, the present information systems development supported the purposive rationality of Goldenbank. This techno-scientific and economically rational approach, while considering others as objects, appeared to be ignored information systems development as a socially valuable function, normally acting in the general interests of a larger stakeholder group. The results of information systems development have caused little to change NCCL towards the use of information systems and the transformation of NCCL towards a modern organisation through effective information systems development.

# CHAPTER SEVEN

## SUMMARY, THEORISATION AND CONCLUSION

### 7.0 Introduction

In this chapter I present a summary of each episodic analysis of information systems development and practice at NCCL, then I summarise major findings of the research. I present an account of theorising information systems development from communicative actions whilst adressing problems of application of Habermas's communicative actions in organisations in Sri Lanka. Finally, I conclude the chapter with some recommendations for successful information systems development and practice in organisations in Sri Lanka, conclusion for each research question, overall conclusion for the study with some recommendation for future research.

### 7.1 Summary

#### 7.1.1 Episode 1: Budget as a Steering Medium

In this episode, the Ministry of Industries and Public Treasury controlled both the head office and the factory affairs at NCCL. Preparation of budgets at NCCL emerged from the consideration regarding political and management accountability of funds towards the public through parliament. Budgets were produced for production and costings concentrating on improving efficiency of operational performance of NCCL affairs.

Initially, factory management used budgets as a steering medium to control shop-floor work than as a means to report to head office. Senior management used budgets to achieve the purposive rationality of the government. As part of the implementation of budgets, employees' shifts became the focus of factory life. Senior management legitimised the use of budgets by employing production targets in line with improving factory efficiency. Thus management assumed that budgets would improve the efficiency of operations and thereby fulfil NCCL's political and management accountability to the public through parliament.

However, employees found it hard to accept the managers' justifications of budgets and their instrumental actions. Budgets appeared to clash with employees' socio-cultural 'lifeworlds.' Employees interpreted budgets and shifts as threats to their identity within NCCL. Employees opposed the formal control of their 'lifeworlds' through budgets.

They opposed management use of budgets as a controlling device in the factory. They questioned the legitimacy of formally defined budget targets and shifts operation by the management. In Habermas's terms they questioned the contextual validity claims (comprehensibility, truth, truthfulness, and rightness) of management actions through the representation of their unions. They wanted, instead, managers to use their everyday life in the village as a way to communicate about budgets and shift planning within the factory. They were culturally and ethonocentrically free from the control of modern management techniques and methods such as budgets and shifts. In villages, employees didn't need formal controlling systems because human interaction within village occurred through well-understood and reciprocally established communicative structures.

Recognising employees' resistance towards budgets and realising their legitimate lifeworlds needs the factory management gradually developed opportunities that allowed employees to fulfil their traditional commitments to socio-culture and economic conditions.

Factory managers understood employees' resistance as something that required worthy consideration to achieve industrial harmony and to improve relations with employees and thereby to achieve factory efficiency. They understood efficiency had to be viewed not only as scientifically and technically defined rules and procedures, (as the case in positivist approach), but also on a whole series of human decisions and value judgements for which the rules of meanings were tacit and located in the employees socio-cultural 'lifeworlds.' By applying Habermas's work, it is argued that factory managers used efficiency in a balanced way by applying tacit rules and meanings of employees' lifeworlds to meet the requirements of both groups - management in the head office and the employees in the factory. In other words, factory management accommodated value choices in budget guided through the exercise of human reasons when they found difficulties in implementing budgets in the factory.

Factory management considered employees' 'lifeworlds' within the factory's everyday concerns. They tacitly accommodated the underlying rules of meanings of employees' actions emanating from their lifeworlds in implementing budgets in the factory. Factory management considered the practical relevance of use of budget and incorporated value choices of employees within budget controlled operations. In Habermas's term, it is argued that the factory management integrated demands of lifeworlds within steering media. The budget was legitimised by the inclusion of tacit knowledge of employees' lifeworlds. In other words, production managers in the factory employed

communicative actions tacitly to integrate employees' 'lifeworlds' in budget. In this way, by employing communicative actions in budgets, it can be argued that the budget as a steering medium did not colonise employees' 'lifeworlds' in the initial phase of its use in work control at the factory.

By allowing employees' 'lifeworlds to be tacitly included in budget, production managers and employees maintained cordial relationships while supporting each other and reporting to the head office. However, both rational bureaucracy and the influence of politicians annihilated further communication action in managerial planning and stymied communicative rationality as an institutionalised practice within NCCL. In other words, these dual characteristics, bureaucracy and influence of politicians on NCCL affairs, hindered NCCL becoming an effective organisation using communicative rationality as an institutionalised practice.

NCCL formally followed the statutory corporation model of the British nationalised industries, which formally embodied a philosophy of bureaucracy, scientific and rational legal concepts. The government adopted these natural, scientific and rational planning and decision making concepts to transform NCCL into an efficient organisation. If this transformation were to be successful, then NCCL would be characterised by more efficient organisation practice.

Management actions at NCCL were guided by these bureaucratic ideals and were institutionalised as norms and normative structures within NCCL. 'Lifeworlds of employees were not allowed to evolve naturally. Above all employees' 'lifeworlds' were suppressed by the purposive rational actions of the government's plans of modernisation of NCCL and objectified through management actions. Senior

management had little interest regarding the lifeworlds' problems in the factory. Senior management could not see factory lifeworlds' problems as their concerns because they blinded by narrowly focused scientifically rational management approaches and bureaucratic rationality principles and acted in the interest of politicians. The senior management, on the other hand, as being bureaucrats did not want to see their diminishing power exercises against the employees.

The underlying problem of the management of NCCL was that the government Minister held the exclusive power of the control and access to resources. The Minister often arbitrarily influenced and changed NCCL activities, including budget decisions for his interest rather than the interests of NCCL. The senior management and the Board of Directors had minimal power or their power was weak in the eyes of political power of the Ministers of ruling governments. They were unable to properly advice and guide the Minister, but vice versa.

Both bureaucracy and political domination coexisted and frustrated NCCL becoming as a better organisation through effective planning by employing communicative actions. Thus budgets could not establish clear objectives agreed upon by all the parties through communicative actions. Budget served the partial interest of the government Ministers rather than serving it to wider interests of the community. Though production managers in the factory and employees wanted communicative rationality to be institutionalised within NCCL, they were prevented against the power of politicians.

Generally, management and employees had minimal power to change the decisions of politicians and they were unable to properly manage NCCL becoming effective organisation.

### 7.1.2 Episode 2: The Punch Card System

In the episode 2, NCCL affairs were controlled by the new financial control regulations introduced by the government in the late 1960s to improve the efficiency of SOEs. The punch card system at NCCL was introduced following these new financial control regulations of the government to control employees' attendance and discipline at the factory. With the introduction of the punch card systems, information processed via manual systems was replaced by the semi-automated systems.

Senior management at NCCL legitimised the introduction of punch card system in line with the government objective of improving efficiency in SOEs. The management considered the punch card system as an efficient and effective steering medium to control employees' attendance to implement budget and work shifts to achieve the efficiency of NCCL. It is argued that the NCCL management introduced the punch card system to change the employees' working culture within NCCL and to reduce the operational cost and thereby to improver the overall efficiency of performance of NCCL. Senior management assumed that the introduction of the punch card system would change employees working culture and thereby transformed NCCL becoming an efficient organisation.

The decision to introduce the punch card system was taken by the Chairman of NCCL. Factory management used the punch card systems to monitor and control employee attendance to maintain a disciplined workforce. In other words, NCCL managers assumed that the employee discipline could be achieved through the introduction of the punch card system, because information about employees become transparent when these semi-automated systems recorded their time and attendance.

The punch card systems influenced the way employees interpreted management control. Employees interpreted the punch card systems as another steering medium (controlling tool) emanating from the new financial control regulations of the government. They interpreted that management attempted to further control their socio-cultural lifeworlds within NCCL. They interpreted the punch card system as a threat to their existence within organisation. They questioned the legitimacy and the validity claims of managements' actions.

Employees opposed the external control by the management using technically designed information systems through their unions. Culturally and ethonocentrically employees could not adjust to the past pace technology introduced by NCCL management. Employee control using the punch card systems was antithetical to their traditionally established culture. Employees wanted managers to stop the control of their lifeworlds using technical information systems and revert back to the manual information systems. They wanted managers to employ their everyday life within the punch card system while considering their 'lifeworlds' concerns.

Though employees opposed the decision to implement the punch card system, the Chairman who introduced the system did not change his decision and forced factory management to use the system in controlling employees' attendance in the factory. Using Habermas's words, it is argued that the punch card system as a steering medium colonised the lifeworlds of employees in the factory. The punch card system constituted constitutional character of colonisation of employees' 'lifeworlds' as explained by Habermas.

Through the punch card system, management introduced new set of rules for attendance control of employees' shifts (recording, time of shift starts and off, shift allocation and so forth). Senior management viewed the punch card system as a universal controlling tool to discipline the employees' behaviour within the factory. They used the punch card information to predict and discipline employee behaviour to realise the objectives of both the senior management and the government. However, the punch card system, as a steering medium, did not support social integration in NCCL. The new rules stemming from the new working patterns and the efficiency were not matched with the rules of meaning emanating from the tacit knowledge of employees' 'lifeworlds.'

Senior management did not integrate employees' rules of meaning emanated from their social context within punch card system. In other words, steering medium (the punch card system) did not meet the demands of employees' lifeworlds. Rather it objectified employees' 'lifeworlds' leading to distorted communication.

The major effect on control and new work disciplines of management arose from discretion being taken away from employees and scheduled into the punch card system. Previously, employees were sufficiently incorporated their socio-culture within

management techniques such as budgets using communicative actions. Production managers by including employees' 'lifeworlds' in budgets maintained good industrial relationship. After the introduction of the punch card system, such relationship were blurred because formally processed information via the punch card system were available to organise formal work shifts to achieve production targets in the budget. Senior management did not use communicative action to define efficiency through information system in a balanced way for the benefit of themselves and the employees.

As a result the introduction of punch card system exacerbated relationship between management and employees. Inability of management to integrate 'lifeworlds' demands with steering medium of the punch card system alienated employees leading to loss of their cultural traditions, customs, and value systems. Rather than integrating employees' 'lifeworlds in information systems, the senior management objectified their processes to achieve the objective of the Minister of the government. The design purpose of the punch card system supported the objective of government at the expense of the demands of employees' lifeworlds. Thus the punch card system benefited the partial interest of the government and the senior management than it would be benefited for the divergence interests of a large group of participants.

In the design and development of the punch card system, management did not allow employees to reflectively understand and critically examine the punch card system. Management did not understand the meaning of employees' resistance in the semantic dimension. Managers, instead of stopping it responded to employees' resistance by pushing ahead with the punch card system without employees being participated.

Resistance of employees was connected with a vast array of socio-cultural, economic and political conditions operating in Sri Lanka. The management outflanked what they perceived as resistance by employing their power, resources, and authority in decision making in regard to the punch card system. The punch card system reinforced the worsening industrial harmony and alienated employees within the factory. Despite senior managers having power in terms of decision making, they failed to achieve their desired objectives. Senior manager could not successfully transform NCCL becoming an effective organisation following the efficiency as defined by them. Rather efficiency required defining in a balanced way by integrating the requirements of 'lifeworlds.' The discussion about the punch card system call for the development of information systems need to consider value choices of a wider participants stemming from their social context.

### 7.1.3 Episode 3: Budget with the Punch Card System

The episode 3 begins when the new government swept into power in 1970. It introduced legal framework to control public finance through a parliamentary Act No. 38 of 1971. Budget and the punch card system introduced in a context of financial crisis of the government. The Act required having budgets and financial procedures to introduce economic rationality to improve the efficiency of public corporations. In this way, the government introduced commercial norms into NCCL affairs. The senior management introduced new financial regulations to change organisational culture and values and to improve efficiency of overall operations at NCCL.

Consequently, budget implementation with the punch card system arose as a legal necessity within NCCL.

Senior management legitimised the use of new budget control and the punch card system as new management techniques and strategies to improve the operational efficiency and the overall performance of NCCL. In this new approach to control SOEs by the government, the public Treasury had empowered exclusive power of limiting public spending and consequently cutting money approved from the Treasury to NCCL. By implication, the Sri Lankan government wanted to transform NCCL into an internal market. If this view of government were to be successful, then more efficient SOEs in Sri Lanka would foreshadow NCCL.

Following these new regulations, within the factory, budget set targets for production on employees' shifts. The punch card system monitored employees' attendance. Senior managers simultaneously employed both the budget and the punch card systems as steering media to closely monitor and control production targets by arranging employee shifts in the factory to achieve efficiency.

Production management and employees in the factory interpreted new budgetary controls were an improvement of previous budget systems (as explained in the episode 1 and 2). Production managers found it difficult to implement both the budget and the punch card system as defined by the senior management following new rules stipulated by the government through the new financial control regulations. These systems appeared to clash once again with employees' everyday life within the factory.

These new controlling systems influenced the way employees interpreted management actions and information systems. Employees' opposed managers' instrumental actions

and information systems through their unions. Employees interpreted new controlling as threats to their survival and socio-cultural integrity within NCCL. They interpreted new controlling as a way of suppressing their 'lifeworlds.' They interpreted that the new controlling systems would threat to worsen their living patterns and maintaining their traditional village culture. They thought that their personal communication was degrading by the improved budget and the punch card systems.

The resistance of employees was coiled with economic crisis of Sri Lanka during this period, which resulted high political tensions. They opposed newly proposed controlling systems, because these technical and economically rational systems continued to erode employees' traditional cultural values and customs and living conditions. These new controlling systems substantially affected lower the factory income of employees. Employees questioned the legitimacy and contextual validly of management controlling systems, which were aimed at, improved surveillance of work. They opposed the use of modern management techniques such as budgets to formally control their factory 'lifeworlds.'

Employees sought ways to protect their socio-cultural integrity and 'lifeworlds within NCCL. What they wanted was to consider their socio-economic problems in budget and shift arrangement in the punch card information system. They wanted to legitimise information systems through their participation.

By using Habermas's approach, it is argued that the government steered NCCL by using steering media of budget and the punch card system in a direction which was not amenable to employees' 'lifeworlds.' Thus these steering media had constitutive character of colonisation of 'lifeworlds.' These two management-controlling systems reinforced the management power to control employees' discipline in the factory.

Senior management, instead of stopping employees' resistance responded by pushing ahead with new controlling systems without employees' participation. They ignored employees' everyday life. Managers believed that the new controlling systems would better explain and predict employees' behaviour within the factory. Politicians and senior management deemphasised and ignored understanding the meaning stemmed from employees' resistance. Employees' resistance towards the new controlling systems was associated with meaning stemming from vast webs of socio-economic, political and cultural contexts.

The most problems within NCCL were related to uncoupling of steering media with the requirements of employees' 'lifeworlds. The government, often the Minister of Industries remained exclusive right in decision making and influenced on information systems development at the expense of employees' 'lifeworlds.'

Politicians introduced government objectives, through the senior management, following Western techniques with their embedded value systems such as improving the efficiency, without recognising the idiosyncrasies in Sri Lanka's social context. The way efficiency was interpreted by the senior management was associated with scientifically and technically defined set of rules and procedures with economic rationality in the positivist approach. Employees interpreted efficiency differently following their socio-culture, particularly their village cultures.

Village life evolved over centuries. At village level, the control remained in social relations. Villagers were averted to modern past pace technology and their momentum for change was subverted by these modern technologies. Village life and work was governed by trust and mutual understanding within a system of reciprocal understanding of human interactions. This culture was fused with Buddhist thinking.

Formally processed information using budget and the punch card system was not needed to control their lifeworlds. Information and control was inscribed in lifeworlds understanding. These social rules of meaning were produced and reproduced in every social interaction and relatively remained unchanged free from the domination of Western values systems. However, these social value systems were contradicted with the modern interpretation of efficiency.

The modernisation program for Sri Lanka was introduced following independence in 1948. As part of this modernisation programme, SOEs were established following Western values systems, bureaucracy, management techniques and methods for modernising SOEs in Sri Lanka. NCCL was instrumental to use of these ideas of modernisation and change. Politicians used these SOEs to provided employment opportunities for their political supporters than the declared objectives of the government's socio-economic development in the political manifestos. In the minds of politicians, establishment of SOEs could be understood as traditional kingship rather than vehicle for mobilising Sri Lanka for socio-economic development. Politicians were more interested in political survival than actually transforming NCCL towards a better organisation using information systems. Their ability to access resources and implement and change information systems through senior management provided social domination of employees' 'lifeworlds.'

Managers used formally processed information via modern Western based management controlling techniques such as budgets and the punch card system to control employees' 'lifeworlds' of which were based on tacit rules of meaning emanated from their socio-cultural contexts. Trade unions while acting as medium to protect employees' 'lifeworlds' and helping for mobilisation of socio-economic development were provided access to exercise of the kingship for politicians.

Within these considerations, it is argued that, the rational planning model of the government imported from the Western countries were failed within state control model of socio-economic development of Sri Lanka because they were not integrated with the needs of broad socio-economic and political circumstances of local communities. Consequently, information systems development within the state control model of socio-economic development, which followed these concepts, did not include the social contexts of Sri Lanka. As a consequence, information systems development and practice did not assist to transform NCCL towards a better organisation.

### 7.1.4 Episode 4: Wang Computerised Systems for Management Accountability

In the episode 4, information systems development and practice at NCCL followed a market-based approach under the open economic policies introduced by the right centred political party that formed the government in 1977. The government assumed that the introduction of market principles would create competitive services and operations for NCCL. The belief of this ideology was that NCCL should be financed partly by the internally generated funds to improve the political and management accountability of NCCL.

In this new approach, senior management developed and implemented management budget in which information was considered as the currency to be aided in decision making to improve the efficiency and effectiveness on which a new market system for NCCL was to be developed. Senior management considered that information technology and computerised information systems as means (techniques and strategies) to be used to solve their problems.

In Habermas terms, senior management employed information technology and information systems as steering media at NCCL to achieve the purposive rational objectives of the government. It is argued that the senior management introduced market principles through information technology and information systems fundamentally to change the NCCL's socio-culture and to improve efficiency and effectiveness.

The information systems were introduced in a context of financial crisis of the government and thus limited public spending and reduced money from the public Treasury to NCCL. The Chairman took a decision to develop computerised information systems to provide better and accurate information for decision making. The computerisation project was introduced in line with the objectives of the government and it reinforced and strengthened instrumental and strategic approaches to management of NCCL. Senior management legitimised the introduction of information systems in line with improving efficiency and effectiveness of NCCL and assumed that they could fulfil the political and management accountability to the public through the representatives of parliament.

The Chairman taken a strong force with numerous resources for decision making which should have sufficient to change NCCL through computerised information systems and thereby to transform NCCL towards an efficient and effective organisation. If the computerised information systems development were successful, then NCCL management would believe that by using computerised information systems they were doing well in their jobs and government's open economic policies were represented in information systems to aim at efficiency and effectiveness. However, computerised information systems was not succeeded and constrained by various socio-cultural, economic and political factors.

NCCL followed an ad-hoc approach to develop computerised information systems. Developers (both internal and external) did not include value choices of information systems users and other affected parties as design ideals. Rather the information systems development reflected only the interest of senior management to fulfil the demands of the government's Ministers.

Developers followed purely technical and instrumental approaches in design and development considering users and other beneficiaries as empty vessels to be manipulated by systems developers. Thus by employing instrumental approaches to design and develop information systems, they objectified 'lifeworlds' of employees at NCCL. They did not allow users and other affected parties to critically reflect and rationally include their value choices as design ideals in information systems. This approach is antithetical to the historically established socio-cultural and value systems of employees at NCCL.

The new information systems introduced new language, rules, procedures, schedules, work and shifts arrangements, recording and reporting transections and so on for work. Employees opposed the introduction of information system drawing meaning from their social context. The senior management used efficiency following scientific and technical rules for predicting and controlling the employees' behaviour and NCCL operations. They were contradicted with the ways employees interpreted efficiency drawing meaning from their social context. As interpreted by employees, efficiency is dependent on whole series of human decisions and judgements for which rules were tacit and located in the lived experience and historical contexts of employees. In such an environment human interactions are socially interpreted because social reality is historically constructed. In such an environment, these staff members were opposed to translate their human intentions and actions to improve efficiency in a way it was interpreted and used by the senior management.

Employees opposed the computerised information systems through unions because these systems threatened and clashed with their historically established socio-cultural values. Employees saw the introduction of information systems to change their political and economic climate in which NCCL operates. The adoption of a information systems approach significantly affected and shaped employees' work and life within NCCL.

Culturally and ethnocentrically they were sceptical to the modern Western technology and subverted to the formal control via computerised information systems. They interpreted that the modern information technology degraded their personal communication. They interpreted that the new computerised information systems would control their working culture and worsen their already living and

economic conditions. They questioned the validity claims of the systems development and implementation. They instead, wanted management to consider their lifeworlds in systems development and legitimised the system development by their participation. They wanted management to integrate their 'lifeworlds' concerns with the design and development of computerised information systems. In other words users, employees wanted systems developers to use communicative actions to integrate their tacit knowledge in information systems development.

Most problems in information systems development appeared at NCCL were related to lack of fit between the expectations of senior management and the rest of the employees. From these perspective it can be argued that NCCL management used computerised information systems for the benefit of them rather than benefiting it to a larger stakeholder group. The information systems development constituted force of power by senior management and information technology staffs. It did not incorporate value choices of other people, which is the rationale for the information system and provide the legitimation for its implementation as it provides opportunities for reflectively understanding the objectives of information systems development.

Information systems developers and senior managers did not understand resistance of employees to computerised information systems. The resistance was linked up with their socio-cultural and economic contexts. It is argued that computerised information systems as steering media did not integrate tacit knowledge stemmed from the systems beneficiaries such as employees' 'lifeworlds in such a way to make mutual understanding, negotiation and relationship possible.

Habermas insists that the ignorance of traditions, the manipulation of worldviews and the forced social change all combine to distort "the communicative structures" and "ego-securing" structures upon which mass loyalty and generalised motivation of the people depend. Within this interpretation, it is argued that information systems development at NCCL did not represent knowledge from wider participants and were not guided by the interests of their views other than the interests of some politicians and senior management. Using Habermas terms, it can be argued those information systems as steering media did not socially integrate the needs of 'lifeworlds.'

The management used information systems as means without resolving the objectives (ends) of information systems development whose were problematic to many employees at NCCL. Senior management and systems developers considered that ends of information systems development were neutral and therefore value free.

Practical problems such as employee resistance were interpreted as unimportant and not the concerns of the senior management. The management responded resistance using covert strategic actions such as offering high salaries and promising additional benefits for employees rather than understanding the actual meaning of resistance from the semantic dimensions.

According to Habermas, management employed irrational and repressive forces in information systems development. Using Habermas's terms, this irrational and repressive impact of "rationalisation" and "development" can be explained as a new form of ideology – "technocratic consciousness". Therefore, it can be concluded that the computerised information systems contained constitutional character of steering media. According to Habermas, information systems development distorted ethically loaded images of the good life and dominated employees' everyday communication and

'lifeworlds.' The effect of this domination is the high level of anomie and alienation at NCCL employees.

The NCCL history revealed that the focus of information systems development and practice (in this episode, computerised information systems for accurate information of political and management accountability) based on the reasoning of human actions arising from the Western positivist ways of thinking. The application of positivist ways of thinking in information systems development seemed problematic in other countries, particularly in a developing country such as Sri Lanka, where the reasoning of human actions arising from particular social context and reality of that country.

It can be summarised that the market-based model within open economic policies of Sri Lanka used the imported positivist approach in information systems development and practice at NCCL to gain objective power over the self-understanding of socio-cultural lifeworlds. According to Habermas, this positivist thinking in information systems development rendered inert the frame of reference of interaction in ordinary language.

NCCL management ignored the social context in which information systems development was functioned. Senior management by assuming that information systems development could be objectively carried out, employees' 'lifeworlds were viewed as cybernetic control systems within NCCL, relying upon the information systems as the control mechanisms.

In other words, alternative ways of perceiving the value of technical innovation, often manifested in the deployment of information technologies in the social context of Sri Lanka, were largely ignored and tended to be ignored as unimportant. Thus the process

of information systems development separated the process of generating knowledge from the practical application of that knowledge.

In other words, NCCL management ignored the use of communicative rationality in information systems development as a system of reasoning arising from particular historical experience and related to socio-cultural lifeworlds of Sri Lanka. As described in chapter six, there were numerous examples where the use of positivist approach in information systems development was challenged by the social context of NCCL.

In spite of the many calls for a new organisation and new forms of work through efficiency and effectiveness, the possibility of transforming NCCL remained severely constrained by socio-cultural, economic and political constraints in Sri Lanka. In its history of NCCL, attempts to change NCCL towards a better organisation have focused on reengineering, downsizing, employing hieratical control, and operating efficiency rather than reinventing new form of organisation through the development of information systems using communicative actions. The pervasive use of information systems was further aggravated by poor infrastructure facilities available within Sri Lanka.

Politicians on the other hand used information systems to preserve their political whims and fancies. They were interested more on political survivals than the actual transformation of NCCL. Trade unions acting as a medium between employees and management struggled to protect employees' 'lifeworlds' were also provided to access to exercise of kingship for politicians. Senior management used rigid bureaucratic approaches to control work. The traditional bureaucratic ways of organising work and

control were repacked by information technology. Information technology and information systems used as instruments (steering media) to control and dominate over their lifeworlds rather than using it in an innovative way to organise and control work.

The use of rigid bureaucracy, power and domination of both politicians and senior management together with their instrumental and strategic approaches, poor infrastructure, and lack of experience hampered to effectively take place systems development activities at NCCL. For the NCCL to be transformed into a better organisation using information systems required a range of remedies. These included breaking of rigid bureaucratic ideology, changing of instrumental and covert strategic approaches, elimination of political domination, provision of a better infrastructure with adequate training, and use of communicative action to critically reflect and rationally include value choices of a wider membership at NCCL. However, this did not happen at NCCL.

More importantly, as previously been asserted, information systems development at NCCL was not opened to a wider community to critically reflect and rationally include their ideals as deign objectives in information systems development. NCCL adopted non-reflective positivist approach in information systems development and practice. As pointed our by Flood (1991, p. 305) this "non-reflective positivist position is epistemologically untenable". As a result many information systems development projects were abandoned and some were marginally benefited for NCCL to become an effective organisation. Thus the marker-based model with open economic policies did not help the government to transfer NCCL becoming an

efficient and effective organisation through the development of computerised information systems.

### 7.1.5 Episode 5: Computerised Preventive Maintenance Information System for Management Accountability

In episode 5, information systems development and practice at NCCL resulted from the open economic policies of the government, as was the case in episode 4. The objective of limiting government funding forced NCCL to partly generate necessary funds internally. The improvement of factory maintenance was central to this political objective. NCCL management initiated development of a computerised preventive maintenance information system for the factory maintenance in an attempt to realise the government objective of limiting funds. NCCL management, by developing such an information system, assumed that it would fulfil the political and management accountability towards the public through parliament. Therefore, it can be argued that the senior management introduced market principles through computerised preventive maintenance information systems (both technology and information systems) to change NCCL organisational culture by improving efficiency and effectiveness.

The computerised preventive maintenance information systems was aimed at monitoring breakdowns of plants and machineries and taking corrective actions to effectively control production targets and employee-shifts. The senior management introduced information systems in a context of financial crisis of the government as means to obtain accurate and objective information for decision making about the plant maintenance to predict and control the behaviour of employees at the factory. Senior management legitimised the introduction of computerised preventive

maintenance information systems in line with improving the efficiency and effectiveness of NCCL. In Habermas terms, the proposed computerised preventive maintenance information systems was effectively a steering medium to control the factory plants and machineries and the behaviour of employees.

Senior management employed information technology personnel in the factory to develop the computerised preventive maintenance information systems. If it were successful, the senior management would have believed that the information systems reflected government's objectives and market principles and NCCL was characterised as an efficient and effective organisation in the public sector. However, this did not happen and the development of computerised preventive maintenance information systems was thwarted by socio-cultural, economic and political atmosphere of NCCL.

Initially, maintenance engineers, being users, were opposed the proposed computerised preventive maintenance information systems development. Engineers viewed the computerised preventive maintenance information systems as a threat to their already established engineering culture within NCCL. They feared that their jobs would be taken by information technology personnel and by implication their professional recognition. They interpreted that the senior management used information technology and information systems to control professional people and their perceived engineering culture. They interpreted that the computerised preventive maintenance information systems as a new controlling tool emanated from the reforms of the government. Engineers opposed the control of their work via computerised information systems because they thought their jobs would become more transparent when formally processed information were available in the hands of

senior management and thus easy for them to control engineers' work in the factory. Engineers assumed that they would be more disadvantaged as there was no formal method of evaluating their performance.

The senior management pushed the computerisation works by using covert strategic actions such as increasing salaries of information technology people to get computerised preventive maintenance information systems into their hands. System analysts employed instrumental approach in systems development assuming user employees as passive objects to be manipulated by using the power of expert knowledge. The system analyst would have believed that the information systems development was neutral and therefore value free. He assumed that the users would not question his role of involvement as a developer of computerised preventive maintenance information systems because he believed that his analytical knowledge was superior to the knowledge of user employees regarding the maintenance work. The system analyst sought to obtain co-operation of engineers using the authoritative power of senior managers and his expert knowledge.

Following Habermas's theories, it can be argued that both the senior management and the information technology personnel employed their power and irrationality in the development of computerised preventive maintenance information systems.

Both engineers and other employees questioned the truth, legitimacy, and sincerity of computerised preventive maintenance information systems. They questioned the hidden agendas of information systems development by senior management through systems analysts. Employees opposed the maintenance system through their party unions while engineers supported employees to defeat the management initiatives following the

government objectives to control their work. The computerised preventive maintenance information systems development was failed because engineers and other employees were strongly opposed to it.

Maintenance engineers opposed the development of computerised preventive maintenance information systems because the senior management did not consult them, instead information technology personnel. They thought they ignored and degraded by the senior management. As a result, they refused to their right to participate in giving information for the systems analyst to develop the computerised preventive maintenance information systems initiated by the senior management.

Maintenance engineers questioned not only the legitimacy of information system but doing systems analyst of engineers' work (professionalism of information technology personnel). Engineers believed that the systems analyst lacked knowledge about the factory maintenance activities. Instead, engineers wanted to legitimise the computerised preventive maintenance information systems development by their participation. They wanted to remain the control of computerised preventive maintenance information systems in their hands.

After the failure of the computerised preventive maintenance information systems, the senior management responded to engineers' resistance by way of giving training for both the senior maintenance engineer and the information technology personnel at an outside organisation. The training was aimed at demonstrating a software package for maintenance work to be used at NCCL's factory. During the training, these personnel understood that the demonstrated system did not help NCCL's requirements and agreed to develop a system in-house. These members developed more loyalty to each other as

time went on. The same process occurred during the design and development stage. In Habermas's terms, these team members were employed their intersubjective knowledge in information systems development.

Engineers supported systems analyst to design and develop maintenance system when their involvement and participation were recognised by the senior management. Both information technology personnel and engineers employed shared knowledge to develop information systems. The development of computerised preventive maintenance information systems was legitimised by engineers who supported to develop it. Seen in this light, it can be argued that computerised preventive maintenance information systems, as steering media did not colonise the 'lifeworlds' of engineers who supported to develop the system by way of including their needs in the system.

Using Habermas's interpretation, it can be concluded that the steering media followed the demands of maintenance engineers who participated in the design and development of computerised preventive maintenance information systems. According to Habermas, the development of computerised preventive maintenance information systems followed communicative action.

However, a question remained "did the developed information system by information technology personnel and maintenance engineers benefit of the rest of the employees, including engineers who did not participate the design and development of computerised preventive maintenance information systems?" In other words, how do we know whether the computerised preventive maintenance information system was used as a service for all the employees at NCCL? This question raises moral issues of information systems development (Klein & Hirschheim, 1996): whether the information

systems development was included the real and genuine social needs and value choices of employees emanated from the society? Or whether the development of computerised preventive maintenance information systems was fused with technocratic, scientific, rational and bureaucratic ideals of both the systems analyst and engineers who participated and developed the system?

This situation can be understood by referring to the resistance of employees. The development of computerised preventive maintenance information systems was not widely opened to include value choices of other stakeholders such as employees and other engineers who did not support the development of computerised preventive maintenance information systems. The development of information systems by allowing only of few people to participate doesn't mean that the information systems serve the wider interests of all the employees. It doesn't mean that the development of information systems is neutral and value free and it does not disturb the symbolically established social structures in organisations.

The effect of computerised preventive maintenance information systems was that it shaped and influenced the employees' 'lifeworlds' leading to withdrawal of their motivation to work and increased expression of alienation. In this understanding of employees' resistance, it can be argued that the development of computerised preventive maintenance information systems reinforced the power of maintenance engineers within NCCL.

It was fused by engineers' culture which was framed by the highly institutionalised scientific and bureaucratic ideals of which engineers were understood as their own culture and rational. They were blinded and objectified by Western scientifically

rational and bureaucratic ideals from the inception of NCCL. They understood these ideals as rational approaches to management and control of work. They understood these unreflective rational approaches as their own normative structures. They employed the same ideals in the design and development of computerised preventive maintenance information systems as the design ideals of their own and as legitimised and rational. In this light, following Habermas, it can be argued that the information systems development represented irrational and repressive forces of management to control employees' life within NCCL.

According to Habermas, the information systems development protected the engineers' scientific and bureaucratic culture and rationalised work procedures while maintaining power of engineers over the production employees and activities within the factory.

Initially, maintenance engineers were opposed to the project because they were not included in the design and development phases, not because they didn't like the computerised preventive maintenance information systems. What they didn't like was the development of the computerised preventive maintenance information systems by information technology personnel for their use alone. They wanted to protect their perceived scientific and bureaucratic culture, often perceived as rational and legitimised, to control work and employees.

Employees opposed the engineers' formal, scientifically rational control approaches long before the introduction of computerised information systems and they interpreted that the new computerised preventive maintenance information systems would threaten more on their lifeworlds within the factory. Hence, it can be argued that the system analyst and engineers developed computerised preventive maintenance information

systems to serve the interest of themselves and the government, rather than the common interests of all the employees at NCCL. The maintenance system dominated and objectified the 'lifeworlds' of these employees because they were not allowed to critically self-understand the effects of the control of their work using information systems.

The new information systems did not enhance the social integration because, information systems as steering media did not design following the needs of employees' socio-cultural 'lifeworlds.' In Habermas terms, NCCL management did no use communicative actions in the development of computerised preventive maintenance information systems. Rather computerised preventive maintenance information systems as a new controlling device reinforced control and surveillance of workforce leading to an organisational "iron cage"(Weber, 1947) with increased alienation and anomie.

Moreover, information systems development at NCCL was linked to highly institutionalised and politically manipulated domination of politicians. The politicians were effective in manipulation for achieving their politically motivated interests than the development of NCCL using information systems. They used trade unions as a base to achieve political power and advancement. They wanted trade union multiplicity to serve their leadership interests (Jayasekara, 1.05.2001 Daily news). The domination of politicians, institutionalised scientific and rational bureaucracy, instrumental and technical approach of systems analyst all together disturbed the modernisation program of NCCL using computerised information systems. NCCL adopted non-reflective positivist approach in information systems development.

The information systems development did not adequately address and integrate the issues arose from employees' socio-cultural value systems and economic conditions. The application of technology did not address social needs that were recognised as legitimised by employees.

As a result, as a whole, information systems development was failed at NCCL. Therefore, NCCL was not benefited from the computerised information systems and could not change towards an efficient and effective organisation using information technology and information systems development under the open economic policies of the government. Rather, NCCL experienced financial crisis internally unable to support its activities.

### 7.1.6 Episode 6:Computerised Time and Attendance Information System after Privatisation of NCCL

Episode 6 begins with the change of ownership of NCCL following the privatisation of SOEs introduced in 1977 within the open economic policies of the government. In 1993, 90% of NCCL's shares were sold to Yawakkal, an Indian businessman, with a strong resistance of employees and the general public. The government legitimised and rationalised the privatisation of NCCL in line with improving the production capacities through modern machines and information technology.

Consequently, Yawakkal management introduced various changes after the takeover of NCCL. One of these changes was computerised time and attendance information systems aimed at increasing production through controlling employees' attendance and shifts in the factory. It can be argued that Yawakkal management introduced the

computerised time and attendance information systems to change the socio-culture of NCCL.

Yawakkal management legitimised the computerised time and attendance information systems under the heading of efficiency. Information technology and information systems were seen as means (techniques and strategies) to control and discipline the employees in the factory. Information was seen as an instrument to aid decision-making.

Information technology and information systems were introduced to gain objective power about the performance of employee behaviour and NCCL performance. In Habermas terms, computerised time and attendance information systems was a steering media to be used to steer NCCL for realising Yawakkal's objectives of making short term profits. However, the computerised time and attendance information systems created much dissension in part of employees in the factory.

Yawakkal believed that the high overtime cost paid to employees, irregularity of their attendance, informal arrangements in production shifts, low commitment of employees, their everyday social and cultural events caused low production and increased cost of production resulting low profits.

As a result, utilising employees' productively turned to his close attention. Yawakkal re-established production control using shifts expressed through budgets. He wanted to change employees' behaviour and discipline within factory through the computerised information systems. Yawakkal strategically used the local managers to push ahead with the computerised time and attendance information systems by increasing their salaries and leaving confidential. Rather than understanding and addressing the apparently

peculiar practical problems of employees, and their socio-cultural values and 'lifeworlds' through information systems development, Yawakkal concentrated on achieving proper control of production through control of employees' attendance and production shifts.

The Barcode Automation Lanka Limited (BALL) was selected to purchase software and hardware for the computerised time and attendance information systems. NCCL senior managers believed that the lack of experience of the consultant from BALL caused to the failure of the time and attendance system. However, the employees opposed the computerised time and attendance information systems because it appeared to threaten their socio-cultural values and lifeworlds. They questioned Indian management's instrumental and covert strategic actions. In Habermas's explanation, employees questioned the legitimacy and of the introduction of computerised time and attendance information systems to control their social life within NCCL.

Employees opposed the system because the new management introduced formally defined shifts instead of previously used informally arranged ad-hoc shifts. They realised that they could not earn more income through informally arranged work shifts. They realised that they could not fulfil their social and cultural obligations and use their everyday life within the factory. They interpreted that the computerised time and attendance information systems as a new controlling system introduced by Yawakkal management to control their day-to-day life within the factory following the open economic policies introduced by the government.

Employees interpreted the computerised time and attendance information systems as a system of domination aimed at social control of their values and 'lifeworlds.'

Employees' cultural relativism and ethnocentric attitudes appeared against the technological domination of their everyday lives. They interpreted the computerised time and attendance information systems as an improved controlling system (i.e. steering medium) of the previously introduced punch card system. Instead of supporting the computerisation project, they opposed the project through their unions. They did not seek the support from the politicians, as they knew that the ownership of NCCL remained with the Yawakkal management. They did not want to close the factory using computerised time and attendance information systems development as a major reason.

The employees realised that the closure of the factory affected their factory income, thus rendering then incapable of maintaining their family's living. What they wanted, was to stop Yawakkal management actions and to use manual system for recording their attendance and use such information for arranging their shifts in the factory.

Before privatising NCCL, employees were relatively free in organising their work as a family. In fact, employees controlled their shifts. They understood each other and their problems. They helped each other working in the shifts with informal arrangements. Some production managers tacitly employed employees' socio-culture and 'lifeworlds within budgets to achieve industrial peace because employees were opposed to any formally controlled information systems. This can be understood by referring back to the previously analysed episodes. The resistance towards formal control of works through computerised information systems was stemmed from their traditional culture.

Within village employees were informally controlled. Employees were inherited from a culture where authority and control were largely inseparable. Control was stamped and inscribed in their culture within well-understood social structures. They worked as a

family. They used participatory approaches in solving their problems. In Habermas's terms these societies experience crisis when external control overloads their social and symbolic structures and undermined their identities. In Habermas's terms, communication was taken place reciprocally within this well-established traditional societies or simply socio-cultural systems.

The information systems development under the Yawakkal management failed because the consultant from the BALL adopted instrumental approach in developing the system. He did not understand resistance in their meaning or semantic dimensions. He worked with the internal systems analyst to translate the objective of Yawakkal through technically developed information systems, often borrowed from the Western countries, which was incompatible with the demands of the employees' socio-cultural lifeworlds. Employees were considered as passive objects to be manipulated by both Yawakkal and experts knowledge. Employees' knowledge was categorically excluded from the development of computerised time and attendance information systems. In Habermas's terms steering media did not follow the needs of employees' lifeworlds.

Yawakkal management promised additional benefits for employees from the computerised time and attendance information systems through systems analyst and pushed ahead with the project from the support from the senior managers. However, employees ignored the promises of the senior management and continued to work according to the way they were used to work on shifts. The instrumental and technical approach used by both external consultant and internal systems analyst in information systems development did not support the social integration because these experts overlooked an inclusion of socio-cultural lifeworlds of employees. They did not understand the constitutive politics involve in information systems development. These

experts could not legitimise and rationalise information systems as a strategy to maintain compliance and social cohesion in social systems because information systems were not legitimised using reasons of employees. Developers did not follow the tacit rules of meaning emanated from employees' resistance in developing computerised time and attendance information systems. Therefore, according to Habermas, computerised time and attendance information systems included constitutive characters of colonisation of lifeworlds.

Employees followed tacitly accepted set of rules stemming from their socio-culture to organise shifts with the negotiation of some production managers in the factory. These tacit rules were operated within employees' socio-cultural lifeworlds. This approach to work was different from the formally introduced shifts and the shift arrangement through the employment of computerised information systems. The introduction of computerised time and attendance information systems appeared to degrade the informally operated social structures (often symbolic) of employees and communication with managers.

Experts did not understand this social grammar which was produced and reproduced in every employee interaction. They did not learn lessons from the previously failed information systems to develop the computerised time and attendance information systems. Rather, information systems continue to be developed within an environment bound by the social contexts. Thus information systems development was devoid of the social reality of NCCL and followed the non-reflective positivist approach.

The computerised time and attendance information systems development was not represented by collective value choices of all the employees as collective identity within

NCCL. As a result, experts were unable to change the attitude of employees to use the computerised time and attendance information systems. Rather the experts' power suppressed employees and their 'lifeworlds' with increased expression of alienation. Computerised time and attendance information systems were developed to fulfil the interest of Yawakkal. In this way, information systems development at NCCL reflected the market principles and modernisation reforms of the government.

Yawakkal management was inflamed by political crises that linked to broad economic issues of NCCL and employees themselves. Employees opposed Yawakkal management focusing on their high expenditure and mismanagement of NCCL affairs. NCCL was heavily debt burden after the priverisation. As a result of a dispute between Yawakkal and foreign investors whom he brought in, he was charged with the breach of agreement. Yawakkal management's affairs were criticised by the public through members in the parliament. The government had intervened for reselling of NCCL to a new buyer after the problems that the NCCL had experienced after the takeover of Yawakkal.

The above discussion suggests that the information systems development is not free from the interaction of broad issues of sub-systems of socio-culture, economic and political contexts operating within a country as explained by Habermas. Inability to fulfil the responsibility of one sub-system creates problems in other systems according to Habermas. In other words political and administrative systems need to steer socio-cultural sub-system in a way commensurate with the needs of 'lifeworlds' in those socio-cultural sub-systems.

In this episode, Habermas's arguments were clearly evidenced. The government privatised NCCL as part of the open economic policy introduced in 1977 which was aimed at socio-economic development of Sri Lanka. NCCL was privatised in a context of financial crisis of the government. The government used the money earned from NCCL's selling to bridge the annual budget deficits on the advice of the World Bank. In privatising NCCL, the government considered only the economic aspects and ignored the political and social considerations of the employees (Kelegama, 1997). In other words, the government directly allowed Yawakkal to operate as an entrepreneur in an open market following the market principles and economic rationality in which NCCL was to be transformed towards an efficient and effective organisation.

The new ownership, Yawakkal being an individual partner, sought short-term profits at the expense of employees, customers and NCCL itself. He manipulated some government ministers to buy NCCL. After the purchase, he strategically used NCCL resources to pay the government money, which was considered as illegal by the procedures stipulated for privatising of SOEs. He increased the prices of Cement hardening customers. He sold some shares to foreign investors at higher prices. He employed information technology and information systems together with other covert strategies as means to realise his self-interest by controlling employees' behaviour at NCCL.

The NCCL experienced financial crisis and unable partly to fulfil its obligation such as meeting the demands of employees and customers. Employees were experienced severe hardships under the Yawakkal management. Steering media were insufficiently linked with the cultural values and lifeworlds of employees at NCCL. The instrumental and strategic actions of Yawakkal management created conflicts and dissatisfaction among

NCCL employees including senior management and customers. Information systems continued to erode and objectified employees' cultural values in the efforts of modernisation program introduced by the government through information technology.

Employees' unrest protested against Yawakkal management through unions, which resulted calling for the government reintervention of NCCL affairs. The result of the reintervention of the government was that NCCL transferred to a multinational Company. The whole effort of the government modernisation program through information technology at NCCL was failed due to uncoupling of value choices of wider stakeholders in information systems development. This points out the need of articulation of tacit knowledge of wider stakeholders and inclusion of this knowledge in the development of information systems to reflect the social reality of NCCL.

### 7.1.7 Episode 7: Implementation of Computerised Time and Attendance Information System

The episode 7 begins after Goldenbank, a Multinational Company, purchased NCCL in 1996. The Company is considered as being one of both high-tech and information technology solutions users in the cement industry all over the world. After the acquisition, Goldenbank transferred a series of management techniques, methods, and experts' knowledge and information technology and information systems to NCCL as steering media.

These steering media were emanated from the strategic management and corporate culture of Goldenbank. The integration of NCCL to Goldenbank's global network of Cement through information technology was central to its strategy and success. Following Habermas, it can be argued that Goldenbank introduced information

technology and information systems to change the socio-culture and to improver the operating performance of services and efficiency by way of reducing operational costs of NCCL in line with the privatisation of SOEs introduced by Sri Lankan government.

NCCL was sold to Goldenbank when there was competition for Cement in Sri Lanka. It was sold during a period of unsolved steering problems of previous management, i.e. employees were objectified using unrealistic bureaucratic, scientific and technical approaches of management. Indeed, the selling was related to financial crisis of the government. Goldenbank considered information as corporate resource to be used to gain competitive advantage over other cement company's competition.

Information technology and information systems were employed as means of techniques and strategies to process that information. The management assumed to gain objective view about employees and overall performance of NCCL by employing resources and authority to make decisions through information systems. According to Habermas, this thinking is largely attributed to the understanding of scientific and technical improvement of management in the positivist ideology. These scientific and technical improvements were reflected in independently carried out information systems development projects at NCCL.

In the late 1996, Goldenbank reintroduced the previously delayed (during Yawakkal period) computerised time and attendance information systems with a new shift-plan. Like Yawakkal, Goldenbank assumed employees' way of life; their irregular attendance, absenteeism, unplanned leave, social and cultural ceremonies, and informal shifts arrangement disturbed the organisation of factory shifts and thus realising its rational objectives of profits.

The new shift-plan included work of 12 hours per shift for four days continuously instead of previously employed eight hours per shift. The new shifts systems were scheduled to implement with a minimum number of employees running each shift. It can be argued that Goldenbank introduced information systems for both rationalisation of work and cost displacement (see Davis, 1992).

Management legitimised the introduction of new shift-plan through the redesigned of computerised time and attendance information systems in line with improving production targets to improve the efficiency and effectiveness at NCCL. Goldenbank management thought that the introduction of computerised time and attendance information systems would help to discipline employees in shifts and thereby increase production targets to achieve their rational objectives.

Employees perceived that Goldenbank management had introduced a new social order to control their work within factory. They understood computerised time and attendance information systems as an improved management technique to control their work and life within factory. The computerised time and attendance information systems influenced the way employees interpreted management style. The autocratic style of Goldenbank management and their technological modernisation were opposed by NCCL trade unions.

Employees opposed both the new shift-plan and the implementation of it through the computerised time and attendance information systems. The new shift-plan included the hidden agendas of Goldenbank management of running production shifts with a minimum number of employees and removing excess employees. In Habermas's words,

Goldenbank management employed covert strategic actions in computerised time and attendance information systems to realise its rational objectives.

Employees opposed the new shift-plan and the computerised time and attendance information systems due to an objectification of their lifeworlds. Employees perceived that the computerised time and attendance information systems significantly affected to further erode their lifeworlds and living conditions of their families. They realised that their traditionally established working culture was being challenged and replaced by the domination of computerised time and attendance information systems. They wanted, instead, participation in the process of decision making regarding the new shift-plan and its implementation through the computerised time and attendance information systems.

Employees employed their shared acts in everyday communication within NCCL. According to Habermas, the sanity, well-being, and the very identity of each individual ultimately depends on shared, or at least, reciprocally communicable, self-understanding, upon "ego-defining structures", that join up individuals inner worlds in such a way as to make mutual understanding, negotiation and relationship possible. Goldenbank management did not understand this mutually operated everyday acts and interactions of NCCL employees. They did not understand the meaning of employees' resistance for the proposed changes through the computerised time and attendance information systems.

As previously been asserted, traditionally, within villages, employees were free from rational and objective controls of modern organisations. They opposed formal control via information systems. They believed that the new computerised time and attendance information systems disturb their everyday life within the factory. These lived

experiences of employees encouraged their spiritual freedom because they were reciprocally understood in villages within a system governed by trust relationships. This communicative structure remained unchanged over centuries within villages. Goldenbank management did not understand this social context which remained unchanged in Sri Lanka's society.

Employees opposed the computerised time and attendance information systems because, senior management introduced new norms and procedures for work through computerised time and attendance information systems. These new norms and procedures were clashed with their socio-cultural value systems. They found it difficult to fulfil their social and cultural obligations. They found they could not socialise their life with the rest of the people.

The computerised time and attendance information systems affected to breakdown of collective decision making. They believed that the computerised time and attendance information systems keep away from the interaction with the management. They believed that their personal communication was degraded by the introduction of computerised time and attendance information systems. Employees' opposition was linked up with their poor standard of living in the villages. They opposed the computerised time and attendance information systems, because it affected to further worsen their family income and some leading to unemployment.

Goldenbank management pushed local managers without employee participation to use the new shift-plan together with the computerised time and attendance information systems system for controlling work rather than understanding and changing the new shift-plan and the computerised time and attendance information systems. They

interpreted employee resistance as irrational and lack of collaboration. Rather senior management promised additional benefits such as more off-days for employees and employees by employing covert strategic actions. Rather than understanding employees' socio-culture and economic conditions and their peculiar practical problems within factory, they strategically removed unproductive employees offering compensation.

Goldenbank did not address the issues of protecting the older employees within information systems development. The older employees were seen as unproductive and incapable work force. Goldenbank management overlooked understanding the social problems such as the poverty problems of Sri Lanka. Rather than improving the quality of employees' living standards using information systems, it added a social cost to the society resulting unemployment.

Following Habermas's thinking, it can be argued that Goldenbank management employed power illegitimately in the development of computerised time and attendance information systems. These irrational and repressive forces of rationalisation and development of computerised time and attendance information systems embodied the technocratic consciousness in the positivist approach. The computerised time and attendance information systems reinforced and strengthen management power to control and surveillance of employees in the factory. According to Habermas, information systems served the interest of Goldenbank rather than the common interests. As a result, the computerised time and attendance information systems worsened industrial relationship between management and the employees leading to social instability caused by steady erosion of standards and values (anomie) and apathy.

The consequence of the introduction of computerised time and attendance information systems was that it insufficiently linked with the needs of employees' 'lifeworlds.' The objective of computerised time and attendance information systems was linked to the economic criteria of profits. The design ideals were disintegrated by the value choices of employees.

Using Habermas's terms it can be argued, Golderbank used computerised time and attendance information systems to steer NCCL's employees in a direction which was not commensurable to the needs of their socio-cultural sub-system, i.e. lifeworlds. Information systems development comprised of constitutive characteristics of colonisation by steering media. Goldenbank management did not change the idea of the implementation of the computerised time and attendance information systems, which implies that the information systems objectified the employees' 'lifeworlds' and distorted communication. The designed ideals entailed the use of narrow technical or technocratic images and ideals of management of work-process relationships at NCCL to realise interests of Goldenbank. It can be concluded that power was embodied in the design of computerised time and attendance information systems relating to economic rationality at the expense of employees' 'lifeworlds' The senior management at NCCL systematically attempted to gain objective power of socio-cultural 'lifeworlds' self-understanding using information systems.

The design of computerised time and attendance information systems did not reflect the value choices of employees at NCCL. The developers adopted instrumental approach in developing computerised time and attendance information systems assuming employees as objects to be manipulated. They used positivist approach to develop computerised

time and attendance information systems. This non-reflective positivist way of thinking did not considered employees' interactions in the ordinary language.

Employees were not allowed to critically reflect and self-understand management controls introduced through computerised time and attendance information systems using their tacit knowledge in socio-cultural 'lifeworlds.' These developers suppressed employees' knowledge grounded in their socio-cultural 'lifeworlds'. In other words, they did not employ communicative actions in developing computerised time and attendance information systems considering the socio-culture of Sri Lanka.

The systematic use of narrow instrumental and strategic actions of Goldenbank management ignored an inclusion of value choices of other stakeholders within computerised time and attendance information systems. According to Habermas, ignorance of value choices of other stakeholders denies the possibility that the Goldenbank management receive "symbolic guidance" from 'lifeworlds' via steering media which were grounded in, and controlled at, the level of employees' socio-cultural lifeworlds.

As explained in chapter six, it can be concluded that one of the reasons why information systems were not successful at NCCL was the lack of integration between management expectations and that of employees' 'lifeworlds.' Information systems development did not buttress social integration. Rather, its development endangered the social integration.

Seen in this light, it can be argued that the Goldenbank used computerised information systems to consciously control the employees' lifeworlds without being linked their

needs to information systems development to realise its objectives. One significant feature was that information technology used to control work than it was being used as an enabling technology to transform NCCL towards an efficient organisation.

Information technology was not used as an enabling technology in which interests of employees were met. It can be concluded that Goldenbank management experienced in difficulties in transferring NCCL using computerised information systems because of the lack of integration of socio-cultural 'lifeworlds' within information systems development.

Integrating employees' knowledge is not a secondary issue or a side issue - mobilising employees' views and having their socio-cultural 'lifeworlds' in development of information systems. According to Habermas, this lack of integration of employees' lifeworlds within information systems development can be firmly tied to the counter-factual ideals of a reconstructed practical rationality in which reason becomes active in politics. Information systems development is validated by human reasons. It can be argued that information systems development were successful if employees were given opportunities to have their voices amplified and to include their value choices in systems development.

### 7.1.8 Episode 8: Computerised Work-Order Information Systems for Factory Maintenance

In the late 1996, Goldenbank introduced its globally used MAC technique for NCCL as steering medium to improve the efficiency and the effectiveness of the operations of factory performance. As part of the MAC implementation, one of the modules, namely work-order system required to develop computerised work-order information systems to

monitor maintenance activities of plants on a scheduled basis. As explained in chapter six, the integration of information technology and information systems were central to Goldenbank's success at NCCL. In 1997, management announced that the CWOS had failed. Both MAC and computerised work-order information systems were abandoned and manual systems were reintroduced. Following Habermas, it can be argued that the management of Goldenbank introduced both MAC and computerised work-order information systems to change the socio-culture and to improve the performance of the factory by way of reducing operational costs at NCCL.

The introduction of MAC and computerised work-order information systems were ostensibly related to the control of employees' social life. Information technology and information systems were employed as means of techniques and strategies to gain an objective power of the behaviour of employees as well as performance of NCCL. Information and objective knowledge came to play as important roles in the production process, the organisation of work, and the everyday life of employees within the factory. According to Habermas, this way of thinking of management is largely related to the understanding of human behaviour in terms of science and technology in the positivist ideology.

Goldenbank management spent nearly Rs. 30 million with some strong resources and power in decision making which should be sufficient to design and implement successful information systems. If it were successful, Goldenbank management would have interpreted that the information systems reflected its economically rational objectives; profits. The government would have believed that NCCL was doing well using the modern information technology introduced by Goldenbank. However, when developing computerised work-order information systems, Goldenbank overlooked the

social context in which both NCCL and information systems development was functioned.

As explained in chapter six, MAC and computerised work-order information systems were introduced in a context of poor performance at NCCL. By the time that MAC and computerised work-order information systems were introduced, NCCL's plants and machines were some forty years old and had some frequent shutdowns due to unexpected breakdowns. In this context, senior management legitimised the introduction of MAC and computerised work-order information systems under the heading of improving efficiency and effectiveness of performance of the factory.

Employees' unions opposed Goldenbank's decision to implement MAC through computerised work-order information systems. They were frustrated with various instrumental and strategic actions introduced by Goldenbank after the privatisation of NCCL. Rather than understanding the behaviour of employees, Goldenbank management expected a massive behavioural change of these employees to implement MAC and computerised work-order information systems. Goldenbank pushed the development of computerised work-order information systems with an expert it brought from the parent Company in **Sweden**, without relying on the knowledge of NCCL employees to develop it.

Goldenbank assumed those experts in the Western countries and their knowledge in information systems development was superior to locally available knowledge. Consequently, they assumed that technically sound information systems would transform NCCL towards an efficient and effective organisation. Using Habermas's terms, it can be argued that Goldenbank perceived that social life of people as a

technical issue, its knowledge could be objectively understood and its improvement was entrusted to technical experts, capable of rational decision making. Goldenbank used instrumental and strategic actions, both in the MAC and computerised work-order information systems, unbalanced by communicative actions. Employees opposed these steering media because they realised that their way of life: social life, freedom and socio-cultural 'lifeworlds' were highly monitored and controlled by Goldenbank management after the privierisation of NCCL.

Rather than understanding employees' socio-cultural 'lifeworlds in which meaning for actions for communication was supplied, Goldenbank interpreted employees' resistance as irrational. The resistance of employees were considered as localised importance and assumed that their knowledge was not important in systems development. Both senior management and the expert ignored the participation of user employees during the systems development process. It can be argued that Goldenbank used power irrationally with associated technocratic consciousness in the design and development of computerised work-order information systems.

Information technology and information systems were used as means assuming that ends of systems development were agreed upon by employees at NCCL. As explained in chapter six, major problems that employees experienced were related to the ends of information systems development. These ends were represented the purposive rationality of Goldenbank, often transferred from the headquarters, than the collective interests of employees at NCCL. According to Habermas, this positivist ideology renders inert frame of reference of interaction in ordinary language to gain objective power over the self-understanding of socio-cultural lifeworlds leading to Iron Cage of Weber (1947).

User employees were opposed to computerised work-order information systems due to their inability to work and generate necessary management reports. Other employees were opposed the hidden objectives (covert strategic actions) of management: control of work and their everyday life within factory through computerised work-order information systems. According to Habermas, steering media did not buttress the social integration because it did not integrate the needs of 'lifeworlds' of employees.

Goldenbank management and experts took for granted that the NCCL project was just another information systems development prject. They assumed that the development and implementation of computerised work-order information systems was value free and neutral. They sought to gain objective truth and knowledge from the development of computerised work-order information systems. In this view, power dissolves truth and the employees became the object rather than the subject of politics. Habermas, says that social integrations is not at the disposition of the imperatives of power augmentation. Goldenbank, perceived, information systems as cybernetic systems to control the production process. According to Habermas, they did not understand the fact that the truth and knowledge are interwoven with political contexts and can emerge only from freedom to dialogue and exchange. They did not understand the fact that the true knowledge could be found by allowing employees' to work together and to critically self-understand information systems using their knowledge in the socio-cultural lifeworlds. Hence, it can be argued that the use of positivist approach in information systems development separated the generation of knowledge from the creation of knowledge in the lifeworlds of employees.

Through MAC and computerised work-order information systems, Goldenbank introduced new rules and procedures for work and management. These new rules and

procedures were emanated from the similar management practice adopted by Goldenbank group of companies throughout its worldwide operations. Goldenbank had transferred these steering media to NCCL without employees' being participated. The result of this unilateral transfer was that many employees could not understand the meaning of these steering media.

These changes were introduced new work and practice within NCCL. Introduction of MAC and computerised work-order information systems were carried out new procedures for identifying, recording, controlling, and responding maintenance work. They were also introduced new working culture in terms of organising production process such as rearrangement of employees in each production shift. Every human action was monitored and controlled using formally processed information. All these changers were different from the previously existed social order of NCCL. Naturally, the new information systems were disturbed the employees' social and work life within NCCL with increased alienation and apathy.

Employees drew meaning for communication from their socio-cultural lifeworlds. They used their tacit knowledge for organising work and shifts. They employed ordinary language in communication. They translated their tacit knowledge through communication drawing meaning from their socio-culure. Employees' tacit knowledge was informally operated within a system of well-understood communication structures. The everyday communication was embedded in every action and interaction. Simple words in everyday use can have broad-ranging and deep meaning and interpretations. These meaning are very important for human life and affairs. Similarly, these meanings have implications for information systems development because they carry tacit knowledge about the socio-culture of Sri Lanka.

The efficiency as understood by employees was dependent on a whole series of human actions and communication for which rules were tacit and located in the lived experience of their socio-cultural lifeworlds. Their communication, work arrangement, social and cultural life were related one another and economic circumstances. They understood how local managers included their implicit background knowledge within budget implementation and shifts arrangements when NCCL was operating as a corporation. They understood how industrial harmony was achieved between local managers and themselves using communicative actions in the past.

In this example, user employees experienced problems of using computerised work-order information systems because they were not participated in any of the activity in design and development of information systems. The new rules of meaning introduced for employees through MAC and computerised work-order information systems were carried different meaning from their daily practice of life. It is now clear that the resistance of the employees including users carried meaning emanated from their socio-cultural contexts.

What these employees wanted was to consider their value choices within information systems to protect their socio-cultural values and traditions as well as to overcome economic problems. They wanted to participate in decision making process associated with the design and development of computerised work-order information systems. The failure of information system revealed that Goldenbank was unable to fulfil the needs of socio-cultural lifeworlds of employees at NCCL.

### 7.1.9 Episode 9: Management Information for Factory Control

In this episode, information systems were developed to produce daily, weekly, monthly, and yearly management information for management decision making. Preparation of management information systems reports emerged from the consideration regarding effective control of production process through increased employee discipline in the factory. Factory management used management information systems reports to control shop-floor works to achieve economically rational objectives of the Company.

Goldenbank employed information technology and management information systems as means of strategies and techniques (and legitimised the implementation of management information systems in line with improving the efficiency and effectiveness of factory performance. It can be argued that Goldenbank introduced information technology and management information systems to change the socio-culture and to improve efficiency and effectiveness following market principles under the open economic policies introduced by Sri Lankan government.

In management information systems development, the systems analyst used instrumental and technical approach without considering the views of other stakeholders. The rational objectives of Goldenbank management were included as objectives of management information systems development. Employees who worked in the planning and computing divisions were also subject to the authoritarian control of senior management. Their power was minimal to change the decisions of Goldenbank management. Thus senior management initiated objectives of management information systems and informed the personnel in the planning and computing divisions.

Consequently, these personnel developed management information systems to support the information needs of factory management and the NCCL.

Factory management in turn used management information systems reports to closely monitor and control of employees' behaviour in production process. According to Habermas, science and technology fused together into a new production force as an independent variable without considering the socio-cultural lifeworlds of employees at NCCL. Thus, Goldenbank steered NCCL employees using management information systems that has been largely disconnected from norms and values. The systems analyst used power illegitimately in developing management information systems assuming that other stakeholders as passive objects to be manipulated. The instrumental and technical approach has regressed behind the level of self-reflection represented by the worldviews of employees. Above all purposive rational economic and technical actions have become independent of their morale-political foundations.

According to Habermas, this irrational and repressive impact of rationalisation and development comprised of technocratic consciousness of Goldenbank management. Employees' socio-cultural lifeworlds were consolidated and objectified into norm-free structures, processes of exchange and power. "Norm-confirmative attitudes" and "identity-forming" social memberships were considered as unnecessary and impossible in management information systems development; they were considered peripheral instead. Thus it can be concluded that management information systems served the interests of Goldenbank management to realise the rational objectives rather than common interests of NCCL employees.

Employees' opposed management information systems through their unions. Employees realised that their social life was suppressed by increased use of purposive rational actions of Goldenbank management. For the factory management, employees' way of life was unimportant. The only thing that mattered was an increase of production matters. Though employees realised that their everyday life was being controlled, they did not resist through continued strikes because they were aware that they would be economically more disadvantaged if the Company removes them from work. They were aware of how the Company reduced employees both in the head office and in the factory.

Employees' opposition towards management information systems was connected with vast array of socio-cultural and economic problems. They believed that the Goldenbank management would not interfere to continue their customary shop-floor practice. They wanted management to consider their socio-cultural 'lifeworlds' within management information systems and use as institutionalised practice. They wanted to use communicative actions in management information systems development.

As explained in chapter six, they used communicative actions in their day to day interactions through the use of ordinary language. This ordinary language carried deep meaning and interpretation of their social life. These meanings were carried widespread socio-culture of Sri Lanka in which employees drew meaning for communication. According to Habermas, all the interactions that are structurally possible in such a society are enacted within the context of commonly experienced social world.

Rather than understanding this commonly experienced social world of employees and including their needs within management information systems, factory management

responded initiating disciplinary actions to control employees' everyday life. Employees were punished through disciplinary actions. The intensification of work through management information systems increased employees' distress, alienation, psychopathologies, apathy and anomie resulting in withdrawal of motivation to work. According to Habermas, Goldenbank denied the possibility of getting "symbolic guidance" from lifeworlds to effectively change NCCL towards a better organisation because management information systems were not integrated the needs of socio-cultural 'lifeworlds' of employees at NCCL.

It is therefore clear that Goldenbank management could not legitimise management information systems development because, management information systems development was not incorporated needs of lifeworlds of NCCL employees in a democratic and rational way. Put this in different way: management information systems did not include value choices of employees at NCCL considering their social context. Management information systems represented non-reflective positivist ideology of Goldenbank management. Thus NCCL could not transfer towards a better organisation through effective information systems development.

### 7.1.10 Episode 10: Outsourcing Information Systems

Episode 10 emerged as a result of an information technology policy and strategy introduced by Goldenbank late in the 1999. The Company aimed to develop integrated on line information systems to coordinate overall performance of NCCL. As part of information technology policy and strategy, information systems development activity for NCCL transferred to external organisations. A decision to outsource information systems function was taken by the CEO of NCCL considering unsatisfactory

performance of internal management information systems function including its staff and high operational costs of NCCL activities. It was thought by Goldenbank management that the introduction of outsource information systems in various user departments might produce a more accurate and timely information. Using Habermas's terms, it can be argued that Goldenbank introduce outsource information systems to change the socio-culture and to improve the performance of NCCL in a free market operating within Sri Lanka.

Goldenbank legitimised its decision to outsource information systems alone the line of economic calculations of costs and profits. The Company sought value for money for their investment and perceived that outsource information systems in user departments would help to better understand the performance and coordinate NCCL operations. If the systems had worked, Goldenbank management would have been praised for saving Company money and claimed that they were doing well at NCCL with the support of outsource information systems. Accordingly, the government would rationalise its decision to privatise NCCL. However, Goldenbank could not develop integrated information systems. Various socio-cultural, economic and political contexts constrained its development.

In developing technology or information systems application and/or its functions should be intelligible to the stakeholders as a whole (Klein & Hirschheim, 1996). This means, a shared vision about information systems needs to develop between information systems users, creators, and beneficiaries such as management and employees. In the case of NCCL, acquisition of many information systems has been based on poor or non-existent requirements of user employees, other employees, and customers.

Regarding the integrated information systems major problems occurred in the social context of NCCL. For example, certain user departments were unwilling and poorly motivated to share information across departments. These problems are occurred through structurally induced systems imperatives. Information systems development at NCCL failed because of institutional forces which inhibited dramatic changes in work habits. These problems were emanated from the historical contexts of techno-scientific, economic and bureaucratic style of management culture employed during the corporation regime. Since the inception of NCCL, managers imposed distorted forms of rationality upon themselves by continually reproducing the normative, objectifying structures that distort communication.

According to Habermas, these self-imposed objectifying organisational processes were perceived as legitimate and even self-willed because ideology of management was itself built upon distorted communication. This distorted form of ideology, often perceived as NCCL's culture, appeared as major obstacle to develop shared vision of information systems for NCCL and other privatised organisations in Sri Lanka. What is perceived as organisational culture by NCCL management is still stimulated by the beliefs of positivist ideology? This culture separated knowledge creation from the knowledge generation considering the socio-cultural lifeworlds of people in Sri Lanka.

The current practice ignored or refused to deal with the issues of value choices of participants in information systems development. Rather, the information systems were stamped by narrow instrumental and strategic objectives of monitoring and controlling performance of departments and individuals. Organisational members such as employees' everyday lives were controlled using technical information systems in unprecedented ways. For example, the heightened surveillance attitude of accounting

and finance department created much depression and alienation in employees in other departments.

The transfer of the responsibility of information systems development to external specialists of software vendors further eroded information systems development function at NCCL. Many of the specialists from vendor companies did not have knowledge about the social context of NCCL. They were just products of technically oriented educational institutions of both in the public and the private sector organisations.

Majority of systems developed by external specialists did not meet the information requirements of user departments. Users were unhappy and found it difficult to use technical information systems developed by external specialists. Users were neither consulted nor they were participated in the development of information systems. As a result, some information systems development projects initiated in user departments were abandoned and previous manual procedures were reinstated.

Since the introduction of information systems in the late 1960s at NCCL, information systems development served the expectations of those who had power to control information technology function. Both inside and outside of information technology, there apparently existed a set of belief about information technology that had little relationship to what was actually happening in NCCL. Though NCCL's ownership was changed from the state control to free market control model, information technology function excluded categorically as important factor in changing NCCL towards an effective organisation.

During corporation period, politicians and senior managers' hold the power on information technology function. Information technology remained under the control of accounting and finance department. Information technology people who worked in the data processing units have had minimal power to influence or change the decisions of politicians and senior management of NCCL. During Yawakkal period, the accounting and finance department controlled information technology in the same way as it controlled during the corporation time: Indian management and senior management hold the power on information technology function. Today, information technology appears to exist in the same way: information technology remained under the control of VP of finance of Goldenbank management.

Over the last three decades, information technology was not assigned a major role within NCCL. During corporation period, information technology development represented only the interests of some government politicians and senior managers. During Yawakkal and Goldenbank periods, information technology supported the interests of Yawakal and Goldenbank management. Therefore, information technology supported partial interests; i.e. those who were in power. Over the history of NCCL, information technology was assigned lower organisational position and the position today remained unchanged. The fact that there was a separate organisational unit responsible for information technology activities has led to the emergence of cultural gap between information technology section and the rest of the organisation (see Peppard & Ward, 1999).

Since the late 1960s, NCCL has introduced several information systems projects. In the late1960s, the first project consisted of the introduction of the punched card systems. In the 1980s, the second project comprised of introduction of computers in application

areas such as sales, inventory, payroll, and accounting and factory maintenance. In the 1990s, the third project constituted of setting up of PCs in certain user departments. Finally, in the late 1990s, the fourth project consisted of the introduction of networks for both internal and external communication. However, the some senior managers and the majority of middle level managers, and other employees still negatively perceived information technology. There was no declared commitment to address this negative relationship (i.e. cultural gap) between information technology section and the rest of the organisation and the employees. The history of NCCL failed to exploit and leverage information technology for the betterment of NCCL.

This is mainly because information systems development was aimed at controlling employees' lifeworlds. Therefore, the growth of information technology function was stagnant or negative within NCCL since the late 1960s. Since the introduction of computerised information systems at NCCL, information technology innovation by information technology personnel was suppressed by political domination, domination of senior management and the highly institutionalised bureaucratic, scientific and rational culture of NCCL.

The negative perception regarding information technology development caused outside parties in other departments to perceive information technology as systematic failure stands in stark contrast with the view inside of information technology seeing itself as a significant contributor to modernise NCCL. The history of NCCL revealed that NCCL missed out some important opportunities in transforming NCCL towards a better organisation using communicative actions in information systems development.

It was succulently clear that the overall information systems initiated in user departments were focused on narrow deployment of techno-scientific and economically rational approaches to obtain an objective power of information for prediction and control of individual's behaviour and the performance of departments at NCCL at the expense of communicative rationality. Though information systems were developed in different locations, they were operationally linked to monitor and control the socio-cultural lifeworlds of employees at NCCL.

Generally, both internal and external information technology personnel applying their expert knowledge dominated over employees' everyday life. The information technology specialists adopted an "all-knowing" position in information systems development while considering user employees, other employees and customers as inmate objects who don't have their own ends. These personnel were categorically excluded from the design and development of information systems.

This understanding about information systems development is related to the positivist ideology. The positivist experts considered that understanding of employees' socio-cultural values as irrelevant and unimportant-they relied only on technical solutions and rational decision making regarding information systems development. According to Habermas, in this way, these positivist designers transformed socio-cultural lifeworlds into instrumental ones and instrumental reasoning became a normative force that displaced the purposeful discourse between subjective selves. NCCL's employees' lifeworlds were increasingly governed by objectifying instrumental rationality at the expense of intersubjectivity, communicative action.

Employees' lifeworlds were more methodically arranged and monitored ever than before. Information systems were often correlated with their management techniques and methods as means, but means were not related to their socio-cultural and economic problems, ends. Ends were taken for granted and means were assumed to be unproblematic. Thus, it can be argued that information systems development was focused on rationalisation of work processes at the expense of other interested parties. Following Habermas, it can be argued that Goldenbank's rational and carefully designed approaches to information systems development continued to be systematically eroded socio-cultural lifeworlds of employees at NCCL.

### 7.2 Reflection on Current Practice of Information Systems Development at NCCL

It seems that NCCL today acts like any other private entrepreneur after the privatisation. Its every aim is to succeed in the market and its services and practice are tailored with Goldenbank's corporate and management culture. Ironically, these practices were implemented through information systems while ignoring the social context of NCCL in Sri Lanka. Present information systems development and practice reflects market-oriented policies of economic rationality and priorities to encourage efficiency and effectiveness of NCCL. As a result, commercial values received prominence over the traditionally established socio-cultural values systems at NCCL. This represents an "effort to extend the commercialisation of information into every existing space of the social sphere" (Schiller, 1987, p. 25).

Employees were treated as commodities in a market to be sold out. This means, that according to Habermas, the current information systems development approaches have been brought into being with an unmatched capacity to shape the symbolically

established socio-cultural value systems which NCCL's employees inhabit from their traditional socio-cultural value systems; lifeworlds.

Such an approach is oppressive because it does not allow participants to inquire actively and self-understand about the world constitute of information systems development. The underlying belief was that Goldenbank management practice need NCCL's individuals to accept and adapt their behaviour accordingly. From this perspective, using Habermas's terms, we can argue that employees are blind to the interests of those who are in power and inadequately see themselves as acting freely on behalf of the disadvantaged employees at NCCL. The high oppression left out of hopes of many employees leading to loss of motivation and disestablished socialisation process within NCCL. Information systems as steering media did not support social integration. They were not aimed at solving employees' socio-economic problems by the end of 2000. As a result, many employees decided to leave the Company. A trade union leader stated:

> Many employees have decided to leave the Company taking compensation package because they have lost their interest in remaint at NCCL due to high oppression of Goldenbank management. We are highly monitored and controlled ever than before. They control behaviour of employees using computerised information systems. We lost everything: our freedom, socio-cultural value systems, joys and pleasure within NCCL. I myself decided to leave this Company.

Many employees at NCCL had shared the expression made by trade union leader regarding the high oppression of Goldenbank management. Management information systems manager who frustrated with the domination of senior management announced his resignation in the late 2000. Meanwhile Goldenbank declared Rs.750-800 million operating losses at the end of 2000. Economically employees had not benefited from the privatisation of NCCL in terms of real income (Kelegama, 1993) and the information

technology introduced by Goldenbank management. Rather Goldenbank management through computerised information systems increasingly controlled the socio-cultural lifeworlds. It seems that Goldenbank lacks a broad vision of issues related to poverty, unemployment and lifeworlds problems of employees at NCCL. Information systems were not developed considering the social context of NCCL.

To build a strategy there must be first an awareness of objectives of information systems by the parties who involved in information systems: information systems developers, users, and beneficiaries such as management, employees, and customers. Information systems as a strategy must be benefited to plurality of interests of a wider community so that both organisation and society benefits from the application of information technology (see Klein & Hirschheim, 1996, 1991; Hirschheim et al., 1996; Hirschheim & Klein, 1989; Lyytinen & Hirschheim, 1988; Lyytinen & Klein, 1985). For example, systems analysts working in the marketing department stated that "it seems to me that this Company has not yet identified the type of information systems for the benefits of all of us". Clearly, many of the objectives of the various stakeholders were in conflict with the current practice of information systems development at NCCL. The current practice of information systems development reflected non-reflective positivist approach inscribed by the vision of Goldenbank management.

It seems that dependent form of values of modern Western societies transferred to NCCL through various steering media represented in information systems. They were not created by the socio-cultural value systems of Sri Lanka. The information systems development as means did not match with the ends of wider membership. Thus, it can be concluded that information systems development and practice at NCCL requires approaches that take into account wider social contexts to gear towards promoting

cooperation for improving living standards of people and the socio-economic development of the country.

### 7.3 Major Findings from NCCL Case Analysis

The case analysis uncovered that information systems development at NCCL functioned within broadly related but interlocking socio-cultural lifeworlds, economic, and political and administrative systems. These social structures formed the contexts for NCCL and information systems development. The ten episodic analyses revealed how information systems development was shaped by and shaped NCCL reality through socio-cultural, economic, and political contexts in Sri Lanka. This holistic nature of information systems development can be summarised as follows.

**Firstly,** information systems development at NCCL was socio-cultural because employees wanted to protect their socio-cultural integrity and lifeworlds from economic problems, formal and external management controls, and domination. Employees drew meaning for their everyday actions from lifeworlds contexts. These lifeworlds were carried tacit knowledge of employees. This knowledge was suppressed by the adoption of Western scientific, technocratic, economic, and bureaucratic rationality in information systems development and practice. Information systems development did not meet the needs of employees' lifeworlds. They opposed formal and external control of management resulting failures of information systems development. Thus, it can be concluded that information systems development was shaped by socio-cultural lifeworlds of Sri Lanka.

**Secondly,** information systems development was connected up with socio-economic development of Sri Lanka before and after privatisation of NCCL. It was economic, because information systems development was aimed at modernising NCCL and improving economic criteria of efficiency and effectiveness of performance. It was also economic because information systems development was connected with employees' work and life, living conditions, unemployment, and poverty. In sort, modernisation of NCCL through effective information systems development was failed leaving unresolved conflicts between government, management, and employees. Thus, information systems development did not assist to change NCCL towards a better organisation and therefore unable to resonate broad agenda of socio-economic development while meeting the economic expectations of the government, employees and NCCL itself.

**Thirdly,** information systems development was political because the government was involved in changing NCCL through information technology and information systems in both phases of socio-economic development. Information systems development was political because employees were opposed systems development through trade unions and trade unions were linked to national political parties. It was also political because politically manipulated apparatus, institutionalised rational bureaucracy, and scientific and rational decision-making hampered information systems development. As a result, NCCL could not transform towards a better organisation through effective information systems development.

**Finally,** information systems development and practice led to unanticipated consequences of personal anomie and conflicts at NCCL. It also created disorder in

socialisation of employees leading to alienation, apathy, repression, psychopathological deceases, distress, and depression. Therefore, management was unable to rationalise and legitimise information systems development as steering media (means) at NCCL. As a consequence, management experienced conflicting dilemmas in transforming NCCL towards a successful organisation through effective information systems development. Seen in this light it can, therefore, be concluded that information systems development at NCCL was operated within a vast array of economic, political and socio-cultural intricacies of Sri Lanka.

### 7.4 Theorising Information Systems Development from Communicative Actions

In this section, I explain and critique how Habermas's theory of communicative actions can be used as a rational approach for information systems development in organisations in Sri Lanka. Firstly, major problems of the positivist approach are discussed. Secondly, communicative actions and tacit knowledge are examined. Thirdly, relationship between tacit knowledge and lifeworlds is examined. Fourthly, the relationship between communicative actions, tacit knowledge and social context of Sri Lanka is discussed. Fifthly, the relationship between lifeworlds, systems and information systems development is explained. Sixthly, the relationship between human development, communicative actions, and information systems development is examined. Finally, the relationship between communicative actions and innovation in information systems is explained. Critiques of the Habermasian interpretation of events have been woven throughout this chapter to provide a counterbalance and critical appraisal of this perspective.

### 7.4.1 Fallacy of Scientific Neutrality of Positivist Approach

It appears that positivist ways of thinking influenced information systems development and practice at NCCL over a period of 1958-2000. The position at present in NCCL is that information systems development and practice still functions as an imperial and force manner enforcing its views and exerting its power, confident in assumptions of its own superiority. The increasingly rigid positivist ideology that has dominated and still dominates current information systems development and practice at NCCL is destructive of lifeworlds in deeper manner within the organisation.

This positivist approach used for information systems development at NCCL continues to be non-reflective. It can not be considered as a rational approach for knowledge creation in information systems because, it ignores alternative ways of knowledge creation perceiving knowledge as a system of reasoning arising from social contexts of Sri Lanka. The analysis of ten episodes presented in chapter six revealed how social contexts in Sri Lanka influenced and shaped information systems development projects at NCCL over about five decades.

As Western idea spreads across the world and positivist thinking, technology, and politics are imposed upon, or taken on by NCCL, information systems development followed suit. The fact that positivist approach itself has not been shown to be applicable cross culturally or to be free of social context gets obscured its over attachment to Western cultural values. The prestige of positivist approach rubbing off knowledge in other socio-cultures in developing countries including Sri Lanka (Schiller, 1995; Chambers, 1980).

In the positivist approach, information systems development being presented and accepted as a part of science is assumed to be scientific activity with objective methods for knowledge acquisition that is free from socio-cultural contexts. As such this scientific and objective view of information systems development in the positivist approach was seen as being universally applicable to all people in all countries, irrespective of their social contexts, although this was clearly not so.

Control of the natural and social world to improve the human conditions has become cornerstone of Western management ideology (Williams & Standing, 1994; Sandberg, 1985; Kraft, 1977; Braverman, 1974). This control nature is dominant in information systems (Alvarez & Klein, 1989; Gurstein, 1989; Briefs, 1987; King & Iacono, 1984). As such information systems were perceived as superior to non-western equivalents. It content was not questioned; it was taken on trust without critically reflecting upon the adoptability in other social contexts such as in Sri Lanka. However, this controlling nature of information systems and technology may not be appropriate to non-western equivalents (Williams & Standing, 1994). NCCL case revealed that NCCL management used information systems to control work and dehumanise the workplace relationships.

In the pace of Western knowledge, knowledge in other socio-cultural contexts in Sri Lanka was considered as localised importance. However, NCCL case analysis revealed that information systems development is much more than scientific and technical control and involved considerations of social activities in workplace. Therefore, the significance of research in understanding organisational issues in different socio-

cultural contexts, often in non-western countries, can not be underestimated (see Wensley, 2001; Avgerou, 2000, 1996; Odedra-Straub, 1996; Kiangi & Tjipangandjara, 1996; Lind, 1996; Korpela, 1996; Williams & Standing, 1994).

Information and communication technologies are pushed on to developing countries as steering media by economic and political forces allied to Western powers (Avgerou, 2000; Lind, 1996; Williams & Standing, 1994). The promotion of information technology, techniques, methods, skills, expert knowledge, information systems and so on originated in developed countries go hand in hand with the positivist knowledge of the West (Avgerou, 1996). The dominance and control of global organisations is greatly facilitated by advances in information technology and international communication (Walsham, 1991). This situation has created imbalance of world information flows, the domination of third world culture, and the dominance of advanced countries in the development and transfer of information technology (Stover, 1984).

The types of knowledge that is promoted via positivist approach, with its emphasis on science and information technology that have developed within Western cultures and with models suited with Western political systems deemphasised, if not ignored, the importance of social context in organisations in developing countries such as Sri Lanka for information systems development.

Although positivist approach as a superior approach is too much part of its Western culture to be plucked out and transferred into other non-western cultures as it stands it has within it modules of theory and practice they may be usefully offered to people of all nations and cultures. The positivist approach has after all amassed over the past years

enormous of knowledge. It has developed unprecedented ways of managing human life. It developed ways of managing organisations through effective information systems development. It has developed methodologies, methods, technology, techniques, systems, and expertise knowledge, and so on for information systems to improve performance in organisations. It has rapidly become the infrastructure upon which business is conducted and has penetrated all economies and well being (Odedra-Straub, 1996). It can use as improved information systems for the planning and implementation of rural development projects in developing countries (see Bhatangar, 2000; Meso & Duncan, 2000). There is a mountain of knowledge without which it would not possible to develop information systems for organisations in all over the world.

However, NCCL case uncovered that positivist approach has failed in information systems development in organisations in Sri Lanka. Therefore, what is necessary is to understand the socio-cultural context of Si Lanka to articulate tacit knowledge and make use of that knowledge in information systems development to innovate new information systems relevant to organisations. The development of appropriate information systems is more important than adoption of positivist knowledge in systems development as the NCCL case revealed. Focus should be given to knowledge creation based on social context of Sri Lanka than assimilation of Western positivist knowledge (Gunawardena, 2001; Wijesekera & Wijesekera, 1999).

Researches on development literature relating to developing countries suggest that development programs must be aligned with the needs of the people of those countries (see Escobar, 1995; Todaro, 1994; Sachs, 1992; Dahl & Rabo, 1992). For example, Escobar (1995) examined theoretical ideas and practical interventions that have

constituted development in developing countries. He argues that the adoption of free market rationality principles and its institutions, and the cognitive instruments of science and technology in developing countries were socially constructed than naturally chosen. The point made Escobar here is that the development programs must be developed following historically derived value systems that sustain social systems in developing countries. Habermas's theoretical framework provides a rational approach to articulate such historical values in social context in organisations in Sri Lanka and make use of them in systems development.

Similarly, studies relevant to transfer of information technologies from developed countries to developing countries suggest that transferred technologies tend to be adapted to the social context, rather than being used in the same form as in the context where they were first developed (Wensley, 2001; Avgerou, 1996). Information systems development requires creativity and is largely driven by, often, informally, by the interests of an organisation's participants (Ciborra, 1991). History of information systems development at NCCL revealed that the prevailing positivist approach was too limited in scope, unable to cope with social context of the systems development process, and therefore jeopardising efforts of improving organisational performance by introducing information technology. Information systems development involves much more than the narrow technical designs; it is an organisational technology in Westney's terms (1991).

Successful information systems development is more a matter of judgement of what organisational changes are feasible and desirable and how they can be realised, than the adoption of some techniques, methods, skills, and expert knowledge and information technology. It involves much more than automating jobs, controlling employees, and

work place relations (Zuboff, 1988). It involves social empowerment of people (Zemake & Schaaf 1989; Lawler, Ledford & Mohrman, 1989; Zubof, 1988; Lawler, 1986). It can act and transform conditions to lead to abetter quality of life (Nath & Scholar, 2000).

Orlikowski (1996) and Rohitratana (1998) assert that computer technologies are technical insofar as they are instrumental for particular ends, but this use is simultaneously social insofar as the ends are interpreted. This relegation of computer technologies needs to consider the appropriateness to organisations technology (Avgerou & Land, 1992). While acknowledging Orlikowski's & Rohitratana's interpretation of computer technologies, it can be argued that interpretation of ends alone does not make computer technologies social because it lacks the critical component of systems development.

This use of technology is necessary to critically analyse and reflect upon. This is done from the standpoint of emancipation, i.e., an interest in "an equal distribution of power and chances to satisfy personal needs and in liberating people from domination by other people (see Hirschheim & Klein, 1994, 1989; Flood 1990b; Flood & Ulrich, 1990; Habermas, 1987b; Klein & Lyytinen, 1985). This is necessary because the inevitability of values choices in the application of information systems. Historical evidence shows that technology is not neutral (Burns, 1981; Briefs, 1980; Cooley, 1980; Braverman, 1974).

For example, Mowshowitz (1984) argues that ". . . a technology which requires the mastery of a certain know-how and therefore favours the interests of certain groups in society at the expense of others . . .". He continues to say that the mere fact that

computers can be used to improve the quality of life or to increase citizen participation in government does not mean that they will be so used" (Mowshowitz, 1984, p. 85). He asserts that "the neutrality thesis is every bit as naive as the stork fable of human birth". Therefore, following Habermas, it can be argued that information systems become social if and if only if the ends of systems development are rationally decided by force of better arguments. Following Habermas, it can be stated that in this manner can appropriate and innovative information systems be developed for people working in organisations in Sri Lanka. Follwing Fouccault (1982), it may be argued that using such a Habermasian method will probably result in new forms of power and control that would mitigate against human development.

### 7.4.2 Communicative Actions and Tacit Knowledge

The central question is . . . "how can the power of technical control be brought within the range of the consensus of acting and transacting citizens?" (Habermas, 1987a). Put it differently, how can the power of Western knowledge take over and make it part in our socio-cultural tradition to serve the needs of people in Sri Lanka? Or what institutional arrangements stimulate managers and employees to innovate successful information systems that support the people doing the work? For example, Japanese firms select an appropriate technology that helps them achieve performance goal in a way that supports the people doing the work. They use tacit knowledge that employees already possess (see Bensaou & Earl, 1998; Nonaka, 1991). Thus, tacit knowledge plays an integral part in information systems development (see Wensley, 2001). Habermas's theory of communicative actions provides theoretical insights to explore such tacit knowledge in Sri Lanka's socio-culture and to innovate successful information systems.

NCCL case analysis revealed that socio-cultural knowledge was represented in employees' everyday actions.

### 7.4.3 Tacit Knowledge and Lifeworlds

Polanyi (1983) in his famous book titled, "The Tacit Dimension" asserts that "we know more than we can tell"(p. 4). The true knowledge residing in the recognition of what one does not know rather than what one knows (see Wensley, 2001, p. 2). Episode 4 of NCCL: "We know more . . .", provides relevant empirical supporting for Polanyi's assertion. This means "knowledge involves an embedded skill and can not easily be articulated" (Hedesstrom & Whitley, 2000, p. 48). Tacit knowing is the fundamental power of the mind which crates explicit knowing, lends meaning to it and controls its uses (Polanyi, 1983, p. 18). Polanyi argues that sharp division between tacit and explicit knowledge does not exist (ibid, p. 16). Even if knowledge has been articulated into words or mathematical formulas, this explicit knowledge must rely on being tacitly understood and applied (Hedesstrom & Whitley, 2000, p. 48). "Tacit thought forms an indispensable part of all knowledge" (Polanyi, 1958, p. 20). Hence, all knowledge is either tacit or rooted in tacit knowledge (Polanyi, 1983, p. 7). He emphasises the knower's active participation in any act of knowing (ibid, p. 4).

This tacit knowledge is embedded in lifeworlds of individuals. They are part of a socio-culture of a society. To understand tacit knowledge, one must need to fully understand the lifeworlds of a society. This lifeworlds is not anything else but socio-cultures which provide substratum for generation of meaning in human actions. These meanings carry mount of knowledge about socio-culture of a society. Therefore, to fully understand

how such tacit knowledge operates within lifeworlds, one need to fully understand the socio-culture of a society and how socio-cultures influenced in shaping meaning of lifeworlds in societies. Use of such tacit knowledge provides an indispensable opportunity for continuous innovation in information systems (Wensley, 2001; Dietz & Lyytinen, 1998; Bensaou & Earl, 1998; Negwenyama & Klein, 1994; Nonaka, 1991). Such use of tacit knowledge would accord with Foucault's (1982) perspectives, although Foucault might assert that such knowledge might be used to new forms of control.

### 7.4.4 Communicative Actions, Tacit Knowledge and Social Context in Sri Lanka

For Sri Lankans, use of communicative actions in information systems development is not an insurmountable dilemma mainly for three reasons.

1 The fact that communicative rationality is based on human reasons, in getting at the true and rational knowledge, appear to be consistent with traditional culture and value systems of Sri Lanka. Traditionally, communities in Sri Lanka used communicative actions in political decision making. People used these cultural values in everyday communication. They provided meaning for their daily actions and social interactions.

The present day efficiency and effectiveness of management were built into the cultural lives of people in the traditional societies in Sri Lanka without any formal or external control (Ariyaratne, 1999). Socio-cultural values such as working collectively and sharing with one another, participation, trust, respect, informal

communication and mutual understanding were parts and part of social actions and interactions. They are still remained relatively unchanged in Sri Lanka. NCCL employees used these socio-cultural values in everyday communication and interactions with managers. Some managers tacitly employed such socio-cultural values when they were confronted with problems in their everyday life. These socio-cultural values carried mountain of knowledge about our society. By looking at these socio-cultural values, one can understand how thinking process is functioning in the minds of people in Sri Lanka.

#### 7.4.4.1 Tacit Knowing

In order to fully understand the tacit knowing of people, we need to understand the minds of people which create explicit knowing, lends meaning to it and control its uses (Polanyi, 1983, p. 18). In order to understand minds of people in Sri Lanka, one needs to understand the Buddhist teaching, because it had a tremendous influence on shaping our thinking process and the way we set about doing things (Ariyaratne, 1999).

In Buddhist way of thinking, mind is supreme; it is the forerunner of everything. It is not a physical organ of the brain. It is the consciousness itself. This consciousness was formed by the core concepts of Buddhist thinking over thousands of years. These concepts have been influenced in forming meaning for lifeworlds. The thinking process of people is guided by these lifeworlds. Understanding lifeworlds means, we understand the thinking process of people. Understanding thinking process of people means, we understand the socio-culture of Sri Lanka.

Buddhists believe the aim of living is not *having* but *being*. Fromm (1979) describes these having and being modes referring to two poems that describes a flower: Tennyson's relationship to a flower is in the mode of possession or of having; Basho's relationship to flower is in the mode of being. He says, "by being I refer to the mode of existence in which one neither has anything nor craves to have something, but is joyous, employs one's faculties productively, is one with the world" (pp. 26-8). In contrast to the Western culture, Buddhist cultures is a culture of being and not culture of having (Amarasekera, 2001).

Humanism and selflessness are supreme virtues which should be practiced in our sojourn in *Samsara* (Samsara refers to the eternal cycle of birth, suffering, death, and rebirth) (ibid, 2001). For Buddhists, craving is the major cause of existence of human life. The supreme state of being *Nirvana* (Nirvana refers to the ineffable ultimate in which one has attained disinterested wisdom and compassion) is the ultimate goal of human life (Sekhera, 1995). According to the Buddha, the emancipation (i.e. awaken) involves the elimination of illusion that craving for things leads to happiness (Fromm, 1979, p. 48). Craving and happiness are related to objective reality of the world. Therefore, egoism and individualism are illusions created by human being (Amarasekera, 2001). These are essential aspects of the life of the Western world.

Buddhists believe in an agreed-upon consensual truth. For Buddhists, unconsciously understood lifeworlds include the myths of objective reality of the world. The enlightened truth involves an elimination of objective reality of the world. It involves

core Buddhist thinking that guide's consciousness. Knowing this knowledge involves elimination of illusions that control the truth to be emerged explicitly. Attaining self-enlightenment implies not only a systematic thinking upon a given subject, but also a systematic development of the higher qualities that tend to produce supramundane wisdom which in its turn makes enlightenment possible (Sekhera, 1995, p. 6). It is the tacit knowledge intuitively operates in individual's mind. It involves conscious awareness of the truth about the true lifeworlds of human beings.

Understanding of lifeworlds gives the idea of more dynamic forces permeating through every cell of individuals conscious and unconscious being guiding their thoughts and actions (**see p.** , . . . "thinking and speaking" is interrelated). These thoughts are shaped by individual socio-culture and expressed through human actions. They are not absolute truths, something one could feel secure (as the case in positivist approach), but the self-affirming process of human reason (Fromm, 1978, p. 48). The case analysis revealed that the world of employees could not be separated from themselves. It was also revealed that there was no wall separating one from the rest of the world as in the positivist approach. Individuals were part of the world as the world was part of them. In sort, they lived in their world of consciousness. Therefore, "the world is nothing more or less than a projection of one's self. To understand the world, we must understand one's self" (Flood, 1999, p. 82).

Enlightenment by a person means to know the truth in its nakedness. This means knowing penetrates the surface and to strive critically and actively in order to approach truth ever more closely (Fromm, 1978, pp. 47-8). Knowing in this way becomes part of the process of productive thinking (ibid, p. 47). Knowing means

knowing about the truth of the reality. "It is an intuitive looking into in which we discover one's mind. Knowing the essence of things is to know one's self" (Flood, 1999). Incorporation of knowledge in lifeworlds in information systems development means, we allow the truth - the tacit knowledge that sustains in socio-cultural lifeworlds in Sri Lanka to be emerged.

2. Another factor that uses of communicative actions in systems development makes possible is ancient knowledge and technology. Traditionally, societies in Sri Lanka achieved impressive achievements using ancient knowledge and technology. Among these, the complex networks of massive-scale artificial lakes, intricately laid out irrigation cannels, excellences in nautical construction, and complex town and country planning were few examples (Gunawardena, 2001; Silva, 1981; Wijesekera & Wijesekera, 1998).

This knowledge is the best remains in our ancient civilisation (Wijesekera & Wijesekera, 1998). This ancient knowledge was used before the enlightenment that took place in the 17$^{th}$ century and the positivist knowledge in the Western countries. The ancient societies used readily available socio-cultural knowledge, skills and resources to achieve excellences. These were inscribed and embodied in cultural values. Therefore, what is necessary by NCCL management to take deliberate efforts to explore this socially valuable knowledge in our society and make use of that tacit knowledge in developing successful information systems?

NCCL case analysis showed that employees reluctant to use modern fast pace information technology and formal and external control based on modern

computerised information systems. This doesn't mean that Sri Lankans are totally averted to use of information technology. Buddha was not against any social custom and tradition if they are harmless and useful to society (Sekahera, 1995) (I use Buddha's teaching here, because as I explained previously, thinking process of the majority of Sri Lankans was shaped by Buddhist teaching). This recognises the "essential interrelatedness, and interdependence of all phenomena - physical, psychological, social, and cultural" which transcends current disciplinary and conceptual boundaries (Capra, 1982, p. 285). In this context, employees would support information systems development if the proposed designs fulfil their economic, psychological, and socio-cultural lifeworlds' needs. NCCL case analysis revealed that employees wanted management to consider their practical problems and develop information systems to meet the needs of their lifeworlds.

The need of use of indigenous knowledge, skills and resources has been emphasised in information systems literature (see for example, Fox, 1998, 1991; Broding & Schonberger, 2000; Suchman, 1987; Hirschheim, 1986). Suchman (1987), argues that designing computers that can interact with humans, the system of communication "must incorporate both sensitivity to local circumstances and resources for the remedy of troubles in understanding that inevitably arise"(p.28). This means "instead of looking for a structure that is invariant across situations, we look for the processes whereby particular, uniquely constituted circumstances are systematically interpreted so as to render meaning shared and action accountably rational" (ibid, p. 67). Thus Habermas's communicative actions provides vehicle for exploring this indigenous knowledge in lifeworlds of people in Sri Lanka for the design of innovative information systems.

3. The analysis of ten episodes revealed that for Sri Lankans used information technology and information systems as strategies and techniques to transform NCCL towards a better organisation in line with the objectives of the government's modernisation programs introduced in two phases of socio-economic development. However, information technology and information systems did not assist NCCL to achieve this social task due to narrow deployment of positivist approach. The problem that Sri Lanka grappling with over a half century (after the independence in 19480 was how to develop its economy to alleviate poverty and improve the quality of life of peoples (Indraratna, 1998; Colombage, 1998; Ratnayaka, 1998). Even though the application of information technology has been failed in NCCL and some other organisations (see chapter one and four), today central focus is placed on the improvement of information technology sector and information systems development to achieve this social task (Budget Speech, 2001). The prevalence belief is that information technology is related to direct socio-economic development.

In order to address this social task of socio-economic development, it is essential to innovate successful information systems relevant for organisations in Sri Lanka. To develop innovative information systems, what is necessary is to articulate the socio-cultural knowledge, lifeworlds, and include that tacit knowledge in information systems development. This knowledge consists of tacit understanding of socio-cultural lifeworlds. Information systems as means must be guided by needs of socio-cultural lifewolds. In NCCL case, employees were opposed information systems development because they were not economically and socio-culturally benefited from the modern knowledge transferred from Western countries via information

technology and information systems. These employees opposed modern information technology based information systems because they were clashed with their thinking process. Such an assertion would align with Foucault's (1982) project of understanding power and control as a panoptican created by modern technology. Can using Habermas's communicative action create empowerment of and by itself? Foucault would persumable have grave doubts.

### 7.4.5 Lifeworlds, Systems and Information Systems Development

According to Habermas, if political and administrative sub-systems steer social intercourse in a manner commensurable to the needs of lifeworlds in socio-cultural sub-systems, then reasons become active in political decision-making (Wilson, 1997). Participants become actively involved in designing their future. Information systems become easy to implement within organisations because they are committed to develop their own future.

Once this political decision-making becomes norms and institutionalised, it lays foundations in shaping organisational culture in a similar way that the positivist approach established its roots for shaping organisational culture. Consequently, policy makers and senior management would receive symbolic guidance from the lifeworlds for the management of organisations (Pusey, 1987). Organisations become joint optimisation of meeting plurality of human interests (Emery, 1959). In this way, theories become practical if they serve human interests and thereby become "a cause determining the will" (Kant, 1964, p. 128).

Episode 1 one of NCCL case revealed that how production managers in the factory fulfilled the needs of employees' lifeworlds by informally adjusting operational budgets. In this way, production managers achieved a good industrial harmony by meeting the needs of both senior management in the head office and the lifeworlds of employees in the factory. However, this practice had not considered within formal decision making and actions. This practice was not institutionalised due to the domination of politicians, over attachment to the rational bureaucracy, and narrow deployment of scientific and economically rational decision making. Narrow deployment of positivist approach hindered transferring NCCL towards a successful organisation.

### 7.4.6 Human Development, Communicative Actions, and Information Systems Development

Central to Habermas's theory of communicative action is its human focus and development of societies (see Habermas, 1987a, 1987b). One of the objectives of communicative action is to facilitate human participation in decision making process in systems development and increase their level of understanding and knowledge. These are necessary ingredients in development in any society (Waema, 1996).

The basic objective of human development is to enlarge the range of people's choices and make development more participatory and democratic (Human Development Report, 1991). UNDP defines development as follows: development of the people, for the people and by the people (cited in Waema, 1996, p. 8). Similarly, if we focus on transferring organisation through information systems development, it must be of the

people, for the people and by the people. It is the co-operation of *all*. Participation of people and their involvement is an essential aspect of this kind of information systems development. It allows sharing of knowledge. But this alone is not sufficient. If we need to achieve human development, then we must put people at the centre of development process in free and open communicative interactions. By allowing people to freely and uninterruptedly communicate then only both human development and development of societies can be achieved. This means that sharing of knowledge is an interactive process of making the right information available to people at the right time in a comprehensible manner to enable them to act judiciously- enriching the knowledge base in the entire mechanism (Nath & Scholar, 2000). Therefore, free and open communication plays a significant role in information systems development and development of societies (Habermas, 1995, 1987a, 1987b, 1979).

Human communication is recognised as central problem of "how understanding possible in general" (MaCarthy, 1982, p.60). It is related to thinking process and human actions. These actions are carried monument of knowledge that human possesses. Understanding true knowledge in human actions requires free and open communication (Dietz & Lyytinen, 1998; Williams, 1996; Klein & Hirschheim, 1996, 1991,1987; Mingers, 1995; Lyytinen, 1992; Steff & Grimes, 1992; Power & Laughlin, 1992; Morgan, 1992; Alvesson & Willmott, 1992a, 1992b; Forester, 1992; Murray & Ozanne, 1991; Keys, 1991; Young, 1989; Lyytinen & Hirschheim, 1988; Laughlin, 1987; Steffy & Grimes, 1986).

These authors promoted Habermas's theory of communicative action as basis for investigating communicative infrastructure in organisations and societies because it is

based on "consensual norms", which define mutual expectations about how participants in a given situation should behave in terms of communication (Lyytinen & Hirschheim, 1988). It is based on participatory and democratic way of developing information systems (Hirschheim & Klein, 1994, 1989), putting people at the centre of the development process, which provides legitimacy and rationality for institutional arrangements and practice because actions are guided by human reasons (Habermas, 1979, 1987a, 1987b).

Information systems development involves decision about moral value judgements because design choices of information systems are made to serve some human interests at the expense of others (see Klein & Hirschheim, 1996; Hirschheim & Klein, 1994, 1989). Habermas's theory of communicative actions provides a rational way to appropriate how such value judgements are made. His theory assures that only legitimised information systems can be developed by giving all the participants equal chances to communicate their interests about information systems (Klein & Hirschheim, 1996).

Habermas's communicative rationality, therefore, is concerned with the ultimate fundamentals of "good communication" (Klein & Hirschheim, 1991). It provides "symbolic interaction" through the exchange of meanings in language and other media such as sing-systems (Mingers, 1995; Burrell & Morgan, 1979; Silverman, 1970). The use of language tend to take an important feature the need to expose as closely as possible the true meaning and social reality behind words of communication (Keys, 1991). Through the use of language, mutual understanding about the worldviews of systems development is achieved (Lyytinen & Hirschheim, 1988). It tries to reflect and

critically examine the conditions and scope of our practical, tacit knowledge of how to engage in organisational conversations and constitute our social world (Dietz & Lyytinen, 1998).

NCCL case analysis revealed that information systems development were conflict to many employees, because they were not given opportunities to participate in systems development. Several authors have recognised the importance of participation in systems development success (see for example, Mumford, 1997; Mumford & Breekman, 1994; Hirschheim & Klein, 1994, 1989; Land & Hirschheim, 1983).

The case analysis also revealed that information systems were developed to support the interests of those who were in power. Information systems were mainly to fulfil technical interests of systems developers, senior manages and some politicians. Information systems development was aimed at controlling employees. However, employees wanted management to consider their practical problems in systems development. They wanted to free from the domination. Within this context, Habermas's ideal speech situation enables various stakeholders to resolve these conflicts and mutually designed ends of systems development.

In an ideal speech situation, every assertion and utterance of the communicative participant is carefully checked against the four validly claims of comprehensibility, truth, legitimacy, and sincerity referring to the three worlds of objective, intersubjective and subjective worlds. It is an in-depth study about human communication and communicative patterns of societies. It is a methodology that aimed at an in-depth investigation of true and rational knowledge latent in societies. The approach provides a

relentless dedication to appropriately balance the positivist knowledge with socio-cultural lifeworlds (subjective knowledge) in societies. It provides an intersubjective account of human knowledge (Mingers, 1995), and reconstructive form of knowledge (Dietz & Lyytinen, 1998).

What lessons can organisations like NCCL in developing countries learn from Habermas's theory of communicative actions, particularly from his ideal speech situation in information systems development? It allows participants to work in a free and distortion free environment because information systems can be made rationally by the force of better arguments than by the forces of power and politics or some other blind appeal to social convention (Klein & Hirschheim, 1996).

The NCCL case revealed that use of power in systems development predominated. Organisational processors were objectified by narrow deployment of purposive rational actions. Therefore, Habermas's approach enables organisational stakeholders to inspire criticism, to facilitate learning, and to raise the overall level of competence in systems development (Lyytinen & Hirschheim, 1988). It can be argued that if senior managers' thinking is focused on rational discourse under conditions of relative power symmetry and rational action, then organisational members become free from domination of purposive rational actions. Such an assertion could be challanged from a Foucaultian (1982) standpoint, but this does not mean that attempts to ameleriate the sitution would not be of some benefit.

Using debates in the ideal speech situation, a design ideal can be justified by human reasons (Lyytinen & Hirschheim, 1988; Klein & Hirschheim, 1996). For example,

management at NCCL understood its culture as objective, scientific, technical, and bureaucratic. This culture required decision-making be based on rationality, i.e., the knowledge about existing structures was often objectified. The case analysis revealed that this rationality was fundamentally as odds as with true and legitimate rationality of NCCL. The power structure of NCCL made such rationality more difficult and forbidden.

Habermas asserts that rationality means being able to provide and alternatively, to expect adequate reasons for statements, decisions, and actions. Thus rationality relies directly on communication characterised by discussion and argumentation. The validity or inadequacy of reason is contextually defined. However, NCCL case revealed that decision-making and actions related to information systems development were not guided by human reasons based on discussions and arguments. Therefore, Habermas's ideal speech situation provides opportunities for all the participants in systems development to get into discussions and arguments and critically self-understand the design ideals for information systems development. His ideal speech situation provides a vehicle for reflective learning which is an essential aspect of human development in a society (Williams, 1996). It enables participants to talk about the social structures of work and consequently to increase the level of self-confidence about the systems being developed.

Debating interrelated issues, aims to induce learning between people that nurtures a fuller appreciation of each other's mental model (Flood, 1999, p. 88). It helps to free participants from inner compulsions, unnecessary linguistic or conceptual bias, unwarranted prejudice, and false beliefs about information systems development (Lyytinen & Hirschheim, 1988). The rational discourse in the ideal speech situation

stimulates critical thinking and encourages sharing of ideas and collective problem solving (Klein & Hirschheim, 1996).

### 7.4.7 Communicative Actions and Innovation of Information Systems

Social scientist have been emphasised the importance of the formation of the structure of an organism for innovations in systems of national development (Porter, 1990; Lazonick, 1993; Amsden & Hiknio, 1993, Perez & Soete, 1988). These authors have emphasised the importance of innovation in developing countries to reduce technological disparities in those countries (Amsden & Hikino, 1993). This can be achieved through acquiring the capacity for participating in the generation and improvement of technologies, rather than in simple use of them (Perez & Soete, 1988). Because it provides opportunities for participants to reflectively learn and innovate creative information systems to suit their social milieu.

Since the inception, information systems development neglected the social task it could play in mobilising NCCL towards a better organisation. As the case analysis revealed, in both phases of socio-economic development, the social context of information systems development was not critically analysed and reflected upon. It was taken for granted. From this perspective, the social reality was found, observed or modelled rather than interpreted or re-created. This culture annihilated momentum of change by employees through innovative information systems. Therefore, information systems development was unable to legitimise and rationalises as means of transforming NCCL towards a better organisation.

### 7.4.7.1 Innovation through Reflective Learning

Information systems development should be considered as a learning process in which organisational premises should be questioned (see Robey, Boudreau & Rose, 2000; Flood, 1999; Newman & Noble, 1990; Senge, 1990; Argyris, 1982; Argyris & Schon, 1978; Bateson, 1972). Learning is an important element in innovation in information systems development because social behaviour of individuals is expressed through social rules and practice that sustain in social culture of a society (Stacey, 1996). These expressed thought represent the agreed upon truth of social behaviour of people in that society. The social rules of meaning are the tacit knowledge operating within socio-cultural lifeworlds in a society. By allowing participants to critically reflect upon through a process of learning, the true and rational knowledge could be found. Participants in a society could be motivated to learn more productively in the generation of technological innovation if changes were made in critical aspects of their social surrounding that generated the learning of new behaviours propagating continuous improvement in living conditions (Corea, 2000).

Habermas's communicative actions enable participants to engage in a critical assessment of technology being introduced while innovating new knowledge for information systems development because the process involves reflective learning and creative thinking (Williams, 1996). It allows participants to learn new ways of conceptualising existing activities and identify new potential information systems supported work structures (Torvinen & Jalonen, 2000). It enables participants to cooperatively aware tacit knowledge in the socio-cultural lifeworlds in Sri Lanka.

When participants are engaged in reflective learning, then the content becomes part of their own individual systems of thought, enriching and widening it. It stimulates participants' own thinking processes. Participants would lean relating to the world around them. They understand the holistic nature of information systems development. New questions, new ideas, new perspective arise in their minds and leaning become an active and alive process of knowledge creation (Steier, 1991). Once the social environment is created favouring such learning, thinking process works spontaneously in the minds of people and they can know more deeply. Reflection must remain an ongoing process.

Cooperative learning by participants allows to critical understand and reflect upon mental construction of each individual. In this way, the generated knowledge becomes "forward-looking" (Murray & Ozanne, 1991). It allows truth to be emerged and liberate people from power, politics, domination, illusions, false beliefs, alienation, and dehumanisation at workplace. Such critical thinking facilitates lifeworlds to be evolved as true knowledge tacitly operating in societies. Flood (1999) writes:

> If successful, the process may at some stage bring about changes to organisational rules and practice. Changes might be considered an emergence resulting from spontaneous self-organisation of interpretive beings around an issue. The dynamic is not directed by a central authority and does not result from formal rules and practice (Flood, 1999, p. 87).

Hence, notwithsatnding critque from other perspectives (e.g. Foucault (1982)), it may be argued that there is a compelling basis for using principles of communicative action in information systems development in organisations in Sri Lanka.

## 7. 5 Critique of the Habermasian Perspective and Reflections on Problems of Applying Communicative Actions

Communicative action is an approach that seeks to incorporate multiple interests of participants in a rational way. When applied to information systems development, the approach requires negotiation and debate between the participants regarding design ideals of information systems. This is done through an ideal speech situation. Although the traditional cultural values in Sri Lanka support the use of communicative actions, some existing cultural, economic, social, and linguistic barriers limit the application of the principles of ideal speech situation.

### 7.5.1 Cultural Problems

1. **Respect.** At a debate, stakeholders are required to criticise existing management ideology and issues regarding information systems development to find out true and rational knowledge. This means, debate involves clashing of Western and Sri Lankan cultural values. Such a debate, if conducted in Western societies, can be considered as constructive and beneficial (Moores & Gregory, 2000). They may consider that a debate may help the truth to emerge and be considered as beneficial to all the parties. But the social standing in organisations in Sri Lanka does not support such a debate. For example, systems analyst said, " I didn't want to create conflicts with my superiors, because our culture is to respect them" **(p. x).**

2. **High Power Distance.** Related to respect is high power distance between superiors and subordinates in organisations in Sri Lanka. This was evidenced in NCCL case

analysis. In such a situation, management expects subordinates to carry out their decisions rather than changing them (p. X "people carry out orders . . ."). These social relations have become fixed through the history of interactions (Clegg, 1989; Foucault, 1982). In such a context, realising agreed upon truth and rational knowledge through a critical debate is problematic because debate involves changing established power relations of superiors in favour of disadvantaged groups. Case analysis revealed that many senior managers did not want to loose their power.

3. **Social Attitudes**. Another aspect of ideal speech situation is its aim of changing social attitudes of people so that principles of criticism and logical analysis are elevated above social norms of conformity and acceptance of customs and traditions (Klein & Hirschheim, 1996). The problem is whether these principles of criticism and logical analysis could be implemented in the present context of organisations in Sri Lanka. If successful, the change involves, changing the way of understanding the world by people. It involves radical transformation of social behaviour of human. At present NCCL is managed by a multinational organisation. Majority of senior management comprised of people from Western counties. Their thinking is guided by the positivist ideology. This ideology has been influenced in forming lifeworlds understanding and thinking process of the people in those countries.

4. **Agreed Upon Truth**. In ideal speech situation, participants are required to critically reflect upon the design ideals of information systems development. This is done through an open debate. For Habermas, the outcome of the debate is an agreed upon truth by all the participants who take part in the debate. Rational design includes an

inclusion of this agreed upon truth, the value choices of participants, as design ideals of the information systems being developed. However, there are few questions arise from this agreed upon truth.

(a) **Different Realities of the World and Knowledge.** What is being reflected in the agreed upon truth? How do we know whether the agreed upon knowledge represents the truth of the reality; true representation of the minds of people in the debate? Western managers and local people understand the reality of the world differently. If the outcome of the debate represents the reality of the world, how do we know this reality represents true knowledge in the service of all the parties? Toulmin (1982) acknowledges that "all of our scientific explanations and critical readings start from, embody, and imply some interpretive standpoint, the question is which of our positions are rationally warranted, reasonable or defensible – that is, well-founded rather than groundless opinions" (p. 109). This methodological dilemma appears in Habermas's theory of communicative actions when applying to organisations managed by multinational companies operating in Sri Lanka.

(b) **Power Reinforcement.** Another question is, how do we know the agreed upon truth by participants is in the benefit of all the people in organisation? Or whether the agreed upon truth and the designed system would reinforce the power of some people those who already control and dominate the work force? It is revealed that the designed of maintenance information system reinforced the power of engineers. It strengthen bureaucracy and scientific rational control exerted by engineers over other employees and employees (p. x). The agreed

upon truth by engineers and systems analysts to design maintenance system did not resonate with the broad agenda of liberation of repressed managers, and employees. Dreyfus and Dreyfus (1992) argue that "all premisses are ultimately based on surmises which serve the purposes of a metalanguage for grounding and closing an argument. Related to this issue is the emancipation of human being from physical (natural or technical), psychological, or social conditions or forces.

(c) **Emancipation.** Majority of Sri Lankans understands emancipation as full realisation of the truth of the life. It is the awaken of the mind; the enlightenment, which involves the liberation from all the suffering of human life. It is achieved in once in the life. It is really an achievement of supramundane status of human life. Once this is achieved it will not be changed. NCCL case revealed that agreed upon truth by engineers and systems analyst had been changed. The managers changed it for their advantages (episodes X and X). Therefore, this agreed upon truth can not be considered as true emancipation of people. Sri Lankan people understand the concept of emancipation broadly than Habermas. As Tsoukas (1992), argues Habermas's approach has failed to provide an adequate metaphysical platform for emancipating people in organisations.

5. **Profits over Social Values.** Another situation is whether Goldenbank management would change their values in favour of employees at NCCL. At NCCL, these managers represent as employees of Goldenbank group of companies. The aim of the Company is to make profits. Consider the following statements made by three

senior managers. The VP Finance: "foreign investors are coming here mainly for making profits than social services". The Factory manager: "this Company has to make profits to alive". The VP Manufacturing: "manufacturing process of Cement is as same as everywhere in Goldenbank group of companies and Sri Lanka has no option".

6. **Stiff Attitudes.** The above assertions are not simply the assertions of individuals' concerns but the multinational Company itself. The senior managers at NCCL implement the decisions of multinational Company but not the decisions of managers themselves. Changing attitudes of a multinational Company is extremely difficult, because it has its own records of experience in doing business in the world. If the Company does not make progress in profits, it may close down operations at NCCL. A project manager revealed that "if people do not change their attitudes towards the Company and adjust their behaviour to suit the needs of the Company, the Company would have nothing but to close the factory". In such a situation, it is hardly to believe that a multinational Company would change its rational plans and purposive rational actions.

7. **Change of Knowledge.** Another situation is that the rational and true knowledge, supported by the forces of better argument may not remain constant. This implies the fact that communicative actions can transfer between communicative actions and strategic actions. Episodes X and X provide empirical supports to show that an agreed upon knowledge represent an agreed best understanding of what has been produced at a particular point of time. This knowledge is changed when participants get more information. Similarly, liberated people become revictimised from later instrumental and strategic actions of management. This difficulty exists in applying

Habermas's communicative actions in systems development in organisations in Sri Lanka.

### 7.5.2 Economic Problems

1. **Economic Problems and Fear of Criticism.** Related to cultural barriers are the economic and political environments in Sri Lanka. Case analysis revealed that one of the reasons for resistance to computerised information systems was related to economic problems of employees. Generally, in Sri Lanka, getting a job is difficult due to high unemployment rate. On average, standard of living is very low compared to developed countries. There is a high-income disparity. Poverty level is very high. Economy is slowly progressing. In these contexts, local managers, and employees would not criticise senior management's actions openly because of the fear of loosing their jobs and income. Rather than criticising management actions they carry out orders of management (see p. 9). In the worst case they decide to leave the organisation (see p.).

2. **Living and Poverty Alleviation than Emancipation.** Though Sri Lankans are aware that they are being controlled and suppressed their social behaviour by the management, their economic problems such as poverty, and unemployment are considered as important determinants in living and maintaining their families. These ideas were empirically supported. In episode X: "I am working here because, I can't find a similar job. My doctors advised me not to work under sever pressure. . . .". Even though employees didn't like the way information systems were developed (positivist approach), they did not continue their strike prolong periods because they were aware that it would affect to their employment and family income. In episode

X: " . . .. We are poor people seeking extra money for our living. We really only work here for money. . . . We wanted to work and earn but not that way". In this context, they remain in the organisation even though they do not positively contribute to the implementation of the rational plans of companies through information systems development.

3. **Forced Social Change and Control.** Goldenbank aware of all of these situations. Employees also aware that they were being suppressed and alienated by the strategic and instrumental actions of management. Employees wanted management to consider their lifeworld and economic problems. In spite of the opposition of employees towards the development of information systems, Goldenbank management forced employees to use their techniques and methods (p.). Habermas has poorly understood the way multinational companies operate in developing countries and the way they control the social behaviour of people in organisations and the whole community in Sri Lanka. These situations can not be easily changed through a rational debate.

### 7.5.3 Habermas's Interpretation of Power: Power as External Force and Domination of Lifeworlds

Habermas's framework assumes that someone or some group is thought to have power and to use it for some particular purpose. This means power is conceived as a resource to be possessed, a capacity, a property of actors. At NCCL, employees had the minimal power to change the decisions of some politicians and management. This means power used consciously as an external force and allowed domination to occur over socio-

cultural lifeworlds. It distorted socio-cultural lifeworlds of employees at NCCL. Employees experienced unintended consequences such apathy, anomie, depression, psychopathological dieses, and alienation at work. These social reproductions were resulted from the covert strategic and instrumental actions of management. In sum, at NCCL there was and still is existed an unequal distribution of power relationships between management and employees. Thus NCCL case supported Habermas's interpretation of power in organisations and societies. However, some other aspects of power also discovered from the case analysis.

### 7.5.3.1 Some Problems of Power – Other Variants of Power Including Critiques of the Habermasian perspective

1. **Power in Social Relations.** In all the three phases of NCCL's ownership, management employed sufficient resources for innovating successful information systems. However, the NCCL case analysis revealed that employees often vented their agitation towards the development through their trade union actions. Computerised information systems changed the rules of tacit knowing of employees resided at the deepest level of their understanding of the world; the socio-cultural lifeworlds. It can be argued that the opposition of employees acted as a major barrier to develop successful information systems at NCCL. They opposed because computerised information systems development changed their ways of understanding the world and relationship between work and the life. In other words, the computerised systems challenged the locus of their knowledge; the world they drew meaning for their daily actions and interactions. These kinds of power relations are recognised by Clegg (1989) in his "Circuits of Power" who asserts that

changes in the technology of production and discipline can alter the balance of empowerment and disempowerment (pp. 211-39).

2. **Power for Mutual Convenience.** The fact that power is not only external but also an attribute of specific relationship is also recognised by Giddens (1985) who says that power relations are inherent in social relationships and may provide for mutual convenience of association. Similarly, Foucault (1982) and Clegg (1989) assert that power relationships in organisations may be conflictual and co-operative as well as both restrictive and enabling. For Foucault power always resides in the system or in the culture we have inherited, and that power necessarily influence and controls us, albeit often in deleterious ways (Giddens, 1985).

3. **Power and Traditional Culture.** Giddens's and Foucault's interpretation of power relationships also supported from the case analysis. These kinds of power relations exist in trade union activism in organisations in Sri Lanka. In Sri Lanka, particularly the leadership of national trade unions represents people from the elite groups. They are either related to major political parties or representators of the government. Organisations' unions are related to these national unions. Trade unions are representing as vehicle for social and economic justice, in the workplace's problems, they also provided for access to political and exercise of traditional kingships. The exercise of kingship is tooted from the traditional culture of Sri Lanka.

4. **Micro Politics and Power.** The existence of micro power and politics in organisations also discovered from the case analysis. In NCCL, people use

information as power and that power was intimately connected to knowledge. There existed conflicts between inter departments interactions: between the information technology staff in the head office and that of in the factory, between internal and external information technology personnel, between user departments and internal information technology personnel, and between user departments and external information technology personnel. Conflicts also existed intra (within) departments: between information technology personnel and the VP of Finance and information technology, between information technology personnel in user departments and their superiors. These power conflicts are resulted from the interactions of people.

5. **Power and Historical Roots of Organisations.** The power struggles appeared at NCCL are rooted from the historically established bureaucratic, techno-scientific and rational planning approaches. Consider the assertion of management information systems manager: "we need certain amount of power which others don't have . . .". As Introna (1996) argues that individuals and societies are mutually constituted and all the heather to known social types are social formations have been marked by central organising principles which inevitably entail certain power relationships. This means power in social relations can not be removed and resided within the systems. Such identifications are essential in the analysis of power in organisations. Foucault (1982) writes " . . . there cannot be a society without power relations is not to say either that those which are established are necessary, or . . . that power constitutes a fatality at the heart of societies" (p. 223).

6. **Power and Entrenchment of Relationships.** At NCCL, user departments were given power to initiate their own information systems. Many user departments

welcomed this idea. However, the introduction of information systems in certain user departments reinforced already exercised power by managers over other departments and employees (episode 10). Westrup (1995) notes that the actualisation of Habermas's ideas to over come communicative distortion may lead to entrenchment of specific power relationships which are further reinforced by the forms of technology already deployed within the organisation.

7. **Change of Power.** Habermas's approach is aimed at changing the status quo in more radical way to empower the disadvantage groups. However, changing power altogether is not easy. Establishing such power-independent social relationships that encourage ideal communication is problematic due to the existing organising of work at NCCL. It is unlikely to have to deal with the power resistance of those benefiting from the current situation (Mingers, 1992). Therefore, understanding power in social relations is crucial. It requires understanding of Clegg's (1989), Giddens's (1985), and Foucault's (1982) analysis in addition to Habermas's explanation of power in social relations.

**7.5.3.2 Education-Problems**

1. **Level of Education.** Related to power are educational levels of the participants. Critical debate requires participation of a wider membership. Generally, this includes participants from multinational Company, politicians, managers, employees, customers and the community members. If successful, the idea of such a debate is to get wider community participation so that their value choices can be

included as design ideals of information systems. However, achieving such an agreement is impractical due to level of education of participants in a debate.

2. **Literacy and knowledge.** Although Sri Lanka has the second highest literacy rate in the South-Asian region, it can not be taken for granted in information systems development. High literacy does not imply that all the people are highly knowledgable in information technology. Due to the advancement of the information technology, designing relevant information systems for organisations has become a challenging task. Its approaches, methodologies, methods, techniques, systems, and tools are highly developed and can not be understood to average people. Knowledge about these aspects is essential at a debate to emerge the true knowledge. As outlined in chapter three, most of the people in Sri Lanka do not aware of the modern information technology. In such a context, the outcome of the debate may not represent the genuine truth agreed by all the parties.

3. **Genuine Interests.** On the other hand, most of the people are suffering from economic hardships and malnutrition. In order to debate, first they must understand what their genuine interests are or should be. Education levels of these community members are different from that of the people representing from elite groups. Economically and socially they are disadvantaged. In such a context, debate can not take place in a perfectively symmetrical manner. People will not argue all possible objections and implications of information systems. At best they breed conformity. Therefore, realising true and rational knowledge could be problematic under these circumstances. Rather it may preserve the status quo. Related to education are some linguistic barriers of people in Sri Lanka.

### 7.5.4 Linguistic Problems

According to Habermas linguistic barriers exist because the rationality of human communication tends to suffer from conflicting and ambiguous meaning, difficulty in expressing complex matters, limits of the human brain to comprehend lengthy reports and other factors which impede mutual understanding (Klein & Hirschheim, 1996).

1. **Meaning and Understanding.** At NCCL, many employees could not understand the meaning of various concepts related to information systems development ("we heard the term 'fields' in our paddy fields . . . "). Majority of employees could not understand the various concepts introduced by management through steering media. These concepts were originated from Western societies and disseminated to developing countries. These steering media carried cultural values embed in Western societies of the modernity.

2. **Language and Understanding.** At NCCL, majority of employees could not understand English language as a medium of communication, because they had their education in national languages such as Sinhala and Tamil. As a result, they could not understand the meaning of various concepts carried through steering media. Even a translation of the meaning of these concepts into national languages did not make much difference in understanding those concepts by employees, because those meaning comprised of entirely new meaning emanated from the Western countries. These meaning did not resonate with the way NCCL employees understood the

world. Briefly, these meaning clashed with the way those NCCL employees understood the constitutive of the world; their socio-cultural lifeworlds.

3. **Language, Thinking and Expression.** Due to lack of understanding of the meaning of concepts carried through steering media, employees could not fully express their views at training programs and communication. This created a gap between understanding the actual meaning of concepts and expressing their thoughts. For example Whorf (1956) asserts that the language one uses will determine the breadth and depth of ideas that can be communicated. This means that what one can think of is constrained by the language that one has to express these thoughts. The intimate connection between language and thought is also central to Wittgenstein (1953). Maturana (1988, 1978) and Maturanna and Varela (1987, 1980) show that perception and cognition are inevitably subject dependent, but that language is intersubjective – based on common experience and implicit agreement (Mingers, 1995, 1989; also see Winorgard, 1987, Winograd & Flores, 1986).

4. **Mutual Understanding and Language.** Thus use of person's own language of understanding and expressing thoughts is vital in human communication. At NCCL the language difficulty exists in designing ideals for information systems development, because people can not fully express their thoughts using English. As a result, there exist problems in reaching mutual understanding of participants in communicative interactions. This problem was and still is remained as a major barrier in transforming NCCL towards a better organisation through information systems development.

5. **Langunge as a Medium Power.** Another factor that discouraged debate at NCCL was fear to talk with senior managers. This means that the existing environment

does not encourage discussions. For example, an operation manager stated that "the freedom to talk with people had withdrawn here. Employees carried out orders with fear psychosis". Habermas's asserts that repressed parties can be free only through the use of language, because arguments presented at discussions are checked against the four validly claims. However, at NCCL, senior managers used language itself as a medium of power. At present, the situation is complicated because NCCL is controlled by a multinational organisation.

## 7.6 Conclusion

### 7.6.1 Recommendations for Successful Information Systems Development

1. **Cooperation.** Collaborative work of politicians, government officials, senior and middle level managers, information technology staff, other employees, and other beneficiaries such as customers is essential to share their knowledge for systems development. Information systems development is a group effort than an individual one. It involves much more than designing a technical system. Group spirituality must be encouraged within organisations and their value choices must be included as design ideals of information systems development. Once group spirituality is recognised and become institutionalised practice, people develop loyalty to each other. People don't see differently between themselves and the NCCL.

   Information systems development should be understood as "problem-posing" activity (Friere, 1986). In problem-posing activity, "individuals develop their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality,

but as a reality in process, in transformation" (ibid, pp. 70-1). Then only individuals see themselves as conscious beings able to act and change the existing views regarding systems development. They can reflectively understand the reality of information systems development and transform thoughts through actions.

2. **Socio-cultural Lifeworlds and Tacit Knowledge**. Socio cultural values such as working collectively, sharing knowledge with others, mutual understanding, informal communication, trust and respect are part and parts of Sri Lanka's socio-culture. What is necessary is to understand the importance of this socio-cultural knowledge and include that tacit knowledge in information systems development. Management can make use of such tacit knowledge to innovate successful information systems. Once these social values have been introduced as institutionalised practice, they become built into human actions. Most of the problems outlined in the previous sections can be over come if information systems are developed following societal norms, expectations, and values which are used to engage in a search for understanding (Goles & Hirschheim, 2000). The true representation of mindsets of individuals in information systems is an essential aspect of success in any information system because knowledge only has value if it is applied considering the local conditions that make up that knowledge – thus people must be able to use that knowledge.

3. **Local Knowledge**. Information systems must incorporate local knowledge. This means, information systems must be designed to meet the local conditions considering the locally available, knowledge, resources, techniques, methods, and approaches to suit the needs of the people in that country.

4. **Institutional Arrangements for Reflective Learning.** Opportunities for reflective learning through social interaction must be introduced. Once socio-cultural lifeworlds are introduced as institutional planning and decision making, creative thinking becomes active autonomous part in human minds. It is necessary that NCCL management to remove all the barriers that inhibit tacit knowledge to emerge out by employing communicative actions. This requires not only listen to the words but also listen to the problems of people.

5. **Attitudinal Change of Managers.** This involves educating managers about the implications of their current approaches (Nord & Jermir, 1992), and changing their attitudes towards the use of communicative actions. However, the end aim of this endower is to incorporate tacit knowledge in socio-cultural lifeworlds in systems development to create new information system that benefit to large stakeholder groups. The history of information systems development at NCCL revealed that they were failed because information systems development was not developed according to the needs of socio-cultural lifeworlds.

**Learning from Failures.** The present management can learn lessons from the past failures of information systems and reflect upon them (see Lyytinen & Robey, 1999). It is really the breakdown of communication and the intelligence systems at NCCL. The present problems are the reproduction of the wrong application of the positivist approach in information systems development in the past. In contrast to the positivist approach, problem-posing approach to systems development involves forward looking, imaginative, and practical (Murray & Ozanne, 1991). This approach helps NCCL to develop relevant information systems that fits with the mindsets of people in Sri Lanka.

**Socio-culturally Relevant Information Systems.** Since the inception of information systems development at NCCL, whether they were manual or computerised, management used as an external force to control work and dehumanised the workplace relationships. If the present management is truly seeking to transform NCCL towards an effective organisation through the application of information technology, then they must first understand the problems of the positivist approach and changed their attitudes and approaches according to the needs of socio-cultural lifeworlds in Sri Lanka.

NCCL must adequately include socio cultural norms, expectations, values that represent mindsets of people. It also requires use of locally available information systems methods, techniques, tools, and expertise, which are valued and understood by people in Sri Lanka. Real change through information systems needs to spring from social contexts and historical experience of Sri Lanka. NCCL must understand the holistic nature of information systems development. Such an understanding supports management for both the transformation of NCCL and socio-economic development of Sri Lanka through the development of innovative information systems.

8. **Use of Languages.** Use of local languages in systems development process encourages participants to think and express their views as they occur within their minds **(see, p. X** and 7.5.4 above).

9. **Academic and Training Institutions.** Collaborative work by NCCL management with academic and training institutions to change of academic curricula in training institutions both in the public and private sectors. This involves changing the dominant mode of teaching; i.e. positivist approach to communicative actions. So

those trainees become creative thinkers because their training involves reflective learning (if introduced). Reflective learning involves an illumination of the truth of the world. It involves the true understanding of the self of a person.

### 7.6.2 Conclusion about Research Questions: Implication for Information Systems Research

This research empirically studied five research questions:

**Firstly,** *What impact the state control policies had on Information Systems development and practice in the organisational socio-cultural lifeworlds?* The implications of state control policies (phase 1a) on information systems development have been discussed and analysed in episodes 1-3 and state control policies with open economic policies (phase 1b) in episodes 4-5. These implications are further summarised in section 7.1.

The research discovered that governments' policies often influenced in shaping institutional planning at NCCL and in turn these policies were included as objectives of information systems development. In all the five episodes, development of information systems emerged from the consideration regarding political and management accountability of funds towards the public through parliament.

NCCL introduced information systems as steering media of techniques and strategies to formally control workplace relationships and improve the efficiency and effectiveness of performance. Generally, information systems as steering media (means) did not resonate with the needs of lifeworlds. Rather, information systems engendered and clashed with historically established socio cultural lifeworlds of employees. As a result,

employees, through their unions, often resisted governments' reforms. Therefore, NCCL could not transform towards a better organisation through information systems development. Therefore, it can be concluded that state control policies had clear implications for information systems development at NCCL.

**Secondly,** *What impact the neo-classical economic policies had on Information Systems development and practice in the organisational socio-cultural lifeworlds?* The impact of privatisation of NCCL and introduction of open economic policies have been discussed and analysed lengthy in episodes 6-10 and summarised in **pp. XX.** In episode 6, information systems were emerged from the considerations regarding change of ownership from the government control to an individual business entrepreneur; namely, Yawakkal (phase 2a). In episodes 7-10, information systems were emerged from the considerations regarding the change of ownership from Yawakkal to Goldenbank Company (phase 2b). Under the both ownerships, NCCL focused on improving efficiency and effectiveness while changing social behaviour of employees.

Yawakkal introduced computerised information systems as steering media to achieve economic rational objectives. These rational objectives represented as objectives of information systems development. Goldenbank transferred various management techniques, methods, steering media and corporate culture to NCCL. Goldenbank vision and objectives were taken as objectives of information systems development. In both cases, lifeworlds needs were not included as objectives of information systems development.

In both cases, information systems development could not assist to improve efficiency and effectiveness of NCCL due to the resistance from employees. They opposed information systems development. As steering media, information systems engendered and clashed with the socio-cultural lifeworlds of employees at NCCL and did not resolve employees' economic problems. As a result, NCCL could not transform towards a better organisation through information systems development. Thus, it can be concluded that neo-classical policies and change of ownership of NCCL from the state control to a single owner and a multinational Company had clear implications for information systems development.

**Thirdly,** *What approaches taken by the management into consideration when developing and implementing Information Systems in the organisation?* The ten episodes discussed and analysed in chapter six and consequently summarised in **section XX** revealed that information systems development at NCCL followed non-reflective positivist approach. Information systems, methods, techniques, tools, and expertise were transferred to NCCL from the Western countries. It can be concluded that these Western techno-scientific, economically rational approaches, rational bureaucracy, and instrumental and strategic rationalities inhibited transferring NCCL towards a better organisation through effective information systems development. This non-reflective positivist rationality often contradicted with the rationality emanated from the conditions in the social context of Sri Lanka.

**Fourthly,** *How much are cultural, social, economic, and organisational contexts taken by the management into consideration in Information Systems development and practice in the organisation? And Why?* The ten episodic analyses revealed that information

systems development did not consider within broad social contexts of Sri Lanka. Nonetheless, the section 7.3 explains how social contexts of Sri Lanka influenced and shaped information systems development at NCCL.

In both phases of socio-economic development, information systems development were subject to the domination of those who were in power. Information systems were used as external forces to control and dehumanise workplace relationships. Therefore, it can be concluded that information systems development within state control phase (phase 1a and 1b) supported to maintain state capitalism and information systems development within open economic policies (phase 2a and 2b) supported to maintenance of market capitalism. In both phases, information systems development supported to the preservation of the status quo. NCCL could not change towards a successful organisation through effective information systems development.

**Finally**, *How do such findings contribute to the theory and practice of Information Systems development?* The case analysis revealed that ignorance of social contexts led to unintended dilemmas and consequences. It led to the growth of bureaucratic infighting, objectification of lifeworlds, the maintenance of the status quo, increased expression of alienation, personal anomie, depression, apathy, psychopathological decease, strikes, withdrawal of motivation to work, failures of information systems, poor performance, losses in operations and conflicts at NCCL. If I were look back reflectively, these unintended consequences of information systems development and practice resulted due to the inability of management to develop successful information systems considering the tacit knowledge of socio-cultural lifeworlds of employees at NCCL.

As explained in section 7.4, Habermas's critical social theory can be used as a theory, though it has some problems, outlined in section 7.5, to overcome or to minimise the occurrences of above mentioned unintended consequences of NCCL. Generally, his theory can be used to guide information systems developers, managers at NCCL, policy makers in the government, owners of Goldembank, and information systems researchers to innovate successful information systems considering the social socil context of Sri Lanka. In particular Habermas's theory can be used helped other organisations in Sri Lanka and organisations in other developing countries since his theory focuses on holistic nature to information systems development and practice in organisations (see section 7.3).

Habermas's critical social theory helps policy makers in the government, managers and other employees in the organisations, and researchers in information systems to understand the wholeness of information systems development and practice within broad socio-cultural, economic and political contexts of a country rather than just focusing only on organisational level analysis. Thus, findings of this research sheds new light in information systems research and addresses a long felt need and lacuna of information systems development research both in the developed and developing countries.

### 7.6.3 Research Contribution to Knowledge in General

In this research I investigated information systems development and practice in a privatised state owned industrial enterprise (NCCL) in Sri Lanka over a period between

1958-2000. Objectives in my study were: 1. To understand the approaches used by organisations in Sri Lanka for information systems development. 2. To understand how these approaches contradict with organisational, socio-cultural, economic and political realities of organisations in Sri Lanka. 3. To provide a theory to understand information systems development practice in Sri Lanka. 4. To make recommendations for successful information systems development and practice in organisations in Sri Lanka.

Making contributions to the knowledge of information systems practice and usage in Sri Lanka, and by readers' generalization to developing countries in general, the research discovered that information systems development at NCCL existed within broadly related but interlocking socio-cultural, economic, and political and administrative structures. These social structures formed the contexts for NCCL and information systems development. The analyses revealed how information systems development was shaped by and shaped NCCL reality through socio-cultural, economic, and political contexts in Sri Lanka.

Both the state control policies and the neo-classical economic policies had impacts on information systems development and engendered socio-cultural lifeworlds of employees. Information systems development followed positivist approach with values embedded in the Western societies. The techno-scientific, economic and purposive rational approaches together with highly institutionalised bureaucracy and political apertures contradicted with the social reality of NCCL. These consequences prevented NCCL becoming successful organisation through innovative information systems development.

As little or no prior research as has done, to the author's knowledge, this study has found that information systems development requires representation of the mindsets of people in the country. This representation can be achieved if information systems are developed following socio-cultural norms, values, and expectations which are used to guide the thinking process and understanding the reality of the world by the people in that country. Lifeworlds of people represent such socio-cultural values, norms, and expectations. They represent the mindsets and tacit understanding of the world by the people. Misrepresentation of lifeworlds's knowledge or understanding in information systems lead to clashes and difficulties such as those manifested in the episodes sketched in chapter six and management tend to experience difficulties in realising their objectives in organisations.

Making a substantial contribution to research in developing countries, it is clear from the case analysis that Western positivist-based knowledge, related to information systems development and usage, can not be directly transferred to organisations in Sri Lanka and that such knowledge alone can not be considered as adequate for information systems development. It is also evident that information systems, its technology, tools, methods, and expertise are socially constructed from the experiences emanated from social contexts of Sri Lank than imposed upon from the experiences of Western positivist thinking of modernity. The NCCL case revealed that information systems development becomes effective only when it is truly appropriated by the knowledge of participants in the social contexts in Sri Lanka.

NCCL must take their employees more seriously. It must understand the mindsets of people. Understanding of mindsets of people means understanding the socio-cultural

lifeworlds of people in Sri Lanka. That knowledge represents the best available knowledge for information systems development to innovate successful information systems. If information systems were developed using such knowledge, then employees, management, NCCL itself and the whole society would benefit from the development of information systems. Such an endeavour would enhance the socio-economic development by alleviating poverty and increasing living standards of people in Sri Lanka. Such findings would enhance the theory and the practice of information systems development in organisations in developing countries.

### 7.6.4 Future Research Opportunities

Several issues discussed under the limitations (see section 4.2 of chapter one) are seen as possible extensions and opportunities for future research.

Firstly, further research could be undertaken to change social attitudes of managers and other employees to make them critically aware of the problems of current information systems development and practice and change into communicative actions. In this research setting, the researcher is required to activity involve in the information systems development projects and change the social attitudes of participants. The aim would be to use communicative actions in information systems development and to incorporate tacit knowledge of participants in information systems development projects.

Secondly, more in-depth and cross sectional research design can be included participants representing from owners of the multinational company, customers, suppliers, managers other employees at NCCL and competitors and studied within the

historical and social contexts of Sri Lanka. Parallel conclusions for success or failures of information systems development and practice can be made comparing the results with similar type of organisations.

Thirdly, more in-depth case studies could be undertaken in other privatised industrial organisations, service oriented organisations such as insurance and hotel industries. It is also possible to study information systems development and practices in privately owned companies. All these research need to study within historical and social contexts of Sri Lanka employing critical social theory. The aim of such holistic researches would be to find out whether there are real differences within the industry and inter industry pertaining to information systems development and practices. Additionally, within these research, problems (such as cultural, economic, power, educational, linguistic and so on) of the application of Habermas critical social theory could be further studied and analysed.

Fourthly, another possible extension of future research would be to critically study organisations that have succeeded in both developing and implementing information systems across social contexts in Sri Lanka. Apparent successes in information systems development and implementation can be made by iterating theory with empirical data in the studied organisations and these success stories can be used to enhance the productivity of failed organisations both in the privatised and private organisations.

Fifthly, the socio-culture as national culture as stated in the limitation can be further explored and analysed. Is it uniquely national socio-culture or a blend of Asian and Western? Is it uniquely the national socio-culture or socio-culture embedded in

organisational values and practices? How these socio-cultural element truly make impact on success on organisations and how is it powerful as teams in innovating information systems development? These areas could be explored further in future research.

Finally, a further research can be conducted in other developing countries using the similar framework and thus conclusions can be made whether conclusions made in this study replicate in other developing countires.

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