

**THE PROCESS OF SUSTAINABLE DEVELOPMENT:
Change In Emphasis From Egocentric Values to
Envirocentric Values**

by

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A B S T R A C T

OUR COMMON FUTURE, The Report to the United Nations of the Brundtland Commission and the many discussions, articles and books it has provoked since it was published in 1987, have popularized the idea of sustainable development. The Brundtland Report, and much of the literary discussion and debate which it has prompted, concentrates on correcting conditions resulting from economic activity that threatens environmental integrity, and on related human behaviour that must change in the process. It identifies ***THAT*** there must be changes in values, attitudes, emphasis and behaviour, and it is eloquent as to why such changes are important. However, the problem which the Brundtland Report (and its derivative literature) leaves with the reader is that it does not explore the value and attitude systems which underlie societies' decision-making processes. It does not elaborate on what the changes in values and attitudes should be ***FROM*** and what they should be ***TOWARD***. This is the problem addressed in this research.

The research is guided by three assertions. The first assertion is that the world faces economic, environmental and social equity difficulties which are of crisis proportions. The second assertion is that the current patterns of values, attitudes and related behaviour which shape the First World voting and consuming urban marketplace are interconnected and interlocked. Furthermore, in the absence of conscious intervention, they predispose the "invisible hand" of the marketplace to reinforce the same pattern of values, attitudes and related behaviour. Therefore conscious intervention is required. The third assertion is that global economic, political and social systems are driven and constrained primarily by the demands and expectations of the First World voting and consuming marketplace. Therefore, if sustainable development is to become operational, First World cities are requisite fora for the practice of sustainable development.

This research considers the evolution of sustainable development from economic, environmental and social equity themes and examines change in underlying values which are inherent in the concept. Consideration is given to sustainable development as a radical and holistic concept which involves a fundamental changes in what people value, perceive and think. It is found to be based on a change in emphasis from egocentric values towards envirocentric values at all levels of society. Achievement at an international level can only be the manifestation of widespread achievement at the local level, especially in First World cities.

A case study carried out in Kitchener/Waterloo, Ontario is described which includes an investigation of propensities for change in values, willingness for change and barriers to such change. Data from the case study community demonstrate a healthy awareness of the need for change in values and an even stronger willingness to undertake such change, in spite of barriers. The case study was the basis for a proposed model procedure for designing a community sustainable development program founded on the community's own propensity for change in values. This model is a powerful tool for both top-down and bottom-up processes of sustainable development.

In summary the research recognizes that human society faces many crises, i.e., unstable conditions in which abrupt or decisive changes are pending. It suggests that sustainable development, as a process of changing emphasis from egocentric values to envirocentric values, is a wise and timely choice for policy and action.

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DEDICATION

This work is dedicated, with deep gratitude, to the memory of my father,

Frederick George Berry Maskell,

who instilled in me:

a curiosity to learn, to discover and to know,
to reach beyond the horizon of the obvious,
a determination to finish a project once started,
and a patience with circumstances that intervene.

TABLE OF CONTENTS

	Page
ABSTRACT	iii
ACKNOWLEDGEMENTS	v
LIST OF TABLES	xiii
LIST OF ILLUSTRATIONS	xiv
<i>Chapter One: Introduction</i>	
BACKGROUND FROM BRUNDTLAND	1
THE RESEARCH PROBLEM	3
RESEARCH OBJECTIVES	3
OVERVIEW OF THE RESEARCH PROCEDURE	4
<i>Chapter Two: the Meaning of Sustainable Development</i>	
INTRODUCTION	6
ASSERTIONS	6
Assertion 1 - The World in Crisis	7
<i>Environmental Difficulties</i>	7
<i>Economic Difficulties</i>	12
<i>Social Equity Difficulties</i>	18
Assertion 2 - The Central Significance of Values and Attitudes	22
<i>Values</i>	22
<i>Attitudes</i>	25
<i>Behaviour</i>	26
<i>Discussion</i>	28
Assertion 3 - The Market Dominance of First World Cities	30
THE EVOLUTION OF SUSTAINABLE DEVELOPMENT	32
Entrepreneurship	33
Economic Development	35
Environmentalism	42
Social Equity	48
From Independence to Interdependence	53
THE REQUIREMENT OF HOLISM	61

The Problem of Disconnectedness	63
Holistic vs. Reductionist	64
Epistemological Shift	65
THE MEANING OF SUSTAINABLE DEVELOPMENT	70
The Problem of Context for Sustainable Development	75
DISCUSSION	76
REFLECTION	78

Chapter Three: Envisioning Change in Society

INTRODUCTION	81
BI-POLAR DESCRIPTIONS OF SOCIETY	82
Historical Synopsis	82
Environmentalism as a Response to Urbanization	84
Sustainable Development as the Next Step	87
THE ARGUMENT FOR CHANGE IN VALUES	92
CHANGES IN VALUES: SPECIFIC IDEALS	94
From Self-Interest Towards Common-Interest	96
Relationship with Nature	101
Relationship with Each Other	103
From Rights Towards Responsibilities	105
The Changing Notion of Progress	106
Reflection	107
SURVEY EVIDENCE	111
Health of the Planet Survey	111
GlobeScan	116
MacLean's	117
CHANGE IN LOCAL SOCIETY	119
The Urban System of Kitchener/Waterloo	122
The City of Hamilton	125
The City of London	128
CHANGE IN INTERNATIONAL SOCIETY	132
Earth Summit and Agenda 21	135
<i>The Rio Declaration</i>	136
<i>Agenda 21</i>	137

Alternative Treaties 138

Reflection 140

The World Summit for Social Development 141

The World Bank and Environmentally Sustainable Development 145

Habitat II 148

Earth Summit+5 154

REFLECTION 158

SUSAINABLE CITIES 161

 Economic, Environmental and Social Stress in Cities 162

 Relaxing the Predominance of Economics 164

 Profound Change in Values by Individuals, Organizations and Cities . 164

 Change Must Happen at the Municipal Level and be Value-Based ... 168

 National and International Agencies Must Help Focus Change
 At the Local Level 170

Chapter Four: Case Study Procedure

INTRODUCTION 177

RATIONALE FOR CHOICE OF KITCHENER / WATERLOO 177

THE TELEPHONE SURVEY 180

ANALYSIS PROCEDURE 183

THE MAIL SURVEY 187

Chapter Five: Case Study Findings

INTRODUCTION 190

THE TELEPHONE SURVEY 190

THE MAIL SURVEY 205

SUMMARY 229

Chapter Six: Discussion of the Case Study

INTRODUCTION 231

DISCUSSION OF THE SURVEYS 231

 The Telephone Survey 232

 The Mail Survey 235

CUSTOM DESIGNING A SUSTAINABLE DEVELOPMENT PROGRAM . 236

Derivation of Sustainable Development Indices	239
Barriers	242
Responsibility and Support	243
Identifying Program Elements	243
Costs and Limitations	250
The Process of Custom Designing	251
THE CASE STUDY: A HOLISTIC/REDUCTIONIST APPROACH	252
SIGNIFICANCE OF THE CASE STUDY	254
Meaning of Sustainable Development and Table 1	254
Other Surveys - <i>Health of the Planet Study</i>	256
Local Municipal Examples	257
<i>Region of Waterloo</i>	257
<i>City of Hamilton</i>	258
<i>City of London</i>	260
<i>Reflection</i>	261
International Examples	262
Conflict	266
The Importance of Entrepreneurship	270
REVIEW	271
<i>Chapter Seven: Conclusions, Recommendations, Suggestions and The Challenge</i> ...	273
INTRODUCTION	273
DISCUSSION	273
The Research Problem, Objectives and Assertions	273
Table 1	276
The Case Study and the Model Procedure	277
CONCLUSIONS	282
Sustainable Development is More Than Description	282
Sustainable Development Means Change in Values	283
Sustainable Development Applies to All Levels of Society	283
The Model Procedure is a Valuable Operational Tool	283
The Case Study Demonstrated the Importance of the Model Procedure	283
“Environment” Has Both Narrow and Broad Meaning	284
RECOMMENDATIONS	284

... SUGGESTIONS ...	285
<i>A Campaign for Sustainable Development</i>	286
<i>A Training Program for Sustainable Development</i>	288
... AND THE CHALLENGE	289
REFERENCES	293
APPENDIX A: SURVEY INSTRUMENTS	326
APPENDIX B: PROFILES OF SURVEY SAMPLES	341
APPENDIX C: DERIVATION: STANDARD DEVIATION CLASSIFICATIONS	343
APPENDIX D: REPORT TO RESPONDENTS	349
APPENDIX E: STATISTICAL ANALYSES	358
APPENDIX F: LIST OF ALTERNATIVE TREATIES	366
APPENDIX G: TEXT OF SPEECH BY SEVERN CULLIS SUZUKI	369

LIST OF TABLES

	page
TABLE 1: From / To Table Of Values Change	109
TABLE 2: Response Rates for Telephone Survey	190
TABLE 3: Findings of Telephone Survey - General Questions	192
TABLE 4: Findings of Telephone Survey - Propensity for Values Change	194
TABLE 5: Rank Order of Propensity for Values Change	203
TABLE 6: Profile of Mail Survey Respondents	207
TABLE 7: From Dump to Reduce, Re-use, Recycle	208
TABLE 8: From Consume to Conserve	210
TABLE 9: From Image to Honesty	211
TABLE 10: From Rights to Responsibilities	213
TABLE 11: From Control to Encourage	214
TABLE 12: From Profit = Money to Profit = Quality of Life	216
TABLE 13: Paying the Cost of Change	217
TABLE 14: Investment of Effort	217
TABLE 15: Willingness to Contribute	218
TABLE 16: Who Will Help ?	220
TABLE 17: Who Will Spend Money?	220
TABLE 18: Findings to Mail Survey - Barriers to Attitudinal Change	222
TABLE 19a: Findings of Mail Survey - Willingness to Change	224
TABLE 19b: Findings of Mail Survey - Willingness to Change, Percentages	226
TABLE 20: Comparative Willingness to Change Values	227
TABLE 21: Table of Awareness	237
TABLE 22: Priority Ranking for Values Change	239

LIST OF ILLUSTRATIONS

	page
FIGURE 1 Separate Development Themes	55
FIGURE 2 Institutional Gridlock	58
FIGURE 3 Major Features of Two Environmental Ideologies	86
FIGURE 4 Ideological Crosscurrents of Environmentalism	86
FIGURE 5 Constructs, Goals and Principles of Sustainable Development	88
FIGURE 6 Major Characteristics of Competing Western World Views	92
FIGURE 7 Environmental Problems in Nations (From HOP)	113
FIGURE 8 The Environment vs. Economic Growth (From HOP)	114
FIGURE 9 Selected Results From GlobeScan Survey of Experts	118
FIGURE 10 Selected Results From MacLean's Survey	119
FIGURE 11 Chart of Propensities for Values Change	200
FIGURE 12 Table 1 (revised)	278
FIGURE 13 Draft Campaign for Sustainable Development Pledge Form	287

THE PROCESS OF SUSTAINABLE DEVELOPMENT: Change in Emphasis From Egocentric Values to Envirocentric Values

Chapter One: Introduction

Humanity has the ability to make development sustainable; to ensure it meets the needs of the present without compromising the ability of future generations to meet their own needs (p. 8). ... It is not a fixed state of harmony, but rather a process of change (p. 9). ... No single blueprint of sustainability will be found. Each nation will have to work out its own concrete policy implications (p. 40). ... Without reorientation of attitudes and emphasis little can be achieved. We have no illusions about quick fix solutions (p. 309). ... The transition to sustainable development will require a range of public policy choices that are inherently complex and politically difficult. Reversing unsustainable policies will require immense efforts to inform the public and secure its support (p. 326). To achieve the goals of sustainable development involves very large changes in attitude (p. 335).

Gro Harlem Brundtland,
Our Common Future
Report of the World Commission on
Environment and Development (1987)

BACKGROUND FROM BRUNDTLAND

OUR COMMON FUTURE, the Report to the United Nations Commission on Environment and Development (also known as 'The Brundtland Commission), and the many discussions, articles and books it has inspired (and provoked) since it was published in 1987, have popularized the idea of sustainable development. The initial response to the Report was immediate and the Centre for Our Common Future, an international charitable institution, was founded to encourage public and institutional involvement, throughout the world, to achieve sustainable development. By 1993, the Centre was active in some 70 countries and its publications were being sent to 35,000 subscribers in 170 countries (Keating 1993, p. ii).

The Brundtland Commission's mandate gave it three objectives: to re-examine critical environment and development issues and to formulate realistic proposals for dealing with them; to propose new forms of international co-operation respecting these issues that will influence policies and events in the direction of needed changes; and, to raise the levels of understanding and commitment of individuals, voluntary organizations, businesses, institutes

and governments (Brundtland, 1987 p. 356). As indicated above, the Brundtland Report stated that sustainable development requires changes in attitudes throughout society, and emphasized that basic changes in value systems and human behaviour are essential.

Since the Brundtland Report was accepted by the United Nations General Assembly, it has been endorsed or accepted, in some form, by most of the nations in the world. Canada has endorsed it at the federal level. All provincial governments and many municipal governments have endorsed the principles of, or at least adopted the phraseology of, sustainable development, as have many businesses and non-governmental organizations. In addition to widespread support, the ideal of sustainable development has prompted a vigorous academic literature. The Report itself, and much of the discussion which it has prompted, concentrates on correcting conditions resulting from economic activities which threaten environmental integrity and social equity. It also emphasised human behaviour that must change in the process. The Brundtland Report stated there must be changes in values, attitudes, emphasis and behaviour, and it was eloquent as to why such changes are important. It indicated that change should happen sooner rather than later, and although it was unclear as to who should do the changing, and where these changes should take place, the Report seems to imply that everyone, everywhere, should participate in the change scenario.

The widespread support for the Brundtland Report suggests that there is either widespread support for the essence of what the Report says or there is a widespread political expediency in agreeing "in principle" with the essence of what the Report says. Part of that essence is an underlying inference, evident from the initiative of establishing the Brundtland Commission, carrying out its mandate and publishing its Report, that the continuance of prevailing local/global situations, with respect to environment and development, is not acceptable. A second part of that essence involves the Commission's third objective of raising the levels of understanding and commitment to sustainable development by individuals, voluntary organizations, businesses, institutes and governments. A further part of that essence involves the idea that sustainable development requires changes in values,

attitudes, policies and behaviour as indicated in the quotes from the Brundtland Report at the beginning of this chapter. Whether from *de facto* support or political expediency, the Brundtland Report has coalesced recognition of the need for human society to change its ways with respect to its impact on the natural environment and social equity.

THE RESEARCH PROBLEM

The problem of the Brundtland Report (and its derivative literature) was that it did not actually elaborate on the underlying value and attitude systems which inform societies' decision-making processes. It did not elaborate on *WHAT* the changes in values and attitudes should be *FROM*, and *WHAT* they should be *TOWARD*. In short, it did not 'operationalize' the concept of sustainable development. This operational problem is the focus of this research: to discern from what, and towards what, these changes in values should be and to propose a procedure to promote these changes at all levels of society. The problem is further complicated by the fact that it is not clear from the literature what sustainable development means.

THE RESEARCH OBJECTIVES

There are three broad objectives of this research. The first is to make clear that the concept of sustainable development is deeply challenging to prevailing environmental, social, economic, financial and political practices. The second is to demonstrate an appreciation that sustainable development requires change in values by individuals, organizations and institutional structures. The third is to develop a procedure through which awareness of the need for change in underlying values and attitudes can become a local practice in the politics, economics and culture of First World urban systems and thereby energize the process of sustainable development.

More particularly, the objective of this research is to investigate, through literature research, the meaning of sustainable development relative to prevailing practice or the status quo. What values underlie the status quo on the one hand and what values underlie sustainable

development on the other? A specific set of value changes is proposed along with a model procedure to operationalize the proposed set of value changes. Special consideration is given to linking sustainable development and entrepreneurship. The research probes the subsidiary issue of local, international, inter-generational and intra-generational equity. A further objective is to elucidate the challenge of making sustainable development operational in the context of First World cities. To that end a case study is presented based on work in Kitchener/Waterloo (K/W), Ontario. It examines both propensity and willingness for changes in the values proposed in the main objective. The case study is discussed as a model for carrying out the third objective of the Brundtland Commission's mandate, i.e. "to raise the levels of understanding and commitment [re sustainable development] of individuals, voluntary organizations, businesses, institutes and governments".

OVERVIEW OF THE RESEARCH PROCEDURE

This research begins by accepting three assertions: first, that the world is facing environmental, economic and social equity crises; second, that there is a central need for change in values and attitudes; and third, that the most important fora in which to achieve sustainable development are in the voting and consuming marketplaces of First World cities. The research traces the evolution of sustainable development through entrepreneurship, environmentalism, economic development and social equity issues and describes its progress from independence to interdependence, in relation to these three distinct approaches to development. It then examines the distinction between holism and reductionism with respect to sustainable development and revisits the issue of the meaning of sustainable development.

With this considerable breadth of background, sustainable development is recognized as fundamentally a process of changing from egocentric values to envirocentric values. Through a holistic and intuitive process, these changes are identified and presented in a Table of Change in emphasis of values which becomes the central element of the research. This Table of Change in Values is a guide for evaluating the present and envisioning the future.

Examples in evaluating the present and envisioning the future are reviewed, at a local municipal level, for the regions of Waterloo, Hamilton and London, Ontario. Further examples reviewed are the *Earth Summit* in Rio de Janeiro, 1992, the *World Summit for Social Development* in Copenhagen, 1995, a World Bank Conference on Environmentally Sustainable Development in 1995, the United Nations *Habitat II* Conference in Istanbul, 1996 and the United Nations *Earth Summit+5* in New York, 1997. The next step was to test the Table of Change in values in the context of a case study conducted in Kitchener/Waterloo, Ontario. Using the results of the case study, a model is proposed through which the research can be usefully extended to many communities to help develop policy objectives and action programs in the pursuit of sustainable development. The last step is to propose future research and future activities which arise as a result of this research.

Chapter Two describes the evolution and meaning of sustainable development by describing its origins in environmentalism, economic development and social equity issues with respect to entrepreneurship, reductionism, and holism. It also examines the significance of equity and recognizes the importance of the role of change in emphasis of values in sustainable development. Chapter Three investigates what the changes in values should be from and what they should be towards and presents these changes in Table 1. It also reviews other examples of investigating proposed changes from the present to the future as described in other surveys, three local municipal situations and five international events. Chapter Four presents and describes the case study procedure. Chapter Five presents the findings of the case study. Chapter Six presents discussion of the case study results and describes the process of custom-designing a sustainable development program based on the case study as a model procedure for replicating sustainable development as a process of change in values. It further relates the case study findings to the other surveys, the local municipal situations and the international institutional events identified above and relates these ideas to the original objectives of the research. Chapter Seven presents an overview discussion, conclusions, recommendations, suggestions and the challenge of sustainable development.

Chapter Two:

The Meaning of Sustainable Development

INTRODUCTION

The overall objective of this chapter is to establish the meaning of sustainable development as relevant to this research. In order to do so, it first examines three assertions that underlie this research, after which they are accepted as given. Then the chapter describes the evolution of sustainable development, particularly with respect to entrepreneurship, the concepts of environmentalism, economic development and social equity, as well as the progress from independence to interdependence among them. Next it examines the requirement of holism and the problem of context in understanding sustainable development, and recognizes it as an epistemological shift, i.e. a radical change in world view. With this background, the meaning of sustainable development is further explored leading to an acknowledgement that a change in values is fundamental to the achievement of sustainable development.

ASSERTIONS

The literature review is guided by three assertions which indicate why, in the author's view, this research is important. The first assertion is that the world faces economic, environmental and social equity difficulties which are of crisis proportions. The second assertion is that the current patterns of values, attitudes and related behaviour which shape the First World voting and consuming urban marketplace are interconnected and interlocked. Furthermore, in the absence of conscious intervention, they predispose the 'invisible hand'¹ of the marketplace to reinforce the same patterns of values, attitudes and related behaviour. Therefore, conscious intervention is required to change the pattern. The third assertion is that global economic, political and social systems are driven and constrained primarily by

¹ The 'invisible hand' is a term first used by Adam Smith (1776) and employed in economics to refer to the cumulative influence of market forces manifested as the collective behaviour of the consuming public.

the demands and expectations of the First World voting and consuming marketplace. Therefore, if sustainable development is to become operational, First World cities are requisite fora for the pursuit of sustainable development.

Assertion 1 - The World in Crisis

There are three aspects to the view that the world is in a state of impending crises. They arise from environmental, economic and social equity difficulties.

Environmental Difficulties

Recognition that the world may be facing environmental difficulties of crisis proportions first began to come to the notice of the general public with the publishing of *Silent Spring* (Carson, 1962). Carson recognized the effect of, and documented the fact of, bio-accumulation. The pesticide DDT used to control insects was being ingested by birds and other insectivorous animals. Rather than breaking down or being egested, the DDT was bio-accumulating and caused fatal damage to birds and animals which consumed DDT-laden insects. Previously, pesticide residues had been considered to have had side effects of negligible significance and the phenomenon of bio-accumulation was unrecognized. Similarly, Ehrlich (1970) sounded an alarm in his book, *the Population Bomb*. He pointed out that the human population, after millennia of stability and centuries of extremely slow growth, had moved into a period of geometric growth which was, and still is, relatively speaking, explosive. He warned, first, that the Earth could not withstand the explosive growth of human population and, second, that it would be very difficult to reverse the trends. In the years following *Silent Spring* and *Population Bomb*, steady accumulation of 'negligible' environmental side effects caused by increasing economic activity and the explosive doubling of human population were recognized as serious causes of environmental problems. A decade after Carson's and Ehrlich's publications, Meadows *et al* (1972), in their publication *The Limits to Growth*, reported on the results of a computer modelling project which studied the impact of human society on the natural environment. It was carried out by The Club of Rome at the Massachusetts Institute of Technology.

The Club of Rome was founded by 30 leading intellectuals — scientists, educators, economists, humanists, industrialists and national and international civil servants — from 10 nations meeting, in April 1968, at the Academia dei Lincei in Rome. Its purpose was to study the varied, interdependent and interacting components – economic, political, natural and social – which comprised the present and future predicaments of human civilization on earth. Some of the complex problems addressed were poverty in the midst of plenty, degradation of the environment, loss of faith in institutions, uncontrolled urban sprawl, insecurity of employment, alienation of youth, rejection of traditional values, inflation, and monetary and economic disruptions (Meadows, *et al* 1972, p. 10).

The Club of Rome project was based on the pioneering work of Dr. Jay Forrester (1971 a, 1971 b). Forrester's prime area of research was in system dynamics for designing three dimensional memory systems for digital computer technology. He observed that the dynamics of the flow of information in electronic systems were analogous to the flow of energy and material in manufacturing systems. He further sought to apply this logic of electronics to global environmental, economic and social systems, and he developed techniques to identify specific key components and analyse their inter-relationships and behaviour. He provided key elements of the logic base and the skill set on which The Club of Rome's project was based. Meadows, *et al* (1972) concluded, in *The Limits to Growth*, that without significant change, human behaviour would cause a collapse of environmental and, therefore, economic systems within 100 years.

Much has since been written concerning the impact of human activity on the natural environment. For example:

... humans are confronted with a rapidly growing condition of stress upon their environment that threatens their welfare and even their survival, and ... [upon] popular attitudes and public institutions [that] are not generally prepared to cope with this circumstance. (Caldwell, 1975, p. ix)

Brown *et al* (1978, p. 92) is even more forthright:

Signs of stress on the world's principal biological systems – forests, fisheries, grasslands and crop lands – indicate that in many places these systems have already reached the breaking point. Expecting these systems to withstand a tripling or quadrupling of population pressures defies ecological reality.

Catton (1980, p. 4) argued that human civilization is not able to distinguish between activities which permanently increase the number of humans which the earth can support (such as technological developments in agriculture which increase food production) and those which simply ignore, deny or evade the world's limits (such as statistical exercises to ameliorate the apparent severity of problems). He further contended that continued misunderstanding of unwelcome experiences, which will happen as a result of evasions, cannot prevent them from happening and cannot insulate human civilization from their consequences. Catton (1980, p. 8) predicted that:

Nature is going to require reduction in human dominance over the world's ecosystems. The changes this will entail are so revolutionary that we will be almost overwhelmingly tempted instead to prolong and augment our dominance at all costs. ... The costs will be prodigious. ... We are likely to do many things that will make a bad situation worse.

Many authors have sought to detail various aspects of the looming environmental crises. Turner *et al* (1990) produced *The Earth as Transformed by Human Action* to examine the environmental difficulties and crises which humanity faces. In it they, along with over 80 scientific authors, examine global and regional changes due to human activities which have transformed the biosphere over the last 300 years. In the overview of this work, Kates, Turner and Clarke (1990, p. 1) wrote, "In our judgement, the biosphere has accumulated, or is on its way to accumulating, such a variety and magnitude of changes that it may be said to be transformed." They further state (p. 13), "The global transformation of the biosphere is driven first by population growth, followed by increasing technological capacity and socio-cultural organization."

There are many aspects of this transformation: air pollution, ozone depletion, climate change, water pollution, depletion of fresh water resources, sedimentation and siltation of

water courses, soil degradation and deforestation, to mention but a few. One of the most pervasive crises is that of the atmosphere. Graedel and Crutzen (1990, p. 309) examined air pollution from the point of view of the principle of offending trace elements. They observed that “on a global scale, and in some cases on smaller spatial scales, a typical trend is one of *gradual* increase in concentrations from the dates of the earliest reliable measurements until the present century. Within the past several decades the rate of increase for many constituents has increased rapidly.” They concluded that “It is important to make the point that modifications to the atmosphere as a result of human action may result in quite vigorous and unexpected responses on the part of earth’s life. ... The atmosphere can be extremely sensitive to what seem to be quite small perturbations, and the time scale for manifestation of chemical changes in the atmosphere can be much more rapid than supposed.” Roan (1989) writes eloquently of the depletion of the ozone layer in the upper atmosphere due to chemical pollutants. In the forward to her work, US Vice-President Al Gore writes (Roan, p. vi) that:

The *Ozone Crisis* recounts the journey of an environmental issue from the laboratory to the international negotiating table. The book profiles the brilliant scientists who saw trouble brewing and did everything they could to show the world what it meant. It is a revealing portrait of a society with its head in the sand – industry, politicians and the general public stubbornly refusing to accept change. The pathway ahead is still unimaginably difficult. We know what we have to do, but we do not yet know if we have the courage within ourselves to do it.

Gribbon (1990) and Lyman (1990) both write about ‘global warming’ – the tendency for the atmosphere to retain heat from the sun, due to the increasing concentration of several greenhouse gases from human activity. Principal among these pollutants are methane, carbon dioxide, nitrous oxide and chlorofluoro-carbons (CFCs) which are also the principal agents of ozone depletion. Gribbon writes from a scientific point of view. He details the processes of global warming and relates it to other environmental phenomena, such as ocean currents, changes in weather, deforestation and desertification. Lyman begins with the question of whether or not global warming is real. She writes in layman’s terms and suggests that global warming and, more specifically, the increasing concentration of carbon

dioxide and other greenhouse gases in the atmosphere is, in fact, a clear indicator of impending environmental crisis due to the impact of human civilization's lifestyle. She points out that the build up of atmospheric carbon dioxide is largely due to modern society's addiction to burning fossil fuels for its insatiable demand for energy. She concludes that:

Part of the problem is that few people want to confront a fact that implicitly calls for significant change. The famous line from Pogo – "we have met the enemy and it is us!" – perfectly describes the roots of the greenhouse problem. The evil is not extraordinary. It is banal. ... It is the Los Angeles [i.e. megacity] commuter driving to work. (p. 147)

Holgate (1989), reporting on the deliberations of a British Commonwealth group of experts on Climate Change, makes several sobering observations which leave no doubt as to the scale of environmental crises:

The present patterns of human activity which we call development - the transformation of the earth to serve perceived human needs - are not sustainable and threaten a breakdown in the environmental systems essential for the support of human and other life. This unsustainable environmental pressure is, in turn, linked to the incessant expansion of humanity's consumption of natural resources (pp. 1,2). ... It is now accepted, from extensive observation, that the world's mean surface temperature has risen over that past century by approximately 0.5 degrees centigrade, and the sea level has risen by 10-15 centimetres.(p. 2). ... The lags in the system (especially due to heat storage in the oceans) mean that, even when concentrations [of greenhouse pollutants] stabilize, the earth will continue to warm, and the seas to rise, for some decades to come (p. 3). ... There is scientific consensus that global warming, in the order of at least 1-2 degrees centigrade, will occur by the year 2030. While a few degrees may seem a small increase, a change of such magnitude over 50 years is unprecedented in known history (p. 2). ... Many important economic and social decisions are being made today on long term projects – such as irrigation, hydro power, drought relief, agricultural land use, structural designs, coastal engineering projects and energy planning – based on the assumption that past climate data are a reliable guide to the future. This is no longer a good assumption. (p. 4)

Meadows *et al* (1992) reviewed and refined their computer modelling, and published a new report entitled *Beyond the Limits*. In it they draw the following conclusions:

- * human use of essential resources and generation of pollutants has already surpassed sustainable rates;

- * unless there are significant reductions in material and energy flows, the world faces an uncontrollable decline in per capita food output, energy use and industrial production;
- * in order to avoid this decline, growth in material consumption and population must be eased down at the same time as there is a rapid and drastic increase in the efficiency of materials and energy use;
- * a sustainable society is technically and economically feasible;
- * the transition to a sustainable society must be made by carefully balancing our long- and short-term goals and emphasizing equity and quality of life. It will require honesty, compassion and maturity. (from the fly leaf)

There is a vast scientific literature concerning the impact of human civilization on the natural environment (see pages 42-48). It is interpreted here as indicative of a world facing potential environmental crisis. It is also clear from the scientific literature that there is a sense of urgency needed in dealing with it. While a sense of urgency may be stimulated by facts, it is also founded on perception. Therefore, while facts are important, it is not the facts of the crises but the perception of crises and the willingness to do something about them which will motivate change. This will be examined later in the research.

Economic Difficulties

Recognition that the world might be facing economic difficulties of crisis proportions began to come to widespread public notice during the preparations for the United Nations Conference on the Human Environment (UNCHE)² held in Stockholm, June 1972. The conference was the first official political recognition that environmental problems required global attention, although some individual countries, such as Sweden, Norway, Denmark and Canada, had begun to develop environmental awareness before UNCHE. It became evident that this was a First World (northern, western, Industrial or Developed World) perspective. Many representatives from the Third World (southern or Developing World) countries argued that environmental pollution and environmental problems were northern phenomena

² The author attended UNCHE. The following observations about UNCHE are derived from personal conversations the author had with delegates, media people and NGO observers at the time of the conference.

and that the priority problems in the south concerned poverty and the desperate need for economic development. In the context of UNCHE, many people perceived environmental issues and economic development issues as having opposing objectives and being contradictory to one another. *The Club of Rome Report* (Meadows *et al*, 1972) had just pointed out that there are physical limits to economic growth and suggested, by the results of computer modelling, that economic development would soon become limited by ecological constraints. Previously, many development thinkers considered that the world's physical resources could be considered as unlimited from an economic development point of view since scarce resources would, by the price mechanism, cause the development of substitutes and alternative resources. Early in 1973, the Middle East oil producing and exporting countries (OPEC) aligned, politically, with the Third World. They sharply increased the price of oil and restricted the supply, thereby creating an immediate economic and financial imbalance for all the Developed World which relied on Middle East oil. Since UNCHE, the *Club of Rome Report* and the oil 'crisis' of 1973, constraints to and eccentricities of environmental and economic development have increasingly been recognized as contributing to economic problems of crisis proportions – particularly in the south.

Several issues are indicative of economic difficulties and crises on a global scale, such as crippling Third World debt, the inadequacy of international financial institutions and the inability of market economics to meet the needs of development. Miller (1989) and Adams (1991) have both addressed the problem of Third World debt as do others, such as George (1989) and Pearce *et al* (1990). Miller (1989) defined a crisis in political, international or economic affairs as an "unstable condition in which an abrupt or decisive change is pending". He identified Third World Debt as an apparent crisis to the Third World debtors and 'manageable' to its First World creditors:

The problem has not gone unrecognized and ignored. Over the past six years, while the debt burdens of the developing countries have been growing and the strain of servicing them has become more acute, the creditors have been using the time to build their reserves against 'bad debts' which is a form of insurance against massive

defaults. Having thus lessened the danger to themselves of a global-scale breakdown of the major financial institutions and of the system within which they function, a state of complacency has replaced the bankers' panic of 1982. (Miller 1989, pp. 11,12)

He further described how the creditors developed a strategy of dealing with Third World debtor countries on a voluntary, case-by-case basis. This, he suggested, involves a premise that the global debt crisis is a Third World phenomenon, but he pointed out that the debt crisis is much broader than that. It includes global economic changes in which the United States' economy, the largest in the world, has been pivotal. By 1989, US foreign indebtedness had risen to the point where it exceeded the combined debts of Argentina, Brazil and Mexico, the three largest Third World debtors. He noted that, although the nature and treatment of US foreign indebtedness is different from that of Third World Countries, both are reflections of global imbalances in trade and capital flow. Miller further observed that Third World debt had mounted to a total in excess of \$1,300 billion (US), the servicing of which absorbed a very high percentage of the debtor countries' export earnings. He also noted that, as of September 1988, 24 Third World countries had declared their inability to service their debt and had asked for re-scheduling and, as of April 1989, a further 12 countries were at least six months overdue in their payments. In conclusion Miller stated that:

It ought to be clear by now that 'band-aid' proposals of muddling-through will not do. This places the major onus on the industrialized nations to re-establish a congenial environment for the trade and capital flows necessary for global recovery in which developing countries can share. 'Structural adjustment', the catchword phrase of the current decade, must be recognized as applicable not only to players on the debtor side of the field, but also to the system itself. The adjustments required on the creditor side are decidedly 'structural'. This applies particularly to the US, the largest debtor of them all. (Miller 1989, p. 102)

Adams (1991) cites the legal doctrine of odious debts. This concept means that debts of a sovereign state are only debts of the state when they have been incurred on behalf of the population of the state and the results of which are geared to the needs of, and are in the interests of, the population of that state. Debts that do not meet these criteria are odious.

Odious debts, incurred and used for ends which, to the knowledge of the creditors, are contrary to the interests of the nation do not compromise the nation which succeeds in getting rid of the despot or government that incurs them, except to the extent that real advantages were obtained by these debts. (Adams 1991, p. 165)

Adams argued that many Third World debts should be declared odious and be repudiated. In her view,

Hydroelectric dams and thermal-powered electricity generating plants – long the darlings of international financiers – account for roughly 25% of Third World debt. They are also responsible for much of the destroyed farm land and forests, for induced earthquakes, for the spread of diseases, for the alteration of hydrologic regimes, for the erosion of coastlines, and ultimately for the re-organization of lands around which millions of people had organized themselves over centuries. Next to energy, agricultural projects, often irrigation schemes contributed most to third world debt [and destruction]. (Adams, 1992, p. 22)

Adams painted a picture of development which brings more distress than development in the name of 'economic progress'. Industrial mega-projects financed from, and by, foreign financial interests may similarly generate debt and destruction. For example, Adams wrote of Cubatao, in Brazil that:

Scores of factories spew pollutants into the atmosphere. The air in some sections contains twice the level of contaminants considered safe by the World Health Organization. Cubatao has the highest level of acid rain ever recorded. Up to half its 100,000 inhabitants are thought to suffer from respiratory ailments and expectant mothers worry that their babies will be born deformed. Its river is a mass of sludge. (Adams 1991, p. 22)

In terms of restructuring of the system that Miller spoke of, Adams would classify debts from all these kinds of development projects as odious and, therefore, subject to cancellation at the expense of the creditors.

Jaikaran (1992) claimed that the world's debt problem stems from the fact that most money in circulation is, in fact, created by banks as debt and, therefore, exists as a liability rather than an asset. The assets against which money creation (i.e. bank credit) are balanced, from an accounting point of view, are simply opposite kinds of accounts in the bank ledgers. For all money created as debt there is a corresponding credit. He further argued that it is not debt

itself (as the book-keeping complement of credit) which is the problem. The problem is the additional debt, called interest, which is attached to the creation of money as bank credit, which escalates into a geometrically compounding problem, and which does not have its own book-keeping complement, from the point of view of the economy. This, according to Jaikaran, has resounding economic implications which manifest themselves as economic crises.

George and Sabelli (1994) and Culpepper and Clark (1994) address the problem of the inability of international financial institutions, in terms of overall economic betterment, to deliver. In describing the World Bank, George and Sabelli (1994, p. 2) write:

The Bank was conceived for the noblest of reasons; its founders firmly believed it would contribute to human betterment in the post-World War II world. The Bank soon became the largest supplier of infrastructure, providing the underpinnings for industry in the so-called developing countries. Its critics charge, however, that many of its projects also left a wide swath of physical and social destruction in their wake. Bank projects have been known to dislocate entire communities, displace thousands of people, destroy forests, turn grasslands into deserts and concentrate land and wealth into the hands of a few wealthy farmers and entrepreneurs.

Although George and Sabelli devote most of a book to describing the World Bank and its empire, they seem to be at a loss, at the end of the work, to describe what the Bank is. In the end, they just call it a 'thing' because for them it "remains fascinating and mysterious".

They continue:

The obvious financial and economic side of the Bank is only the tip of the proverbial iceberg. The multiple roles it plays and the many functions of power it assumes make the Bank a total social phenomenon. ... The Bank is thus in a position to assume functions which are at once economic and symbolic: integration, guidance and, most important, maintenance of a program of truth. ... The Bank's first function is to be a instrument of integration through the market which is co-extensive with the world. All nations and all people must become ever more tightly bound to it. In this setting, [i.e. the World Bank] the doctrine of export orientation finds its natural home. All countries must trade as much as they can and rely for their subsistence first on the world market and last on their own local resources.

The Bank's second function is to be a guide. Those who believe that the Bank's own doctrine is that of *laissez-faire* are mistaken. The Bank is, in fact, far more

interventionist than the interventionist governments whose policies it seeks to transform. Thus the state, like that traditional society based on reciprocity, is under attack by the Bank. (pp. 248, 249)

This presents an economic contradiction. If the market place were the natural guiding principle of humankind, a position which most economic theorists would argue and the Bank ostensibly supports, then the Bank's interventions would be unnecessary. There would not be underdevelopment, there would be no 'south', no need for modernization, and no need for structural adjustments. The market would look after these things. Curiously, there would also be no need for the Bank.

Culpepper and Clark (1994) went beyond the World Bank to examine the role of the Multilateral Development Banks (MDBs), including the African Development Bank, the Asian Development Bank, the Caribbean Development Bank and the Inter-American Development Bank. Their conclusion was that:

While the MDBs may be an effective channel of development co-operation and are, indeed, among the world's key institutions of global governance, problems remain. Criticisms over the last decade by external groups, corroborated in recent internal performance reviews by the MDBs themselves, suggest there are serious problems impeding the development effectiveness of these institutions. They point to the urgent need for reform. (Culpepper and Clark 1994, p. 89)

Dobson (1993) and Korten (1995) considered the failures of the market mechanisms. Dobson approached market concepts from the point of view of community wealth and power. He believed that the concept of community is essential to economics, otherwise the community itself becomes the victim of economic development.

Only an economic venture, whose decisions are made outside the community and independently of the community's webs which support it, is capable of abandoning its community or of destroying its supporting ecosystem with impunity. World-wide in scope, our economic system can now destroy both the resources and the people of any locality, and skip to new horizons of environmental and social exploitation without its prime operators themselves suffering loss – indeed usually experiencing profit, which is both their primary purpose, and the purpose for which the economic system itself is designed. (Dobson 1994, pp. 3,4)

Dobson (1994, p. 7) further observed that:

To build society on the concept of the market place leaves out all those who are not in the market, for any of a number of reasons, most pressing of which may be their lack of money and, therefore, their lack of capacity to demand anything in the market place, regardless of their needs.

In many ways it can be seen, or at least deduced, that the operation of market economics is most beneficial to those people, businesses and institutions already enjoying economic success and is least beneficial to those most needing development.

These central issues of Third World debt, the inadequacy of international financial institutions and the inability of market economics to meet the needs of development are indicative of a world facing economic crises. Similarly, many other authors (e.g. Henderson, 1978, 1988, 1991, 1995; Daly and Cobb, 1989; Wachel, 1989; Naylor, 1985, 1990, 1994; Matthews, 1991; Ekins and Max-Neef, 1992; Goodland, Daly, Serafy, 1992; Passerini, 1992; Korten, 1995) present wide-ranging discussions on current economic problems and challenges with regard to environment and social equity.

Social Equity Difficulties

Recognition that the world may be facing social equity difficulties of crisis proportions has come to public notice largely because of the increasing public awareness of environmental and economic problems. Some observers, while considering environmental and economic problems, also noticed a growing disparity between those who have and those who do not have (e.g. Brundtland, 1987; Daly and Cobb, 1989). In the 1960s and 1970s, this was considered to be a problem between rich nations and poor nations which could be fixed by foreign aid. Foreign aid, now called ODA (Official Development Assistance), usually had both grant and loan components. The grant portion was often 'tied' to expenditures for equipment and expertise from the donor country, while the loan portion was often constrained to those 'development expenditures' deemed to be appropriate by the donor

country. In theory, if rich developed countries ‘gave’³ economic development mega projects to poor developing countries, economic benefits would trickle down throughout society in the Third World country, eventually reaching everyone. The International Monetary Fund (1995 a & b) reported that the global economy was positive, as measured monetarily, but the growing disparities, in terms of quality of life between rich and poor, have been recognized by governments as a continuing and increasing problem. These disparities exist not just between rich nations and poor nations but also between rich people and poor people in developed countries, particularly between some urban areas and rural areas as well as within the core areas of urban systems. (Serageldin *et al*, eds. 1994; World Bank 1995 a&b)

Social inequities arise not only from economic causes – they can also arise from environmental causes. There is growing evidence of a direct link between environmental scarcity leading to social crises, as reflected by violent conflict. In reporting on a 30-member research team assembled to investigate environmental change and violent conflict, Homer-Dixon *et al* (1993, pp. 38, 39) stated that:

The evidence gathered points to a disturbing conclusion: scarcities of renewable resources are already contributing to violent conflicts in many parts of the developing world. These conflicts may foreshadow a surge of violence in coming decades, particularly in poor countries where shortage of water, forests and especially fertile land, coupled with rapidly expanding populations, already cause great hardship ... In many parts of the world, environmental degradation seems to have passed a threshold of irreversibility. ... Once irreversible, environmental degradation becomes an independent variable. ... Renewable resources are linked in highly complex, interdependent systems with many non-linear feedback relations. The over extraction of one resource can lead to multiple, unanticipated environmental problems and sudden scarcities when the system passes critical thresholds.

Homer-Dixon (1991) identified seven major environmental problems which contribute to conflict, four principal social effects which result from these problems, and three theoretical perspectives by way of explanation. The seven major environmental problems are greenhouse warming, stratospheric ozone depletion, acid deposition, deforestation,

³ ‘Gave’ refers to the practice among First World countries of giving in the sense that they provide First World development technology and expertise to Third World nations in return for a debt back to the donor country which, in turn, is financed by the donor country.

degradation of agricultural land, overuse and pollution of fresh water supplies, and depletion of fish stocks. These are all human-induced problems with long-term effects which can become irreversible and which can negatively influence each other. The four principal social effects are decreased agricultural production, economic decline, population displacement, and disruption of legitimized and authoritative institutions and social relations. These effects are often causally interlinked, sometimes with detrimentally reinforcing relationships. The three theoretical perspectives are frustration-aggression theories, group identity theories and structural theories. Frustration-aggression theories are used to explain individuals' reactions in situations of civil strife, including strikes, riots, coups, revolutions and guerilla wars. People become frustrated and aggressive when they perceive they are being blocked from fulfilling strong needs or desires. Group identity theories explain conflicts involving nationalism, ethnicity and religion. They focus on the ways differing subgroups reinforce their identities and the 'we/they' cleavages which result. 'We' needs are fulfilled by attacking 'them'. Structural theories are grounded in the assumptions of microeconomics and game theory. They explain conflicts which arise from logical, rational calculations of actors in the face of real and perceived external constraints. In all respects, environmental scarcities, problems and crises exacerbate human conflict.

Not everyone agrees with the approach adopted by Homer-Dixon's team. Some economists, such as Simon (1981), contend history demonstrates that environmentally-induced scarcity will encourage conservation, technological innovation and resource substitution in a market economy with an efficient price mechanism. Simon (1981, p. 345) writes:

There is no physical or economic reason why human resourcefulness and enterprise cannot forever continue to respond to impending shortages and existing problems with new expedients that, after an adjustment period, leave us better off than before they arose.

In response, Homer-Dixon *et al* (1993, pp. 100-102) offer seven factors which are overlooked by this optimistic economic viewpoint:

1. Whereas serious scarcity of critical resources in the past usually appeared singly, now we face multiple scarcities that exhibit powerful interactive, feedback and threshold effects.
2. In the past the scarcity of a given resource usually increased slowly allowing time for social, economic and technological adjustment, ... now debilitating scarcities develop much more quickly.
3. Today's consumption has far greater momentum than in the past because of the [much greater] size of the consuming population.
4. The free market price system is a poor gauge of scarcity, especially for resources held in common, such as benign climate and productive seas.
5. Market-driven adaptation to resource scarcity is most likely to succeed in wealthy societies where abundant reserves of capital, knowledge and talent help economic actors invent new technologies, identify conservation possibilities and make the transition to new production and consumption patterns. But the most serious environmental problems are likely to occur in poor countries.
6. There is no *a priori* reason to expect that human scientific and technical ingenuity can always surmount all kinds of scarcity. It may simply be impossible to reduce all scarcity and repair all environmental damage.
7. The success of market mechanisms depends on an intricate and stable system of institutions, social relations and shared understandings. Future environmental problems, rather than inspiring a wave of ingenuity, may instead reduce the supply of ingenuity available in society.

It appears as if the social crises may be closer and more pervasive than is popularly thought. Literature about situations, such as pervasive disparities and inequities among haves and have-nots (e.g. ECC, 1977; *The Ecologist*, 1993; WSSD, 1995), poverty and famine (e.g. Seregeldin, Landel-Mills, eds, 1994; UNEP, 1995), labour and unemployment problems (e.g. Harman and Hormann, 1990), population pressures (e.g. Demeny, 1990; Ehrlich and Ehrlich, 1991; Whitmore, *et al*, 1990; Keyfitz, 1991; Cohen, 1995), and wide ranging discussions on general social inequity and instability (e.g. Caracas, 1989; Dobell, 1990; Passerini, 1992; Canadian Pugwash, 1995; WSSD, 1995), is accepted here as indicative of a world facing potential social crises.

The point at which difficulties come to be perceived as crises is, of course, arguable. For a situation which can be regarded as merely difficult rather than a crisis, remedial action can be regarded as optional. However, when a situation is regarded as a crisis it requires

immediate attention. This research accepts the vast literature, particularly that by Brundtland (1987), which identifies inter-related economic, environmental and social equity problems. It further accepts that these problems are serious enough to require more, rather than less, priority and that they deserve continuing attention by all persons who have influence over them. If there should be any doubt, as early as 1969, United Nations Secretary-General U Thant did his best to dispel it:

I do not wish to seem over dramatic, but I can only conclude, from the information available to me as Secretary-General, that the members of the United Nations have perhaps ten years left in which to subordinate their ancient quarrels and launch a global partnership to curb the arms race, to improve the human environment, to defuse the population explosion and to supply the required momentum to development efforts. If such a global partnership is not forged in the next decade, I very much fear that the problems I have mentioned will have reached such staggering proportions that they will be beyond our capacity to control. (quoted in Meadows *et al* 1972, p. 17)

Assertion 2 - The Central Significance of Values, Attitudes and Behaviour

The second assertion is that the patterns of values, attitudes and related behaviour which shape society (in the case of this research, the First World voting, consuming and decision-making marketplace) are interconnected and interlocked. Furthermore, in the absence of conscious intervention, the patterns predispose the 'invisible hand' of the market place to reinforce the same patterns of values, attitudes and related behaviour. Therefore, conscious intervention is required to change the patterns. An important starting point is to consider the meaning of the terms 'values', 'attitudes' and 'behaviour'.

Values

Value is the central and most important concept. *The Random House Dictionary* defines 'value' as:

The relative worth, merit or importance;
 The ideals, customs, institutions etc. of a society towards which the members of the group have an affective regard;
 An object or quality desirable as a means or as an end in itself.

Unfortunately, despite the central importance of values to sustainable development, there does not seem to be a lot of social science research material available regarding values. In acknowledging a conference concerning the scientific analysis of values, Hechter *et al* (1993, p. ix) stated:

In one guise or another, values play a leading role in nearly every explanatory theory. .. Despite their undeniable theoretical centrality, values are perhaps the greatest black box in all of behavioural science. ... Due to problems of conceptualization and measurement, research on value determination has frequently been consigned to the scientific dustbin. ... Nevertheless, there are signs that the suppression of value considerations is no longer universally acceptable, even in the most traditionally positivistic of disciplines.

In discussion of an anthropological implication of values, Barth (1993, pp. 31, 32) pointed out that, while the discussion of values seems to be absent, it is inherent:

Contemporary anthropology has little to offer in the way of explicit theory and analysis of values. ... It is striking that, despite the apparent silence on values, the reflexive, critical and anti-positivist thrust of much contemporary anthropology is nourished by normative undercurrents that entail strong value positions and often extensive value counterpoints in the analyses that are pursued. ... "Meaning" has eclipsed "explanation" in recent anthropology. Thereby, some aspects of "value" have been co-opted by "meaning" while its place in a paradigm of action has lost its salience. Structuralists search for hidden, deep structure in cultural representations; symbolic anthropologists develop competing paradigms for analysing symbols; Geertz favours "interpretation"; and a younger generation now spearheaded by post-modernists explore reflexivity, deconstruction and "multiple voices."

Wildavsky (1993, pp. 50, 52, 53) approaches the notion of values from the point of view of the social construction of distinctions among values, and observed that there is nothing natural about values. They are entirely a construct of human society and how values are constructed determines their definition. An interesting distinction which he explored concerns voluntary and involuntary choices:

Voluntary/involuntary is a movable boundary capable of turning every constraint on choice into injustice, [since] a moral judgement of who is to be held accountable is enunciated by the boundary between voluntary and involuntary risks. If questions about how the boundary is drawn are raised, risk by risk, they will lead in only one direction: what was taken to be a natural boundary will be discovered to be a socially constructed one. Then political pressures will shift it back, ending with every choice

being considered involuntary. [Therefore] boundaries are power. When one determines that risks from social behaviour are voluntary or involuntary, one is deciding important political questions. To say that the hazardous effects are undergone voluntarily is strongly to imply that they are the fault of the injured party, whereas a conclusion of involuntariness implies the desirability of action to redress the grievance, from compensation to regulation. The definition is the decision.

Wildavsky argued that distinctions among concepts are not found in nature. They are found among people within a society. He suggests the most important collective goods which a society produces are the shared values justifying social relationships that make up its competing cultures. He further argued that the foremost element of competition among cultures is the right to make and remake the distinctions which support their way of life. Therefore, the values of a society are secure as long as people regard them as secure, but there is nothing inherently natural about them.

White (1993, pp. 63, 64) perceived values as results rather than causes:

Values explain and justify intention, agency and actions. A value may be a guide. But a value may follow rather than precede intention or action, and any value can mislead. Values may be for self and/or for others – be these others peers, agents or onlookers. A value may be explicit, as in a parental scolding on honesty, but in the harried negotiation of daily living, values are implicit. ... Values are made recognizable over different locales and periods [of time] by symbols and their use in social action. ... A value may range from widely shared to localized or may be highly contentious across a population. The primordial form of value is entirely implicit, without language, and yet completely shared, [such as] strict positioning in an hierarchical order which determines all aspects of a creature's life.

Schwartz (1993, p. 155) perceived values to be operative elements in the process of selection:

I take values to be principles or criteria for selecting what is good (better or best) among objects, actions, ways of life, and social and political institutions and structures. Values operate at the level of individuals, of institutions and of entire societies. ... The values that an individual can express are very much constrained by the character of the social institutions and the social order in which the individual lives. Indeed, social stability probably depends on a meshing of personal values and institutional opportunities for their expression.

It is evident from the foregoing that the term 'values' can have both a very broad and a narrow meaning. In this research, 'values' refers to the set of qualities that people hold as having fundamental worth, meaning, importance and significance. They are beliefs, ideals and customs to which people have an inherent and unthinking attachment and which inform, consciously and unconsciously, their decision-making processes.

Attitudes

Attitudes is a second important concept. The *Random House Dictionary* defines 'attitude' as:

Manner, disposition, feeling, position etc., with regard to a person or thing;
Tendency or orientation of the mind;
Position or posture of the body appropriate to, or expressive of, an action, intention or emotion;
The inclination of the three principal axes of an aeroplane to the wind or to the ground.

The definition of attitude with respect to the flight of an aeroplane provides a delightful analogy. In order for there to be flight, a condition of dynamic equilibrium between lift and drag, there must be forward motion of the plane in relation to the ground as a datum and through the ambient air. This creates wind across the flight surfaces in what would otherwise be a stagnant or chaotic ambient air. In the condition of flight, changes in attitude of the flight surfaces, i.e. the wings and tail plane, cause changes in direction and ultimate destination. In the absence of motion, the plane will crash. Similarly, in the absence of thoughtful guidance delivered through the flight surfaces, the plane will also crash.

For this research, the ground datum is the present situation of society which is accepted as no longer desirable or tenable. The destination is the new situation sought, i.e. sustainable development. The aeroplane is the human condition. Lift is the human desire for change. Drag is human resistance to change. Flight is the dynamic equilibrium in which desire for change overcomes resistance to change, resulting in action or motion which develops the capacity to rise above the present condition in order to gain perspective and understanding.

Thoughtful guidance is institutional leadership. Flight surfaces are agents of economic, environmental, social and political change. Wind is progress through states of change. Changes of direction in flight are development of alternative concepts and scenarios. In the event of no progress through states of change, i.e. simply maintaining the *status quo* (which is untenable), the human condition will crash. Similarly in the absence of institutional leadership the human condition will crash.

In this research, 'attitudes' are taken to refer to the disposition of people toward their economic, environmental and social milieu as a consequence of the values they hold, particularly as evidenced by the disposition of institutional leadership toward economic, environmental, social and political change. As such, values and attitudes are the manifestation of each other. In this research the focus is on values. However, it is rare to find values dealt with explicitly in the relevant literature. Attention to attitudes is more common. Accordingly, although the research focus is on values, at times, when referring to other scholars' work, the phrase values and attitudes is used in acknowledgement of the linkage between them.

Behaviour

Behaviour is the third concept which is important to this research. The *Random House Dictionary* defines behaviour as:

- * manner of acting in a particular way;
- * aggregate of observable responses of an organism in its inter-relationships;
- * the activity of an organism; conduct;
- * action or reaction under stipulated circumstances as in "behaviour due to ..."

Unfortunately, the practitioners of behavioural science do not adopt such a straight forward definition. Herrnstein (1993) explored the differing approaches to behaviour of economists and psychologists. He noted that both disciplines are based on the common foundation of studying an individual's behaviour. However, economists concentrate on behaviour in the aggregate of persons exchanging goods and services for money. They subsume all value

considerations into the concepts of preference and/or utility which, under economic theory, all rational humans can be expected to maximize in terms of how it is measured and accounted for by the actual or potential exchange of money. If value cannot be monetized, it does not exist, economically speaking. According to Herrnstein (1993, pp. 138,139), how the maximization of utility (values) occurs is not the concern of economics. Only the actual or potential results of maximization are:

By focusing on behaviour in exchange, economists define a subject matter that approaches individual behaviour only indirectly, based as it is on multiple agents. The laws of individual behaviour can be obscured when the data comprise exchanges rather than individual acts. ... Economics has been formalistic and deductive when it characterizes individual behaviour, rather than naturalistic and inductive. Economists have assumed that individuals are fundamentally rational, by which they mean that individuals tend to maximize utility [in so far as it can be monetized.] ... Somehow we maximise, [economic] theory says, and how we do so is not the concern of economic theorists. The conventions of economic theorizing require only that the theorist show that someone's investment or behaviour does or does not satisfy the assumption of optimality. Behaviour is seen to be unaccounted for until it can be shown to be consistent with utility maximization or it can be explained why not.

Becker (1976, p. 4), an economist, seems to believe in a similar approach. He wrote that:

The combined assumptions of maximizing behaviour, market equilibrium and stable preferences [i.e. values], used relentlessly and unflinchingly, form the heart of the economic method.

Herrnstein (1993, p. 139) suggested that behavioural psychology has a quite different approach:

Behavioural psychology has searched for the processes that control behaviour rather than the equilibria that those processes might produce. Lacking a presupposition about the ends of behaviour, psychology has been far more inductive than deductive. ... An individual's behaviour may approach equilibrium, but not necessarily the equilibrium required by utility maximization. Many of the systematic departures from rationality that are part of every day experience can be interpreted as exemplifying a principle of equilibrium that differs from utility maximization.

It seems there is some variance among different professionals as to the nature of behaviour, its importance and the extent of its connection to values and attitudes. In this research,

behaviour is taken to mean the pattern of actions and intentions which people consciously and subconsciously choose to involve themselves in as a consequence of their deeply-held values and attitudes. This is not meant to imply a generalisation that behaviour is always a clear and automatic result of values and attitudes. Within individual people, and within organizations and institutions, there can be conflicting values or attitudes and there may be conflicting behaviour. For example, people may hold pro-environmental values and attitudes but exhibit anti-environmental behaviour. This can happen for various reasons, not the least of which is ignorance of the implications of the behaviour. As we shall see later, this condition of conflict can lead to results in the case study which are both strongly in favour of and strongly opposed to a particular condition. However, as will be seen in the case study, this kind of bi-modal result is the exception rather than the rule.

Discussion

Briefly compared, for the purposes of this research, values describe the guiding parameters of persons' conscious and sub-conscious thought processes; attitudes describe their disposition to the world around them as they perceive it; and, behaviour describes the manifestation of their values and attitudes in their overall environment. As Schwartz pointed out above, this trio of parameters (values, attitudes and behaviour) is operative at both the individual and the collective level. Either can get out of synchronization with reality and both need to be periodically questioned by individuals and society itself, in a complementary process, by both leaders and followers. If values, attitudes and their related behaviour are not questioned when they need to be, they can become destructive. An interesting example of this principle is Hardin's (1968) *Tragedy of the Commons* in which he demonstrates that the attitude of self-interest pursued beyond the wisdom inherent in the ambient situation, ultimately, becomes not self-preserving but destructive of the conditions necessary for self-preservation.

Toma and Gheorghe (1992) provide a very interesting perspective on the relationship between values and behaviour. They wrote from the perspective of a society recently

released from the iron grip of Ceausecu dictatorship and most of their thinking took place prior to the Romanian revolution.

The term 'value' refers to the preference shown by people for one kind of object or experience over another. In cybernetic terms, values set the objectives and determine the decision-making apparatus appropriate to goal-desired behaviour. In other words, values are guides to action, and, because of a process of natural selection, only those value sets survive which contribute to the stability of the individual in his or her relation to society and nature. When values are first formulated in a society, they represent some type of successful response to a challenge for survival. At this stage, by definition, they must be reality-oriented. But as time goes on, these values are passed on to succeeding generations without the conscious process of reality testing that accompanied their formative stages. The result is that the values tend to change much more slowly than the surrounding environment so that, from time to time, a society finds itself operating with inappropriate values. When this happens, a gap opens up between environmental demands and the institutional ability to meet those demands [and vice versa]. This causes a time of trouble when perceptions of reality are based on a wrong cognitive paradigm. We must then, be able to behave in an adaptive way with the help of our ever learning cognitive pattern of action and thinking. Today we are indeed challenged by a high speed of environmental transformation caused by the processes we are actually creating.

It is not entirely correct to present values and attitudes as singularly causative of behaviour and behaviour as singularly responsive to values and attitudes. As indicated in the foregoing discussion, they are interactive. However, it is a tautology that unless people individually and collectively change their values and attitudes, their related behaviour remains essentially the same. It is not important to this research which begins to change first – values, attitudes or behaviour. Each contributes to the others. The desire for change, and resistance to it, will be different in different times, places and situations. What does matter is that values and attitudes evolve as situations change. When some changes happen, others will follow. If values and attitudes do not change, then neither will behaviour – in any lasting way. People may change behaviour, temporarily, by force of will in response to perceived threat or opportunity, such as threat to health of smoking, the threat to physical, emotional and spiritual well-being of alcohol consumption, or the opportunity for the obese to 'look and feel good' by losing weight. However, if their underlying values and attitudes do not also

change, their behaviour will, over time, revert to the normal consequence of their deeply-held values and attitudes.

The notion of sustainable development includes the realisation that the current deeply-held values and attitudes of the world's societies must change and their market behaviours must change (Brundtland, 1987; Kidder, 1987; Baker, 1989; Bennet and Dahlberg, 1990; IUCN, 1991; Maio and Olson, 1994). This research accepts the literature which argues that the collective present behaviour of humans toward their economic, natural and social environment is not tenable for the long term (e.g. Brown, 1981, 1991; Brundtland, 1987; Kidder, 1987; Naess, 1988; Daly and Cobb, 1989; Berkes and Feeney, 1990; Gordon and Suzuki, 1990; Piasecki and Asmus, 1990; Trudgill, 1990; IUCN, 1991; Hall and Hanson, 1992; Theobald, 1992; Blowers, 1993; Elliot, 1993).

However, this research is not primarily about behaviour; it is about changes in values and attitudes that underlie sustainable development and will signal potential and impending behavioural change, whether or not it is immediately evident. In the spirit of Toma and Gheorghe, the current set of values and attitudes, which expresses itself as the 'invisible hand' of the First World marketplace, is out of step with environmental, economic and social reality of the world. Therefore, the world, and particularly the First World, is in a time of trouble when perceptions of reality are based on a wrong cognitive paradigm. The 'conscious intervention' contemplated by this research is to develop understanding of the set of values and attitudes which prescribe a cognitive paradigm that has become inappropriate, and also to develop understanding of a set of values and attitudes which prescribe a cognitive paradigm in answer to the situations which have ensued.

Assertion 3 - The Market Dominance of First World Cities

The third assertion, which concerns the market dominance of First World cities, is that global economic, political and social systems are driven and constrained, primarily, by the demands and expectations of the First World voting, consuming and decision-making urban

marketplace. This urban marketplace includes the cities of Europe, North America and parts of the Pacific Rim, such as Japan, Singapore, Hong Kong, Australia and New Zealand. These First World countries, such as Canada, contain about 20% of the world's population, consume about 80% of the material and energy resources and produce a high proportion of global pollution and environmental degradation. Most of the Canadian population, over 75%, lives in cities of population greater than 25,000 (Canada 1991, pp. 13-17, 18). There is a similar urban concentration of population in other developed countries. The European Union embraces one of the most urbanized regions of the world. At 79%, it is more heavily urbanized than either Japan or the United States (Fudge, 1997). As of 1991, urban population in the developed world, as a whole, was 73% (WRI 1991, p. 66). Therefore, the political, social and economic demands and expectations of 15% of the world's population, which lives in First World cities, shape and constrain the possibilities for the 85% of the people who live in the rest of the world. Chiras (1991 pp. 483, 484) stated that, "Achieving sustainable development will require enormous efforts on the part of developed nations. Their economies are, for the most part, built on unsustainable practices". Bidwill, (1992, p. 39) echoed the importance of sustainability and real change in developed countries, and also noted the reluctance, in developing countries, to refocus their priorities in the absence of real change within the developed countries.

It is the repackaging of the message by the Brundtland Commission and the concept of sustainability that has inextricably linked economic development and environment in the minds of the policy makers. ... A hardened observer of the events of the past 20 years could be tempted to argue that all that has really changed is the pace and the quality of the rhetoric and that, in terms of day-to-day actions, 'on the ground' there has been little change. For example, progress in dealing with acid rain has been painfully slow in Europe and North America; waste management and waste reduction programs have made little headway, engineers responsible for projects in the developing world are slow to pick up the message of refocussed priorities.

This might be too pessimistic a view. There is some evidence that the policy context is changing. In many countries the environment is high on the agenda, the development agencies have made clear their commitment to more sustainable development, and the Montreal Protocol was agreed to with surprising speed. However, a gradual change in the policy context is only the first step. The issue, then, becomes what does this mean in practice. Bidwill, (1992, p. 39)

Of course, 'in practice' means that the First World urban marketplace must develop demand for the fruits and the achievements of sustainable development.

Similarly, Norgaard (1992, p. 87) wrote that:

It is important to keep in mind that both the dominant vision of what development should be (commonly attributed to economists) and the stance of its critics, (customarily thought of as environmentalists) are broadly based and rather amorphous. The historic roots of each entwine with Western traditions, religion, philosophy and science, and with the experience of developed nations. Recently, each has acquired some new roots springing from the traditions and experience of the developing nations. Neither economic nor environmental reasoning originates from axioms engraved in stone.

In other words, because of the historical market dominance of First World urban economies, change in values and attitudes, with respect to sustainable development, must become grounded in the marketplace of First World cities – and they should also be influenced by Third World traditions and considerations.

Sustainable development initiatives, which may be contemplated in any part of the world but not demanded or at least sanctioned by the First World's urban marketplace, will happen partially, slowly and with great difficulty, or not at all. This dominance of First World cities in the global marketplace implies a moral, and a *de facto* responsibility for First World cities to provide the leadership for sustainable development. Furthermore, as pointed out by Homer-Dixon above, the capacity to deal with sustainable development challenges is primarily resident in the urban north, not the rest of the world. If sustainable development is to become operational, First World cities are requisite fora for its practice.

THE EVOLUTION OF SUSTAINABLE DEVELOPMENT

The idea of sustainable development is not new. Its popularity is. This popularity may be interpreted as a growing recognition of the previously unseen, long-term malaise of not dealing with political and economic externalities which were judged, at the time, to be marginal, inconsequential or non-measurable, but which are now seen to be of crucial

importance because of their cumulative effect. The pervasive difficulty is that the value and attitudinal assumptions that underlie this unseen, long-term malaise are deeply embedded in societies' collective psyche.

In the twenty years between the United Nations Environment Conference in Stockholm, Sweden, June 1972 and the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in June 1992, it had become widely recognized that human civilization was damaging the natural environment at a rate that was not only unacceptable, but that endangered the capacity of earth's systems to continue supporting life. The ideal, or political vision, of sustainable development articulated by the Brundtland Report, is an attempt to respond to the perceived threat of humans to the earth and, therefore, also to themselves. This ideal of sustainable development promises to inspire major changes in the theory and practice of economic, social and environmental development. To develop a clear understanding of sustainable development, it is useful to understand its origins and how it evolved. Belief in and regard for economic development, environmental integrity and social equity as separate issues have deep roots. These are the three critical development themes which have led to the concept of sustainable development, each of which is driven by a form of entrepreneurship.

Entrepreneurship

The word entrepreneurship derives its meaning from its French roots: *entre* meaning between, and *prendre* meaning to take. It is a process of innovation: of taking an insight, process or invention from the new idea stage on the one hand to a practical application, in the real world of human and natural environment, on the other. It is characterized by initiative, creativity, tenacity, investment of time, energy and money, risk management, flexibility, persuasiveness, keen awareness for specific opportunities and threats, and a broad perspective on developing alternative scenarios *vis-à-vis* political and market awareness and just plain hard work. It is visionary, goal and results oriented, calls forth organizational, analytical and administrative skills, and generates strong support from like-minded people

(Grasley, 1986, 1987; Coffey, 1987; Kuratco, 1988; McPherson, 1988). Traditionally, entrepreneurship has been thought of as applying primarily in business and for the purpose of monetary profit; however, the entrepreneurial process also takes place in many other human pursuits.

There are many motivations and potential rewards for people who engage in entrepreneurship. A regular salary is not characteristically one of them, particularly in the early stages of a new venture. Successful entrepreneurs tend to re-invest as much money and personal energy as possible in a young enterprise for development purposes, taking only a minimum for personal use. Maskell (1996, pp. 35, 36) discerned several motivations for entrepreneurship, including:

Future compensation. The most readily identifiable motivation for entrepreneurship is future compensation. Entrepreneurs have the utmost faith in their ability to produce the anticipated results of their enterprise, some time in the future, and with that faith comes a fundamental belief that, in the future, the project will deliver abundant compensation. This belief in future compensation becomes a prime motivation for many entrepreneurs. The nature of compensation can take many forms.

Ego satisfaction. When a person sets out to do something that appears very difficult, beyond his/her capability, perhaps even impossible or unacceptable to others in the beginning, and successfully achieves it, there is a great sense of personal satisfaction. This is a very private thing and not easy to measure. But the lure of that deep personal satisfaction carries many entrepreneurs through their difficult and lonely times.

Prestige and respect. Prestige is the public face of ego satisfaction. When an entrepreneur feels a deep sense of pride and accomplishment, it is a wonderful bonus to be recognized by peers, friends and, especially, family. For some, potential ego satisfaction is more important; for others prestige comes first. Both are powerful motivators for entrepreneurship.

Service. The desire to rectify a deficiency, or to provide a service for the benefit of others, is a strong motivator for many in the professions or in institutional bureaucracies, such as education and health. It is not customary to think of entrepreneurship as having a place in professional and institutional pursuits, but there are many excellent employees who exhibit a great motivation and capacity to find new and better ways of doing things. They are not usually motivated by money and there is seldom an opportunity for financial gain. However, they are motivated by

a desire to serve and they may be just as entrepreneurial as those people who are in business and expect financial compensation.

Justice. Many non-business entrepreneurial initiatives are motivated by a sense of moral justice and social equity. Moral justice refers to a sense of rightness in accord with ethical and spiritual principles. Social equity refers to the quality of being fair and just in a social context.

Profit/power. Long-term monetary profit is the most commonly recognized motivator of entrepreneurship, particularly among those people who are not entrepreneurs and never will be. The promise of profit, excess money, and the power that goes with it, is a strong motivator of entrepreneurship. Furthermore, in many respects, monetary profit is the easiest way to measure success, ego satisfaction, prestige and respect. For many, wealth and the respect it commands is a powerful motivator. Monetary success is important to entrepreneurs but the hope of monetary profit is seldom the sole motivator of entrepreneurship.

Entrepreneurship has always been an agent of change for economic development, environmentalism and social equity. It is helpful to consider each briefly.

Economic Development

Economic development has not always been known by its modern phrase. In its early stages, it may be thought of as human development without adjectives. Ward and Dubos (1972, pp. 3-5) reviewed the essentials of the beginnings of human civilization, such as the development of language and agriculture, the use of wood, fire, stone, bronze and iron in the development of tools and weapons and the establishment of social organization in cities. They pointed out that these essentials had all been accomplished by the zenith of the Roman Empire, "This was the technological heritage upon which human society was to be very largely based for more than a millennium" (Ward and Dubos 1972, p. 5).

Toffler (1980) identified this era as the first wave of human development and suggested similarly that there was a hiatus between the end of the first wave (agricultural) and the beginning of the second wave (the industrial revolution). Forbes (1958, 1968) described humans as Homo Faber - Man the Tool Maker - as well as Homo Sapiens - Man the Knower/Thinker.

Beginning with the inventions, innovations and insights known as the Industrial Revolution, one can perceive increasingly rapid technological development led by entrepreneurship. In a remarkable chapter entitled 'The World We Inherit', Ward and Dubos (1972, pp. 6-10) give a synoptic outline of quickening development:

In the seventeenth century the tempo begins ... to quicken. For a couple of hundred years every index of growth - population, energy, use of food supplies, minerals consumed, [urbanization] -begins to mount. ... Then in the twentieth century every index takes off for the stratosphere. ... At the core of this new situation is the interaction of increasing numbers of people, all using more energy and more materials, all tending to draw closer together in urban regions, all concentrating the by-products of their activities, [i.e.,] their demands and consumption, their movements and noise, their wastes and effluent.

These developments are detailed by authors such as Forbes (1958, 1968) and Kirby *et al* (1956). Changing gradually from horsepower to the waterwheel and the windmill, through the steam engine and the internal combustion engine to the rocket engine, the human use of energy has evolved from harnessing nature to dominating nature. From the introduction of basic city services such as piped fresh water, gutters and drainage ditches in medieval Europe to the huge construction works for water and sewage facilities connected by vast networks of pipes and pumps in the modern megalopolis, we see similarly the evolution from harnessing nature to dominating nature. From simple vehicles to move people and farm products to trucks, trains, ships, and aeroplanes, we have evolved from basic local transportation to sophisticated global transportation. From enhancing nature with manure and composted by-products we have evolved to abusing nature with huge garbage dumps and widespread land, water and air pollution. From the natural fact of biogas production by humans and livestock we have evolved to the human-made fact of vehicular and industrial exhaust causing global warming and ozone depletion. One notes an increasing separation between the human environment which embraces the world-wide distribution of Western Industrial paradigm and the natural environment on which human civilization depends.

What is certain is that our sudden, vast accelerations in numbers, in the use of energy and materials, in urbanization, in consumptive ideals, in consequent pollution, have set technological man on a course that could alter dangerously and perhaps

irreversibly the natural systems of the planet on which his biological survival depends. (Ward and Dubbos, 1972, p11)

In its modern aspects, economic development involves the quest for image, cash flow and capital. It pertains to the pursuit of benefits with respect to increasing the tax base (i.e. revenue), employment base, or investment base of the jurisdiction for which the development is being pursued. It may or may not be beneficial to other jurisdictions. It includes all aspects of primary, secondary and tertiary employment and the administrative and bureaucratic aspects of government. Unfortunately, there is often confusion as to the meaning of economic development in relation to economic growth. In the context of this research, economic growth is accepted as meaning an increase in economic activity as measured by dollars of increased investment or percent increase of overall economic activity. It is materially based and macro-oriented rather than being related to growth in any constituent economic factor. Economic development, on the other hand concerns the net beneficial change in relationship among several economic factors, such as generation of new jobs, new construction, increased tax base, business start-ups etc., partly measured in flow of dollars, but also measured by other indicators, such as building permits issued, new business contracts, kind and level of union activity, falling unemployment rates and diversification in the business mix in a particular jurisdiction. Brohman spoke directly to this distinction between economic growth and economic development. He suggested (1996, pp. 11, 12) that economic development has been rather narrowly conceived as economic growth, with social and cultural factors receiving attention only in their role of facilitating (or hindering) appropriate societal changes that would support economic growth. He stated that:

Growth theory envisions development as a process of capital formation which, in turn, is largely determined by levels of savings and investment. Domestic savings ought to be directed towards productive investment, especially in high growth sectors such as manufacturing industries. In instances where market imperfections prevent this process from reaching a successful conclusion, intervention may be required from the state and/or external sources. Economic growth is regarded as a unilinear process which will endure once momentum is gained; no conceptual space is afforded for possibilities of subsequent decline or underdevelopment.

Savoie (1986, pp. 5-7) provided a useful historical review of theoretical approaches to economic development. The French economist Francois Perroux (1969, p. 179) argued that economic activity does not appear everywhere at once. It tends to concentrate around certain focal points with different degrees of intensity and spreads through diverse channels into the surrounding area. This theory became known as Growth Pole Theory. Another French economist J.R. Boudeville (1966, p. 11) suggested that a regional growth pole is really a set of expanding industries located in an urban area, inducing further activity and economic development throughout its zone of influence. This approach became known as Growth Centre Theory. Another theoretical viewpoint is the Development Approach which argued that regional disparities are caused by the market and that government intervention is essential. It suggested that economic failure breeds other economic failures and that a weak region will not be able to attract new economic initiatives unless it can break away from its failure vortex. It argued that governments must intervene to break the self-perpetuating cycle of regional disparity. It further argues that governments should prop up local demand with transfer payments and ensure an adequate level of public services through fiscal equalization payments. (ECC 1977 pp. 23-30) Yet another approach to economic development and regional disparity reviewed by Savoie is Trade Theory. It was developed to deal with the movement of goods and services between nations but has also been applied to the movement of goods and services between regions within a large nation such as Canada. It suggests that a region can maximize its economic potential by concentrating its efforts on its economic strengths and producing those goods and services for export from which it derives the greatest net benefit. (Scott 1978, pp. 46-47) An off-shoot of Trade Theory is Regional Comparative Advantage. This approach concentrates on areas of strength and comparative advantage while allowing market forces to make necessary adjustments in labour and other factors of production (Courchene 1978, pp. 145-184).

Ross and Usher (1986) draw a vital distinction between the concepts of formal and informal economy. They noted that in the 1960s conventional wisdom about economic development assumed that cheap and abundant energy and rapid technological progress had opened up an

era of limitless economic growth, with the result that the overall economy became 'hooked' into an ongoing growth mode. But the cost of energy and technological development did not stay cheap and Ross and Usher (1986, pp. 1, 2) suggested that by the mid 1980s:

. . . many people had come to believe that steady prices and steady demand were not good for either business or public tax revenues. The goals of plenty, security, a clean environment, safe work, and better education leading to useful and interesting jobs, all seem more difficult to attain now despite tremendous technological advances and economic growth which were supposed to bring about all these things.

We are told, paradoxically, that as we become wealthier and have more options from which to choose, we must become leaner and meaner. No institution and no person, it seems, can be spared the harsh necessity of becoming more productive and more competitive.

It follows that economic forces tend to make business and commercial entities, and also government institutions, larger and larger. They have an increasing influence in economic life in two ways. On the one hand, these unbridled economic forces of efficiency and competition require expensive and complex industrial processes which small local groups cannot do, such as building jet aeroplanes, constructing roads, railroads and bridges, exploring, drilling for and developing oil and mineral resources, and providing ubiquitous administrative, management, security and policy services such as those provided by banks and some government departments. Ross and Usher identified these as the formal economy. On the other hand, big business and government increasingly take over services which local people, groups and businesses have traditionally provided, such as providing food, clothing, shelter and a wide range of personal services. These Ross and Usher (1986, pp. 3, 4) identified as the informal economy.

The concept of industrialization [and institutionalization] as all pervasive is inaccurate because it ignores a vast range of productive activity in our society which is not carried out by large corporations or governments and, indeed, is hardly recognized by them to exist. Such activity includes the domestic economy of the household and the local economy of the community. Taken together, most of the activities carried out in these areas may be thought of as comprising the 'informal economy' in contrast to the formal commercial and public sector economy. In the informal economy, goods and services are often exchanged without money transactions. When money is involved, it is essentially to facilitate exchange, not to

increase profits, so the drive to accumulate capital for its own sake is not present. Whereas the formal economy focuses solely on output, in the informal economy, how things are done, who receives the output and how people relate to one another are as important as what is produced.

The specialized processes [of the formal economy] require the labour of many different people, with different capabilities, whose work must be co-ordinated in factories, bureaucratic offices and commercial establishments. ... One consequence of this type of organization is that most people, instead of selling things they make themselves or services they provide directly, sell their capacity to work, as if it were a commodity for which they are paid wages or salaries. Therefore, the formal economy is a wage economy and a very large part of this wage income is never even concerned with production and distribution, but rather with finance, marketing and exchange. (pp. 21, 22)

Ross and Usher (1986, pp. 32-35) identified five different types of informal economy: the household economy, the neighbourhood or mutual aid economy, the alternative or counterculture economy, the small enterprise economy and the underground, or hidden economy. They further identified four characteristics of the informal economy:

1. The informal economy embraces those parts of the [overall] economy in which goods and services are exchanged informally and without money - or any money exchange is for subsistence, not for profit.
2. The informal economy is unquantified, unrecorded, uncounted and often invisible.
3. The informal economy includes some, but not all, self-employed people, community, non-profit enterprises, most voluntary groups, neighbourhood co-operatives and many cultural groups.
4. The informal economy embodies, in practice as well as in value preference, aspects such as neighbourly co-operation, sharing, mutual aid and support, local autonomy and self-reliance, material simplicity, trust, sensitivity, diversity, participation and the decentralization of power.

Sitwell and Seifried (1984) examined the basic thesis that the development and non-development of the various regional aspects of the Canadian economy has been a logical consequence of federal and provincial policies since Confederation. Their prime interest was to demonstrate that once decisions had been made to follow certain policies, both desirable and unwanted consequences were bound to follow. They noted that the consequences, in terms of relatively low per capita incomes and relatively high unemployment and underemployment experienced by some regions, were never intended or foreseen. Their

conclusion (p. 177) was that the prospects for the Canadian economy in general, and for all districts that lie more than 320 kilometers from Toronto or Vancouver in particular, are gloomy:

It seems the culprit responsible for this state of affairs is what is commonly called "free enterprise." ... The first point is that the role of competition is often understood in too narrow a way. One way of thinking about competition is to see it as producing winners. Firms compete with one another to provide goods and services wanted by the public. The products that are put on the market at the lowest prices, other things being equal, are the ones bought. The firms that produce those particular products win the struggle for the customer's dollars. They flourish. The others go out of business which identifies the second point; competition also produces losers."

... But for the introduction of anti-combines legislation, first in the United States and later in Canada, there can be no serious doubt that competition would produce, ultimately a single winner in every major industry, just as it does in football, hockey and basketball [at the end of each season].

Another way to think about competition, to paraphrase Sitwell and Seifried succinctly (1984, p. 177), is that it also produces losers. They point out that all sports teams return to the competition in the following season, but the businesses which lose the competitive struggle drop out for good. They carry the analogy to sports further by suggesting that as the competition gets keener, and the competitors learn to find loop-holes in the rules of the game in order to best their opponents, more regulations have to be put in place to ensure that the spirit of competition remains in the game. Similarly, they suggest that as economic competition becomes keener, more regulations (not less) are required to ensure that competition remains to serve the public good. Unfortunately, as the winners remain 'in the game' to lobby government for the relaxing of rules and regulation and the losers seldom remain to resist, governments tend to relax the conditions for competition, to the benefit of the winners rather than sharpening the rules of competition for the overall benefit of society.

In recent decades, the pursuit of local economic development has developed into a distinct profession which, in many situations, is closely related to planning. It seeks to maintain an information base and analysis of societal and economic factors relevant to the community.

It is usually seen as a catalyst and facilitator among formal government structures, the market outside the local community and the disparate business, economic and entrepreneurial elements within the local community. It focuses on marketing of community to business and industry, and on net growth in jobs, population, business activity and tax revenues. Its secondary focus is on encouraging a balance among development initiatives within the community, including environmental concerns. In many communities, local economic development has become a hybrid associated with various other development initiatives.⁴

Economic development involves primarily the promotion of activities designed to result in the creation of wealth as measured by money, particularly with respect to producing taxable profits and taxable employment. A much lesser emphasis is on the promotion of activities which enhance the management and administration of the myriad of informal transactions that characterize life in local society.

Environmentalism

Environmentalism concerns humans' treatment of the surroundings provided by earth's biosphere, either in their natural state or as modified by human ingenuity. Environmentalism implies an attitude of stewardship toward the natural environment by people who have become aware of unanticipated and harmful effects of economic development, and who intend to rectify past and ongoing environmental abuse. Environmentalism involves long-term awareness of the human relationship with biophysical cycles and differing ecosystems. It is particularly concerned with the detrimental impacts of human activities on

4 For examples of local economic development literature see ECC, 1977; Pomfret, 1981; Coffee and Polese, 1984; Savoie, 1986 a & b; Bryant, Preston and Buck, 1987; Bryant and Preston, 1987 a & b, 1988 a & b, 1989; Bryant, Dudycha and Preston, 1988; Bryant and Buck, 1989; Preston, 1989; ECC, 1990; Montgomery, 1991; Porter, 1991; Crane, 1992; Mitsopoulos, 1993; Piszowski and Baroudi, 1993; Donahue and Scarpelli, 1994; Parker *et al*, 1994; Cox, 1995; Borovilos, 1996; Carvalho and Scott, 1996; Evans 1996; Morand 1996, a & b; Bater and Carvalho, 1997.

natural environments. It often serves as an expression of public conscience and seeks to draw attention to specific environmental issues, such as population.⁵

Many dimensions of environmentalism fall into two main categories: those that concern doing things and those that concern environmental philosophy. Environmentalism that concerns doing things may be described as environmentally-friendly development, or development that recognizes the interdependence of human and natural systems and the damage already done by human society to natural systems (Maskell, 1991). It seeks to understand, evaluate, repair and mitigate past damage and to minimize future damage. It may often relate to specific bioregional or politically-bound areas and deal with specific issues, such as air or water pollution, waste management and management of biodiversity. Alternatively, it may be project specific (e.g. industrial land rehabilitation projects). It assumes that repair to economic, political and social systems, which damage the natural environment, can be achieved by different and better knowledge and procedures such as better information and analysis, better measurements, better technology, better management, better conception, and enforcement of laws and regulations. Another aspect of 'doing things' involves political action by environmental NGOs such as Pollution Probe and Greenpeace.⁶

Environmentalism as philosophy arises from growing understanding of linkages between human society and ecological relationships. Kormondy (1969, p. 1) described ecological relationships as being manifested in physical-chemical settings of abiotic environmental

⁵ For examples of literature about environmentalism see: Malthus, 1798, Erhlich and Erhlich, 1990, about population issues; Carson, 1962, regarding pollution issues; Barnett and Morse, 1963, Meadows, 1972, about economic scarcity; Arrow and Fisher, 1974, regarding environmental preservation; Tivy and O'hare, 1982, Meredith, 1992 regarding environmental impact assessment; Ward, 1966, Ward and Dubos, 1972, Lovelock, 1979 regarding a holistic view of the earth; and Kemp and Wall, 1990, Brown, 1991, concerning taking political action on environmental issues.

⁶ There is a rich literature concerning development which is environmentally-friendly e.g. Cotton, 1970; Haymaker and Weaver, 1982; Brown 1984-1997, (14 volumes); Clark and Munn, 1986; Time, 1989; Angell *et al*, 1990; Hynes, 1990; Berlin, 1991; Brown, 1991; Chiras, 1991; Ehrlich and Ehrlich, 1991; Kirby, 1991; Toner, 1991; Smart, 1992; Durning, 1993.

substances and gradients. These settings include basic inorganic elements and compounds, such as water and carbon dioxide, calcium and oxygen, carbonates and phosphates as well as an array of organic compounds and by-products of organism activity, death and decay. Kormondy also included physical factors and gradients such as soil, moisture, winds, currents and solar radiation of light and heat. In this setting, the biotic assemblage of plants, animals and microbes interacting in energy-dependant processes with each other and the abiotic physical-chemical environment comprises an ecological system. Ecology, therefore, is the study of nature and the complex interactions of its biotic and abiotic components, including the relationship of human systems to non-human systems.

Gale (1990) identified a conflict between preservationists and conservationists and a dislocation in conservationist views which he suggests are an important part of the historical roots of modern environmentalism. Gale (1990, p. 17) noted

On the one hand preservationists emphasized a concern for nature, wilderness and natural processes such that the writings of John Muir, for example, are now deemed to reflect "the ecocentric roots of modern environmentalism" (O'Riordan, 1981, p. 3). They thus provide an intellectual foundation of deep ecology. On the other hand, conservationists such as Gifford Pinchot (1910) embraced a utilitarian attitude towards nature firmly based in a 'gospel of efficiency' according to Hayes (1959).

[The conservationist view] held that the public good takes precedence over private profit. Yet, the early conservationists rarely examined the public good in social or political terms. Their focus was really 'organized natural resource utilization' (O'Riordan, 1981 p. 3), i.e. the focus was on the economic resource rather than the development process. Decisions [regarding management of natural resources] were thus dominated by classical and neo-classical economic approaches, even though these approaches did not acknowledge the environmental base of the economy. In promoting the internalisation of corporate profits and the externalization of social costs, this approach to development raised more questions about equitable management of resources than the early conservationists could answer.

Gale further observed that the growing merger of conservation and development around issues of natural resource management made the promotion of both preservationist views and new conservationist views more difficult. Gale (1990, p. 18) stated that

...the environmentalists of the 1960s represented a reaction against environmental degradation caused by a resource-oriented philosophy that “was primarily economic with few concessions towards ecology, cultural appraisal or public policy”. (O’Riordan, 1971 p. 4)

More recently, Merchant (1992) identified four forms of ecology: social, spiritual, deep and radical ecology. Social ecology analyses various political and social institutions that people use in various aspects of their relationship to nature and its resources. On the one hand, people need sustenance from nature and some environmentalists promote stewardship in relation to nature, which they accept as a storehouse of resources. On the other hand, some environmentalists see the abuse of nature by economic development and embrace goals of preserving wilderness and enhancing environmental quality. Underneath this apparent conflict is:

... a common ethic of outrage over the impact of industrialization on labouring peoples and on nature. Industrial development has brought neither social justice nor a healthy environment to all people. Both the progressives and the environmental movements look beyond the individual to the social and environmental whole for values by which to restructure the world. ... Many people are searching for ways to resolve the contradiction between economic production and ecology. (Merchant 1992, pp. 133, 134)

Merchant described spiritual ecology as a product of a profound sense of crisis in the ways in which 20th Century humans relate to the environment. It focuses on the transformation of consciousness, especially religious and spiritual consciousness, in people’s awareness of the earth. Spiritual ecologists attempt to develop new ways of relating to the Earth that entail not an ethic of domination but one of partnership with nature. Merchant (1992, p. 113) described a ritual of despair and empowerment by spiritual ecologists called the Council of All Beings which helps people empower themselves and act to save the planet. It is based on five principles:

1. Feelings of pain for the world are natural and healthy;
2. This pain is morbid only if it is denied;
3. Information alone is not enough;
4. Unblocking repressed feelings releases energy and frees the mind; and
5. Unblocking our pain for the world reconnects us with the larger web of life.

Deep ecologists call for a whole new ecological paradigm that will replace the dominant mechanistic paradigm of the past several hundred years. This new ecological paradigm, Deep Ecology, is a

... mental image of social reality that guides expectations in a society. Deep Ecology challenges the dominant western paradigm [of the earth as dead and inert, manipulable and exploitable for profits]. It offers a new science of nature, a new spiritual paradigm and a new ecological ethic. Deep ecological thinking emerges from a sense of ecological crisis. It is socially produced and socially constructed. It focuses on transformation at the level of consciousness and world view rather than a transformation of production and reproduction. It supports and legitimizes new social and economic directions that move the world toward sustainability. (Merchant 1992, p. 86)

Deep Ecology requires a world view of humans within nature, not above it, and a new psychology of self involving an intermingling of persons and planet. Devall and Sessions (1985, p. 70) presented eight basic principles of Deep Ecology:

1. The well-being and flourishing of human and non-human life on earth have value in themselves (synonyms, intrinsic value, inherent value). These values are independent of the usefulness of the non-human world for human purposes.
2. Richness and diversity of life forms contribute to the realization of these values and are also values in themselves.
3. Humans have no right to reduce this richness and diversity, except to satisfy vital needs.
4. The flourishing of human life and cultures is compatible with a substantial decrease in human population. The flourishing of non-human life requires such a decrease.
5. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
6. Policies must, therefore, be changed. These policies affect basic economic, technological and ideological structures. The resulting state of affairs will be deeply different from the present.
7. The ideological change is mainly that of appreciating life quality (dwelling in situations of inherent value) rather than adhering to an increasingly higher standard of living. There will be a profound awareness of the difference between big and great.
8. Those who subscribe to the foregoing points have an obligation directly or indirectly to try to implement the necessary changes.

Radical Ecology, according to Merchant (1992, p. 9), is the cutting edge of Social Ecology and is founded on Deep Ecology. It pushes social and ecological systems toward new

patterns of production, reproduction and consciousness and seeks to improve the quality of both human life and the natural environment. It challenges those aspects of political and economic order that prevent the fulfilment of basic human needs for millions of people outside the competitive global economic market. It also offers theories that explain the social causes of environmental problems and alternative ways to resolve them. It supports social movements and environmental activism which are geared towards removing the causes of environmental deterioration and raising the quality of life for all people.

Lovelock (1979) offers a different world view which helped found Deep Ecology. His view is that the earth's biosphere is a self-regulating entity with the capacity to keep the planet healthy by controlling the chemical and physical environment. He proposes that the earth's living matter in the air, the oceans and fresh water systems, and on the land surface, together form a complete whole which can be seen as a single organism which has the capacity to organize on a global scale. Lovelock (1972, p. 11) called this earth entity Gaia, after the ancient Greek earth Goddess. He defined Gaia as:

... a complex entity involving the earth's biosphere, atmosphere, oceans and soil; the totality constituting a cybernetic system which seeks an optimal physical and chemical environment for life on this planet. [It includes] the maintenance of relatively constant conditions [for life] by active control.

Some of the impetus of environmentalism at the local level has become formalized into the Conservation Movement. It concerns the use of renewable natural resources within local jurisdictions and those from distant jurisdictions which are deemed necessary to the local community and its development. It usually includes various aspects of local and regional land-use planning. Mitchell and Shrubsole (1992) provide a description and history of Conservation Authorities in Ontario. They suggest six fundamental principles of Conservation Authorities:

1. The watershed is an appropriate unit of consideration upon which to found conservation planning and initiatives;
2. Local initiative is essential at both the formative and the operative stages of a conservation authority;

3. Jurisdictional authority and financial support for the formation and operation of a Conservation Authority must be shared in partnership between the provincial and the local government;
4. A healthy environment is a pre-requisite for a healthy economy;
5. A comprehensive approach, including both water and land-based resources (such as rivers, wetlands, forests and fields) and both rural and urban communities is important to conservation. In this sense, the conservation movement embraces an ecological approach.
6. Activities of conservation authorities must include co-operation and co-ordination among all relevant actors and stakeholders.

Environmentalism is not monolithic – it is many faceted. In principle, it embraces the earth itself as having pre-eminent importance and it relegates humankind to being one species among many, all of which are part of, and subordinate to, the whole earth.

Social Equity

Social equity refers to fairness and justice among different sectors of society. It pertains to the formal efforts to remove the causes, or lessen the effects, of poverty, unemployment and inequities among social strata. It also refers to informal efforts to engender fair relations among inequable social strata. Social equity promotes the integrity of social relationships and a more equal sharing of the benefits of economic development on the one hand and responsibilities for underprivileged people and the natural environment on the other.

Daly and Cobb (1989, p. 164) claimed that economics based on humans as self-interested individuals leads to policies that inevitably disrupt existing social relationships. They stated that humans are fundamentally social and that economics should be reformed on the basis of a new concept of people, not as self-interested individuals but as persons-in-community. What is important in their model is the recognition that the community, as a whole, influences each person's welfare because each person has relationships to others, which are at least as important as possessing economic commodities. They further pointed out that "these relationships [which are an integral part of social equity] cannot be exchanged in the market. They are, never-the-less, affected by the market. ... Hence the model of person-in-

community calls not only for the provision of goods and services to individuals, but also for an economic order that supports the pattern of personal relationships that make up the community.” (p. 165)

Bundtland (1987, pp. 48, 49) indicates that equity is more evident in its absence than its presence, and that as environmental crises deepen so also do issues of social equity.

... there are usually winners and losers. Many problems arise from inequalities in access to resources. An inequitable land ownership structure can lead to over exploitation of resources in the smallest holdings with harmful effects on both environment and development. Internationally, monopolistic control over resources can drive those who do not share in them to excessive exploitation of marginal resources. The differing capacities of exploiters to commandeer ‘free’ goods – locally, nationally and internationally – are another manifestation of unequal access to resources. ‘Losers’ in environment/development conflicts include those who suffer more than their fair share of health, property, and ecosystem damages due to pollution.

As a system approaches ecological limits, inequalities sharpen. Thus, when a watershed deteriorates, poor farmers suffer more because they cannot afford the same anti-erosion measures as can rich farmers. When urban air quality deteriorates, the poor, in their more vulnerable areas, suffer more health damage than the rich who usually live in more pristine areas. When mineral resources become depleted, latecomers to industrialization lose the benefits of low cost supplies. Globally, wealthier nations are better placed, financially and technologically, to cope with the effects of possible [global] change.

In Norgaard’s (1992, pp. 93-96) discussion of inter-generational equity, he identified an apparent conflict between sustainability and efficiency. “There is still a strong sense among economic policy makers that environmental objectives can only be reached at the expense of economic objectives, rather than being included among economic policy objectives. This apparent conflict between efficiency and sustainability has thwarted the advancement of an economics of sustainable development”. He argued that increased economic efficiency, reached by internalizing previous externalities, does not necessarily lead to sustainability and, even when it does, there is still a fundamental conceptual contradiction. “Valuations of non-market goods and services (i.e. externalities) are based on the preferences of the

current generation and benefits accruing to future generations are discounted in net present value calculations to reflect what they are *currently* worth (p. 94)". He showed that, when expanded cost-benefit analysis 'makes the case' for sustainability, it does so on the basis of the interests of current generations. However, he argued, sustainability reasoning weighs the interests of current and future generations more or less equally. He suggested that this difference can only be resolved by thinking of sustainability as a matter of inter-generational equity rather than economic efficiency.

Norgaard (1992) further argued that the appearance of this conflict is due to a long history of the failure to incorporate equity considerations into economic thinking.

While economists have concentrated their efforts on the efficient use of resources, environmentalists have consistently argued that societies need to consider how much resources they are leaving for future generations. The dialogue is over the distribution of rights to resources and environmental services between generations, not over how efficiently the present generation exploits its current rights. (p. 95)

Many economists ignore the fact that there are multiple efficient solutions, depending on how rights are distributed, and have repeatedly referred to 'trade-offs' that have to be made between efficiency and equity. There are certainly trade-offs between who benefits under one distribution and who benefits under another. Efficiency, however, is a measure of how well a goal is being met. Different goals, such as growth regardless of equity, or growth within certain equity constraints, can each be met efficiently or inefficiently. (p. 96)

An interesting and important extension of the concept of equity, and a link to both environmental and economic issues, is the concept of promoting biodiversity. The term biodiversity means the diversity of genes, species, ecosystems and the linkages among these different levels of biological hierarchy.⁷ Tacconi and Bennett (1995) identified three principles adopted in the final Declaration of the Earth Summit which make explicit the preferred underlying approach to biodiversity:

- * The right to development should be achieved by equitably meeting the developmental and environmental needs of current and future generations.

⁷ This is the meaning of biodiversity adopted by the United Nations Biodiversity Convention.

- * Environmental protection shall constitute an integral part of the development process;
- * The precautionary approach should be widely adopted to protect the environment.

They observed that the ecological system can exist without the social system, but the social system cannot exist without the ecological system. They further identify several economic ramifications of maintaining a high level of biodiversity, such as climatic stabilisation, regulation of the hydrological cycle, generation and maintenance of soils, waste disposal, biological pest control, and pollination, which are all examples of ecosystem services utilized directly by the economic system.

To understand the significance of social equity in relation to sustainable development, it is important to acknowledge two key aspects of social equity: inter-generational and intra-generational equity. Inter-generational equity refers to issues of fairness and justice between the present and future generations. It has a strong emphasis on the allocation and distribution of rights to natural resources. Norgaard (1992, p. 108) pointed out that,

Colonial, and later national, governments assumed central control over [natural] resources opening them up to commercial exploitation for international markets and closing them down to use by local people. The introduction of market incentives into village life shifted the incentive from savings in the form of land maintenance and improvement to savings in the form of monetary assets and Western-style human capital.

The concept of equity, therefore, must also include the right for people to make choices *before* economic exigencies are imposed.

Intra-generational equity refers to issues of fairness and justice among the many different sectors of current society: among rich and poor, privileged and deprived, have and have not, men and women and among different racial, cultural and indigenous groups. It includes not only allocation and distribution of economic resources but also recognition of the importance of cultural and community relationships and the right of individuals and groups to participate in the political decision-making processes. An often overlooked aspect of intra-generational

equity is consideration of fairness and justice for the differing needs of the three (plus) generations of living people. Laws (1993, p. 688) pointed out that different attitudes toward age have resulted in a number of 'built' environments to meet a variety of specialized needs among different age groups. She presented three spatial manifestations of different relations among living people according to age and indicated that attitudes to intra-generational equity change over time:

First we can observe integration of the young and old at the household level. This spatial arrangement reflects attitudes which suggest that, regardless of age, household members can live together without fear or inter-generational conflict. I suggest that this was a dominant model in pre-industrial, largely agrarian communities. Second, we can observe small-scale separations of the generations which require specific built environments like playgrounds and schools for children, and residential care facilities dedicated to older people's needs. These built environments are a spatial expression that the household, as a self-contained unit, cannot always provide for the needs of different-aged members. ... Finally [there is] the possibility of large-scale segregation in which younger and older people choose to be freed from what they see as incompatible lifestyles of others.

Social equity is a prime objective of many social development and social planning organizations (ORTEE, 1991; Murdi, Rhyne and Bates, 1992; ORTEE, 1994; OHCCN, 1994; WSSD, 1995). It also appears in many informal forms of civil protest and participation in the political decision-making process. The desire for social equity can be seen in many community development initiatives. These are small-scale, incremental approaches to social and economic progress within the community. They involve elements of political, economic and social empowerment of local people and groups. They capitalize on the existence of strong initiative and motivation from citizens of the local community and they assume that governments are agreeable to the community development process (Lotz, 1987). For example, the Institute of Cultural Affairs (ICA) has, for over 40 years, been evolving participative and community development methods, in conjunction with local governments and international institutions, such as the World Bank, in both developed and developing countries (Spencer, 1989; Bergdall, 1993).

From Independence to Interdependence

We have seen that economic development involves the creation of wealth as measured by money, environmentalism embraces the earth as having pre-eminent importance, and social equity involves the principles of fairness and justice for all people, particularly those who are lower on the economic scale or weak within prevailing power structures. Traditionally there has been an adversarial separation of awareness and priority among these three aspects of development. Redclift (1988, p. 635) observed that, "the environment has suffered more neglect at the hands of social scientists than any comparable subject". And Norgaard (1992, p. 85) stated that, "In Western and westernized societies, the primary promulgators of values, knowledge and collective action are separate institutions. However, linkages among church, (values), science (knowledge), and state (collective action) are necessary in spite of the principle of separation." Various intellectual communities are struggling with how to interrelate economic, environmental, cultural and social issues. For example, 'Round Table' committees for discussion of environment and economic issues have been instituted in many jurisdictions⁸. Although the pursuit of economic development, concern for the natural environment and attention to social equity have been quite distinct from each other, and in some respects antithetical, they all seek to establish a comfortable *modus operandi* and relationship with the community at large. All of them deal with some aspects of the human/natural environment relationship, and all of them acknowledge the interconnectedness of social systems. They all seem to espouse environmentally-friendly initiatives, although other priorities may compete for primacy. They all recognize that in sustainable development there are new intellectual and practical opportunities for discovering, debating and applying ways and means to achieve sustainable development. More explicitly, proponents of these different aspects perceive both the opportunity and the necessity of

⁸ The idea of a National Round Table for Environment and Economy (NRTEE) was instituted by the Canadian Government. The NRTEE is formed to compile and submit advice to the Prime Minister on sustainable development issues. It is designed to include major stakeholders who bring their varying and often conflicting interests to the 'table' in order to discuss and address them in a open and mutual fashion. The idea has been replicated at the provincial and municipal level.

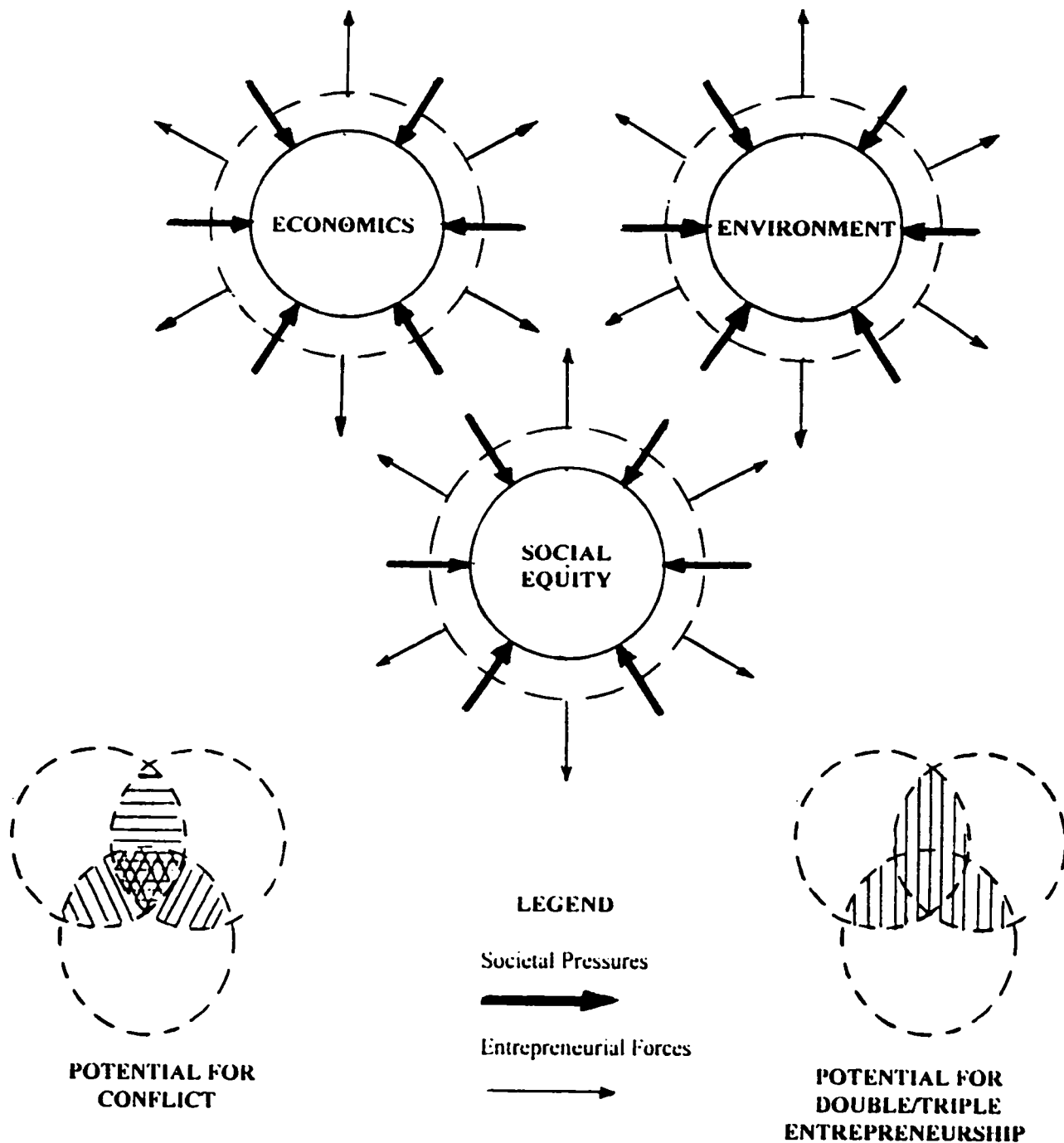
breaking down the intellectual and disciplinary boundaries among various aspects of development.

Figure 1 is a graphical representation of the relationship among the three primary development approaches of economics, environment and social equity. Each may be represented by pairs of concentric circles showing an area of accepted reality, or prevailing practice, in the closed inner circle and a larger area of influence representing the progress of entrepreneurship in the larger dotted circle. Economics is represented by the first pair of circles. The dotted circle continually expands the area of activity represented by the solid circle. The solid circle tends to resist change, (i.e. to rely on the status quo). However, both the accepted reality (solid circle) and the emerging reality of new entrepreneurship (dotted circle) expand over time. A prime motivation which causes economic activities to grow is financial profit and power. A second pair of circles represent various activities of environmentalism. They represent prevailing environmental practice and the ongoing progress in the application of new processes, insights, innovations and inventions with respect to the environment, (i.e. environmental entrepreneurship). The motivation is stewardship for the natural environment. A third pair of circles represents a growing concern in our society for social, cultural and political equity; (i.e. for a fair sharing of the benefits and responsibilities in society and for wider participation in the decision-making processes that regulate them). The motivation of this aspect is justice.⁹

As indicated above, these three themes of human endeavour have traditionally been adversarial: economics, business and industry vs. environmental issues vs. issues of social equity. Morita *et al* (1993) observed that until the 1970s most of the argument between

⁹ The graphical representation in Figure 1 depicting the relationship of these three primary development themes is similar to what is proposed by Firey (1960), Barbier (1987), Norgaard (1992) and Seregeldin and Steer, (1994). However, the description contained here goes beyond these authors to indicate not only an existing relationship but also a progression from a former to a future relationship.

FIGURE 1: SEPARATE DEVELOPMENT THEMES



proponents of environment and economy was conflicting. Conservationists understood environmental conservation to have the opposite meaning to economic growth, insisting on the need for zero economic growth (i.e. to conserve the environment, economic growth must be stopped). Those people who have been primarily involved in owning and controlling the means of production and distribution of physical and material benefits are set apart as one group (economics). The people who have been primarily involved in researching and exposing unanticipated, unassessed, unacknowledged and uncoded results of development which have negative effects on the biosphere have been a second group (environmentalism). Those people who have become disempowered of their critical faculties or dispossessed of economic and political influence, except as spenders of consumer dollars and occasional contributors to opinion polls and elections, have been a third group for whom justice is a critical issues (social equity).

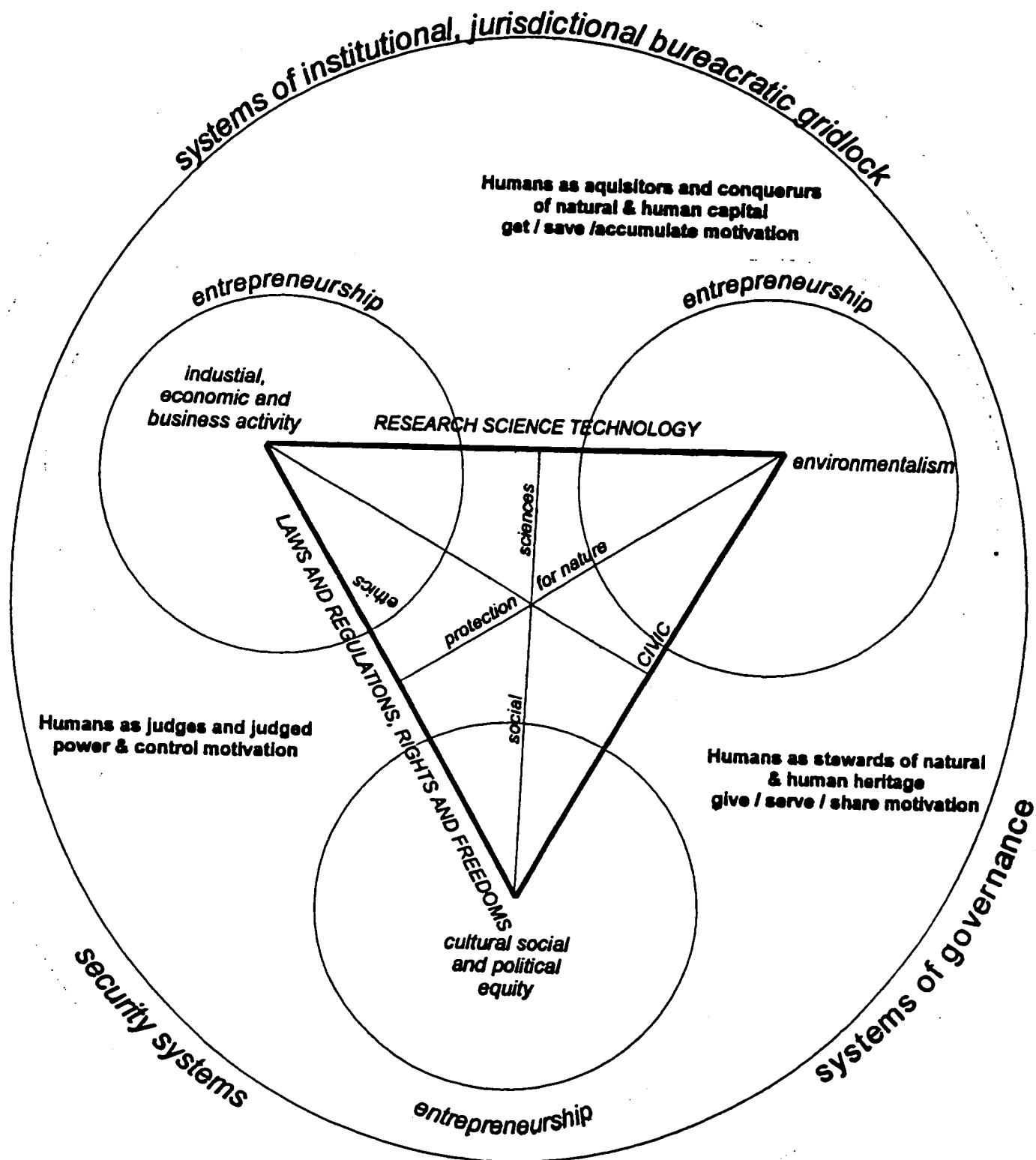
Recognizing that world population is rapidly expanding, as is the consequent scale of human activity in economic development, and that environmentalism and socio-political equity are also rapidly expanding, one might expect that the areas of entrepreneurship would eventually overlap forming both areas of combined entrepreneurial potential and areas of superimposed conflict. Tension and friction among these activities have been more normal than cooperation which indicates a condition of non-merging with somewhat chaotic effects. The three approaches to development are both linked and held apart by opposing interactions. Accordingly, Figure 1 shows opposing arrows representing both tensions and linkages among the traditional development themes. These interactions among economics, environment and equity provide both attractions and tensions creating an institutional gridlock (see Figure 2). The connection between economic and environmental issues is research in science and technology. This connection represents humans as acquirers of natural and human capital on the one hand, and humans as stewards of nature on the other. The opposing motivations are the desire to understand, acquire and own, and the desire to understand, preserve and protect.

Between economics and equity issues are the laws and regulations of society, which provide degrees of freedom and also degrees of control. This tension represents humans as individual actors and as group participants. It is motivated by a need to safeguard individual rights and preserve societal systems. Connecting equity and environment issues is a sense of civics. This tension represents the dual role of humans as responsible for the natural heritage and humans as responsible for cultural heritage, much of which is based on the appropriation of natural resources. The sense of civics is based on the motivation to serve and includes ideals of responsibility and obligation. Linking engineering, technology and science to equity issues are the social sciences which emulate the rigour of natural sciences in analysing and understanding human dynamics. Linking civics with economic issues are ethics which relate equity and environmental considerations in business and industrial activities. Linking laws and regulations with environmental issues are provisions for the protection of nature from human activity.

Networked around these issues and the dynamic tensions and linkages that preserve their relationships are systems of governance. Formal governments at the municipal, regional, provincial and federal level are the primary elements, but not the only elements, in systems of governance. Also included are international organizations such as the United Nations and all levels of corporate and institutional governance, such as boards of directors, trusteeships and advisory committees.

In addition, there are various security systems, such as armed services, police forces, court systems and, in some organizations, self-regulating systems. This network of governance is, in fact, society's shock absorber. It is a jurisdictional, institutional and bureaucratic gridlock which seeks to ensure that change happens with sufficient inertia that most people's *status quo* is preserved (for better or for worse), remains limited, or changes only gradually, thereby allowing all other affected sectors to adjust gradually. The 'glue' that maintains these systems in their tensions and linkages is the prevailing set of values and attitudes which inform society's decision-making processes, both at individual and institutional levels. Once

FIGURE 2: INSTITUTIONAL GRIDLOCK



gridlock has set in, the values and attitudes which created it also reinforce it and only a change in the underlying values and attitudes can release it. In order for there to be a relaxing of this gridlock, Brundtland (1987, p. 67) observed that:

Two conditions must be satisfied before international economic exchanges can become beneficial to all involved. The sustainability of ecosystems on which the global economy depends must be guaranteed. And the economic partners must be satisfied that the basis of exchange is equitable. Relationships that are unequal and based on dominance of one kind or another are not a sound and durable basis for interdependence.

A key to understanding sustainable development is to recognize that what have formerly been three separate aspects of reductionist thought and activity (i.e. economic, environmental, social) are being forced into a holistic relationship.

During the clashes of the 1980s, both economists and environmentalists pursued parts of their strategies successfully. Economists effectively pressed their case for free markets to increase efficiency and enhance the ability of debtors to meet their obligations. Environmentalists successfully convinced national governments to establish biosphere reserves to protect key species, areas of biological diversity and unique ecosystems. Without resolving any primary conflicts development activities assumed a bimodal nature – part conventional development, part biological conservation. ... Also during the 1980s, environmentalists began to acknowledge that hungry people could not live beside biosphere reserves and leave them alone. With this realization, some environmentalists began to accept the challenge of designing and implementing alternative development strategies. ... Development planning and implementation continue gradually to shift in two apparently contradictory directions. At the project level, it moved away from progressive technocratic toward more participatory approaches. ... At the same time, the emphasis of development agencies shifted away from projects toward institution building, policy dialogue at the highest levels of government and economic restructuring. A decline in faith in the inevitability of progress [became] an important component of the international discourse on sustainability. (Norgaard 1992, p. 88)

Reductionist thought and activity are based on a belief in divisibility, reducibility, separateness and independence of individual or group concepts, both theoretically and practically. Holistic thought and activity are based on indivisibility, completeness, interconnectedness and interdependence of individual and group concepts, both theoretically and practically. With respect to sustainable development, there is much agreement about the

need for its achievement but considerable variance about the ways to get there. Norgaard (1992, p. 90) elaborated that:

Although there is considerable agreement that development must be sustainable, there is now less agreement on what development should be and how 'it' might be achieved. ... Many people are expressing less interest in joining the 'modern project' and more interest in defining development locally and in terms of their own cultures. ... A dramatic rise of non-governmental organizations is partly due to the inability of national governments and international agencies to design and implement projects from capital cities. Some interesting symbioses have evolved between large central agencies and small, dispersed non-governmental organizations. ... Progressive scientists and resources managers have discovered that their knowledge is highly fragmented and not easily linked.

As long as reductionism and reliance on the *status quo* prevails, progress toward sustainable development is not possible. This is because reductionism presumes a physical/materialistic foundation and the divisibility of political, economic and social relationships. Furthermore, the tensions which maintain the overall system in institutional gridlock are inherently dislocational. In the absence of change in values, attitudes and emphasis, these tensions can only get more powerful. The situation invites a statement of vision, or a point of view, which can embody hope and optimism for resolution. Brundtland provided such a statement of vision in her description of sustainable development. The essence of the hope and optimism embodied in sustainable development is the belief that tensions within human civilization will indeed relax; that people will learn to embrace different values, resulting in new goals and objectives for societies; and that the ideal of progress will become the intermingling of economic, environmental and equity considerations into a quality of entrepreneurship which seeks to optimize all three (i.e. 'triple E entrepreneurship').

In brief, the crises faced by human civilization arise from the inter-relation of three conditions: first, rapidly increasing numbers of human beings, including the territorial, cultural and psychological collisions which ensue; second, rapidly increasing volumes of human activities which both consume natural resources and pollute the natural environment with household, community and industrial waste; and third, real physical constraints of the

earth. In the past, people have been able to cope with such problems by selecting and managing the boundaries of the problem (reductionism), relying on the inertia of the *status quo* with respect to money, finance, economics and the triumph of self-interest, and relying on the assumed unlimited bounty of the earth. Currently, simultaneous pressures of increasing numbers of people, increasing industrial and commercial activity, increasing environmental degradation and the physical constraints of the earth mitigate now to make it imperative to seek alternative solutions. Such solutions involve people changing the way they perceive, think and behave to include holistic approaches as a normal pursuit.

THE REQUIREMENT OF HOLISM

In reading *Our Common Future*, it quickly becomes evident that Brundtland's description of sustainable development is meant to apply to the whole interacting system of the world and all its parts, natural and human. If sustainable development is to be all-encompassing, it should apply, similarly, on a micro as well as a macro level. The Brundtland Report looks at widely-varying topics, such as economics, health, population, energy, industry, security, forestry, waste, debt, pollution, and social equity. Sustainable development involves dynamic equilibrium and harmony in the interdependent relationships among natural systems and human institutions at both global and local levels. Before sustainable development can be discerned for a particular community, the historical, economic, political and cultural aspects and the geographical and ecological aspects of that community must be perceived in relation to their own balance and harmony, and in relation to the balance and harmony of their larger and lesser contexts. In these very practical dimensions, sustainable development cannot be the same for all people, all places and all times. However, its essence must apply at all levels all the time. It is clearly holistic. This is challenging. It implies that the notion of sustainable development includes discontinuity in terms of application and continuity in terms of vision and, therefore, calls for an epistemological shift to include both reductionism and holism. The observation follows that sustainable development is a political vision which, rather than defining levels of detail, gives motivation, shape, substance and direction to both global and local society. It is necessary to consider reductionism and holism more

closely and the epistemological shift, which is implied in changing from reductionist to holistic approaches. What then follows are various insights which are helpful in developing approaches to holistic thinking with which to pursue sustainable development objectives.

Reductionism is a philosophical approach which asserts that entities of a given kind are collections or combinations of entities of a simpler or more basic kind, or that expressions denoting such entities are definable in terms of expressions denoting the more basic entities. Thus, the ideas that physical bodies are collections of atoms, or that thoughts are combinations of sense impressions, are forms of reductionism. (Britannica, 1980 vol. VIII, p. 466) Reductionism accepts that the whole of an entity is equivalent to the sum of its parts. Therefore, the whole may be sub-divided and further sub-divided and its parts classified and organized *ad infinitum*. Any part of the whole may be considered to be itself a whole for the purposes of inquiry, as long as it can be shown that no larger element of subdivision imposes undue influence with respect to the phenomena being studied.

Holism is a philosophical approach which asserts that living components (including people) and non-living components (the physical environment) function together as a whole according to well defined physical and biological laws. Also, fundamental to holism is an important generalization known as the 'theory of integrative levels', or the theory of hierarchical controls. By this it is meant that as components are added together to create larger functional units, additional attributes come into being which were not present or not evident from the behaviour of the components functioning separately. (Britannica, 1980, vol.6, p. 281) Holism accepts that the whole of an entity is greater than the sum of its parts (i.e. that there are relationship intangibles existing within the entity which cannot be measured, classified, predicted or reduced to constituent parts.) Glaeser (1988, p. 672) noted that:

It is necessary to distinguish between wholeness and totality. Wholeness, the whole, is a qualitative definition while totality, entirety, is a quantitative composition made up of a certain number of elements or parts. . . . that the whole is more than the sum of its parts must be understood qualitatively, not quantitatively. It means that the

relationships among the parts cannot be derived from laws which apply to individual parts but only from the whole. Underlying this principle is the consideration that cross-system inter-relations cannot be extrapolated and interpreted from partial areas.

Given these distinctions, a holistic approach is more appropriate to sustainable development than is a reductionist approach.

The Problem of Disconnectedness

The prime difference between a holistic and a reductionist approach is that the latter approach seeks to examine parts of a system and the former seeks to examine the system. Each has its place. The difficulty of disconnectedness arises when a whole system is treated with a reductionist approach. United States Vice-President Al Gore (1992, pp. 1, 2) described the problem succinctly:

The edifice of civilization has become astonishingly complex, but as it grows ever more elaborate, we feel increasingly distant from our roots in the earth. In one sense civilization, itself, has been on a journey from its foundations in the world of nature to an ever more contrived, controlled, and manufactured world of our own imitative, and sometimes arrogant, design. The price has been high. At some point in this journey we lost our feeling of connectedness to the rest of nature. We now dare to wonder: are we so unique and powerful as to be essentially separate from the earth? ... Thanks, in part, to the scientific revolution we organize our knowledge of the natural world into smaller and smaller segments and assume that the connections between these separate compartments are not really important. In our fascination with the parts of nature we forget to see the whole.

The disconnectedness which Gore describes between humans and natural systems is evident in the economic, social, educational, cultural and political institutions with which we organize, regulate, 'develop' and control our human environment. This problem of disconnectedness becomes particularly awkward in attempting to understand the implications of sustainable development with respect to its application at the local level. It seems to be practical to perceive human institutional systems as 'given', or generic, over particular geographic areas (e.g. a municipality, region, province or a country). However, when an area is defined within a larger area, (e.g. a province in a country or a city in a province), the fact of the subdivision renders each one related to, but separate from, the other by definition.

Changes, which may be effected with respect to the impacts of human activities on particular environments, will vary over time and space. Therefore, a definition of sustainable development, with respect to particular parameters, would have to vary for different times and different places, even though the sense of vision which sustainable development apprehends may be universal.

Holistic vs. Reductionist

The process of traditional scholarship is reductionist. Scholarship classifies knowledge and data, and sets up intellectual, definitional and disciplinary boundaries in order to articulate a problem and the process of its solution. It reduces problems and their solutions to manageable dimensions leaving 'unmanageable' aspects outside the examination. This leads directly to the question, "Is it possible to examine a holistic concept, such as sustainable development, with reductionist tools?" The nature of holism is such that boundaries are fuzzy, transparent or non-existent. It is not a linear cause and effect, or stimulus/response concept. Effects may be remote from causes. Stimuli and responses may appear related but not be directly connected. A holistic system is a seamless weave of interactions and influences. Tony Leighton (1992, p. 26) commented that:

Environmental improvement ... [sustainable] development ... cannot be neatly harnessed. Environmentalism is like the wind. No one owns it. It is borderless. It is unaffected by arbitrary fences erected inside the [food business] or any other business.

Conversely Wheatley (1992, p. 129) observed that:

In organizations we are very good at measuring activity. In fact, that is primarily what we do. [But there is] a futility of searching for ever finer measures of discrete parts of the system. There is never a satisfying end to this reductionist search; never an end point when we know everything there is to know about even one part of a system. When we study the individual parts, or try to understand the system through its quantities we get lost in a world we can never fully measure nor appreciate.

Redclift (1988, pp. 638, 639) suggested that a holistic approach is stronger than a reductionist approach and that the two are not compatible.

The strength of holistic approaches to the environment is that they regard the inter-relationship of environmental variables as of primary concern. They are explicitly anti-reductionist and attribute many of the problems of environmental degradation to the paradigm within which environmental 'problems' are understood. . . . Environmentalism rests on a set of assumptions, although these assumptions are rarely the subject of explicit discussions. The underlying belief is that there is an optimum balance of natural resource uses, which can combine [for example] sustainability in agriculture and forestry. The object of policy is to determine where this optimum is and to use the machinery of planning and political persuasion to help bring it about. Environmental conservation is not seen as a binding constraint on development, except in a few designated areas such as 'biosphere reserves'. Normally, conservation objectives can be incorporated in the development policy package. ... Environmentalism is heavily prescriptive and unanalytical. When the objectives are 'agreed' and evaluation confined to the means at our disposal, there is not much room left for an analysis of conflicting outcomes or the interests of different groups in these outcomes.

It would appear that reductionist research and holistic research are mutually exclusive, but complementary. Like breathing out and breathing in, both are essential to the other. Reductionist research deals with specific knowledge and relationships among some parts; holistic research considers overall knowledge and characteristics of a whole system.

Epistemological Shift

As noted above, inherent in sustainable development is a fundamental change in the way we perceive, understand and apply knowledge. Redclift and Pearce (1988, p. 597) suggested that sustainable development forces us to "re-examine traditional ways of thinking and enables us to transcend the rigidities of single [reductionist] disciplines like economics, ecology and human culture, (i.e. to make a fundamental change in both outlook and 'inlook')".

Such fundamental shifts are not unprecedented, but they are rare. Bennet and Dahlberg (1990, pp. 69, 70) identified five major transitions in the relationship between humans and their physical environment. The first transition was from subsistence foraging as simple family units to the gathering together into nomadic bands and villages to hunt and forage in

a directed and organized fashion. The second transition was from an organized nomadic way of life to a semi-sedentary way of life and the intensive exploitation of natural foods and products in a particular territory. The third transition was from exploitation of substances and products from nature to the raising of crops and the breeding and care of domestic animals (i.e. the agricultural revolution.) The fourth transition involved the rise of craft manufacturing and inter-community trade in response to population growth and the rise of the city. The fifth transition is based on the discovery and refinement of technological means to extract and concentrate raw materials and energy in vast quantities and to apply them in the manufacture of material and physical things. This is known as the Industrial Revolution in which, according to Bennet and Dahlberg, the world is still to be found.

Bennet and Dahlberg (1990, pp. 77, 78) further suggested that each of these transitions involved increases in technological control over resources, increasing change in social organization, increasing dominance of nature by humans over increasing geographic range, increasing complexity in the definition of resources, and increasing complexity and scope in social and institutional organization. Furthermore, the institutions and organizations which have evolved develop vested interests in their own survival and become increasingly rigid, unadaptive, resistant to new value systems and prone to error and collapse. The values of society, they say, serve ideological functions by protecting economic and intellectual interests. In contrast, utopian values and visions also challenge the *status quo* and its interests in the name of social justice, salvation, nationalism or revolution. Ironically, values that were utopian in the beginning of the industrial era have now become prevailing ideologies. It is, perhaps, necessary to the evolution of civilization to believe that values which currently appear to be utopian, and take a great struggle to get established, may become the mainstay of future economic and social organization. It follows that they will, themselves, be challenged by new utopias.

Wojciechowski, a philosopher of culture, suggested that there are only three major shifts in the fundamental human view of itself in relation to the universe . He stated (1978, pp. 6, 7)

that, since the beginning of philosophy and science in ancient Greece, three dominant images of humans and the universe can be distinguished: angelic, demiurgic and ecological.

The [angelic] was a Platonic-Aristotelian-Christian image. This image provided the notion of a universe which is a well ordered whole ... in which everything is determined to its natural end and has its definite place in the immutable hierarchy of beings. The consequence of the idea of the cosmos was the belief in the existence of :

- a) an immutable natural source of permanent, intelligible relations and an equally permanent natural law foundation of the moral order,
- b) the distinction between man and nature and the trans-worldly vocation of man,
- c) the distinction between contemplative and practical knowledge, with the former being radically more perfect, more befitting human nature and fulfilling more amply the vocation of man than the latter.

The rise of the demiurgic image coincides with, and is the symbol of, the modern era. It has been expressed most clearly by Francis Bacon (*imperium homini*– the rule of man over nature). The most important difference between the two images consists of this: the metaphysical dignity of the universe is diminished and that of man enhanced. Man becomes not only the most noble creature but also master of the universe.

Here Wojciechowski referred to the development and the widespread adoption of the Western industrial paradigm during the last three centuries. However, he observed that this demiurgic image was coming to its end and was being superseded by the ecological image of humans as integral in the universe. He continued:

In the last few years ... we have witnessed the development of the ecological image. Two kinds of events contribute to its rise: factual and conceptual. The first is the critical situation of mankind and the rapidly emerging certitude that if men will not alter their behaviour the human species is doomed. ... Less well advertised and more difficult to grasp but no less important is the ... emergence of new types of knowledge such as cybernetics, general systems theory and hierarchy theory. They provide conceptual tools for new, much more incisive analysis and increasingly more vast and nuanced synthesis than were possible before.

In contradistinction to the demiurgic image, the ecological image is non-reductionist, respectful of the hierarchy of modes of being and levels of organization which exist in nature. ... It views man in space and time considering the future as an integral, formative part of man's conscious present. ... [Man, the species] becomes the fundamental category for [thinking and planning]. The need for balance in the behaviour of individuals and societies has dethroned the ideal of man the conqueror

of nature and has replaced it with the much more subtle, complex and difficult ideal of man the seeker of a *modus vivendi* with fellow men and the environment.

The development of the impending planetary society will demand a multitude of decisions which will have to be made in the face of multiple choice situations involving complex value judgements. In contradistinction to the ideas of classical science, [and economics] futurology cannot aspire to be value free. It must be as value conscious and value oriented as possible. It may offer the individual and the whole of mankind a possibility of the realization of a higher level of humanization, or it may become not only a global village, but also a global gulag. We have the means of going in either direction. (p. 8)

Norgaard (1988, pp. 614, 615) suggested that part of this epistemological shift involves the demise of the idea of progress and the rise of the idea of sustainability, both of which are linked to changes in the understanding of knowledge and its accumulation. Not only are we experiencing a transition in our understanding of knowledge and values, he believed, but we are also experiencing a transition in our understanding of social organization. He suggested that there are six elements to these changes:

First, there is the problem of complexity. The laws of physics and chemistry may be universal, but the number of ways the parts and relations known to physicists and chemists can combine to form materials - to say nothing of biological organisms, let alone ecosystems and social systems - is infinite.

Second, natural and social systems are not only complex but the parts and the relations among them are constantly evolving.

Third, our understanding of knowledge and action has a nexus of problems associated with objectivity, consciousness, intentionality, and free will. People are not apart from nature or from their social systems.

Fourth, people do not perceive individually or know either the natural or the social world. Each of us perceives through the models we have inherited and through our social organization.

Fifth, learning is mostly a process of trial, error and selection. Deductive reasoning, hypothesizing, experimenting and testing play an important role, but the only real experiments and tests are conducted in practice.

Sixth, organizations learn and acquire knowledge which adds to more than the sum of the knowledge of the individuals in the organizations. Organizations make

decisions. Organizations make mistakes that encourage them to change their ways. And when organizations succeed, they grow and their ways of knowing expand in importance.

It is arguable as to whether or not the reductionist approach to knowledge is value free. The selection or rejection of research problems and the selection, classification and rejection of data involve value judgements which influence the outcome of research. However, what Wojciechowski and Norgaard point out is that in the past the scientific method has been perceived to be free of value judgements, and that in this new way of thinking and being, which is becoming symbolized by sustainable development, people are more willing to accept value-oriented and value-conscious decisions as normal.

Peritore (1993, p. 805) identified a key distinction in the treatment of values in what he refers to as a paradigm shift from the dominant social paradigm to a new environmental paradigm.

There is a substantial literature linking post industrial, post modern values to environmentalist attitude shifts in the developed world. Polls on the environment have been run in the US, Germany, the UK, Canada, the USSR, South Korea and Japan. Much of the resultant data show a shift from the Dominant Social Paradigm (DSP), which prioritizes hard-power industrial development over nature preservation and health risks, arguing that limits to growth can be overcome by technology and that a competitive, materialistic, market society managed by competing technocratic elites optimizes welfare. The shift is toward the New Environmental Paradigm (NEP) which stresses risk avoidance, generalized compassion for nature and future generations, limits to growth, and a simple, participatory lifestyle that requires planning and regulation of development.

Reid (1992, p. 151) actually referred to sustainable development itself as the new paradigm.

However, the most profound change in outlook has been the recent emergence of the paradigm of sustainable development. Rather than treating the environment as an externality, the concept of sustainable development implies the broadening of economic theory to incorporate the many values of natural resources. It entails a shift away from the assumption that trade-offs must be made between environmental and economic goals toward the assumption that environmental goals could be made compatible with economic goals by choosing the right course of development.

For Wojciechowski, Norgaard, Peritore, Reid and others (e.g. Callicott, 1985; Dunster, 1992), the impending change in how society treats values amounts to an epistemological shift in which sustainable development will become accepted and embraced. In a parallel process, existing values which have become so deeply ingrained that they are barely noticed will become exposed, be questioned, be found wanting in some respects and, therefore, be released in the overall complementing of reductionist with holistic processes.

THE MEANING OF SUSTAINABLE DEVELOPMENT

Brundtland's (1987, p. 8) description of sustainable development was simple:

“... sustainable development is the ability ... to meet the needs of the present without compromising the ability of future generations to meet their own needs.”

The concept, as described by Brundtland, has meaning. It spawned widespread activity, a vast literature, and the United Nations Conference on Environment and Development (UNCED), the largest gathering of heads-of-state and associated conferees in the entire history of human society. Furthermore, subsequent summits and global conferences have endorsed it. It has also spawned vigorous activity, at the local level, in many communities throughout Canada and the world (Stark, 1990; McLaren, 1992). In general, however, people do not perceive sustainable development as a holistic concept and have not developed holistic skills. Furthermore, most people are not rigorous in their reductionist thinking and analytical skills. Accordingly, understanding of sustainable development is elusive. Fortunately, the simplicity and universality of Brundtland's description appeals to politicians, bureaucrats, business and professional people, financiers and citizens, at all levels, as expressing their hope for tomorrow's world and belief that their hope is valid. It brings environment and social issues into the centre of consideration but it can not be limited by rigorous environmental or economic definition at a local level. So, what does sustainable development mean?

The meaning of sustainable development has been described by many. Brundtland's description of it is widely accepted but, for many people, sustainable development stubbornly resists clear definition. Early in the debate, Redclift (1987, p. 2) explored the contradictions of sustainable development.

Sustainable development seems assured of a place in the litany of development truisms, but to what extent does it express convergent, rather than divergent, intellectual traditions? The constant reference to sustainability as desirable objective has served to obscure the contradictions that development implies for the environment.

Sustainable development is often thought of as the environment/economic interface but Redclift noted that "whatever is the geographic location, sustainable development is socially constructed". He referred to environmental change as a social process inextricably linked to the expansion and contraction of the world economic system (Redclift 1987, p. 3). Redclift further claimed that 'development', in the context of sustainable development, was subject to redefinition.

At the same time, it is central to the argument that development must be subject to redefinition, since it is impossible for accumulation to take place within the global economic system we have inherited without unacceptable environmental costs.

Morita *et al* (1993, pp. 1, 2) reviewed 40 different definitions of sustainable development. They observed that, until the 1970s, most of the argument between environment and economy was conflicting. Conservationists took environmental conservation to have the opposite meaning to economic growth and insisted on the need for zero economic growth (i.e. to conserve the environment, economic growth must be stopped). They further observed that Brundtland included elimination of poverty and deprivation, and conservation and enhancement of resources, thereby broadening the concept to cover not only economic growth but also social and cultural development and the unification of economics and ecology in decision making at all levels.

In their review of definitions for sustainable development, Morita *et al* identified three types of definition. The first gives great importance to natural conditions; sustainable development

makes use of nature within the limits of natural regeneration rates and disposes of waste without exceeding ecosystem rates of assimilation. The second type of definition emphasizes equity among people, specifically future generations. The difficulty with this type of definition is in choosing an ethical system within which a standard of equity can be developed. The third type of definition emphasizes social justice and quality of life. It requires the promotion of values which encourage consumption levels to which all people can reasonably aspire. It identifies quality of life as the final goal of sustainable development (Morita *et al* 1993, pp. 2, 3).

One of the more elegant treatments of the meaning of sustainable development has been from Blowers (1993). He noted immediately its weakness and also its challenge:

Its vagueness encourages environmentalists, business people, politicians and consumers all to claim to be pursuing sustainable goals while failing to comprehend the conflicts and contradictions of their attitudes and actions.

Sustainable development is not something to be achieved on the margins as an add-on to current policies, but requires a revolutionary change in the way economies and societies are developed and managed. It's an integrating concept, bringing together local and global, short term and long term, and environment and development. It argues for the need for action NOW to defend the future. Continuation of current paths will eventually bring disaster in various forms. (Blowers *et al* 1993, p xi)

With respect to a definition of sustainable development, Blowers identified three elements of Brundtland's definition which require expansion: development, needs, and future generations. He proposed that the purpose of sustainable development is:

To promote development that enhances the natural and built environment in ways that are compatible with:

1. The requirement to conserve the stock of natural assets, wherever possible offsetting any unavoidable reduction by a compensating increase so that the total is left undiminished;
2. The need to avoid damaging the regenerative capacity of the world's natural ecosystems;
3. The need to achieve greater social equality;
4. The avoidance of the imposition of added costs or risks on succeeding generations (Blowers *et al* 1993, p. 6).

In summary, Blowers (1993, p. 18) believed that:

Sustainable development will require substantial changes in behaviour at every level, giving priority to such unfashionable ideas as planning, community and greater equality. Existing patterns of consumerism, private ownership, individualism and the free market are deeply-rooted in Western society and have spread far across the globe. Attempts to uproot them may seem hopelessly idealistic, but we are reaching the point where self-interest and common interest in survival are converging.

Regardless of one's approach or priority, the term sustainable development appears to be an oxymoron. It produces an effect which is an apparent contradiction. The *Random House Dictionary* gives the following meanings for 'develop', and 'sustain':

- DEVELOP** to bring out capabilities or possibilities of;
to bring to a more advanced state;
to cause to grow or expand;
to elaborate or expand in detail;
to bring into being or activity, to generate, to evolve;
to transfer details from one surface to another.
- SUSTAIN** to support, hold, bear up from below;
to endure without giving way or yielding;
to keep another from yielding under trial or affliction;
to keep up or keep going as in a conversation or a process;
to provide necessities for life;
to provide for by furnishing means or funds;
to uphold as valid or correct, to support by aid or approval;
to confirm or corroborate.

On the surface, development seems to embody the notion of change and growth while sustainability seems to embody the capacity to withstand change. This produces an unacceptable conundrum with respect to sustainable development. The economic, environmental and equity situations it seeks to address and redress are imperative. The course which the words appear to prescribe is impossible. Therefore, as a phrase, sustainable development appears to be oxymoronic. However, the phrase 'sustainable development', as described by Brundtland and others, implies a much greater meaning than is provided for in the meaning of the two separate words. Therefore, it is necessary not only to embrace the apparent contradiction, but also to search beyond the term itself for its greater meaning.

The Brundtland Report embraces the apparent contradiction of sustainable development and goes beyond it. At the same time that it calls for material economic development, particularly with respect to the increasing billions of Third World people who live in poverty, it also calls for maintaining the ecological capacity of the natural environment to sustain future generations. This necessarily implies a reduction in the environmental impacts of what economic development has become. But the Brundtland Report does more than that. It calls for a whole new understanding.

In its broadest sense the strategy for sustainable development aims to promote harmony among human beings and between humanity and nature. In the specific context of the development and environment crises of the 1980s, which current national and international political and economic institutions have not, and perhaps cannot, overcome the pursuit of sustainable development requires:

- * a political system that secures effective citizen participation in decision making;
- * an economic system that is able to generate surpluses and technical knowledge on a self-reliant and sustainable basis;
- * a social system that provides for solutions for the tensions arising from disharmonious development;
- * a production system that respects the obligation to preserve the ecological base for development;
- * a technological system that can search continuously for new solutions;
- * an international system that fosters sustainable patterns of trade and finance,
- * an administrative system that is flexible and has the capacity for self-correction.

These requirements are more in the nature of goals that should underlie national and international action on development. What matters is the sincerity with which these goals are pursued and the effectiveness with which departures from them are corrected. (WCED 1987, p. 65)

Many authors endorse the imperative that the world cannot survive 'business as usual'. Ehrlich and Ehrlich (1991, p. 7) presented a formula for the impact of human society on the natural environment: $I = PAT$ where (I) is the impact of development on the environment, (P) is the size of the population, (A) is the per capita affluence as measured by consumption and (T) is the damage done to the environment by the technology employed to supply each unit of consumption. The Western industrial approach tends to increase all elements of this equation. There is no capacity for correction. Rees (1993) calculated that citizens of the

developed world “require the productive output of four to six hectares of land per capita to maintain their lifestyle. However, at present population levels there are only 1.7 hectares of productive land per capita on earth. This means that industrialized countries appropriate a disproportionate share of the global carrying capacity, much of it through commercial trade, effectively pre-empting developing economies from using their fair share.” Rees further observed that accelerating trends of atmospheric change, ozone depletion and soil erosion suggest that the one quarter of humanity in the developed world has already appropriated the entire long-term carrying capacity of the ecosphere. The world cannot continue on a course of material/physical development on the basis of the traditional Western industrial approach. Such a development picture becomes impossible when we consider several billion people in China, India, South America and Africa.

The Problem of Context for Sustainable Development

A further problem concerns the locus of application of sustainable development. As one considers the meaning of sustainable development with respect to any specific context, it is important not to lose sight of its relevance to contexts which are greater or lesser than that specific context. For example, as one focuses on the sustainable development of a particular urban system, it is a challenge to maintain a focus on the relevance of sustainable development at the regional, national or global level on the one hand, or for the individual, family or immediate community on the other. This is a vexing problem. The objective is to understand sustainable development, not the sustainability of a specific aspect. However, it is difficult to examine generic questions concerning sustainable development in relation to particular communities, at a particular time, unless the holistic nature of the Brundtland description of sustainable development is accepted, together with changes in values and attitudes which will empower the pursuit of sustainable development. When these are accepted the examination must take place in the context of changing motivations within society, which is also very difficult.

DISCUSSION

The fact that the concept of sustainable development has evolved and the context within which it also has evolved suggests that human society is approaching the end of a predominantly materialistic era. Underpinning this materialistic era is the idea of progress which seems to have been predicated, at least until the present, on three main assumptions:

- * Humans can, and should, improve the lot of humanity;
- * Progress is materially based; and,
- * Progress can be achieved by the domination of, or at the expense of, nature which is abundant and unlimited.

These assumptions may have been reasonably valid in the dawning of the industrial revolution, over 300 years ago, and for much of the intervening period. During most of that time, world population was relatively stable, rising gradually from one billion people in the mid-1600s to two billion at the beginning of the 20th Century. Most people were living at a far lower standard of living than is presently the case in the Developed World. At the end of the 20th Century, world population will pass six billion, with an environmental impact unimagined in as short a time as two generations ago. There are differences between the Developed World and the Developing World in the nature of populations' impact on the environment as Ehrlich and Erhlich (1990) pointed out. In the Developing World it is primarily due to increasing numbers. In parts of the Developed World, the population numbers are decreasing but their technological impact on the environment is increasing. As Toma and Gheorghe pointed out above, society's assumptions may be out of synchronization with present reality. It may not be possible for humans to continue to improve the lot of all humanity, on a material basis. Furthermore, that progress is simply materially-based is open to question. With respect to the third assumption, it seems clear that progress must come, in co-operation with nature and with the understanding that although nature is abundant, it is not unlimited. To do nothing to change values and attitudes, which underlie people's ideals of progress, is not an acceptable option. The notion of progress must change.

Humanity is in an era in which the evolution of self, and community, has been measured in material terms. Sheer numbers are changing that. Since resources are concrete and finite, people can only develop materialistically at the expense of nature and/or other people. Since some natural resources are renewable, materialistic development can only continue indefinitely if its impact on the resource base is less than the resources' capacity to replenish themselves. Spiritual, intellectual and psychological richness is the best way to develop by contributing to, rather than depleting, other people's, or nature's richness. The ultimate extent of natural and built wealth is limited by energy, physical and material resources. Intellectual, psychological and spiritual resources are unlimited within the context of our present understanding of the human condition. To create wealth is human. People will continue to create wealth and they will continue to spend money by way of exchanging wealth. The sustainable development crises should force humans to change their emphasis from natural and materialistic wealth to intellectual, psycho-spiritual wealth. This change in emphasis must inexorably happen assuming basic needs are met.

Sustainable development can only exist in an era of intellectual, psycho-spiritual 'goods and services'. This is an interpretation of sustainable development which is not oxymoronic. The difference between materialistic sustainable development and intellectual psycho-spiritual sustainable development must be stressed. The first is impossible; the second is desirable. The first is impossible because the capacity for material goods is finite and they are produced at the expense of nature. The second is desirable because humans need to evolve and the capacity for intellectual, knowledge-based goods and services is infinite; they need not deplete the natural environment beyond its capacity to recover and they do not pollute the natural environment. One hard reality, if Rees and other scientists are correct, is that sustainable development requires a significant reduction in the impact of developed nations' lifestyle on the global environment, in order that nations in the Third World can survive. A second hard reality is that intellectual psycho-spiritual development which will provide for the first hard reality is dependent on changes in values and attitudes that inform individual's and societies' decision-making processes and direct their questioning.

Sustainable development is valid only if the development part is based on intellectual, psycho-spiritual development and the sustainable part is based on the physical and material relationship between humans and the natural environment, and both are informed by change in human values described below in Table 1.

REFLECTION

In this chapter we have examined and accepted three assertions: first, that the world is facing environmental, economic and social equity crises; second, that there is a central need for change in values and attitudes ; and, third, that the most important fora in which to achieve sustainable development is in the voting and consuming marketplace of First World cities. We have also examined the origins of sustainable development in the three development themes of economic development, environmentalism and social equity and have recognized entrepreneurship as a prime motivator of change in all three, which both keeps them apart in their individual and competitive pursuits, and draws them together into interdependent and co-operative challenges, keeping them in a dynamic equilibrium of institutional gridlock. Furthermore, the requirement of holism, which is inherent in the concept of sustainable development, was examined. The difference between holistic and reductionist approaches was explored and it was concluded that sustainable development is, in fact, a fundamental shift in the way people at all levels of society perceive, understand and apply knowledge.

It is useful to consider briefly what scope the phrase 'at all levels of society' might imply beyond the obvious 'political levels.' Sustainable development is a very young concept which does not yet have a historical tradition. It is both broadly applicable at macro levels of society and applicable in detail at micro levels of society. Therefore it is reasonable to hypothesize that age, level of education, income, gender, geographic location vocation and professional orientation may all influence people's values with respect to sustainable development. Margai (1997), McHugh and Mings (1996), Scott and Willits (1994) and Golant (1984) all found that age was a factor with respect to peoples values concerning the environment. With respect to level of education, Berger (1997), Vogel (1996) and Scott and

Willits (1994) found that environmental behaviour was influenced by education. Berger (1997), Margai (1997), Bowen *et al* (1995) and Scott and Willits (1994) all found that income had an influence upon environmental attitudes and behaviour. Lawton, Charleston and Zieles (1996), Davidson and Freudenberg (1996), Flynn (1994) and Scott and Willits (1994) all found differences in patterns of environmental concern with respect to gender. Berger (1997), Margai, (1997) and Patchell (1996) observed influences on environmental attitudes caused by geographic proximity or location and several authors noted the influence of vocation, sector or professional orientation on environmental attitudes; Kemp (1996) regarding the general public, Hardwick (1994) regarding professional orientation, Shultz and Stone (1994) regarding vocation and Sherhorn (1993) regarding business.

Sustainable development is not just an intriguing statement of 22 commissioners in a United Nations report. It has been hailed as visionary and has received widespread endorsement at all levels of society. It suggests a process whereby human civilization acknowledges, at all levels from the individual to the global, that the principles by which it renews and perpetuates itself have been discovered to be inadequate and are, therefore, under review. And it is a concept which necessarily increases in complexity as more and more problems come within its purview. It embraces multiplicity. It is not definable in the normal sense of a scholarly definition. Rather, it is a description of political vision about holistic relationships, which will dominate human society in the future. It describes a global society which is learning to recognize itself as a whole and as an amalgam of its sectoral, geographic and cultural parts, which must learn to live in equilibrium with each other, with their natural environment and their future. To be comprehensively meaningful, sustainable development must also be operational at all levels, especially at the local level.

In summary, to achieve operational relevance of sustainable development, at all levels of society, humans must consider changes in the values which underlie the decision-making processes that define their society. This is the core meaning of sustainable development.

Furthermore, particular attention should be paid to what these changes should be from and what they should be towards. McCluney (1994, p. 14) stated:

Individual and societal behaviour is guided, to a great extent, by the values and belief systems that underlie that behaviour. If we are to change our behaviour then we must also change our values. Albert Einstein (1946, p. 376) once wrote that “a new type of thinking is essential if mankind is to survive and move toward higher levels”. Einstein was speaking of the threat of nuclear disaster but his remarks apply equally well to the current threat of environmental destruction. He began his statement with the words: “Our world faces a crisis as yet unperceived by those possessing power to make decisions for good or evil. The unleashed power of the atom has changed everything save our modes of thinking, and we thus drift towards unparalleled catastrophe” Translating Einstein’s cry of alarm to the current crisis, it is clear that if we are to achieve global behaviour changes and make them lasting, then we must develop a whole new set of values, and a new type of thinking more appropriate for our current environmental situation. This, then, leads to an assessment of the predominant values that affect our environmentally significant behaviour.

As McCluney indicates, the next step is to evaluate what the underlying values of present society are, and envision what the underlying values of sustainable development should be, and to place such a value change in both a local and a global context.

Chapter Three:
Envisioning Change in Society

INTRODUCTION

The process of the Brundtland Commission involved two essential aspects, both in keeping with its mandate. The first was to describe the reality of critical environmental and development issues that beset the world. The second was to make proposals for dealing with the crises by envisioning a different future. The Brundtland Report was written from a global perspective and described ecology and economy as being a seamless web of causes and effects (Brundtland, 1987 p. 5). This was entirely appropriate since its mandate was from, and its report was to, the General Assembly of the United Nations which sought to develop a global perspective. However, the Report also noted that the challenges it identified were equally operative at the local, regional, national and international levels (Brundtland 1987, p. 5). In this chapter, some intellectual origins of bi-polar ideological descriptions of society are reviewed, the values that give strength, resilience and form to the unacceptable present are examined and the values upon which sustainable development may be proclaimed, as a more desirable future, are envisioned. These proposed value changes are organized into a table for easy reference. The chapter then describes other survey results which support the ideals of sustainable development.

This process of evaluating the present and envisioning a substantially different and more desirable future has become an informal pattern in many different venues in the pursuit of sustainable development. In keeping with Brundtland's observation that the challenges are local, regional, national and international, the process of envisioning in various other venues is reviewed, including the Region of Waterloo, Ontario, the City of Hamilton, Ontario, the urban-centred area of London, Ontario, and the City of Nanaimo, BC on a local/regional scale. On an international scale, the Earth Summit in Rio, the Social Summit in Copenhagen, a World Bank conference in Washington, DC, the Cities' Summit in Istanbul, and the Earth

Summit+5 Conference at the UN in New York are also reviewed all in relation to Table 1 and the change in values implicit in sustainable development.

BI-POLAR DESCRIPTIONS OF SOCIETY

The concept of sustainable development implies a bi-polar description of society, i.e., an existing unsustainable present and a hoped for sustainable future. Various authors, (for example, O’Riordan (1977); Barbier (1987, 1989); Jacobs, Gardner and Munro (1987); Dasgupta (1988), Gardner and Roseland (1989); Gale (1990), Kuhn, 1992)) have provided bi-polar descriptions of society. Some of them investigated the origins and meaning of sustainable development in relation to bi-polar or multi-polar social attitudes, but do not elucidate a transition of values from one to another. In this section some bi-polar descriptions of society are reviewed. In the next section, the bi-polar nature of sustainable development, as an inherent change in values, is examined.

Historical Synopsis

There is a long tradition of describing society as having various bi-polar attributes. Dasgupta (1988) described society as a rural/urban continuum in which the emphasis gradually (rapidly in the latter part of the twentieth century) changed from rural to urban. He observed (p. 18) that a “significant element of rural social change in Canada is the migration of rural people to urban centres in large numbers. . . . The rural out migration has profoundly affected the rural [and urban] social structure and institutions.” His work concerned primarily Canadian society. However, he also provided a more generic and synoptic historical sketch of bi-polar descriptions of society, including theoretical constructs by Tonnies (1887), Durkheim (1893), Cooley (1909), Wirth (1938), Redfield (1947), Becker (1950). For example,

Tonnies maintained that social relationships rest on either of two opposite principles: natural will or rational will. In *Gemeinschaft* societies, where the natural will predominates, social relationships are based on understanding, unity and sentiment. Obligations between persons are diffuse; means and ends are not clearly distinguished; and social control is informal, being guided by deeply internalized attitudes of love, and respect. Rational will takes precedence in *Gesellschaft*

societies where social relationships are based on rationality and deliberate calculation of the appropriateness of means to ends (Dasgupta 1988, p. 4).

Redfield (1947) and Wirth (1938) both described a rural/urban dichotomy, although their individual work does not appear to be related. Redfield identified a folk/urban continuum, although he did not describe the urban end of the continuum in any detail, observing only that it was the polar antithesis of the folk society. Wirth, on the other hand, described the urban society in great detail but only acknowledged folk society as fundamentally different.

Redfield's folk society is a small, isolated, nonliterate and homogeneous grouping of people with a strong sense of solidarity. The technology of the folk society is simple with no basis of division of labour except sex which makes the group economically independent of other groups. The ways of living are conventionalized into a coherent system, i.e., a culture. Behaviour among members is traditional, spontaneous, uncritical, and personal, and there is no legislation of habit of motivation for experimentation or reflection. Kinship is central to all experience with the family being the unit of action (Dasgupta 1998, p. 8).

Wirth suggested that the social characteristics of the urban life derive from its large size and high density of its population, and from its social heterogeneity. Secondary rather than primary group relations predominate in the urban society which results in anonymity, and in impersonal, transitory, superficial and utilitarian social contacts. Because of high division of labour and a greater interdependence of specialists, a ramified and sharpened, although more flexible and mobile, system of social stratification based on income and social status comes into existence. Symbols and stereotypes become important because of lack of personal acquaintance and people become involuntarily segregated by race, language, income and class groups. Kinship bonds become weakened and the social significance of the family declines contributing to the loss of traditional bases of solidarity (Dasgupta 1988, p. 9).

Becker (1950) believed that an important bi-polar distinction in society was between sacred and secular characteristics.

The fundamental distinction between Becker's "sacred" and "secular" societal types is that in the former tradition and ritual play a large part in an individual's life while in the latter the influence of tradition and ritual is minimal, and rationality and science are pervasively dominant. The geographic, social, and mental isolation of the people in a sacred society gives rise to the fixation of habit and neophobia, relations of avoidance and traditional in-group / out-group attitudes. . . . The secular society, on the other hand, is accessible in geographic, social and mental terms which

makes habit fixation difficult. Change and progress are idealized and innovation is frequent in these societies (Dasgupta 1988, p. 6).

Bender (1975) suggested that urbanization of rural society has become definitive.

The technological development in agriculture as well as increased contact with industrial cities, movement of people from rural communities to urban centres, and spread of urban beliefs and values due to improved means of transportation and communications have radically transformed rural Canada in recent decades. The transformation has been so dramatic and the urban influence so pervasive, not only in Canada but also in most industrial societies in the western world, that some scholars have proclaimed the extinction of rural society or at least of any meaningful distinction between urban and rural society (Bender, 1975, p.185 in Dasgupta, 1988, p.18).

Although the various bi-polar descriptions of society inherently recognize differences in values, few articulate such differences as part of their description, or identify a transition of values as part of the process of societal change from the characteristics of one pole toward the characteristics of another.

Such descriptions are primarily retrospective. Sustainable development is different in that one of the states described, i.e., the status quo, is retrospective while the other, i.e., a vision of the future which can be hoped for, can be described as prospective, intuitive or emergent. As such, the future state does not yet have characteristics except in the imagination. Therefore a transition in values becomes important since it will be prescriptive of the future.

Environmentalism As a Response to Urbanization

A pervasive response to the urbanization of society has been the rise of environmentalism, which was a precursor of sustainable development. O'Riordan (1977, p. 3) observed that environmentalism is in essence an ideology, which he defined as "the systematic and logical structure of thinking that is so embedded in a person's mind as to be self-evident." He also noted that, "the greatest weakness of environmentalism is its inherent ideological contradictions." O'Riordan identified two competing environmental ideologies which he called Ecocentrism and Technocentrism. He suggested that ecocentrism is composed of two

major themes, 'bio-ethics' and the 'self-reliant community' both of which have their origins in transcendentalist philosophy of 19th Century America.

The ecocentrist believes that nature is not only essential to man's livelihood, but it is the fundamental medium through which people understand their own personalities, their social functions and the pattern of human relationships. . . . To the ecocentrist, the denial of natural settings (whether by urban-bound existence or because of a proposed [major] development) is the denial of meaning and existence, and is [therefore] utterly unacceptable [i.e., unethical] regardless of political or social consequences (O'Riordan 1977, p. 4).

The self-reliant community theme . . . owes its modern interpretation to transcendental philosophy. . . . Observing the intricate symbolic relationship between animals and plants in tiny ecological niches, the transcendentalists concluded that here was a model for man: the 'human-scale' self-reliant community connected to, but not dependent on, thousands like it scattered across the face of the land (O'Riordan 1977, p. 5).

Technocentrism is associated with professional and managerial elitism, scientific rationality and optimism. It is utilitarian to the core: the Benthamite triad of 'the greatest good to the greatest number of people for the longest time' dominated the early conservation ethos despite its senseless logic. The initial advocates were pragmatic, expansionist, and quite conceited about their own abilities (O'Riordan 1977, p. 6).

O'Riordan suggested that ecocentrism and technocentrism appear to be contradictory philosophies but in reality, they are similar because they tend to produce similar results in society.

On the face of things technocentrism and ecocentrism appear to be diametrically opposed philosophies. The technocentrist is seen to be arrogant, interventionist, blindly euphoric about mankind's power of reason, intelligence and organizational discipline to solve any problem, concerned with means rather than ends, eschewing most moral principles and uneasy about direct citizen participation in environmental policy making. The ecocentrist sees man as part of a natural scheme of things, who believes that man should minimize his interference with natural processes, who is imbued with a deep emotional attachment to the land and who seeks the ultimate in participatory democracy. But on closer examination the two ideologies are not really so different, for similar charges can be levelled at both groups, namely the separation of intellectual ideals from political reality to the point where their actions may worsen the circumstances they seek to improve (O'Riordan 1977, p. 7).

O’Riordan did not advocate one ideology over another but sought only to compare them. He produced a comparative table, reproduced in Figure 3, and further identified ‘ideological cross-currents’ of environmentalism, described and reproduced in Figure 4.

Figure 3, Major Features of the Two Environmental Ideologies.
(From O’Riordan, 1977 p. 4)

Environmental Ideologies		
	Ecocentric	Technocentric
Bioethic	Self-reliant Community	Professional Expertise
Indispensability of nature	Communal self-sufficiency	Rational, objective, efficient
Natural ‘Rights’	Participatory democracy	Arrogant and elitist
Natural ‘morality’	Small-scale organization	Objective and interventionist

Figure 4, Ideological Crosscurrents of Environmentalism
(From O’Riordan, 1977 p.11, also based on Burger, 1974, p.244)

	Technocentrist	Ecocentrist
Conservative	The morality of growth technological optimists managerial optimists political optimists	The morality of limits lifeboat ethics the no-growth school the ecological planners amenity protectionists
Liberal	The cautious reformers social democrats the ‘material balance’ economic school the ‘spaceship earth’ ideologues	Radical ecological activists environmental educators research arms of environmentalist lobbies environmental citizens

Sustainable Development As the Next Step

Gale (1990) sought to build on O’Riordan’s and other scholars’ work, and to discern a clearer understanding of sustainable development. He observed that O’Riordan’s work did not consider ‘development’ as part of environmentalism, but suggested that when O’Riordan’s crosscurrents were considered in relation to development planning, four environmental ideologies could actually be discerned in society. Gale stated (1990, p. 27)

While the term ‘development’ is not used in O’Riordan’s analysis, the distinction he draws is based on a typology of four environmentalist ideologies which clearly articulate attitudes toward development planning. The four views distinguish cornucopians and accommodators, who embrace a technocentric approach to development planning on the one hand, from self-reliant/soft technologists, and deep ecologists on the other hand, who support ecocentric development planning. O’Riordan argues that environmentalism seeks to mediate value conflicts between these opposing ideological views. . . . Technocentrism,

. . . above all accepts the status quo of political and economic power together with all its trappings of democracy [such as] independently minded legislatures, commissions of inquiry, public hearings [and] established project assessment techniques (O’Riordan, 1981 p. 376).

Ecocentrism represents

. . . a radical vision of human destiny involving quite novel political and economic structures together with major redistributions of power and resources. The ecocentrist argues that no matter how much he accommodates, the technocentrist cannot create a sustainable pattern of global living (O’Riordan, 1981 p. 377).

Gale (1990) recognized that the concept of sustainable development was pushing the boundaries of a traditionalist understanding of development.

While the holistic development of the sustainable development concept is a strength in many regards, it is problematic in so far as our analytic traditions make it difficult to assess the concept in synthetic terms. . . . Analytic approaches, however, support an increasingly diverse literature having special ecological, economic, or social themes. Some themes focus on ecologically sustainable development, emphasizing ecological and biophysical aspects of development (Clark and Munn, 1986). Other themes refer to economically sustainable development and promote economic factors and methods (Barbier, 1987, 1989; National Task Force, 1987). A third set of themes concerns sustainable social development, i.e., social issues affecting community development and livelihoods, democracy, cultural diversity, institutions

and public participation in decision making (Jacobs, Gardner and Munro, 1987; Gardner and Roseland, 1989). . . . The focus for integration may be variously scientific, economic or social, or any combination thereof (Gale, 1990 p. 36).

To develop a further understanding of sustainable development, Gale used the work of Barbier (1987, 1989) Jacobs, Gardner and Munro (1987), Gardner and Roseland (1989) to produce a table of constructs, goals and principles for sustainable development, reproduced as Figure 5.

Figure 5, Constructs, Goals and Principles of Sustainable Development
(From Gale, 1990 p. 45)

Constructs of Sustainable Development	Goals of Sustainable Development (After Barbier, 1987)	Principles for Sustainable Development (After Gardner, 1989)
Economic	Economic System Goals * satisfying basic needs * equity-enhancing * increasing useful goods And services	Satisfaction of Human Needs Principles * quality of life and security of livelihood * development as qualitative change * development for meeting a range of human needs * organizational responsiveness to Societal change
Environmental	Biological System Goals * genetic diversity * resilience * biological productivity	Maintenance of Environmental Integrity Principles * ecological processes and genetic diversity * awareness of ecosystem requirements * maintenance, enhancement of ecosystems * ecological principles guide decision-making
Social	Social System Goals * cultural diversity * institutional sustainability * participation	Achieving Equity and Social Justice Principles * equitable access to resources, costs and benefits * equity and justice within and between generations * avoid ecological limits and associated inequities * democratic political decision-making Provision for Social Self-Determination and Cultural Diversity Principles * individual development and fulfilment, Self-reliance * endogenous technology and ideas * culturally appropriate development * decision-making locally initiated

Gale (1990) did not investigate the process of sustainable development but he did (p.46) observe that sustainable development poses enormous challenges for development planning and decision making. He further acknowledged that his research was designed to ascertain the degree of congruence between sustainable development and public sentiment on development planning in Canada. To do so, based on the work described above, he developed four classes of public attitudes, based on peoples' ideological views toward sustainable development which he called Cornucopian, Social Meliorist, Environmental Meliorist, and Rational Ecologist.

Cornucopians define development in terms of economic growth. They believe in the primacy of technology, and the centrality of the marketplace (or central planning) in national decision making. Critics associate their view with the externalization of costs and the detrimental human domination of nature.

Social meliorists are more socially progressive than cornucopians. They are concerned with meeting basic human needs for employment, income security, equity and social justice in economic development planning. They are not, however, explicitly concerned with environmental issues.

In contrast, Environmental Meliorists are explicitly concerned with environmental considerations. They seek improvements in environmental quality and resource management, but ignore other pressing economic and social considerations.

Rational Ecologists seek a developmental planning process which integrates economic, social and environmental considerations. They are concerned with meeting basic human needs, ecological sustainability, equity and social justice and more grass roots involvement in decision making. By definition they are supportive of sustainable development (Gale 1990, p. 74).

Gale's work examined the public strength of these four ideological points of view with respect to sustainable development as reflected by intervenors to the Macdonald Royal Commission on the Economy of Canada. Gale concluded that:

1. The attitudes of the vast majority of the intervenors (89%) were primarily concerned with economic and social policy fields and were thus supportive of the Cornucopian and Socially Melioristic approaches to development planning;
2. Eleven percent of intervenors supported the concept of integrating an environmental construct in development planning. This support came from environmental groups, religious agencies, academics and the general public;

3. Apart from environmental groups, the diffuse nature of Ecocentric support allowed the commission to avoid difficult questions about traditional approaches to development planning and, accordingly, to ignore ecologically rational approaches to development;
4. The 'business as usual' economic growth approach to development adopted by the commission required that environmental concerns be ignored or treated as separate problems best solved by tougher environmental regulations;
5. The research demonstrated that adherence to the dominant social paradigm is related to lower levels of support for better environmental protection; and
6. The research suggested that to bring about the changes envisioned by the Brundtland commission may depend on a political constituency for sustainable development (Gale, 1990 pp 217, 218).

Gale also observed, and questioned, as a further element to his conclusions that,

A philosophical examination of the sustainable development concept is also required. Is the concept more than just a critique which incorporates environmental, social, economic and political objections to unrestrained industrial growth? Is there a philosophical basis to the concept, one which provides unity and consistency in policy deliberations on development planning? Is there, within sustainable development, the basis to eliminate the determinism inherent in the industrial system, a basis by which to address ecosystemic balance as a central tenet of public policy and private action? (Gale 1990, p. 223)

Some answers to Gale's questions are provided by this research.

Kuhn (1992) examined policy scenarios in relation to Canadian energy futures in relation to public preferences. In so doing he acknowledged the importance of the role of values in society in determining future choices.

The development and use of energy, and hence energy policy, have wide ranging impacts on all facets of society.

Energy policy is deeply connected to our social policies, to the style and quality of life we enjoy and hence to our culture, and to the ways we think of ourselves as a people. Energy policy is, therefore, a fundamental social policy (Hooker et al. 1981 p. 84).

Viewed in this contest, the choice of energy strategy reflects and contributes to the fundamental values and attitudes held by society at large (Kuhn 1992, p. 351).

Kuhn (1992) observed that the most innovative development in terms of the measurement of environmental attitudes was made by Dunlap and Van Liere (1978, 1984) who measured attitudes in terms of 'world view.' Kuhn suggested that the use of this concept allowed for the identification of a set of related attitudes and thus represented a more realistic and reliable interpretation of people's relative position toward environmental issues than had been provided in other research.

The measurement of attitudes as world views requires the identification and definition of two positions, which Dunlap and Van Liere coined in terms of 'dominant social paradigm (DSP) and 'new environmental paradigm (NEP). Generally the DSP characterizes the major cultural values and attitudes held by Western society at large [such as] the consequences of growth and technology, the relationship between human kind and the environment, the quality of life, and limits to the biosphere. . . . The NEP is less easy to characterize, largely because it has not yet become a reality, or it is still in the process of formation. . . . Usually it is couched in terms of anti-DSP attitudes and values and embraces the concepts of 'limits to growth,' 'steady state' and more recently, 'sustainable development' (Kuhn 1992, p.352).

Kuhn presented his world views, based on the work of Dunlap and Van Liere, (1978, 1984), Routley (1983) and Kuhn and Jackson (1989) in a table of competing world views shown in Figure 6.

Dasgupta, O'Riordan, Gale, Kuhn and others have acknowledged, studied and described with rigour various different ideologies relevant to sustainable development, but they have not proposed that there should be a process of change from one set of underlying values toward a different set of underlying values in order to bring about the realization of desired change. In general, these scholars have not preferred one ideology or world view over another. Rather they appear to acknowledge the forces of change as being in the economic, political, cultural, environmental and social domains. Sustainable development embraces all these domains. This research seeks to clarify the changes in values inherent in sustainable development and to operationalize it.

Figure 6, Major Characteristics of Competing Western World Views

(From Kuhn 1992, p352)

	Dominant Social World View	New Environmental World View
Humankind and nature	Domination of nature Natural environment Valued as a resource	Harmony with nature Natural environment Intrinsically valued
Growth and technology	Continual economic growth Market forces Supply orientation Confidence in science and technology	Sustainable development Public interest Demand orientation Limits to science
Quality of Life	Centralized Large scale Authoritative (experts influential) Increased material consumption	Decentralized Small scale Participative (citizen involvement) Decreased material consumption
Limits to the biosphere	Unlimited resources Non-renewable resources No limits to growth	Limits to resource extraction Renewable resources Limits to growth

THE ARGUMENT FOR CHANGE IN VALUES

Inherent in sustainable development is the recognition of the need for reconsideration of values that underlie current environmental, economic and social behaviour. Much of what used to be regarded as acceptable behaviour is being questioned and recognized as no longer acceptable. What used to be regarded as a multitude of separate societies is now becoming recognized as a seamless global web of interdependent cultures. Human civilization has entered a period of transition concerning the integration of economic development, environmental stewardship and social equity. It is a period of evolving awareness of society's impact, individual and cumulative, on other living and inanimate systems. Consequently, the realization is becoming common that society faces difficult choices for everyone with respect to integration and trade-offs among economic, environmental and

social issues. Many scholars have agreed with the Brundtland Report that, if society is to resolve potential crises, there have to be changes in the values and attitudes which motivate and shape society (e.g. Lowenthal, 1990; Lerner, 1991; Theobald, 1992; Elliott, 1993).

Harmon (1995, p. 6) is quite pointed about the need for change in values. He stated:

We can talk about sustainable development, but the deeper we pursue it the more we must examine the operating values of our institutions. We have gotten to the point in history at which we have to ask, is it reasonable for a society to be dominated by the values of its business and financial institutions? If, somehow, we were able to carry out all the measures that point in the direction of sustainable development, it would still not bring us a sustainable system because we are still largely dealing with the symptoms of the problem - the assumptions that underlie the whole thrust of modern civilization.

As Harmon implies, in the absence of change in values people tend to accept the inertia and momentum of society along with current norms of rights and responsibilities, values, attitudes and their related behaviours and practices. Therefore, in the light of growing awareness of environmental, economic and social equity problems, there is a tendency to try diligently to do things better in order to resolve the grave problems the world faces. Definitely, there is benefit to doing things better, or as the current adage has it, 'to work smarter'. However, if societies' prevailing norms and practices continue to be accepted as the way to do things, together with the values which underlie them, greater effectiveness and efficiency will do little to resolve impending crises, and may even compound them. In fact, effectiveness and efficiency (i.e. the selection of intellectual and physical boundaries and the mechanics of cross boundary flows of information, money, physical materials and processes of analysis) are not the real problem. Such processes must be optimized for whatever system of organization and management prevails. The problem has to do with the choices which people and institutions of society make and the reasons for making them. In other words, the problem has to do with the underlying set of values which inform and direct decision-making processes. In order to change direction, society must change its values (Brown, 1981; Gordon and Suzuki 1990; Kealey, 1990; Brown *et al*, 1991; Blowers, 1993; Morita *et al*, 1993; Tiffen, 1995). Within the notion of sustainable development resides the

realization that the current deeply held values and attitudes of society must change. (Brundtland, 1987; Kidder, 1987; Baker, 1989; Bennet and Dahlberg, 1990; IUCN, 1991; Maio and Olson, 1994)

CHANGES IN VALUES: SPECIFIC IDEALS

Changes in values do not happen singly or easily. Values, and related attitudes, operate in inter-related sets, networks and contexts to produce the institutions of society. White (1993, p. 68) described how changes occur as values influence interaction and produce what he calls 'styles' or attitudes.

Within each discipline [or] within an identity, the set of values may be only implicit. Social pressure within the discipline is intense and interlocked enough to establish a dominant ordering without articulation of values. Values actively reach out and maintain social ties and their networks, through accountings that inter-connect actors and provide the bases for institutions and thus styles [i.e. attitudes].

White went on to describe the attributes of 'style' and their operation in networks and in the formation of institutions.

Values that are players within a style need not cause what is happening, but the package of values is a medium sufficient for accounting for what happens. ... The style that drives those actions, by invoking a fixed set of values in accounting thereof, induces the perception of regularity. ... Networks presuppose a set of values. Identities make use of values to manoeuvre, but of course they can do so effectively only as other actors at least know what they are signalling. Individuals watch one another within disciplines and social networks and [internalize] patterns in how to manoeuvre within, and by using, the package of values. Thereby individuals acquire style as they jointly reproduce an institution through their mutually patterned actions.

A second main point of style is how it stitches together concrete with abstract, cultural with social, value dimensions with social networks. Style does not settle tactics or manoeuvres, but it does shape and constrain them. Network and dimension weave into larger infrastructure as institutions that shape style *via* stories, and other symbolic accountings. Such [forming of institutions] occurs only with difficulty and infrequently, but once accomplished, it resists change. (White 1993, pp. 69, 70)

Sustainable development involves progress toward dynamic equilibrium in the inter-dependent relationships among natural systems and human institutions at both the global and

the local level. Furthermore, the ideal of progress must change from one that is based on the improvement of materialistic status to one that is based on the quality of people's relationship with each other and the natural environment assuming basic needs are met. It is helpful to think of sustainable development as a set of values which are forming into new institutions of society and which are challenging old institutions of society. It would be an acceptable, although unmanageable, reductionist procedure to identify and examine the historical evolution and composition of a set of principal values which have prevailed in Western Industrial Society, develop cause-and-effect arguments for a different set of principal values designed to resolve crises and propose a process of evolutionary change from one to the other. However, as Wheatley (1992, pp. 129) pointed out,

There is never a satisfying end to this reductionist search; never an end point when we finally know everything there is to know about even one part of a system. When we study the individual parts, or try to understand the system through its quantities we get lost in a world we can never fully measure nor appreciate.

Instead, this research adopts a holistic approach. Through wide-ranging reading of the literature that describes and discusses the meaning, scope and background of sustainable development, this research sought to discern the key aspects of change in values associated with sustainable development, even if these changes are implicit rather than explicit. Taken all together, these can be distilled into the need for change in five inter-related areas of values which underlie people's and organizations' decision-making processes:

The need for change:

1. From self interest towards common interest;
2. In relationships with the natural environment;
3. In relationships with each other;
4. From rights towards responsibilities; and
5. In the notion of progress.

Serageldin (1994, p. 1) Vice President, Environmentally Sustainable Development of the World Bank, seems to agree. He wrote in a staff paper¹:

¹Items in square brackets refer to areas of change above.

As the Earth Summit came to a close, its message to the world was clear: without better environmental stewardship, development will be undermined [area 2]; and without accelerated development in poor countries, environmental policies will fail [area 3]. ... Rio was a signal to the world that after decades of pitting environmental quality against economic growth, policy makers are finally becoming aware of the crucial and potentially positive link between the two [areas 2, 3 and 5 indirectly]. Humanity must learn to live within the limitations of the physical environment as both a provider of inputs and a "sink" for waste [area 2]. We must recognize that even if environmental degradation [as a result of economic development] does not reach life-threatening levels, it can result in a significant decline in the quality of the world we live in [area 5, indirectly]. We must face our responsibilities to other species and the need to protect biodiversity [area 4]. We must find a way to enable all people, now and in the future, to enjoy clean water, clean air, and fertile soils [area 1].

From Self-Interest Towards Common Interest

The fundamental value that seems to be challenged by the concept of sustainable development is the pre-eminence and the nature of self-interest. Sustainable development proclaims that the interests of nature and the interests of others (particularly future generations) have at least as much importance as the interests of one's self. From a practical point of view, it is arguable as to how self-interest could be replaced as a central tenet of Western Industrial society. However, from a philosophical point of view, the awareness of self-interest is changing.

In discussing the meaning of sustainable development, Blowers (1993 p. 18) commented that:

Sustainable development will require substantial changes in behaviour at every level, giving priority to such unfashionable ideas as planning, community and greater equality. Existing patterns of consumerism, private ownership, individualism and the free market are deeply rooted in Western society and have spread far across the globe. Attempts to uproot them may seem hopelessly idealistic, but we are reaching the point where self-interest and common interest in survival are converging.

Daly and Cobb (1989, p. 64) strongly supported this idea. They claimed that economics based on humans as self-interested individuals commends policies that inevitably disrupt existing social relationships. They state that humans are fundamentally social and that

economics should be reformed on the basis of a new concept of people not as self-interested individuals but as persons-in-community. What is important in their model is the recognition that the community as a whole influences each person's welfare because each person has a pattern of relationships with others which is at least as important as the possession of economic commodities. The Brundtland Report (p. 65) goes further. It called for a whole new understanding:

In its broadest sense the strategy for sustainable development aims to promote harmony among human beings and between humanity and nature.

It seems, by interpretation, that there are three sets of conditions in which self-interested values are operative. They are:

- 1) conditions of abundance and security;
- 2) conditions of adequacy and uncertainty or threat; and
- 3) conditions of scarcity and vulnerability.

These three conditions of abundance, adequacy, and scarcity are relative to the perception and expectation of need by the individual person. It is suggested here that in conditions of perceived abundance and security, self-interest tends to motivate people to risk and achieve. In conditions of perceived adequacy coupled with uncertainty, self-interest tends to cause people to withdraw and protect their position. In conditions of perceived scarcity and vulnerability, self-interest tends to cause people to exhibit fight or flight reaction.

Those who enjoy abundance and security, for example in economics and finance, enthusiastically risk in order to further their achievements. Those who have adequate resources but find themselves beset with uncertainty, for example in public or social institutions, retreat into circular systems². Those who suffer scarcity and vulnerability, as

² A circular system is any human or institutional system, which expends its energy to preserve its own form and substance. It therefore becomes 'decision averse', i.e. it resists arriving at decisions except those which are in accord with its own situation and which therefore become essentially '*fait accomplis*' within the context of the circular system. The members of such systems behave to defend the solidarity of their system from challenges to its positions, concepts or policies with which they have grown comfortable, or in which they have a vested

in former Yugoslavia, parts of Africa and inner city America, respond with violence or walk away. The irony of self-interest is that for individuals it appears to be the way of progress but for society as a whole it appears to lead toward adversarial responses which cause situations that the ideal of sustainable development seeks to rectify.

Thomas Hobbes, Adam Smith and others are usually credited with identifying and promoting self-interest as a central tenet of human nature as it is interpreted economically and politically. Hobbes argued in *Leviathan* (1651) that, deprived of a social framework that included law and order, each of us in a 'state of nature' would be motivated to seek his or her self-preservation in disregard of others. Adam Smith in the *Wealth of Nations* (1776) is interpreted as having concluded that self-interested, economic actors in competition with each other create a self-constraining system through which the impartial market (i.e. the invisible hand) functions both to regulate self-interest and to produce economic growth and well-being such that no one group of actors is allowed to take advantage of others or, at least, not for very long (Werhane 1989, p. 669).

The largely un-noticed part of Hobbes statement, at least in the modern context, is, "deprived of a social framework that includes law and order". Such may have been the prevailing condition of society when Hobbes wrote 350 years ago but it does not describe accurately the state of most Western societies in the present. In fact some, perhaps many, aspects of modern society are served by various interlocking frameworks of law and order. It is therefore a much weakened argument that "each of us in a 'state of nature' would be motivated to seek his or her own self preservation in disregard of others". Furthermore, it is a logical corollary that if the need for a motivation of self-preservation is much weakened, so also is the natural capacity of the market to self-regulate itself such that no one group of actors is allowed to take advantage of others.

interest. When an outside agency or concept breeches the circularity, thereby introducing forces of change, a circular system re-acts to restore its circularity by changing only enough to co-opt the destabilizing agency into the circular system.

Since Hobbes, Smith and others, classical and neoclassical economics have been founded on theories concerning the pursuit of self-interest. In a standard undergraduate economics textbook, McConnell *et al* (1993, p. 38) defined self-interest entirely in monetary terms. They further identified competition as the prime mechanism of exercising self-interest.

The primary driving force of a market economy is self-interest: each economic unit attempts to do what is best for itself. Hence entrepreneurs aim at the maximization of their firms' profits and owners of resources attempt to achieve the highest price, or rent, from those resources. Those who supply labour resources attempt to get the highest possible incomes from their employment. Consumers, when purchasing a product, will attempt to get it at the lowest possible price. Consumers also apportion their expenditures to maximize their satisfaction. In short, a market economy presumes self-interest as the fundamental operation for the various economic units as they express their free choices.

Freedom of choice exercised in terms of promoting one's own monetary returns provides the basis for competition, or economic rivalry, as a fundamental feature of the market economy. Competition entails:

1. The presence of large numbers of independently acting buyers and sellers operating in the market for any particular product or resource, and
2. The freedom of buyers and sellers to enter or leave markets.

Unfortunately, the discipline of modern economics has not adequately evaluated and accommodated the evolution of social frameworks that include law and order, and lessened its emphasis on self-interest accordingly.

While the pursuit of self-interest is recognized as a significant motivator of economics, an over-emphasis on self-interest is beginning to be seen as part of the cause of the social and environmental excesses which threaten the future stability of civilization. Indeed some authors now claim that Smith did not originally intend such a heavy emphasis on self-interest as history has accorded him. Werhane (1989) argued that Smith's interpretation of self-interest was softer and more comprehensive than the granite-like concept it has become. Werhane claims that Smith intended differently:

In the *Wealth of Nations*. ... self-interest is usually equated with the natural desire to better one's condition and to look after one's own welfare. ... Self-interest is not to be identified with selfishness or greed. ... In the *Wealth of Nations* the social

passions have equal weight with the selfish ones. This is because a) self-interest is both driven by and constrained by the desire for approval and b) economic self-interest makes sense only in the atmosphere of mutual co-operation (Werhane, 1989).

Smith's reference to passions is interesting. According to Werhane (1989), Smith identified three sorts of passions: social passions such as generosity, compassion and esteem directed toward others; unsocial passions, such as hate and envy; and, selfish passions such as grief and joy which are directed toward one's own pain and pleasure. Smith further identified a distinction between private interests and public interests elicited by these passions. Private interests are interests of individuals or groups that do not concern themselves with society as a whole or the public good. Public interests concern society and every member of society equally. Smith's assertion that the social and the unsocial passions have as much weight in human affairs as the selfish patterns is quite out of character with the modern view of self-interest attributed to him.

Smith (a modern day Smith, 1987, p. 285) was somewhat more pointed in her comments about the inadequacy of self-interest.

The notion of self-interest becomes abstract in its isolation from all other human instincts and motivations and in its isolation from the social world. The motivations of meaning and communication, of curiosity and creativity do not alter self interest significantly. Likewise self-interest is not seen in interaction with lethargy, anger or decadence. In its isolation from all other motivations, such interest appears to be self-motivating and without ambiguity. That is, it is assumed people will act on self-interest whenever they can and that self-interest is itself monolithic; it is the motive which explains all other motives. It is also the measure of all social interaction, seen in contrast to social impulses which exist separately from it and in opposition to it. These social impulses refer descriptively to sociability and morally to self-sacrifice.

Smith (1987, p. 286) further argued that in order for self-interest to be a dominant social behaviour it must be institutionally developed and supported. But she also remarked that, "no account exists of how self-interested individuals can enter into the shared relations of a community, and no account exists of how self-interest, as an individual impulse, is socially developed and sustained".

It is interesting, in light of the foregoing, to reflect on the title of the Brundtland Report, *Our Common Future*. Significantly it is not, *Our Self-Interested Future*. The fundamental aspect of change in values being proclaimed by sustainable development is from self-interest to common-interest. There are two key aspects of the self-interest vs. common-interest dynamic which must be acknowledged. People who accept self-interest as a dominant value for themselves and others also adopt an attitude of being competitive and accumulative of their own assets. On the other hand, people who accept common-interest as a dominant value for themselves and others adopt an attitude of being co-operative with others and sharing their assets. These can be presented as the polar positions of a continuum:

- * Competition (self interest) vs. Co-operation (common interest);
- * Accumulate Material Assets vs. Share the Wealth.

Relationship with Nature

A second aspect of values change concerns the relationship between humans and the natural environment within which, and upon which, people depend. Descriptions of sustainable development become increasingly encompassing. All address the sustainability of changing interactions between people and their natural environment over time. Almost all of them refer to the sustainability of interactions between biological regions and cultural systems. While change is an essential element of each definition, none alludes to inevitable increases in material well being and happiness or to moral progress (Norgaard, 1988, p. 607).

Callicott (1985, pp. 274, 275) declared that nature is a unity, a whole, and the self, the 'I' (mentally as well as physically construed) is not only continuous with it, but is constituted by it. If it is rational for me to act in my own best interest, and I and nature are one, then it is rational for me to act in the best interest of nature. It is suggested by Costanza and Daly (1992, p. 44) that sustainable development can be viewed as either weak or strong. Weak sustainability, they say, involves maintaining intact the overall sum of human-made and natural capital. Strong sustainability involves maintaining total natural capital intact. Although they observed that human society does not currently even manage to achieve weak

sustainability, they advocated pursuit of strong sustainability, which they said involves the following principles:

- * Limit the human scale to a level which, if not optimal, is at least within the carrying capacity of the remaining natural capital and therefore sustainable. Sustainable development must deal with sufficiency as well as efficiency and cannot avoid limiting physical scale. This is their main principle.
- * Technological development for sustainable development should be efficiency-increasing rather than throughput-increasing.
- * Renewable natural capital, in both its resource and waste-absorbing functions, should be exploited on a profit-maximizing, sustained yield basis. Harvesting rates should not exceed regeneration rates and waste emissions should not exceed the renewable assimilative capacity of the environment.
- * Nonrenewable natural capital should be harvested only at a rate equal to the creation of renewable substitutes.

Norgaard (1988, p. 608) put the issues as succinctly as anyone:

If sustainable development is to be achieved, we will have to devise institutions at all levels of government to reallocate the use of stock resources towards the future, curb the pace and disruption of global climatic changes, reverse the accumulations of toxins in the environment and slow the loss of biological diversity. These are the key resources and environmental issues that must be addressed. ... Sustainable development implies switching from the use of stock resources to flow resources, especially from the use of energy from fossil hydrocarbons to current energy from the sun. ... To a large extent the call for sustainable development is a call to tap into the sun for energy through the constructive management of organisms, ecosystems and environmental systems.

The ideal of increasing harmony with the natural environment occurs ubiquitously throughout sustainable development literature, and it immediately calls forth its polar opposite, the ideal of dominating nature. This aspect of implicit change in values can be expressed as polar positions on three separate continuums:

- * Dominance over nature vs. harmony with nature;
- * Consume resources extravagantly vs. conserve resources judiciously;
- * Dump waste into the environment vs. reduce, re-use, recycle waste.

Relationship With Each Other

A third aspect of change in values implicit in sustainable development concerns the relationships of people with each other. This flows directly from the transition from a fundamental ethic of self-interest to an ethic of common-interest and from the recognition of the importance of equity. Well into the 19th century, people of Western industrial cultures, or at least their leaders, thought it was acceptable to sacrifice other cultures in the pursuit of progress. While many non-Western cultures have been destroyed through the imposition of control by direct violence and by the introduction of disease, most met their demise through the loss of a positive image of their future. Western industrial progress has been in a hurry to achieve material success, and has been intolerant of cultural philosophies that are not similarly anxious for material success. For example, in describing the writings of Jenness concerning the situation of the native peoples of Canada in the early 20th Century, McMillan (1977, p. ix) wrote:

. . . native populations were plummeting, primarily due to diseases introduced by Europeans and survivors [of disease] were frequently demoralized and abandoning native customs. He [Jenness] concluded that natives were doomed to extinction through either dying out [due to disease] or being absorbed into the Euro-Canadian culture.

Western Industrial culture has also been manipulative in the sense that it promotes its own view of success and progress as right and positive and other world views as negative and of lesser worth. Norgaard (1988, pp. 609, 610) commented directly about these issues:

Westerners assumed a custodial role toward traditional peoples, but policy wavered among benign neglect, forced acculturation and cultural protection. ... Cultural survival is being enhanced through new interest in the knowledge of other peoples. ... Increasingly we believe that traditional peoples not only have a right to maintain their cultures but also have a right to influence how their cultures might evolve. ... Sustainable development broadly conceived, addresses sustainability of cultural systems as well as environmental systems.

In relation to the impact of sustainable development on social systems, it is interesting to reflect on the joint emphasis on the local and global nature of sustainable development. With

all the parallel changes taking place under the aegis of sustainable development, it is inconceivable that there will not also be changes in the character of institutional systems.

While institutions will locally both differentiate and gain in power to support [economic and social] heterogeneity, new global institutions will also be necessary especially in the transition [to sustainable development]. Though difficult to imagine, it seems inevitable that the role of nations will diminish in relative importance while the role of local institutions and global accords will become relatively more important. (Norgaard 1988, p. 609)

Meadows *et al* (1992) stated quite boldly that one of the most important aspects of humans' increasing harmony with each other is the standard of their intention to be honest in their relations with each other as opposed to the intention to promote political or commercial image, however it may be generated. They stated that:

We are no more certain of the truth than anyone is. But we recognize an untruth when we hear one, coming from our own mouths and those of others, and most particularly from advertisers and political leaders. Many of those untruths are deliberate and understood as such by both speakers and listeners. They are put forward to manipulate, to lull, to entice, to postpone action, to justify self-serving action, to gain or preserve power, or to deny an uncomfortable reality.

Lies distort the information stream. A system cannot function, especially in time of peril, if its information stream is confused and distorted. One of the most important tenets of systems theory is that information should not be deliberately distorted, delayed or sequestered. (p. 228)

What are the change in values which underlies such significant potential changes in social organization? There are three: the nature of management, the strength of the drive to 'get ahead', and the standard of truth in communication. These can be expressed as polar positions on separate continuums.

- * Management by control vs. management by encouragement;
- * Urgency, busyness (plus a degree of intolerance) vs. patience;
- * Image is important, (acceptable to bend the truth) vs. honesty is important.

These aspects of change concerning how people relate to each other are important elements of the concept of sustainable development and flow from the change from self-interest to

common interest. Pursuit of common interests calls for an orientation of encouragement, patience and honesty towards others.

From Rights Towards Responsibilities

Another important aspect of change in values concerns rights and responsibilities. Basic to sustainable development is the idea that the present generation has full responsibility for its own relationship to the Earth and some responsibility for the well-being of generations in the future (Jeroen 1991, p. 15). The notion of inter/intra-generational equity involves the time and space distribution of rights to, and responsibilities for, the sustainability of human development. The more one scrutinizes sustainable development, the clearer it becomes that sustainable development must be flexible to specific contexts of time and space. For some situations it connotes more of something (e.g. in redressing conditions of poverty, or the need for protection of biodiversity and natural habitat); for others it connotes less of something (e.g. in modifying conditions of excessive affluence, or the need to alleviate conditions of pollution). Therefore, sustainable development is a 'relative' rather than an 'absolute' concept. But to what is it relative? It is relative to a set of values which are different from the set of values which have led human civilization into its present situation of apparent impending crisis. More specifically, it is relevant to the distribution over time and space of the rights and responsibilities for the benefits and the costs of human development. In discussing lessons to be learned in relation to sustainable development, Monasterio (1990, p. 339) remarked that:

Perhaps the main point is that the promotion of sustainable development will not be a dominant reality unless it is seen as a global responsibility. Given the inequality of contemporary societies, (both at international and national levels), the responsibility vital to all must also be assigned according to capacities.

There are two pertinent questions concerning rights and responsibilities. The first has to do with whether or not rights should have pre-eminence over responsibilities. The second has to do with whether or not individual rights or responsibilities should have pre-eminence over group or collective rights and responsibilities. Both are relevant to and influenced by the

argument of self interest vs common interest. Self interest is underpinned by the inherent rights of the individual (or 'we') to receive from society ('they') and to take freely from nature. Common interest is underpinned by the responsibility of the individual (and the present 'we') to contribute to the larger society (including the future 'they') and to exercise stewardship on behalf of the natural and physical environment. The various combinations of rights and responsibilities can be best expressed as three comparatives with which people may either agree or disagree:

- * Individual rights are more important than collective rights;
- * Individual rights are more important than individual responsibilities;
- * Collective rights are more important than collective responsibilities.

The implication for sustainable development is that, to the extent people accord the rights of others greater importance than the rights of themselves, and as they give the acceptance of responsibility greater importance than the exercise of rights, they effectively take ownership of the perceived problems and opportunities in economic, environmental and social equity issues. In other words, they bring perceived problems and opportunities, which must be addressed sometime in the future, forward to be considered in the present.

The Changing Notion of Progress

A further aspect of change in values associated with sustainable development concerns our belief, as a society, in the notion of progress. Norgaard (1986, p. 608) argued that concerns with the future are coming to the surface because people are undergoing a radical change in their concept of progress. If this argument is correct, then the transition in current beliefs (i.e. values) will be as important as the transition in beliefs associated with the Renaissance.

The idea of progress through technical mastery of nature has been central to Western culture for several centuries. Belief in technical progress provides enticement for the transfer of values, knowledge and modern forms of social organization to other cultures. Widespread belief in technical progress has been key to the public consensus behind change in developed and developing countries. But technical progress is increasingly in doubt. People now recognize that every new technology, even those designed to correct problems of previous technologies, brings unforeseen

consequences. ... Progress ... always entailed more of some good things without any reduction in other good things. ... So long as we believed we were always getting more of some good things without giving up other good things, we did not question the relative proportion of things. Policy formulation stumbles over the what, and for whom and when, more than the how, but the debate over this vs. that and one group vs. another group has been ameliorated by our belief in progress, by our faith that soon all can have both. ... Only in the last [two] decades has it become clear to many that progress is a contradictory bundle of myths. ... Unlike progress, the basic idea of sustainability directly leads to confrontation over what, for whom and when. (Norgaard 1986, p. 610)

It seems, then, that the idea of progress is changing away from the notion of acquiring and having more and more material things. But what is it changing toward? Costanza and Daly (1992) made a distinction between growth and development and suggested that 'development' is much more desirable:

It is better to refer to throughput increase as growth, and efficiency increase as development. Growth is destructive of natural capital and beyond some point will cost more than it is worth. Development that is qualitative improvement does not occur at the expense of natural capital. There are clear economic limits to growth but not to development. ... There is room for a wide range of options on how far we can go in increasing human welfare without increasing resource throughput. (Costanza and Daly, 1992, p. 43)

There are two key aspects to this changing notion of progress. The first has to do with what people value as wealth and the other is associated with how society relates to its natural environment. Again, these can be expressed as polar positions on a continuum:

- * Profit means surplus of money vs. profit means increase in the quality of life;
- * Economic growth vs. economic, environmental, social balance.

Reflection

It has been argued in the foregoing that, beyond Brundtland's description, sustainable development involves, includes and implies several components:

1. recognition of the severity of the environmental, economic and equity crises which human civilization faces;
2. an approach to human affairs which is primarily holistic rather than reductionist;

3. inherent changes in ways of perceiving, thinking and being;
4. the application of entrepreneurship to the competing priorities of economic, environment and equity issues, primarily in cities of the First World;
5. changing from a set of values which underlie the Current Dominant Social Paradigm to a different set of values which underlie a New Sustainable Development Paradigm;
6. recognizing that this change in values will not only influence the results of, but will also direct the evolution of, sustainable development; and
7. turning human ingenuity to dispensing with old systems and approaches that are sources of problems and developing new systems and approaches which are solutions to problems.

Brundtland indicated that the two prerequisites for sustainable development are the sustainability of the ecosystems upon which economic systems are dependant, and a general satisfaction that the basis of economic exchange is equitable (p. 59 above). Norgaard (1988) identified six aspects of the process by which sustainable development can become internalized in organizations (p. 68 above). For sustainable development to become reality, acknowledgement and acceptance of change must move beyond the realm of scholarship and into the realm of practical application. In other words, sustainable development must become entrepreneurial. Ideals for change must become enshrined in widely espoused values which in turn can become recognized as established attitudes which themselves can reform expected behaviour. It is therefore helpful to place them in a simple table showing the changes in emphasis from egocentric values to envirocentric values which are inherent in the concept of sustainable development, i.e. Table 1. In the contest of this research, egocentric values are those which are centred on 'I' and 'we'. Envirocentric values are those which are centred on the inter-related natural, social, economic, political and cultural whole of which 'I' and 'we' are each one of many integral parts. This table will become the central focus of a case study in Kitchener/Waterloo, a guide for understanding sustainable development at all levels from local to global and a guide to evaluating entrepreneurial initiatives in the pursuit of sustainable development.

Table 1: CHANGES in EMPHASIS of VALUES INHERENT IN SUSTAINABLE DEVELOPMENT

From EGOCENTRIC	Towards ENVIROCENTRIC ³
<i>A: Self Interest vs. Common Interest</i>	
1 From competition, self interest	To co-operation, common interest.
2 From accumulate material assets	To share the wealth.
<i>B: Relationship with Nature</i>	
3 From dominance over nature	To harmony with nature.
4 From consume resources	To conserve resources.
5 From dump waste into environment	To reduce, re-use, recycle waste.
<i>C: Relationship with Each Other</i>	
6 From urgency, busy-ness and a degree of intolerance	To patience and compassion.
7 From image is important; OK to bend the truth	To honesty is important.
8 From management by control	To management by encouragement.
<i>D: Rights vs. Responsibilities</i>	
9 From individual rights more important than collective rights	To collective rights more important than individual rights.
10 From individual rights more important than individual responsibilities	To individual responsibilities more important than individual rights.
11 From collective rights more important than collective responsibilities	To collective responsibilities more important than collective rights.
<i>E: The Notion of Progress</i>	
12 From economic growth	To economic, environmental and social balance.
13 From profit means surplus of money	To profit means increased quality of life e.g. surplus time and energy. ³

³Envirocentric values is not an ideal term for a set of values that embrace natural and built biophysical environments as well as social, cultural, psychological, spiritual and intellectual environments. A perfect term has not yet been found to describe the values of this still emerging paradigm. The question of whether

or not 'envirocentric values' is an appropriate title for the right-hand side of Table 1 was not easy to clarify. The term 'environment' can be used to mean a holistic interactive environment as pointed out by Ward and Dubos (1972, p. xvii),

The establishment of a desirable human environment implies more than the maintenance of ecological equilibrium, the economic management of natural resources, and the control of the forces that threaten biological and mental health. Ideally it requires also that social groups and individuals be provided with the opportunity to develop ways of life and surroundings of their own choice. Man not only survives and functions in his environment, he shapes it and is shaped by it. As a result of this constant feedback between man and his environment, both acquire distinctive characteristics which develop within the laws of nature, yet transcend the blind determinism of natural phenomena. The exciting richness of the human environment results not only from the immense diversity of genetic constitution and of natural phenomena, but also because of the endless interplay between natural forces and human will.

In the context of the United Nations Conference on the Human Environment in Stockholm for which Ward and Dubos were writing, a holistic meaning of environment was exactly what was intended. Unfortunately, the term 'environment' is often primarily associated with the biophysical natural environment, especially as related to the terms, 'environmental' and 'environmentalism.' This has been the case for much of this research. To be consistent with the entries in the table, the title for the right side needs to connote a more holistic and less 'green' image than the biophysical natural environment.

Since a parallelism is desirable between the left and right sides of the Table, a first consideration in titling was whether or not 'Egocentric Values' is an appropriate title for the left hand side of the Table. All the entries on the left side connote a syntactically first person (i.e., a 'my') emphasis with respect to a person, group, organization, city, province or country. Egocentric is perhaps not perfect, but it is adequate and appropriate. An alternative could be simply 'first person values' indicating that a corresponding title for the right side would be 'third person values.' However, this could be deemed confusing since the reader would not automatically make a connection with 'first person' and 'third person' particularly in the context of the title of the overall thesis. Therefore, 'First Person Values' was rejected and 'Egocentric Values' was accepted as a title for the left side of the Table.

In terms of the content of the right side of Table 1, titles other than 'envirocentric values' which could be considered were holistic values, other-oriented values, global village values, sustainable values or ecocentric values. The title, 'Holistic Values' would suggest 'Reductionist Values' as its parallel complement for the left side. However, the values on both the left and the right can apply to both reductionist and holistic thinking. Furthermore, holistic and reductionist are primarily modes of thinking rather than value sets. Both these titles were rejected. The title, 'Other-oriented Values' is a possibility although the word 'other' would tend to connote, 'other people,' and therefore emphasize the human element more than the biophysical element. It would suggest 'Self-oriented Values,' as its parallel complement for the right side of the Table. This choice was marginally acceptable. The title 'Global Village Values' embraces all the elements of the right side of the table. However, it does not suggest an appropriate parallel complement for the left side. It may also invoke an association with 'globalization,' which is often interpreted as primarily an economic concept. Therefore, 'Global Village Values,' was also rejected. The title 'Sustainable Values' certainly embraces all the elements of the right side. It suggests 'Unsustainable Values' as its parallel complement for the left side, which would also be appropriate. However, the resulting statement that the process of sustainable development is the change in emphasis from unsustainable values to sustainable values was regarded as at least banal and perhaps even tautological. Therefore, this pair of titles was not accepted. The title 'ecocentric values,' as derived from ecology, is possible. Although ecology should embody all of the interacting elements of a system,

SURVEY EVIDENCE

In this section some other survey evidence is reviewed which touches upon sustainable development and the changes in values inherent in the concept. It includes the *Health of the Planet Survey* by Gallup, *GlobeScan* by Environics Ltd. and reader surveys by *MacLean's* magazine. Further extensive survey evidence is provided in the case study (Chapters 4 & 5).

Health of the Planet Survey(HOP) ⁴

The *Health of the Planet Survey* was conducted by the Gallup International Institute to measure people's perception of environment and development on a global basis. It was conducted during January 1 to March 31, 1992. The survey was conducted simultaneously in 24 nations, 23 of which were based on representative national samples of the total adult population. In India, the 24th nation, findings were based on a representative national sample of the adult *non-rural* population. The 24 nations (identified in Figure 3) were selected 12 from the Developed World and 12 from the Developing World, and represented approximately 40% of the world's population. All interviews, almost 30,000 in total, were conducted in person, in the home. Research methods and procedures employed were those routinely used by the participating Gallup affiliates for all public opinion and social research in the respective countries.

The findings from the HOP provided evidence that concern for the environment had become a world-wide phenomenon by 1992. The survey found that citizens throughout the world saw environmental problems as serious, as increasingly threatening to human well-being,

including all aspects of the human element, like environment it tends to connote mainly the biophysical elements, and often within a bounded area such as a watershed or an ecozone. Furthermore, the term 'ecocentric' has already been used, and cited herein, to mean something different. Of the two, ecocentric or envirocentric, the latter was deemed to be potentially less 'green' and more appropriate. The most acceptable combinations of titles for the left and right side of Table 1 was therefore, 'Egocentric Values and Envirocentric Values.' In terms of parallel structure, the combination of a prefix and a suffix i.e., ego + centric and enviro + centric, seems to be more elegant than other possibilities.

⁴ These descriptive notes are paraphrased or quoted directly from the Report of the *Health of the Planet Survey* edited by Riley E. Dunlap.

and that they were personally concerned about them. Not only did they place a greater priority on environmental protection than on economic growth, they also indicated a willingness to pay for environmental protection. Furthermore, they reported a high level of activity - including consumer behaviour and political action - on behalf of environmental protection. Needless to say, these results challenged the view that being concerned about the environment was a 'luxury' that only those in rich countries could afford to pursue.

Equally important, the perception in different countries of their roles in generating environmental problems also challenged conventional wisdom. The survey showed that residents of poorer nations readily acknowledged the impact of over population in creating problems within their nations and also accepted partial responsibility for global problems. Similarly, residents of richer nations tended to acknowledge the disproportionate impact that their highly industrialized nations had on the global environment. These findings suggested that the polarization between representatives of the rich and poor nations which occurred in preparations for the Earth Summit may have exaggerated the positions of their constituents.

Overall, the HOP demonstrated worldwide citizen awareness of environmental problems and a high level of concern internationally for the future well-being of the Earth. The results not only documented widespread citizen awareness and concern, but highlighted the existence of a stronger worldwide consensus about environmental problems than was widely assumed. Two of the tables from HOP are particularly interesting to this research. The first, Figure 7 (Table 1, p. 5 HOP), concerns how people view the seriousness of environmental problems in their own nation. The second Figure 8 (Table 14 p. 79 HOP) concerns where people placed their emphasis with respect to protecting the environment or pursuing economic growth. Following these two figures are a series of statements which the survey authors believe describe conventional wisdom that is refuted by the survey findings (HOP, p. ii - iv).

FIGURE 7: Environmental problems in Nation (From HOP)

Q. 1: What do you think is the most important problem facing our nation today? (Open-Ended)

Q. 2 I'm going to read a list of issues and problems currently facing many countries. For each, please tell me how serious a problem you consider it to be in our country: very serious, somewhat serious, not very serious, not at all serious.

Q. 3 How concerned are you about environmental problems -- a great deal, a fair amount, not very much, not at all?

	Volunteered Environmental Problems as most Important in Nation %	Rate Environmental Issues 'Very Serious' in Nation %	Level of Concern About Environmental Problems	
			Great Deal %	Great Deal & Fair Amount %
North America				
Canada	10	53	37	89
United States	11	51	38	85
Latin America				
Brazil	2	50	53	80
Chile	20	56	30	70
Mexico	29	66	50	83
Uruguay	3	44	38	82
East Asia				
Japan	12	42	23	66
Korea (Rep.)	9	67	22	80
Philippines	2	37	55	94
Other Asia				
India	21	51	34	77
Turkey	18	61	12	40
Eastern Europe				
Hungary	1	52	32	79
Poland	1	66	4	25
Russia	9	62	41	78
Scandinavia				
Denmark	13	26	12	53
Finland	28	21	16	63
Norway	7	40	18	77
Other Europe				
Germany (West)	9	67	14	63
Great Britain	3	36	28	81
Ireland	39	32	22	73
Netherlands	39	27	16	71
Portugal	25	51	46	90
Switzerland	20	63	12	42
Africa Nigeria	1	45	71	87

FIGURE 8: The Environment vs. Economic Growth

Q. With which of these statements about the environment and the economy do you most agree?

Protecting the environment should be given priority, even at the risk of slowing down economic growth.
Economic growth should be given priority even if the environment suffers to some extent.

Q. Would you be willing to pay higher prices so that industry could better protect the environment?

	Protect the Environment %	Economic Growth %	Equal Priority %	Willing to Pay Higher Prices %
North America				
Canada	67	17	10	61
United States	58	26	8	65
Latin America				
Brazil	71	22	4	53
Chile	64	11	16	64
Mexico	71	14	9	59
Uruguay	64	15	17	54
East Asia				
Japan	57	5	14	31
Korea (Rep.)	63	20	14	71
Philippines	59	28	12	30
Other Asia				
India	43	31	20	56
Turkey	43	17	32	44
Eastern Europe				
Hungary	53	13	28	49
Poland	58	14	20	49
Russia	56	11	21	39
Scandinavia				
Denmark	77	9	8	78
Finland	72	9	15	53
Norway	72	14	8	72
Other Europe				
Germany (West)	73	6	15	59
Great Britain	56	18	19	70
Ireland	65	20	7	60
Netherlands	58	7	31	65
Portugal	53	11	24	61
Switzerland	62	7	28	70
Africa				
Nigeria	30	35	23	28

Conventional Wisdom Statement #1

Populace are so overwhelmed by daily economic problems that they have little time to worry about the environment.

Survey Fact

While economic concerns dominate people's lives, many people are trapped by environmental problems that directly affect their health -- air and water pollution, waste disposal and the like. They therefore express deep concern over environmental problems. When survey respondents were asked what problems they think will be key ones in 25 years' time, environmental problems are at the very top of the list in virtually all nations.

Conventional Wisdom Statement #2

Environmental problems may be of considerable concern to people but in the face of dire economic problems there is little willingness to pay higher prices for environmentally sound products or to pay higher taxes in order to pay the costs of improving the environment.

Survey Fact

This is not the case -- at least among the 24 nations surveyed. Perhaps nothing dramatizes concern for the environment so much as survey results showing that people in both rich and poor nations give priority to environmental protection over economic growth.

Conventional Wisdom Statement #3

People believe it is virtually impossible to have it both ways - economic growth and protection of the environment at the same time - and this drives a wedge between developed and developing nations.

Survey Fact

In 20 out of 24 nations surveyed majorities of people endorse environmental protection even at the risk or slowing down economic growth.

Conventional Wisdom Statement #4

People are almost exclusively concerned about humans when it comes to weighing environmental problems.

Survey Fact

Large percentages of people in most nations surveyed reveal deep concern about the loss of plant and animal species.

Conventional Wisdom Statement #5

Citizens of developed and developing nations point the finger of blame at each other and tend to absolve themselves of any responsibility for environmental problems.

Survey Fact

To a remarkable degree, citizens of both developed and developing nations accept a share of responsibility for such problems.

Conventional Wisdom Statement #6

Because of self-interest, citizens of developed nations are definitely not going to support programs to help developing nations.

Survey Fact

Not so. High levels of support are found in developed nations for a number of actions which their government could take even when survey respondents are reminded that there are costs involved in such actions.

Conventional Wisdom Statement #7

Citizens are overwhelmed by the enormity of environmental problems and feel there is little they can do to make a difference.

Survey Fact

Not so. Citizens in this international survey expressed deep personal concern for the environment, accepted responsibility for contributing to problems, and believed that citizen efforts can contribute significantly to a healthier planet -- through their own efforts or by bringing their influence to bear upon government, business and other institutions of society.

Conventional Wisdom Statement #8

Political leaders and the people of nations surveyed are in total accord on environmental matters.

Survey Fact

Taken together the findings suggest that, in the case of certain nations, the people are more deeply concerned about the environment -- and more ready to take action to promote sustainable development -- than are their leaders.

GlobeScan⁵

GlobeScan is an ongoing project by Environics International Ltd. to measure trends in sustainable development. It is a survey of 154 sustainable development experts in organizations mostly from Western Europe and North America taken in September 1997. A total of 893 questionnaires were sent to experts selected on the basis of their reputations, sector balance and areas of expertise and drawn from the five sectors of corporations,

⁵This report is paraphrased and excerpted from *GlobeScan's* report on its *Survey of Experts* (Miller, 1997)

government, voluntary, institutional (e.g. academics) and service (e.g. consultants). Of the total sent out, 154 were returned for an overall response rate of 17%.

In brief, according to *GlobeScan*, sustainable development has become a widely accepted goal in the organizations of most respondents (86%), the economic and environmental aspects of sustainable development are expected by almost half the respondents to receive most attention in the next five years (44%), and the corporate sector and national governments are seen as having the poorest track record for sustainable development (76% and 64% respectively received a 'poor' rating) while environmental NGOs are seen as doing much better (only 24% poor rating). Many of the environmental issues identified above such as fresh water supplies (63%) and climate change (60%), are identified by *GlobeScan* as rising issues in the immediate short term (i.e. over the next year). Removal and redesign of government subsidies (79% for, 7% against) economic instruments (63%) and corporate role models (53%) are seen as the greatest contributors to sustainable development. Liberalized trade (26%for, 45% against) is seen as the least supportive of sustainable development. More details are provided in Figure 9.

MacLean's News Magazine

MacLean's News Magazine publishes an annual year-end survey which it calls 'Taking the Pulse of the Nation (Canada)'. The 1997 survey was conducted in mid-November. There were 1400 respondents selected randomly from 10 provinces. Only a few questions in the 1997 year-end survey were pertinent to this research. In summary their results state that the environment, as an overall issue, had virtually dropped out of the picture as a matter of concern for the Canadian public. Other results of note are that it is quite possible to be too honest, most people feel responsible to donate to charity, contributing to the community is important for almost everyone, self-interest is alive and well and about half the people do volunteer work regularly. Details are shown in Figure 10.

Figure 9: Selected Results from GlobeScan Survey of Experts

1. Sustainable development an accepted goal? -- 86% yes; 13% neutral; 1% no.
2. Aspects of SD receiving most attention, next five years?

Environment	44%
Economy	44%
Natural resource management	36%
Social issues	23%
Health issues	14%
3. Performance on sustainable development issues? (% giving a poor rating)

Average companies	76%
National governments	64%
Transnational Corps	50%
United Nations	48%
Environmental NGOs	24%
4. Increasing profile of SD issues in coming year?

Fresh water	64%
Biotechnology safety	61%
Climate change	60%
Health effects	59%
Environmentally Sensitive areas	57%
Corp. social responsibility	56%
Chemical safety	54%
Fish stocks	45%
Consumption/production	44%
Sustainable forests	39%
Biodiversity	38%
Ocean ecosystem protection	35%
Ozone depletion	25%
5. Major influences on sustainable development in next five years?

Removal of subsidies	Yes-79%, No-7%
Green taxes	Yes-73%, No-14%
Env management systems	Yes-71%, No-21%
Economic instruments	Yes-63%
Corporate role models	Yes-53%
New legislation/regulation	Yes-51%, No-15%
Green consumerism	Yes-49%
Regulations/enforcement	Yes-44%
Liberalized trade	Yes-26%, No-45%

FIGURE 10: Selected Results from *MacLean's News Magazine*

1. What is the most important problem facing Canada?	
Unemployment/economy	34%
Government/gov't spending/deficit	18%
Social services/health/education	15%
National unity/the constitution	11%
Taxes/GST	4%
Crime/violence	2%
Environment	1%
All others	15%

(For the following statements, Agree Strongly (Ast), Agree Somewhat (Asw), neutral (N), Disagree Somewhat (Dsw), Disagree Strongly (Dst) are expressed in %)

2. People who are overly honest in our society are often taken advantage of.
Ast 32% Asw 39% N 5% Dsw 16% Dst 7%
3. No matter what your income I believe we have a large responsibility to donate to charitable organizations.
Ast 32% Asw 43% N 7% Dsw 12% Dst 6%
4. Helping the community in some way is very important to me.
Ast 52% Asw 40% N 3% Dsw 2% Dst 1%
5. You have to take care of yourself first before you can think of helping out others in the community.
Ast 35% Asw 32% N 7% Dsw 17% Dst 9%
6. I undertake volunteer work on a regular basis.
Ast 25% Asw 31% N 12% Dsw 19% Dst 10%

CHANGE IN LOCAL SOCIETY

The problem of context was identified above (p. 75). The prime objective is to perceive and understand the concept of sustainable development rather than the sustainability of specific aspects of development. The Brundtland Commission Report, Table 1, *The Health of the Planet Survey* and the GlobeScan surveys are all applications of evaluating the present and envisioning some future state of society. This section reviews processes of evaluating the present and envisioning the future in three local jurisdictions in Ontario.

The first choice of a first world city for the purposes of comparing policies and approaches to sustainable development in this research was, for practical reasons (elaborated below), the Region of Waterloo which is in the heartland of Ontario and home to the author. In terms

of other Southern Ontario centres, Toronto is much larger and Guelph is much smaller. Hamilton and London are of similar size to the Region of Waterloo and are also located in Southern Ontario. They were chosen as second and third comparatives.

The Region of Waterloo represents a relatively small urban system (population approximately 400,000) with a vigorous mixed economy and consists of the regional municipality with three cities and four surrounding townships. Its economy includes automobile manufacturing, auto-parts manufacturing, other heavy and light manufacturing, the insurance industry (nine insurance company head offices), education (two universities, six church colleges, one community college and five business colleges), a vigorous medium and small business sector with a specialist concentration in high-technology research, manufacturing and service, and a strong mixed agricultural base in the surrounding townships. Waterloo Region has many destination status tourist attractions such as St Jacobs Village and the St Jacobs Market, the Elmira Maple Syrup Festival, The Elora Music Festival and the Oktoberfest Harvest Festival in Kitchener/Waterloo (Waterloo 1997). It is regarded by Filion, Bunting and Curtis (1996) as a particularly good example of the phenomenon known as the dispersed city. Furthermore, the political leadership in Waterloo Region has made a concerted effort to embrace the concept of sustainable development.

The City of Hamilton (population approximately, 320,000) is the principal component of the Region of Hamilton-Wentworth which consists of the city of Hamilton, a second small city, three towns and one township. It represents part of an extensive and contiguous urban system (population in the order of five million) which surrounds the western end of Lake Ontario, centred on Toronto and extending from Oshawa on the northern shores of Lake Ontario to St. Catharines on the south shore. Hamilton also has a vigorous education sector and a leading regional health services research and development complex (Hamilton 1997). In the past, the City of Hamilton's economy has been dominated by the steel industry, heavy manufacturing and its role as an inland harbour for ocean going sea transport. The largest private sector employers, Stelco, Dofasco, National Steel Car, Westinghouse, M&A Candy,

Case Canada, Dominion Casting and Stelwire, still reflect the dominant role of the steel industry. However, in recent years Hamilton has undergone ambitious industrial cleanup and diversification of its economy in the sectors of advanced manufacturing, advanced technology development, environmental industries and services, food processing, health care, telecommunications and small business and entrepreneurship. The largest public sector employers include Hamilton Health Sciences Corporation, McMaster University, Hamilton-Wentworth District School Board, St Joseph's Hospital, and the city, regional, provincial and federal governments. The City of Hamilton, which comprises 70% of the population of the region, represents a community which has made a strong commitment to sustainable development. The Regional community of Hamilton-Wentworth has received international recognition for its aggressive Vision 2020 Sustainable Community Initiative (Gilbert, Stevenson, Girardet and Stren, 1996) and was cited by the Habitat II Conference in Istanbul as a model 'Best Practice' community with respect to sustainable development.

London (population approximately 336,500) was the third city chosen. It is the regional centre for the surrounding area of central southern Ontario (population approximately 1,000,000) one of the best agricultural areas in the province. London is a richly diversified economy. Its major elements include financial services (Head Offices for Canada Trust and London Life Insurance, regional offices for CIBC and Toronto-Dominion Bank), telecommunications (Bell Canada Network Services, Rogers Cable, Sun Micro Systems, Newbridge Networks), food processing (Cuddy Foods, Labatt's Breweries, Kellogg's of Canada, McCormick's of Canada), major construction companies (Ellis-Don, McKay-Cocker, BRE-X Limited), and manufacturing (3M Canada, General Motors, Accuride, Ford, Cami, Siemens Automotive) and a vigorous small business and entrepreneurial sector which includes 53 machinery firms, 20 electronics firms, 18 instrumentation and communications firms and 60 computer services firms. London is a leader in the medical research and health care industry with four teaching hospitals and two medical research institutes, which all together contribute 24,000 jobs and more than \$1 billion annually to the London economy. In the educational sector London is also home to the University of Western Ontario and

Fanshawe College which are both leaders in their chosen fields of concentration. London businesses and research institutes are also leaders in the development of information and communications technologies. The Bell Canada Networking Centre, along with Sun Micro Systems, 3M Canada, and Newbridge Networks have co-operated in the development of a highly sophisticated fibre-optic networking infrastructure that links together all the educational, high technology and medical research and operational installations. Such innovative entrepreneurship is energized by the 300 member high technology industry association (London 1997).

The Urban System of Waterloo Region

Waterloo Region is located a one hour drive west of Toronto and one and one half hours drive east of London along the 401 Highway and is approximately one and one half hours drive from the United States border crossing at Niagara Falls. The 1991 population of Waterloo was 81,500 including 10,300 off-campus university students. The population of Kitchener (1994) was 168,400 and that of Cambridge approximately 90,000 and approximately 60,000 combined population in the four townships. The total Canadian and US market within one day's travel by truck is 120 million. The economic base of Waterloo Region includes automobile and auto parts manufacturing, secondary and light manufacturing, retail, wholesale, financial services, health services, personal services, professional services, education and research.⁶ Among its major employers the community has two universities, two community college campuses, 11 insurance company head offices and 20 manufacturing, high technology and engineering companies of over 400 employees.

In November, 1989 the Region of Waterloo appointed a Citizens' Advisory Committee on the Quality of Life (CACQL) in accordance with a policy of sustainable development.⁷ The

⁶ Sources for K/W information are the community profiles published by the economic Development Office in each city.

⁷ Unless otherwise noted the descriptive notes are paraphrased or quoted directly from the Report of the Citizens' Advisory Committee on the Quality of Life [in the Regional Municipality of

Committee's mandate was first to examine public opinion on the quality of life and broadly defined environmental issues, and second to frame a common vision and make recommendations which would guide future community development and improve opportunities for all residents to participate in community decision making. Specifically, the mandate was:

1. To undertake a broadly-based solicitation of citizen, organization and corporate concerns with reference to the quality of life of regional residents. Such solicitation to include economic, social, cultural and institutional concerns arising from, or impacting on, the Region's environment;
2. To promote public interest and concern for a healthy, stable and self-renewing environment through informed, positive action at all levels;
3. To recommend innovative directions for future planning, programming and policy which could improve the quality of life for all Regional residents.

The committee consisted of ten persons, each prominent in their own field and drawn from a cross-section of the regional community. CACQL solicited verbal or written submissions during scheduled hearings, or by direct request. The Committee received 88 submissions, of which 42 were from individuals and 46 from organizations. CACQL made observations and recommendations in the following categories:

- * A general assessment of the existing quality of life
- * Growth and development
- * The planning process
- * Economic concerns
- * The natural environment; Agriculture
- * Water resources
- * Waste management
- * Transportation
- * Culture and heritage resources
- * Social environment, health, and housing

Four of the many observations and recommendations made by the CACQL in its final report (April, 1991) are particularly pertinent to this research:

Waterloo] (CACQL, 1991) and from conversations with Mr. Carleton Stewart, Manager of the CACQL process.

1. The CACQL was disturbed that only a certain segment of the population appeared at the hearings, and that on certain issues there was no representation. Drawing common themes from the differing views that were expressed was a major challenge. Opinion within the committee, in some instances, further enlivened the proceedings. To a large extent, the recommendations reflected compromises among committee members as they attempted to reconcile the range of opinion in the submissions with their own personal views (CACQL 1991, p. 96).
2. One common factor, upon which all members were agreed, and which is evident in the recommendations, is that the solutions cannot be left to government alone. The problems facing Regional residents demand the involvement of all social sectors: the private sector, educational institutions, community organizations, public agencies and especially the efforts of individual citizens. Contemporary challenges call for changes in personal attitudes, habits and lifestyles. Government does have a significant role to play, however, in providing leadership to encourage, guide and support community action (CACQL 1991, p. 96).
3. Although there was a tendency in the submissions of rural residents to see themselves as the victims of growth, it was clear to members of the CACQL that the stresses of growth were equally disturbing to urban residents. Growth was a subject of controversy not only in the submissions but also among committee members. However, CACQL did not feel that growth can, or should be stopped. Growth and change are forces too pervasive and elemental to turn back. ... Committee members felt strongly that public decision making and planning must be able to halt development at the very earliest stages when it fails to meet the criteria of "sustainability". (CACQL 1991, p. 97)
4. Regional residents can expect change to remain the one constant in their lives. How this change is managed to improve the quality of life will be a long-term challenge. It was clear to the members of CACQL that past patterns of individual, group, business, institutional and governmental behaviour were no longer adequate to meet community needs. The members, therefore, encourage all residents to review their expectations and take personal action. The quality of life in the Regional community can only be measured by the energetic involvement and shared vision of its citizens (CACQL 1991, p. 101).

These observations and recommendations by CACQL are important statements in support of sustainable development. They emphasized that although local government has an essential role in providing leadership, participation from all social sectors is equally important. They identified that economic development is more important than economic growth and the prime objective is improved quality of life which CACQL interpreted to mean involvement and shared vision of citizens. CACQL also included that past patterns of

behaviour by various sectors of society, including government, are no longer adequate and called for changes in personal attitudes, habits and lifestyles. The results of the CACQL investigations promote many of the changes of emphasis in values inherent in sustainable development and described in Table 1, most particularly a change towards the wide acceptance of responsibility for common problems, increasing co-operation, the management of growth in accordance with the principles of sustainable development and an embracing of the ideal of profit as including an increase in the quality of life.

The City of Hamilton

The city of Hamilton is located at the west end of Lake Ontario in the industrial heartland of Ontario about one hour's drive from Toronto and less than one hour from the US border crossing at Niagara Falls. It is the principal city (population 322,350)⁶ in the Region of Hamilton-Wentworth (population 468,910) which includes one other small city and four towns (combined population 145,910)⁸. Hamilton is served by a deep-sea port, two regional rail road services (Canadian National and Canadian Pacific), a regional airport and two limited access arterial highways which connect the city directly to the Ontario and international arterial highway network. In the past, the economy of Hamilton was dominated by steel making and heavy industry, but from the mid 1980s to the mid 1990s Regional employment in heavy industry had been reduced by over 10,000 jobs and increasing diversity in the economic base resulted in over 50% employment in the service sector.

In 1990, the Region of Hamilton-Wentworth launched an aggressive and comprehensive review of its official plan and its economic development strategy. Early in the process, it adopted a sustainable development philosophy. The process was managed by a task force appointed by the Regional Council and involved over 1000 people from the community in a series of Town Hall Meetings, Focus Group Discussions, Vision Working Groups,

⁸ Population figures from Statistics Canada 1996 census.

Implementation Teams and Community Forums which lasted over a two-and-one-half-year period. In February 1993, the Task Force presented Regional Council with three final reports: *Vision 2020 - The Sustainable Region*, *Directions for Creating a Sustainable Region*, and *Detailed Strategies and Actions for Creating a Sustainable Region*. The recommendations in these reports became incorporated into a new official plan called *Towards a Sustainable Region*, a new strategic plan for long-term economic development called *Renaissance* and two further planning documents, *Transportation Review* and the *Comprehensive Municipal Pollution Prevention Plan*. During the years since, the Region of Hamilton-Wentworth has become internationally recognized for its initiatives and example in the field of local implementation of sustainable development⁹.

Using the Region of Hamilton-Wentworth 1994 official plan entitled *Towards a Sustainable Region*, the City of Hamilton Planning and Development Department began an official review process for its own official plan early in 1996. Under the direction of the Planning and Development Committee of Council, a process was used for staff to liaise with individuals and organizations in the community to gather different perspectives about the broad planning issues confronting the City of Hamilton and to derive common themes and ideas from the various visions of the city's future.¹⁰

The Planning and Development Department published two and four page brochures which were circulated to the community under the series title of *CityView: Hamilton's Plan for Tomorrow*. Each brochure focused on a particular issue, presenting a statement and description of the way things were, and situations and trends from the past. It then described

⁹ These descriptive notes are paraphrased from RMH-W (1997)

¹⁰ Except where otherwise noted, these notes are paraphrased or quoted directly from conversations with Joanne Hickey-Evans, Manager, City of Hamilton Visioning Process and the official documentation of Hamilton's 'CityView' visioning process including *CityView: a Series of 24 Brochures* (Hamilton, 1996) and *CityView: Hamilton's Plan for Tomorrow* (Hamilton, 1997)

relevant issues and questions for people to consider and asked for any feedback to be submitted to the Planning and Development Department. Topics of the brochures included:

The Planning Process;
 Industry;
 Urban and Suburban Commercial;
 Mixed Use Areas;
 Downtown; Neighbourhoods;
 Demographics; Culture and Heritage;
 Housing; Residential Development;
 Open space; Parks; Environment;
 Air and Water Quality;
 Transportation; Transit;
 Institutional Development;
 Infrastructure Development; and
 Social and Health Issues.

The Planning and Development staff engaged in a public outreach program, meeting with citizens, neighbourhood associations, community agencies and business organizations to discuss the contents of the brochures and the planning issues facing the City. City staff acted as facilitators and assisted individuals and groups to articulate their vision for Hamilton in the future. Approximately 70 people participated in this process. The results were drafted into the *CityView: Hamilton's Plan for Tomorrow* which included six theme areas.

Each theme area included a brief description of the theme area in terms of the past and the present, a description of the theme vision for the future, and a statement of objectives. The six theme areas were:

Downtown;
 Neighbourhoods;
 Natural Heritage;
 Economic Base;
 Community Well-Being; and
 Infrastructure;

All six theme areas were dominated by physical and material aspects. Unfortunately, for each of the six themes, the description of the theme, the vision for the future and the statement of objectives were all written in the present tense, which made it difficult to discern what was expected to be different in the vision of the future than was the case in the

past. There is very little evidence of attention to underlying values and in many respects the vision for the future appears to be a continuance of the past and present with refinements. The draft *CityView* was circulated to the 70 people who had been previously involved in the process for their comments and further input. A final draft was vetted by a public workshop attended by 24 people before being submitted to Council for approval. *CityView: Hamilton's Plan for Tomorrow* is a vision which, in its own words, purports to represent the collective values of the community. However, it makes no reference to sustainable development, nor does it acknowledge the principles of sustainable development adopted by the region of Hamilton-Wentworth. Furthermore, there is little indication as to whether or not the city of Hamilton would embrace the change in values identified in Table 1 as inherent in the concept of sustainable development.

The City of London

The City of London is centrally located in south-western Ontario, mid-way along the provincial arterial Highway 401 between Toronto and the United States border crossing at Windsor/Detroit. With a population of 325,646 (Canada Census, 1996) London is a regional centre. It enjoys an immediate market area of close to one million and a one-day trucking market of 150 million in Canada and the United States. The city is served by a regional airport, Ontario's arterial highway system and both CN and CP rail. Its major economic sectors include a university and community college, research institutes in medical technologies, surface sciences and advanced manufacturing, a world-famous regional hospital and health care facilities and manufacturing giants such as 3M, General Motors, Ford, Kellogg/Salada, Lever Industrial and Kaiser Aluminum¹¹

In late 1992, the City of London annexed extensive tracts of land from its adjacent townships, significantly increasing the overall size of the city. In response, in 1993 the city began an ambitious and comprehensive process of preparing a strategic plan, and reviewing

¹¹ Descriptive notes about London are paraphrased from LEDO (1997)

and re-writing its official plan called *Vision 96* guided by a steering committee known as the 'Vision 96 Team'¹². First, the Team conducted a telephone survey of 500 households. It sent a similar survey to over 700 local groups and organizations. It conducted workshops for City Council and its Boards, Commissions and Advisory Committees, and held discussions with the public at major public events and places. Almost 87% of the people surveyed expressed a desire to be further involved in the *Vision 96* processes. From the information received, the Team prepared draft vision and values statements and began preparing five separate plans for development (a strategic plan, an infrastructure plan, a community services plan, an environmental plan, and an economic development strategy) in preparation for re-drafting the official plan. The draft vision statement was:

London is a city with an extraordinary opportunity
for a special quality of life.

A vibrant growing community that builds
upon the richness of its heritage and
resources, the strengths of its peoples
and the diversity of its economy.

A caring community which is socially and
environmentally responsible in all the actions it takes.

The draft values statement was:

We, through our everyday actions, contribute to the building of a healthy London
community which enhances the quality of life for us and our families and for future
generations. We value, in balance, the following contributions to a healthy community:

The diversity of our people;
The multi-cultural background of our people;
Respect for the natural environment;
The affordability of our city;
A diverse and strong economy;
A sense of community;
A high quality of human services;

¹² Except where otherwise noted these notes are paraphrased or quoted directly from conversations with Gail Roberts, Director of Vision 96 and official documentation of the Vision 96 process, including *Vision 96: Issues for Discussion* (London 1993a) *Vision 96: Public Attitudes Survey* (London 1993b), *Let's Talk London: Join a Vision Circle* (London 1993c), *Let's Talk London: Vision Circle Guide* (London 1993d) *Let's Talk London: Vision Circle Workbook* (London 1993e) and *The London Strategic Plan* (London 1994).

A wide variety of recreational and cultural opportunities;
Diverse and high quality health services;
Diverse and high quality educational opportunities;
A safe and secure community;
A respect for our heritage;
A strong agricultural community;
The beauty of our city;
High quality public services;
A vibrant and attractive downtown;
The ideal location of our city.

In mid-1993, the *Vision 96* Team included a tabloid supplement in the local newspaper describing and giving notice of the Vision 96 process. The notice detailed the draft vision statement and the draft values statement and invited the residents to participate by being involved in a local phone-in cable television channel and by forming vision circles. A vision circle was any small group that got together in any venue to discuss the draft statements and talk about the future of London. The city provided a vision circle brochure which described the *Vision 96* program, presented the draft vision statement and the draft values statement, and gave practical tips for establishing and operating a vision circle. It also listed the background documentation available for those who wanted it. In addition, the City provided a colour-coded work book to guide each vision circle through the process of considering the draft statements, recording its deliberations, and submitting its work to the *Vision 96* Team by a specified closing date. The activity and reporting of *Vision 96* activity was carried through the local cable TV channel.

The information from this ambitious public evaluation and visioning process was used to develop an overall Strategic Plan for the city of London and refine the vision statements. It was also included in the final preparation of the various development plans and the official plan. The final vision statement was:

London - The Forest City.
We are a caring, responsive community
committed to the health and well-being of all Londoners.
The actions we take will be socially, environmentally and fiscally responsible

so that our quality of life is enhanced and sustained for future generations.
Our people, heritage, diverse economy, strategic location, land and resources
are our strength.

London - a community we proudly call home.

The draft values statement was not retained intact. Instead, various elements of it were incorporated in other aspects of London's vision for its future. Some of the values which had formerly been identified in the draft values statement were included in the final vision statement. For example, "Our people, heritage, diverse economy, strategic location, land and resources are our strength". Other values deemed to be important which were not identified in the vision statement were identified as specific, carefully articulated goals subordinate to the vision statement in keeping with the collective deliberations of the community. Each goal was supported with a series of objectives to achieve the goal. Also, as a result of the *Vision 96* process, the City of London and its Boards and Commissions made the following commitment to its citizens:

The City of London is committed to providing leadership to the Community as we work to realize our common Vision and Goals for the future.

Many of the values identified in the draft values statement and elaborated in the vision circle process found their way into the various sub-plans as principles fundamental to the plan. Many of them are very similar in meaning to those identified in Table 1, even though the language may be different. For example, the Community Services Plan identified, among others, 'being responsible' [10, 11]¹³, 'sharing and caring relationships' [1, 2], and 'open, easy access to information and processes regarding government services' to be fundamental principles for Community Services Plan (London 1995a). The Infrastructure Plan (London 1996a) identified 'well planned', 'fiscally responsible', 'well designed', 'well built' and 'well maintained' as its fundamental principles. The Economic Development Strategy (London 1995b) identified, among others, four key principles: 'encouragement of entrepreneurship' [8]¹⁴, 'the promotion of growth and business development that fits well

¹³ Numbers in square brackets refer to relevant elements of Table 1.

¹⁴ Numbers in square brackets refer to relevant elements of Table 1

within the community's values' [12], 'economic development at the service of social problems' and the 'quality of life [13], and co-operation among people, government, institutions and business' as important economic principles [1]. Particularly interesting to this research are the principles of a healthy environment identified in the Environmental Plan (London 1996b):

- * Conservation [4] Using natural resources wisely and efficiently.
- * Integration [12] Integrating environmental, social and economic considerations in all our decision-making.
- * Monitoring [6] Stopping to look, listen and learn.
- * Prevention Thinking ahead, anticipating problems and taking measures to prevent them.
- * Rehabilitation [5] Rehabilitating environmental quality when damage occurs.
- * Sharing Responsibility
[10, 11] Working together: sharing time, knowledge and resources.
- * Stewardship [3] Acting positively to protect and enhance the quality of the environment for future generations.

Careful reading of the London visioning material and comparison to Table 1 indicate that only two value changes identified in Table 1 are not directly addressed in London's vision for its future. These two are the change from an emphasis on image towards an emphasis on honesty and the change from an emphasis on individual rights (and responsibilities) towards an emphasis on collective rights (and responsibilities). There is no indication that the people of London would be against these two changes in values; the observation is merely that they were not specifically identified.

CHANGE IN INTERNATIONAL SOCIETY

This research was originally inspired by the Brundtland Report which has had influence at all levels of society from local to international with respect to the embracing of the sustainable development. This section briefly considers the relevance of Table 1, and the transition of values it describes, to five international events which were convened to consider issues of sustainable development. The Brundtland Report recommended that the

international community should hold a number of follow-up conferences in order to translate its analysis of environment and development into a process of sustainable development.

To achieve the needed changes, we believe that an active follow-up of this report is imperative. It is with this in mind that we call for the General Assembly, upon due consideration, to transform this report into a UN Program on Sustainable Development. Special follow-up conferences could be initiated at the regional level. Within an appropriate time after the presentation of this report to the General Assembly, an international conference could be convened to review progress made and to promote follow up arrangements that will be needed to set benchmarks and to maintain human progress (Brundtland, 1987 p. 23).

The Brundtland Commission thereby inspired the United Nations Conference on Environment and Development (UNCED, later formally known as the Earth Summit) which took place during June 1992 in Rio de Janeiro. The Earth Summit was representative of the response of the international political community (178 nations) to the issues concerning environment and development elaborated by the Brundtland Commission. Also identified by the Brundtland Commission and the Earth Summit was the importance of social development as being concerned with issues of equity among people, particularly with respect to matters of conquering poverty, providing meaningful employment and fostering stable, safe and just societies. Social development was considered to be the third element in sustainable development, along with environment and development, recognizing of course that previously 'development' had referred primarily to economic development. Accordingly, a World Summit for Social Development was convened in Copenhagen during March 1995. It was representative of the international political community's (117 nations) responses to the challenges of social development inherent in the concept of sustainable development. The last in the series of international conferences prompted by the Earth Summit and the Brundtland Report was Habitat II (also known as the Cities' Summit) which was convened in Istanbul in June 1996. The convening of the Habitat II was representative of the international political community's (182 nations were involved) recognition that the real location for 'doing' sustainable development is not in international conference halls but in local communities. It also represented a recognition by the international political

community of the need for national and international institutions to open their processes to the participation of local communities and the institutions found there such as local businesses, professional networks, NGOs and educational institutions. It also indirectly represented the willingness of such local organizations to participate with global institutions in the pursuit of sustainable development ¹⁵. In June 1997, the United Nations General Assembly convened itself in a Special Session known as Earth Summit +5 to review the progress of the world community towards achieving sustainable development since the original Earth Summit five years earlier. This event represented the international political community's formal assessment of its own performance as well as the performance of its member nations and many entities which operate within nations.

An ever present obstacle to the pursuit of sustainable development concerns both the national/international and the local financial capacity to undertake the immense changes implied by sustainable development. Accordingly, the concern of a major financial institution such as the World Bank in how ethical and spiritual values may pertain to sustainable development is of interest to this research. It may indicate, even if it does not represent, how the world financial community might respond to sustainable development. Prompted by the Brundtland Report and the Earth Summit the World Bank established a new department at called 'Environmentally Sustainable Development' (ESD) which has, since 1993, hosted an annual conference on environmentally sustainable development. In 1995 the World Bank ESD conference was entitled 'Financing Environmentally Sustainable Development.' The World Bank also hosted an associated event entitled 'Ethical and Spiritual Values in Promoting Environmental Sustainable Development' the report of which is of particular interest to this research.

¹⁵ Other follow-up international conferences recommended in the General Assembly debates, but not included in this research, were the Population and Development Conference (Cairo), The Human Rights Conference, (Vienna), The Fourth World Conference on Women (Beijing) and The World Conference on Small Island Developing States (Barbadoes)

Earth Summit and Agenda 21¹⁶

The Earth Summit was convened by the United Nations in June 1992 in Rio de Janeiro, Brazil. It was a direct result of the General Assembly debates following the tabling of the Brundtland Report and its recommendations that "... within an appropriate period after the presentation of this Report to the General Assembly an international conference be convened to review progress made and promote follow-up arrangements that will be needed over time to set benchmarks and to maintain human progress within guidelines of human needs and natural laws" (Brundtland 1987, p. 343). The Earth Summit lasted two weeks and was the culmination of a two year process including four preparatory committee meetings and several expert group reports in which almost all the 185 member states of the United Nations participated. It also involved hundreds of thousands of people from government departments and civil society who contributed to the Earth Summit processes at the national level. More than 28,000 civil society representatives also travelled to Rio to participate in the International NGO¹⁷ Forum, which was a civil society 'summit' held simultaneously. The Earth Summit was a process which sought to ask the 'right' questions, and to begin the process of developing momentum towards resolving the many pressing and pertinent issues those questions raised. There were three major outcomes of Earth Summit which are pertinent to this research: The Rio Declaration, Agenda 21 and through it, commitment to ongoing political action, and a series of Alternative Treaties from the NGO sector. The Earth Summit also tried to negotiate an 'Earth Charter'. However, that initiative was unsuccessful. Nation states could not agree on what such a charter should say. Other outcomes of the Earth Summit not considered in this research were the *Statement of Forest Principles*, the *Biodiversity Agreement* and a *Convention on Climate Change*.

¹⁶ Except where otherwise noted these notes concerning Earth Summit are quoted or paraphrased from the official documentation of the Earth Summit from the UN Office of Public Information (Rio 1992) and Agenda for Change - Plain Language Version (Keating 1993).

¹⁷ NGOs are non-governmental organizations. A sister term often used in conjunction with NGOs is CBOs, which means community-based organizations.

The Rio Declaration

The *Rio Declaration on Environment and Development* is a statement of political principles which was proclaimed by 178 signatory nations. It reaffirmed the *United Nations Declaration of the Human Environment*, Stockholm, 1972 for its foundations and proclaimed three further goals of:

- * establishing an equitable global partnership through the creation of new levels of co-operation among states, key sectors of societies and people;
- * working towards international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system; and,
- * recognizing the integral and interdependent nature of the Earth, our home (Rio 1992, p. 9).

The declaration proclaims 27 principles, 24 of which can be related to Table 1 of this research. The full text of the *Rio Declaration* is located in Appendix A and is annotated to show which principles relate to which elements of Table 1. In relation to the sections of Table 1, twelve of these principles deal with co-operation, common interest and sharing; fifteen principles deal with humanity's changing relationship with nature; nine deal with issues regarding humans' changing relationships with each other; eight deal with issues of rights and responsibilities; and seven imply changing notions of progress. The three principles not related to change in values identified in Table 1 are related to warfare, peace and conflict resolution.

The major themes of the *Rio Declaration* were the development of partnership and co-operation among nation states in the sharing of benefits of economic development, acceptance of responsibility for changing the characteristics of human behaviour in order to bring society into a greater harmony with nature, and a more equitable balance among those peoples who have more than enough with those who barely survive. These are also principal themes in Table 1. Unfortunately, the *Declaration* suffers in its attempt to be acceptable to all nations, by making some statements so general they appear to have little force. For example, Principle 16 states:

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

When one takes into account the indeterminant nature of economic instruments, the vagaries of public interest, and the requirements of not distorting international trade and investment it is difficult to interpret exactly what the polluter pays principle really means. One can detect here, and in other places, a conflict of values enshrined in the *Declaration*. Conflict in values has been referred to previously, and will be addressed later in Chapter 6.

Interesting in its absence is any direct reference in the *Rio Declaration* to change from self-interest to common-interest which is a central tenet of Table 1 and the Brundtland Report. This omission is not surprising, since the *Rio Declaration* is a declaration of nation states as members of the United Nations System, not a declaration to which individuals are called to account. In another sense the *Rio Declaration* is clearly deficient in that it does not recognize that organizations even as complex as nation states are made up of individuals and, since organizations can only act through the will of individuals as their agents, the changes which the declaration so loftily proclaims cannot be achieved unless there is change in the values, attitudes and behaviour of individuals.

Agenda 21

The full title of *Agenda 21* includes the subtitle 'A Blueprint for Action for Sustainable Development into the 21st Century.' In the words of its preamble:

Agenda 21 addresses the pressing problems of today and also aims at preparing the world for the pressing problems of the next century. ... Its successful implementation is first and foremost the responsibility of governments. ... The broadest public participation and the active involvement of the non-governmental organizations and other groups should be encouraged. ... *Agenda 21* is a dynamic program. It will be carried out by the various actors according to different capacities, and priorities of countries and regions in full respect of all the principles contained in the *Rio*

Declaration. ... This process marks the beginning of a new global partnership for sustainable development. (Rio 1992, p. 15)

Agenda 21 is a comprehensive program of action based on the principles in the *Rio Declaration*. It involves 40 chapters in four sections, including Social and Economic Dimensions, Conservation and Management of Resources for Development, Strengthening the Role of Major Groups, and Means of Implementation. It was written by and for governments and was ratified by the same 178 governments which were signatories to the *Rio Declaration*¹⁸. It was a massive exercise in evaluating the way things are in the world, from an environmental and economic development perspective, and in envisioning the way they should be in the future. It was the equivalent, at the global level, of the evaluating and visioning process carried out by Waterloo, Hamilton, London and Nanaimo at the local level. Similar to the *Rio Declaration* on which it was based, the underlying themes were co-operation, sharing the benefits of economic development, acceptance of responsibility, protection of the environment, greater harmony with nature, and more equitable balance among peoples and nations, which are also principal themes of Table 1.

*Alternative Treaties*¹⁹

The *Alternative Treaties* process was conceived by NGOs during the two-year political preparation for the Earth Summit and its progress through four Preparatory Committee (PrepCom) meetings. While the government negotiating process was somewhat open to NGOs, it was also apparent, in the opinion of NGOs, that government negotiators could not deliver an agenda reflecting the serious need for immediate action to change peoples' understanding of economic, material and ethical relations in the world. NGO representatives were increasingly gaining confidence in the legitimate right of NGOs to claim a voice in the

¹⁸ Many paragraphs of *Agenda 21* lend themselves to being interpreted in principle, and in action, by organizations other than governments and also by individuals. Such organizations and individuals 'ratify' *Agenda 21* by their subsequent actions.

¹⁹ This description of the *Alternative Treaties* process is paraphrased from an introduction by Padbury in *Alternative Treaties*, (Pollard *et al* eds 1992)

global policy dialogue and experienced a growing conviction of the need for an empowered civil society.

According to Padbury (in Pollard *et al* 1992, p. 1,2) there was considerable frustration among NGOs with government processes. This frustration was only somewhat tempered by the relative openness of many governments to NGO participation in the Earth Summit process. However, that same openness emboldened many NGOs to assert their legitimacy as drafters of policy, not just as take-it-or-leave-it implementers of government policy. Padbury also stated that as the Earth Summit approached with little evidence (in the view of NGOs) that governments were willing to take responsibility for the environmental and developmental crises facing the planet, NGOs grew angry that their counsel was not being heard or acted upon. The *Alternative Treaties* process was a positive response to that anger and was both an assertion that people in civil society were prepared to try and deal with the crises, and a declaration that they expect governments to do likewise.

In the *Alternative Treaties* process, NGOs were drawn together by a common concern that the local or even the national political stage was no longer big enough to address or resolve the world's environmental and developmental problems. The treaties focused on specific campaigns and programs in which NGO activities and social movements were concentrating their resources and policy work. They emphasized the relevance of learning from each other, co-operating as NGOs and recognizing the significance of the increasingly global nature of the context in which many people are struggling to maintain an autonomous livelihood and preserve their natural environment. The intention of the process was to produce citizens' treaties, each of which would describe a problem, give a brief statement of principles and suggest a plan of action which described what NGOs were prepared to do, or should be prepared to do, to resolve the problem. Quite regardless of their content, the fact of and the process of the *Alternative Treaties* are testament to the values promoted in Table 1: co-operation, acceptance of responsibility, concern for and commitment to repairing the human relationship with nature, and social equity among peoples. In all, 46 *Alternative Treaties*

were negotiated by the NGOs associated with the Earth Summit Process. A list of titles is included in Appendix F.

Reflection

The tabling of the Brundtland Report in the General Assembly of the United Nations brought the issue of sustainable development to the attention of national governments and the media. Subsequent to the Report and its debates in the General Assembly, governments could no longer deny environmental or developmental crises. The two-year preparatory process for the Earth Summit and its culminating achievements of the *Rio Declaration* and *Agenda 21*, together with the parallel activities of the International NGO Forum and its *Alternative Treaties*, involved millions of people, decision-making officials and citizens alike, in the problems, issues and challenges of sustainable development. These activities served as a global awakening to the imperative for reconsidering the collective behaviour of human civilization and the underlying values which direct and guide its decision-making processes.

Underlying the *Rio Declaration*, *Agenda 21* and the *Alternative* is the same assertion that underlies Table 1 of this research: that humanity has reached a point of decision. For example, the *Rio Declaration* began:

With the goal of establishing a new and equitable global partnership through the creation of new levels of co-operation among states, key sectors of societies and people. (Rio 1992, p. 9)

Agenda 21 stated in paragraph 1.1 of its preamble:

Humanity stands at a defining point in its history. We are confronted with a perpetuation of disparities between and within nations, a worsening of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. However, integration of environment and development concerns and greater attention to them will lead to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystems, and a safer, more prosperous future. No nation can achieve this on its own; but together we can, in a global partnership for sustainable development. (Rio 1992, p. 15)

And the opening summary of the *Alternative Treaties* stated:

The citizens of Earth gathered at Rio reject the dynamic of the established institutions of government and business. They celebrate the richness of human diversity and are committed to a common vision of simplicity, peace and reverence for life. Economic growth seriously distorts the conduct of human affairs and its pursuit will lead to self-destruction. But there are many positive actions that can be taken . . . Acknowledging the contributions made by indigenous and religious wisdom, the people of Earth are now pledged to forge their own instruments of social change through the mobilization of civil society in the interests of life on Earth. (Pollard *et al* 1992, p. 3)

People, as individuals, in organizations and in nations, can choose to continue with present policies, actions and behaviour which deepen divisions within and among countries and cause increasing poverty, sickness, illiteracy and continuing deterioration of the Earth's ecosystems on which all life depends. Or people can choose to act to improve the living standards of those most in need, better manage the human use of resources, protect all aspects of the earth's ecosystem and plan for a 'prosperous' future for future generations and all life. This research adds to the *Rio Declaration*, *Agenda 21*, and the *NGO Alternative Treaties* a conscious awareness that the choice should be fundamentally one of change in the values which inform and govern our individual and collective decision-making processes. More specifically, it is a choice to change emphasis from the egocentric side to the envirocentric side of Table 1.

World Summit for Social Development (WSSD)

The World Summit for Social Development received its mandate from the United Nations in the General Assembly debates following the Earth Summit in Rio. Although it drew from both the Earth Summit and the International Conference on Population and Development held in Cairo, 1994, the prime focus of the WSSD was the "urgent need to address profound social problems especially poverty, unemployment and social exclusion". The acknowledged task was to address "both the underlying [i.e. value based] and structural

causes and their distressing consequences in order to reduce uncertainty and insecurity in the life of people.”²⁰ At the first PrepCom meeting, it was noted that:

The dominant model of development raises questions and concerns that, where rights are no longer balanced by obligations and guided by responsibilities, where the search for individual satisfaction is promoted as an end in itself and where the pursuit of personal or group identity takes place at the expense of others, there is a moral crisis at the individual level and an ethical crisis at the societal level. ... Development, whether of individuals or societies, has spiritual dimensions as well as material and political ones. (WSSD 1995b p. 34 para 2)

In the preface to the WSSD report, Secretary General Boutros Boutros-Ghali stated that:

The spirit of the Summit is one which, above all, reflects a sense of solidarity with and among nations. We cannot permit those who are privileged to ignore those who are poor, vulnerable or disadvantaged. ... The acute social ills of today - crime, drugs, disease, disaffection, urban decay and declining standards of education - all have crucial consequences for human society in its largest sense. ... The new economic and social challenge is not confrontation but divergence - the widening divide between those who can make it on their own and those who cannot and will need the co-operation of the international community. (WSSD 1995a, p. v)

The WSSD involved directly some 14,000 people from 186 governments and included 2,300 representatives from 811 NGOs. A further 12,000 people participated in the parallel activities of the NGO Forum. The actual Summit was attended by 117 Heads of State or Government. The Summit produced a *Declaration*, an acknowledgement of the current social situation facing the world, an enumeration of principles and goals of social development, a statement of commitments to action by governments, and a program of action. Among the agreements made by world leaders at WSSD were ten commitments to:

- * eradicate absolute poverty by a target date to be set by each country;
- * support full employment as a basic policy goal;
- * promote social integration based on the enhancement and protection of all human rights;
- * achieve equality and equity between women and men;

²⁰ These descriptions are paraphrased from the official documentation of WSSD (1995a) published by the United Nations Office of Public Information and the unpublished Alternative NGO Statement released by the NGO's at the WSSD in Copenhagen.

- * accelerate the development of Africa and the least developed countries;
- * ensure that structural development programs include social development goals;
- * increase resources allocated to social development;
- * create “an economic, political, social, cultural, and legal environment that will enable people to achieve social development”;
- * attain universal and equitable access to education and primary health care; and
- * strengthen co-operation for social development throughout the United Nations System.

Many of the paragraphs of the WSSD documentation address implicitly the need for changes in values described in Table 1, particularly those in relation to changes in people’s relationship with each other, rights vs. responsibilities and changes in the notion of progress. This implicitness can be determined by taking a number of randomly selected paragraphs describing change and asking the question, “Can this change best be achieved by promoting the egocentric values on the left side of Table 1 or the envirocentric values on the right side?” The result is more often envirocentric than egocentric. Unfortunately, the political process did not allow for dealing with values and ethical issues directly. However, part way through the preparatory process the Summit secretariat endorsed a seminar on the Ethical and Spiritual Dimensions of Social Progress. The seminar was hosted by the Government of Slovenia and although its proceedings were not published until after the Social Summit, they were available in draft form for conference delegates who wished to review them for inclusion in the negotiating process. The introduction to the seminar report states:

By its subject, this seminar was unusual. It might be considered surprising that a debate on ethical and spiritual issues was organized in the framework of the United Nations. Yet the seminar evolved almost “naturally” from the work of the intergovernmental body in charge of the preparations for the Social Summit. Through the initiative of some individuals, and, more importantly, because of the nature of the problems - poverty, unemployment and social [dis]integration - a consideration of the philosophical, ethical and spiritual dimensions of social development, or social progress, became a necessity and almost a moral imperative.

... The debate in [Slovenia] was a modest first step, among others, in the direction of a much needed renaissance of the human spirit that would promote the expression of commonly shared values reflecting the innate goodness and inherent dignity of mankind. (WSSD 1995b, p. 1)

The Slovenia Seminar made some very far-reaching pronouncements with respect to its description of the present and its vision of the future as shown by the following headings:

- * Some features of the spirit of the times are obstacles to social progress.
 - The cult of money threatens humankind and its future.
 - The first of these threats is the invasion of science by money.
 - The second is corruption by money of social institutions and relations.
 - The cult of performance [at all costs] is incompatible with social harmony.
 - Social Darwinism leads to contempt for, and the exclusion of, most people.
 - Economic performance, as defined today, is an obstacle to environmental protection.
 - The cult of instant satisfaction impedes the search for a common and shared future.
 - The dominant culture is one of impatience.
 - Goals and their rapid achievement are considered more important than the process itself.
- * The spirit of the times is also characterized by an emphasis on individual freedom and free enterprise which are sources of social progress.
 - The standards of living rise when the greatest number of people are engaged in enterprise and innovation.
 - Individual freedom is meaningless and is dangerous when not rooted in an ethic enlightened by the spirit.
 - The demand for participation, information and democracy is a positive aspect of the spirit of our times.
- * Human dignity is the central value for political action.(WSSD 1995b pp. 26-34)

The seminar report also included an interesting passage regarding self-interest and the common good:

Self interest is easier to define and satisfy. ... The common good is both a state which is always being renewed and transformed, and also an aspiration. It is a practical necessity, a moral obligation if one realizes that turning inward towards one's self, one's own community, region or nation has no ethical justification or practical value. Today the common good should be experienced and sought at the level of the most individual relationships and at the level of the future of all humanity. (WSSD 1995b p. 35)

WSSD and its Slovenia Seminar support general themes of Table 1, such as co-operation and pursuit of common-interest, sharing the benefits of economic development, acceptance of responsibility for sustainable development and that true profit means an increase in quality of life.

World Bank and Environmentally Sustainable Development (ESD)

During the year following the Earth Summit, the World Bank inaugurated a new vice-presidency for environmentally sustainable development. A few months later, this new department launched an annual conference series to bring together experts and leaders from around the world to address the matter of how development can be made more sustainable on four separate levels:

first, to focus on areas in which the conceptual framework of sustainable development remains weak; second, to provide learning with regard to the effectiveness of alternative policy packages to change behaviour and improve living conditions; third, to strengthen the capacity to implement a change in direction [towards sustainable development] which in many countries remains weak; and, fourth, to persuade citizens and leaders that better ways of doing things are available and worth the costs. (Serageldin and Steer 1991, p. v)

The themes of the first four annual conferences were:

- * 1993, Valuing the Environment;
- * 1994, The Human Face of the Urban Environment;
- * 1995, Effective Financing of Environmentally Sustainable Development; and
- * 1996, Rural Well Being: From Vision to Action.

Each of these Annual Conferences included a number of associated events. Most interesting to this research was an event held in conjunction with the Third Annual Conference, 'Effective Financing of ESD' which was entitled Ethics and Spiritual Values in Promoting Environmentally Sustainable Development. In the preface to the report of this associated event Serageldin, (1996, p. v) wrote that:

Two realizations quickly became clear: that values lie at the very heart of our behaviour and that sustainable development will occur only when we have belief systems that respect all life, assign priority to the common good, engender responsibility for the whole, promote equality and support unconditional caring. There was agreement that the values that drive our industrialized and rapidly developing societies are not working in these directions. The pollution of air, water and land increases and the gap between rich and poor grows wider. The issue of consumption by the rich proves just as important to sustainable development as the issue of environmental degradation by the poor. In the end we all must accept personal responsibility for our planet.

In an institution such as the World Bank, it would be easy to assume that economic, monetary and materialistic values predominate; however, in a keynote address to this event, the President of the World Bank, James D. Wolfensohn, like Serageldin, also identified that other values are important to the work of the World Bank. He wrote that:

. . . the central mission of the World Bank is to meld economic assistance with spiritual, ethical, and moral development. It is in this context that we need to measure our progress and relate to groups with whom we are dealing. At the Bank we are trying to find ways to measure ourselves not by dollar value but by the impact and the effectiveness of our programs in terms that relate to the development of society. (Serageldin 1996, p. 1)

This event of the World Bank conference was a rich outpouring of expert opinions which support many of the changes in emphasis of values presented in Table 1. For example, Willis Harmon, President of the Institute of Noetic Sciences, stated:

Sustainable development is not a matter of patching up environmental damage but rather of somehow shifting things around so that a qualitatively different development becomes possible - the kind of development that liberates the human mind and spirit; that promotes self-reliance, cultural diversity and mutual respect; that casts off the yoke of fatalism, self-denigration and submission to external authorities. (in Serageldin 1996, p. 6)

Harmon's comments are relevant to most elements of Table 1 and also to the concept of a change in paradigm elaborated above.

Norman Rice, Mayor of the City of Seattle, stated:

If we are serious about sustainable communities we need to redefine success in our national and global cultures. We need to stop defining success in terms of how many resources we consume. Let us define success in more durable and spiritual terms, not just in our quantity of consumption but in our overall communal quality of life; not just in terms of our well-being, but in our neighbours' well-being as well. (in Serageldin 1996, p. 16)

His comments are relevant to element 13 of Table 1.

Terry Mollner, Chair and co-President of Trusteeship Industries Inc., described promoting a quality of village life on a global scale:

In village life the common good and the good of each remains forever the top priority. ... The chronic problems of violence, greed, poverty and loneliness can be solved only by understanding the difference between the material worldview based on self-interest and a relationship world view based on re-villaging. (in Serageldin 1996, p. 22)

His comments are relevant to elements 1 and 2 from Table 1.

Thomas Berry, President of Riverdale Centre for Religious Research, stated that:

... this separation [between human and non-human] is the pathology of the West. A society such as ours that poisons its air, ruins its waters and soils and considers its progress is a strange thing. There is a deeply hidden rage in the Western soul that says we are not going to accept life under the conditions and limitations that nature has granted us. Nature is surely going to have the final word, however. The human community and the natural world will go into the future as a single, integral community, or we will both experience disaster. (in Serageldin 1996, p. 27)

These comments are relevant to elements 3 and 4 from Table 1.

Ambassador John McDonald, Chair of the Institute of Multi-Track Diplomacy, made a simple comment which, with the inclusion of one word, 'peaceful', spoke to all elements of Table 1. He said:

We know that intra-state ethnic conflict is rampant in many countries of the world in which the World Bank is now, or will be, working. Why not acknowledge this and start talking about the need for sustainable 'peaceful' development. (in Serageldin 1996, p. 29)

Serageldin (1996, p. 41) offered a comment which embodies the evolution of the busy-ness of economic development to the patience and compassion of sustainable development which supports element 6 of Table 1:

While it is true that the private sector is the engine of growth, we also need to temper the market's ruthless efficiency of allocation with a nurturing, caring state.

Denis Goulet of the Department of Economics at the University of Notre Dame quoted John Galbraith in speaking of the overall importance of embracing value considerations as an integral aspect of sustainable development. He said that:

many years ago John Galbraith wrote that the most important question facing economists and the discipline they practise is the following: What is production for? Galbraith said that all economists have studiously avoided answering that question because it would involve value judgement. (in Serageldin 1996, p. 11)

Summary comments by the editors promoted the importance of collective responsibility which relates to elements 9, 10 and 11 of Table 1.

Sustainable development begins in the community with local participation. The participation process itself should be regarded as integral to community building, an essential right of peoples and communities and an institutional obligation in the planning process. Donors should consider themselves supporters and facilitators of these processes, rather than leaders. (Serageldin 1996, p. 33)

In this short two-day event held in association with the World Bank conference concerning effective financing of environmentally sustainable development we find, from some of the world's leading spiritual and ethical thinkers speaking from both philosophical and pragmatic points of view, support for all elements of change in emphasis of values described in Table 1.

Habitat II ²¹

Habitat II at Istanbul in June 1996 was the last in the series of global conferences mandated in the United Nations General Assembly debates following the report of the Earth Summit ²². The two themes of the conference, of equal global importance, were 'Adequate Housing for All' and 'Sustainable Human Settlements Development in an Urbanizing World'. It was, therefore, immediately a recognition that cities are key fora for realizing sustainable development. At Habitat II the conference leadership provided an historic opportunity for representatives of civil society to make presentations directly to the United Nations system.

²¹ These notes rely on Internet documentation and the experience of the author who attended PrepCom III and Habitat II as an NGO representative and as an executive member of the International Facilitating Group of the NGO Forum.

²² It will not be the last of high level international political meetings on the subject of sustainable development and all its associated implications. Others are already being planned.

From the outset of the Preparatory Committee (PrepCom) process, the conference leadership established the position that, since civil society will have a crucial role in carrying out whatever ‘outcome’ agenda was to be established by the conference, it must also be able to participate and contribute to establishing what that outcome would be. Throughout the PrepCom process the conference made provision for NGOs to participate, without actually entering diplomatic debate, in the activities of drafting the conference documentation. It did this by opening up the normal Committee 1 processes and establishing a special Committee 2 at the Conference, both of which are described below.

The issue of how civil society was to be formally received into the process of envisioning and articulating the future of human settlements, and more especially, carrying out the results of the conference afterwards, received a great deal of attention by both the PrepCom Bureau and the full Plenary²³ of the PrepCom. Although ‘traditional’ NGOs were pressing the hardest for recognition and the right to participate at PrepCom III, other groups, such as local governments, business, professionals, unions, higher education, financial institutions and elected representatives outside of national governments all showed an interest in Habitat II (i.e. the future of human settlements). The conference’s solution to receiving the participation of civil society (NGOs) was two-fold. The first part was to allow NGOs to submit written suggestions directly to Committee 1, which was the working body responsible for preparing the *Istanbul Declaration on Human Settlements*, which was the political statement, and the *Habitat II Agenda* which was the action plan.

The second part of the solution was to establish a Committee 2 for operation at the final Habitat II conference in Istanbul. Its role was to hear evidence and testimony from civil

²³ The author was informed by the chairman towards the end of PrepCom III that, considering the amount of debate time allocated by the full plenary and the ‘Bureau’, the question of how civil society was to be involved in the process of negotiating and carrying out the *Habitat II Agenda* was, by far, the most important and the most difficult issue the conference faced.

society during the actual Habitat II conference in relation to the work of Habitat II and to make the testimony which came before it part of the official record of the Conference. The establishment of Committee 2 divided civil society into eight sectors and formally recognized them all as potential partners to senior governments in carrying out the *Habitat II Agenda*. The eight sectors were Cities and Local Governments, NGOs and CBOs, Education, Business, Professionals, Foundations, Unions, and Parliamentarians. Committee 2 did not, in fact, empower any of these groups to be partners *per se*. It simply recognized them as potential partnership sectors and invited them, assuming them to be both partners and 'sectors,' to formally address the conference. The partnership sectors were responsible for their own internal management. Each of the partners was invited, in the document establishing Committee 2 (A/CONF.165/10/Rev.1), to present several things:

- * A brief description of the partner's role in the preparatory process for the conference and the proceedings of the partner's forum at Istanbul;
- * A succinct summary of the issues involved in the Habitat II objectives, 'adequate housing for all' and 'sustainable human settlement development in an urbanizing world' from the point of view of the partner;
- * Specific commitments on the implementation and strategy for the *Habitat II Agenda*;
- * Constraints at the international, national and local levels which, in the view of the partner, should be removed or attenuated so that commitments could be fulfilled.

This action by the conference to open its formal process to the intervention and direct participation of agencies other than member delegations was precedent setting. All the partnership sectors had representatives in Istanbul who met in their own fora to prepare written and verbal submissions to Committee 2. The author's involvement was with the 2,580 NGOs and CBOs registered with the NGO forum, all of whom had up to five representatives. The objective to produce a written statement and verbal presentations in the ten days (or fewer) available at Habitat II from approximately 10,000 people, most of whom had their own message to impart to the UN and the world, was an enormous challenge.

The prime outcome of Habitat II, that is of interest to this research, is the *Istanbul Declaration of Human Settlements*, and some of the testimony heard by Committee 2. In many respects the *Istanbul Declaration* accepts as given that the world is at a 'time of

decision'. It supports the elements of change in values described in Table 1, and Assertion 3 that cities are the prime fora in which sustainable development must take place. As stated by the *Declaration* itself: ²⁴

We [the Heads of State or Governments and official delegations] have considered, with a sense of urgency, the continuing deterioration of conditions of shelter and human settlements. At the same time, we recognize cities and towns as centres of civilization, generating economic development and social, cultural, spiritual and scientific advancement. We must take advantage of the opportunities presented by our settlements and preserve their diversity to promote solidarity among all our peoples. (Istanbul 1996a, para. 2) [A3, TD]

To improve the quality of life within human settlements, we must combat the deterioration of conditions that in most cases, particularly in developing countries, have reached crisis proportions. To this end, we must address comprehensively, inter alia, unsustainable consumption and production patterns, particularly in industrialized countries; unsustainable population changes; homelessness; increasing poverty; unemployment; social exclusion; family instability; inadequate resources; lack of basic infrastructure and services; lack of adequate planning; growing insecurity and violence; environmental degradation; and increased vulnerability to disasters. (Istanbul 1996a, para. 4) [2, 3, 6, 13]

In order to sustain our global environment and improve the quality of living in our human settlements, we commit ourselves to sustainable patterns of production, consumption, transportation and settlements development; pollution prevention; respect for the carrying capacity of ecosystems; and the preservation of opportunities for future generations. In this connection, we shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of different contributions to global environmental degradation, we reaffirm the principle that countries have common but differentiated responsibilities. We also recognize that we must take these actions in a manner consistent with the precautionary principle approach, which shall be widely applied according to the capabilities of countries. (Istanbul 1996a, para.10) [1, 2, 3, 4, 5, 9, 10, 11, 13]

We adopt the enabling strategy and the principles of partnership and participation as the most democratic and effective approach for the realization of our commitments. Recognizing local authorities as our closest partners, and as essential,

²⁴ Numbers and letters in square brackets refer to the relevant elements of Table 1. When 'A3' appears in the square brackets, it refers to Assertion 3 in Chapter 2 and 'TD' refers to the fact that the world is facing a Time of Decision.

in the implementation of the Habitat Agenda, we must promote decentralization through democratic local authorities and work to strengthen their financial and institutional capacities in accordance with the conditions of countries, while ensuring their transparency, accountability and responsiveness to the needs of people. (Istanbul 1996a, para. 12) [1,2,7, A3]

While the *Istanbul Declaration* is the political statement of governments, the report of Committee 2 represents the positions taken by the non-governmental, or partnership sectors.

Similarly, there is support from the Committee 2 Report for Assertion 3, the elements of change in values described in Table 1 and support for the idea that the world is facing a 'time of decision'. As reported by the Chairman of Committee 2:

The partners responded well to the invitation to define their roles in implementing the Habitat Agenda and to record their commitments as an integral part of the deliberations of the Conference. The representatives of the World Assembly of Cities and Local Authorities determined to institutionalize the coordination mechanisms that had been established to prepare for the Conference. They also committed themselves to pursuing closer partnerships with the United Nations in the implementation of the Habitat Agenda and to continuing their efforts in pursuit of a global charter for local self-government. The Business Forum representatives pledged to build on the encouraging results obtained thus far in mobilizing the support and involvement of socially and environmentally responsible companies all over the world. All partners stated their intention to continue working with the United Nations Centre for Human Settlements (Habitat) and other members of the United Nations system. (Istanbul 1996b, para. 12) [A3, TD, 1, 12, 13]

The report of Committee 2 also detailed the results of the various partnership forums and their testimony before Committee 2. From the Cities and Local Authorities Forum:

The participants stressed that human settlements development should be seen as an essential component of achieving sustainable human development in general. It is therefore essential to promote, in an integrated way, economic development, equity, social progress, environmental awareness and gender sensitivity in all human settlements development. Local authorities have a crucial role to play in this process; and in many sectors, such as public health, employment, environment, education and community services, the local authorities are closest to the problems and are the best placed for finding the most effective solutions through the mobilization of local energies, imagination and resources. (Istanbul 1996b, para 23-(Local Authorities Forum)) [A3, 1, 2, 3, 4, 5, 6, 8, 12, 13]

Testimony from the World Business Forum was comprehensive and far reaching. Even the most pessimistic people who believe that the role of business is, in the final analysis, only the pursuit of profit, market share and power, could hardly fail to find hope in the testimony of the World Business forum. For optimists, this testimony was exciting.

The World Business Forum advanced the discussion on the responsibility of business for the sustainable and just development of societies. One of the main conclusions was that civilizing society so as to create a sustainable habitat was no longer the responsibility and function of the State alone, but a challenge for all societal actors, including enterprises and elected authorities. ... Forum participants stated that they were now calling for a new partnership approach whereby international agencies, national and local governments, businesses, non-governmental organizations and citizens groups would act in concert in a democratic society to develop new strategies to address the problems facing cities everywhere. ... It is often thought that there is a major conflict between the social and environmental goals of society and the profit-making goals of the business world. The [business] presenters, however, argued that this was not necessarily the case. ... The participants were thus unanimous in advocating greater social responsibility for corporations in the provision of adequate housing and sustainable urban development. The private sector, especially transnational corporations, were urged to adopt a proactive stance in the social programmes of countries where they operate; this was seen as a moral and legal obligation. Participants viewed capitalism as moving away from the old norm of simply making money towards an enlightened approach where the profit motive is tempered with social responsibility. ... Environmental protection was seen as a responsibility of the business community, which would need to make greater use of environmental management technology so as to reduce polluting industrial wastes. Governments and the private sector were urged to take immediate steps to prevent the dumping of hazardous wastes in developing countries and to place emphasis on the development of pollution-free industries. (Istanbul 1996b, para. 28 (the World Business Forum)) [A3, TD all elements of Table 1]

Testimony of the NGOs, when read in the context of the *Istanbul Declaration* by national governments, the Local Authorities and the World Business Forum, is similarly cause for great hope for sustainable development:

Several [NGO] participants recognized the historical importance of bringing central Governments and local authorities together with NGOs and the private sector for an open and constructive dialogue on human settlements issues. Other participants stressed that in implementing human settlements improvements, partnerships were essential for achieving sustainability. ... The NGOs expressed their firm commitment to full and active participation in the implementation of the Habitat Agenda.

However, a clear concept should be developed as to which roles the different actors should play as equal partners, and what the mechanisms for cooperation should be. It was underlined that NGOs had a vital role to play as partners to Governments when implementing the Habitat Agenda, because they had strong links to the grass-roots level and represented large interest groups. They have developed the skills and expertise needed for capacity-building at the local level and for mobilizing resources. Community participation and applying holistic approaches to complex problems, such as poverty, are areas where NGOs have a comparative advantage. (Istanbul 1996b, para. 68 (NGO Forum)) [TD, 1, 2, 8, 13]

Committee 2 of Habitat II only existed for the duration of the conference. However, the vision of partnership sectors working with each other, and with senior governments, to achieve sustainable human settlements in an urbanizing world lives on. So also does the realization that, while the ideal of partnership is much vaunted and widely accepted, its achievement poses great challenges. It presumes an emphasis on the values and attitudes on the envirocentric side of Table 1. In reality, the values and attitudes on the egocentric side of Table 1 are deeply imbedded in our collective and institutional psyche as will be seen in the discussion concerning Earth Summit+5.

Earth Summit+5

Earth Summit+5, formally known as "The Nineteenth United Nations General Assembly Special Session to Review Implementation of *Agenda 21*", was mandated by the United Nations General Assembly to be a five-year review of progress towards sustainable development since the original Earth Summit in 1992. At the Earth Summit in Rio de Janeiro, June 1992, almost all of the world's national governments, on behalf of their peoples, businesses and institutions, made wide-ranging, fundamental commitments regarding the biophysical, social and economic environment of the earth. These became enshrined in the *Rio Declaration* and *Agenda 21*. Since the Earth Summit, state, provincial and local governments, transnational corporations, civil society at all levels and individuals the world over have endorsed and accepted these commitments by accepting and adopting the vision and verbiage of sustainable development. In preparation for Earth Summit+5,

reams of reports were produced by member states, as well as by local governments, non-governmental organizations, business corporations, academic and research institutions. Earth Summit+5 was to be a compilation of all this analysis²⁵. But at Earth Summit+5 the implications of the commitments made five years earlier came full circle and the international political world was not ready for them.

Although there has been progress toward sustainable development in terms of increasing awareness of the problems and challenges, from an international political perspective, achievement of sustainable development since Earth Summit has been poor. In the words of Earth Negotiations Bulletin:

The *Earth Summit+5* proved to be a sobering reminder that little progress has been made over the past five years in implementing key components of *Agenda 21* and moving towards sustainable development. (ENB 1997, p1)

With respect to a review, which was the mandate of Earth Summit+5, the national delegations of the United Nations did not do a good job negotiating an official document to detail the lack of political progress or what must be done to get back on track with previous commitments. Furthermore, the members of civil society which participated (NGO's, business leaders, representatives of local governments and others) did not do a good job of *requiring* their political leaders to bring facts into the open in the status of an official report. The reason for this was that the mandate of Earth Summit+5 did not define 'progress'. Consequently, the review process only sought to consider part of the issue. Member states reviewed only those elements of 'progress' which were in accordance with their own worldview. The whole review of progress towards sustainable development should have involved first perceiving that changes in values are inherent in the commitments made at Rio under the umbrella of sustainable development; second, understanding their implications with respect to political change; and third, articulating the political parameters of change

²⁵ These descriptive notes rely on Internet documentation and the experience of the author who participated in *Earth Summit +5* as an NGO delegate and as a journalist for the daily Newsletter "Outreach", published by the NGOs.

from one set of values and change toward another set of values. Earth Summit+5 fell far short of that.

The description by Earth Negotiations Bulletin of the plenary debate (i.e. the meeting of Heads of State or Government and Official Delegations) presents a sobering picture:

Speakers generally agreed that in the five years since UNCED, the concept of sustainable development has come to inform economic planning worldwide. The principles of *Agenda 21* are being codified into national legislation, and major new conventions on climate change and biodiversity are being applied. ... Nevertheless, there was apparent consensus that much more needs to be done. Developing countries argued that their efforts to implement *Agenda 21* have continued to be hampered by lack of resources. Many countries stressed that implementation of *Agenda 21* requires new and additional financial resources and technology sharing.

Despite commitments made at Rio, consumption and production patterns remain unsustainably high, official development assistance (ODA) has actually declined, deforestation continues and developing countries lack essential 'green technologies.' Several speakers pointed out that one third of the world's population did not have access to clean drinking water.

Several speakers noted that, worldwide, foreign investment has replaced overseas development assistance in amount and frequency. Yet, foreign investment is not an appropriate replacement for ODA. Based on economic, rather than developmental, objectives, such investment necessarily yields selective benefits. (ENB 1997, p. 3,4)

Negotiations on the text of the Earth Summit+5 progress report began at the Commission for Sustainable Development(CSD) Ad Hoc Intercession Working Group meetings (24 February - 7 March 1997) and continued at the Fifth Session of CSD (8 - 25 April 1997). Earth Summit+5 also met as a Committee of the Whole for ten days prior to the actual Summit and until the last meeting of the Summit. In the last meeting of the Committee of the Whole, the long negotiated political statement, upon which consensus was so elusive, was withdrawn and replaced with a six-paragraph statement of commitment which was formally adopted in the final session of Earth Summit+5. Earth Negotiations Bulletin describes the contentious issues:

Among the issues that generated considerable debate were: the definition of sustainable development; incremental costs; time-bound commitments; commitments regarding ODA; domestic mobilization of resources; listing the sectoral themes for the CSD's focus in the next five years; and an invitation to the Secretary-General to develop strategies for long-term sustainability. The Co-Chairs of the finance ministers' group drafted proposed text on financial resources to be included in the political statement, but the US, India, Brazil, Belaurus, Iran, Saudi Arabia, Germany, Venezuela and Japan expressed serious difficulty with the text. (ENB 1997, p. 5)

The last minute Earth Summit+5 Statement of Commitment included the following:

Our focus at this special session has been to accelerate the implementation of *Agenda 21* in a comprehensive manner and not to renegotiate its provisions or to be selective in its implementation. We reaffirm that *Agenda 21* remains the fundamental programme of action for achieving sustainable development. We reaffirm all the principles contained in the *Rio Declaration* on Environment and Development and the Forest Principles. We are convinced that the achievement of sustainable development requires the integration of its economic, environmental and social components.

We acknowledge that a number of positive results have been achieved, but we are deeply concerned that the overall trends with respect to sustainable development are worse today than they were in 1992. We emphasize that the implementation of *Agenda 21* in a comprehensive manner remains vitally important and is more urgent now than ever.

Time is of the essence in meeting the challenges of sustainable development as set out in the *Rio Declaration* and *Agenda 21*. To this end, we recommit ourselves to the global partnership established at the United Nations Conference on Environment and Development and to the continuous dialogue and action inspired by the need to achieve a more efficient and equitable world economy, as a means to provide a supportive international climate for achieving environment and development goals. We therefore pledge to continue to work together, in good faith and in the spirit of partnership, to accelerate the implementation of *Agenda 21*.

We commit ourselves to ensuring that the next comprehensive review of *Agenda 21* in the year 2002 demonstrates greater measurable progress in achieving sustainable development. The present Programme for the Further Implementation of *Agenda 21* is our vehicle for achieving that goal. We commit ourselves to fully implementing this programme. (UN 1997, p. 3,4)

The mere fact that, having failed to negotiate a political statement, the nations of the world felt such a strong need to recommit themselves and do little more, is mute testimony to the lack of progress. It is also mute testimony to the relevance of perceiving and understanding sustainable development in the context of change in values as described in Table 1. The President of the United Nations General Assembly, Ambassador Razali, captured the solemn reality of Earth Summit+5 in his closing speech as reported by Earth Negotiations Bulletin:

... General Assembly President Razali Ismail ...turned the collapse of delegates' efforts to prepare a media-friendly 'Political Statement' for Heads of State into the message itself: This was not a time to paper over the cracks in the celebrated 'global partnership' for sustainable development and pretend that things are better than they are. This was a time for sober assessment, honest acknowledgement that 'progress to operationalize sustainable development remains insufficient,' and an acknowledgement of the enormous difficulties of overcoming short-term and vested interests that would enable concrete commitments to specific targets and global programmes. As Ambassador Razali commented, such an honest appraisal was a result in itself and was perhaps the key outcome of the Special Session. The lofty expectations launched in Rio collided with the street-wise realpolitik of diplomacy at UN Headquarters. (ENB 1997, p. 27)

REFLECTION

The Brundtland Report presents sustainable development as a pattern of evaluating present situations which are deemed to be no longer appropriate or acceptable and envisioning processes to achieve future states of being which are deemed to be more desirable. This pattern was repeated as a philosophical approach in the derivation of Table 1. It has been described in four situations on a practical local level, and also in five situations at an international institutional level.

At a practical local level, evaluating the present and envisioning the future was reviewed. In Kitchener/Waterloo the review committee noted that local government has the leadership role in sustainable development, participation from all social sectors is important and the prime objective is an improved quality of life. The committee also noted that past patterns of behaviour by various sectors of society, including government, are no longer acceptable and it called for changes in attitudes, habits and lifestyles. In the visioning exercise by

Hamilton, there was no mention of sustainable development and very little evidence of attention to underlying values. In many respects the vision of the future appeared to be continuation of the past and present with refinements. Similarly, there was little evidence that the city of Hamilton would embrace the changes described in Table 1 as inherent in sustainable development. The experience of London was very different. London engaged in a comprehensive review and visioning process which involved wide participation from the community. It identified the need and desire for almost all the changes in values embodied in Table 1. The city of Nanaimo also conducted an ambitious review and visioning process, resulting in emphasis on virtually all aspects of the values on the sustainable development side of Table 1. In three of these four examples, a future which envisions interdependence and balance among economics, environment and social equity, i.e. a sustainable development future, is closely associated with the changes in emphasis of values described in Table 1. In the fourth, not much fundamental change from the present appears to be envisioned.

At the international institutional level, the experience of four of the five examples support Table 1. The fifth demonstrated the result of ignorance of the changes in values described in Table 1. The *Rio Declaration* at the Earth Summit, which championed sustainable development, supported almost all elements of change in Table 1. The overwhelming themes of the *Rio Declaration* were the development of partnership and co-operation among nation states in the sharing of benefits of economic development, acceptance of responsibility for changing the characteristics of human behaviour in order to bring society into a greater harmony with nature, and a more equitable balance among those peoples who have more than enough and those who barely survive. These are also principal themes in Table 1. Similarly, the underlying themes of *Agenda 21* are also principal themes of Table 1: co-operation, sharing the benefits of development, acceptance of responsibility for change, protection of the environment, greater harmony with nature and more equitable balance among peoples and nations. The *Alternative Treaties* proposed by the NGOs at Rio were also testament to the change in values in Table 1 and underlying all of the *Rio Declaration*,

Agenda 21 and the *Alternative Treaties* is the same assertion that underlies Table 1: that humanity has reached a point of decision.

In the report of the WSSD many of its paragraphs imply the need for changes described in Table 1, particularly those referring to people's relationship with each other, rights vs. responsibilities and changes in the notion of progress. The WSSD and its Slovenia Seminar support principal themes of Table 1 such as co-operation and pursuit of common interest, sharing the benefits of development, acceptance of responsibility for sustainable development and that true profit means an increase in quality of life. In the short two-day event held in association with the World Bank conference concerning effective financing of environmentally sustainable development, some of the world's leading spiritual and ethical thinkers, speaking from both philosophical and pragmatic points of view, supported all elements of change in emphasis of values described in Table 1. At Habitat II, the *Istanbul Declaration* and some of the testimony received by Committee 2, provided strong support for almost all the elements of change in Table 1 and for Assertion 3 that cities are the prime fora in which sustainable development must take place. Strong support was also registered by cities and local authorities and the international business community. However, it was also evident at Habitat II that although pursuit of sustainable development presumes an emphasis on the values on the envirocentric side of Table 1, in reality the values on the egocentric side of Table 1 are deeply embedded in our collective psyche. The magnitude of influence of the values on the egocentric side of Table 1 became evident at Earth Summit+5. The reason for, and the importance of, the conference was to evaluate the progress made towards achieving the changes in values described on the envirocentric side of Table 1. Instead, the conference floundered upon the deeply embedded values of the egocentric side of Table 1. The failure of the world's nations to negotiate a political statement proclaiming progress towards sustainable development is mute testimony to the relevance of perceiving and understanding sustainable development as a process of change in values described in Table 1.

It is appropriate also to reflect on the findings of Chapter Two in which the entrepreneurial aspects of the three components of sustainable development (economics, environment and social equity) were recognized as being independent and in competition with each other but also being interdependent and requiring a co-operative approach to challenges. With regard to Table 1, it can now be seen that the egocentric values on the left side of Table 1 operating among the various development efforts of economics, environment and social equity are what produce tension and tend to keep these three themes in conflict with each other. It can also be seen that interdependence, co-operation and the pursuit of sustainable development can better be achieved through the envirocentric values on the right side of Table 1. This should not be interpreted as meaning Table 1 defines an either/or choice. The values on both sides of Table 1 have probably always been present in society and probably always will be. However, the indication is that greater emphasis is needed on envirocentric values.

SUSTAINABLE CITIES

This research began with a local component in that it recognized in Assertion 3 the importance of the local community, especially in the Developed World. However, as was pointed out by McLaren (1992, p. 1), at that time sustainable development was very much a national and international concept, although it received pragmatic interest at the regional and local level in Canada.

Since the publication of the Brundtland Report in 1987, governments at all levels in Canada have become increasingly active in promoting the concept of sustainable development. Research undertaken in the field to date focuses almost entirely on sustainable development at the national and international levels. . . . There has been little analysis of the methods for, and implications of, adopting sustainable development practices at the local level. In the absence of such research, municipalities attempting to resolve pressures in the urban environment are lacking in guidance about what sustainable development initiatives are possible, what will work, and what will not.

In the last two years many authors (as detailed below) have endorsed and corroborated many of the ideas put forward in this research:

- * that economic, environmental and social difficulties are reaching crisis proportions and dealing with them cannot be avoided;
- * that a recognition and relaxing of the predominance of economics is not only needed, it is happening;
- * that profound change in values by individuals, organizations and even at the roots of societal institutions is necessary;
- * that there is a growing realization that focus of change must happen at the municipal level and be value based; and
- * that national and international agencies must help to focus and facilitate change at the local and municipal level.

This research will provide in the following chapters a case study whereby the local community can develop guidance from within the community itself as to what sustainable development initiatives will work, and what will not. Furthermore, it will provide a model for generating understanding at the community level of the implications of adopting sustainable development practices, at least in terms of the community's own values. However, it is relevant here to review recent literature on sustainable cities to place this research in the context of the evolving phenomenon of sustainable development at the local level. A wealth of literature regarding sustainable cities began to emerge immediately prior to and following Habitat II.

Economic, Environmental and Social Stress in Cities

As part of the preparations for Habitat II, the UN Centre for Human Settlements (UNCHS) convened a group of experts at the UN in New York to consider the changing patterns of consumption in human settlements. Noting particularly the increasing environmental stress at all levels, these experts advanced the concept of sustainable consumption and identified cities as the most important fora in which to put production and consumption in balance.

Sustainable consumption means ensuring that the goods and services required to meet everyone's consumption needs are delivered without undermining the environmental capital of regions, nations and the world. Currently unsustainable patterns of production and consumption are depleting scarce non-renewable resources, degrading or destroying resources that should be renewable (such as soils and forests) and generating wastes that are beyond the capacity of natural systems to breakdown or absorb without ecological damage. ... More efficient and effective use

of resources and a commitment to minimizing waste is needed in all sectoral policies.

Cities in particular, with their concentration of people and production, their administrative functions and their role as arenas for opinion-forming and communications, provide many opportunities to create synergistic links among sectors. (UNCHS 1997, pp. 1,2) [1,2,3,4,5]²⁶

Dr. Wally N'Dow (1997), Secretary-General of Habitat II, endorsed the idea of cities as the key arena for sustainable development but also noted that the responsibility lies with the people who live in the city.

It is not cities per se that are responsible for most resource use, waste, pollution and greenhouse gas emissions, but particular industries and commercial and industrial enterprises and middle and upper income groups with high consumption life styles. Cities have the capacity to combine safe and healthy living conditions and culturally rich and enjoyable lifestyles with remarkably low levels of energy consumption, resource use and waste. (N'Dow 1997, p. 48) [4,5,10,11]

Wackernagel *et al* (1997) calculated and compared the ecological footprints of 52 large nations inhabited by over 80% of the world's population. Their study compares what humanity takes from nature with what nature has available to give. The unit of comparison is a hectare of natural land area. One key finding is that as of 1997 humanity overall uses 35% more resources and 'eco-services' than nature has available to offer, and this ratio had increased from 25% in 1992. Unquestionably, human society is depleting its natural capital resource base. According to Wackernagel *et al*, there are only seven nations in the world whose ecological foot print is smaller than nature's bounty. Six are developed nations. There are 26 nations with more than one hectare per capita deficit, 20 of which are developed nations. There are 16 nations with more than two hectares deficit, all of which are developed nations. The majority of developing countries are close to being in balance with their environment. Although developing countries may pose a threat to the environment in that their people aspire to increasing levels of material development similar to those they know exist in developed countries, it is clear from Wackernagel's work that the current population problem, in terms of its impact on the environment, belongs to the developed world.

²⁶ Numbers in square brackets refer to relevant elements of Table 1.

Relaxing the Predominance of Economics

Simai (1997) noted the importance of recognizing the dominance of economic issues and acting to bring economics, environment and social issues into greater balance.

The Globalization of economic development has allowed economic, technical and social changes to exert increasingly global influences on the global ecosystem. This has turned the environmental sustainability of development into a global issue. The world cannot afford to continue its present patterns of wasting resources and inflicting ecological damage. (Simai 1997, p. 60) [3, 12]

Emmerj (1997) had an interesting and provocative interpretation of competition. He noted that the current meaning denotes a philosophy and a force in society which is becoming destructive. But he also suggested that the original meaning of competition, from the Latin 'cum petere' meaning searching together, is really what is needed. He warned that destructive competition is bound to fail, and society with it.

The origin of the verb "to compete" is "cum petere" which means searching together. This definition is a far cry from the current meaning of competition. It is now an arm with which to wipe out an adversary. It has become an ideology and an imperative.

... Competition is in the process of becoming the only solution to the problem of globalization. The result is that societies are ever more engaged in a battle without mercy. ... Such an extreme system is bound to flounder. Indeed extreme competition diminishes the degree of diversity in a society and contributes to social exclusion. Individuals, enterprises, cities and nations that are not competitive are being marginalized and eliminated from the economic race. This is unacceptable morally and inefficient economically. The more a system loses its variety, the more it will lose its capacity to renew itself. But above all, the ideology of competition devalues co-operation - searching together. (Emmerj 1997, p. 103) [1,6,8]

Profound Change in Values by Individuals, Organizations and Cities

The whole matter of human values, and more importantly, change in human values, is becoming recognized as having central importance to sustainable development. Indeed, even in situations which are not particularly identified with sustainable development, scholars and ordinary people are recognizing that change in human values is key to change in society. Suzuki and Keibo (1996) sought out and interviewed a number of sages in their quest to

understand values in Japanese society. Many comments reflected the reality of change in values as a deep searching for new meaning.

Ahagon has come to understand that war is dehumanizing, transforming otherwise rational men into devils. One can never push out all the devils; when one leaves others come in. The challenge is to change devils back into human beings. ... Finally we came back to a recognition of the powerful influence of economics and the way materialism and money seem to have over-ridden past values. (pp. 62, 64)

The Challenge is to control the human impulse to be selfish. We need to create a sense of higher self, [which] people get from family and traditional communities. One's sense of comfort, well being and meaning come from belonging to family and community. Community becomes an extension of that self. (p. 67)

And viewing society more generically and with a cities' perspective, Suzuki and Keibo (1996) observed that:

The most remarkable movement in the twentieth century has surely been the shift of people from agrarian societies to cities. From fewer than fifteen cities of more than a million people in 1900, humanity now occupies more than 400! More than half of our species now resides in cities, and the flow of people into them has become a raging torrent. But in such human created environments, in which the only contact many have with food is at the supermarket, we become increasingly alienated from the biological world that supports us. (p. 282)

With lightening speed, humanity has undergone a fundamental shift in our connection with the earth. Large parts of the population now work in factories and offices far removed from the life-sustaining activity of growing or gathering food. (p. 283)

Throughout human history, people have understood the interconnectedness of everything -- past, present, future, the rocks, stars, trees and ourselves. Therefore everything we do has repercussions throughout the universe. Modern science has tended to fragment our view of the world, but now physics is restoring the notion of interconnectedness. (p. 295)

In preparation for the global conference in Istanbul, Habitat II convened a meeting of experts in Marmaris, Turkey, to consider the challenges facing cities in an urbanizing world and to inquire how to make cities more people-oriented. The Marmaris Report made many

recommendations addressed to Mayors and municipalities but some were more general and reflect the themes of this research.

... but more humane and sustainable cities will depend on all of us taking responsibility. It will depend on the partnership between the state and the private sector, between rural and urban areas, between employed and unemployed, among the different levels of government and between industry and developing countries. (UNDP 1996, p. 3) [1, 10, 11]

The problem is not the rate of change. Neither is it the absolute number of city populations. Megacities with more than 10 million inhabitants attract a lot of attention but they are home to only about 3% of the world's population. The real challenge is that urban development is rapidly becoming unsustainable. This is true environmentally, socially and in the longer term also economically. ... The problem is the neglect of human and environmental concerns in our past development strategies. Put differently, it is our past over-emphasis on economic growth. (UNDP 1996, p. 7) [3,4,5,12]

Participants in the Marmaris Round Table suggested that future development policy - including urban development policy - should have three major elements:

1. Balance - in the sense of greater consistency between economic growth and environmental and social concerns.
2. Partnership - in the sense of co-operation among all development players: the private sector, civil society, the state, rich and poor, men and women, rural and urban areas, North and South, East and West.
3. Full resource mobilization - there are non-financial resources such as morale and ethical commitment, to more people centred and sustainable development. (UNDP 1996, p. 11) [1,12]

Cohen (1997) noted that as the world grows smaller, differences in perception and meaning become more evident. He noted this particularly with respect to global patterns, but then posed the question, that if such evidence of change abounds at the global level, how are individuals and the value systems that inform individual decision making affected? He concluded that clarification of value change at the individual level is essential.

Within patterns of convergence we see profound differences in perception and meaning. These are accentuated by global forces that are leading to unknown destinations. If this is true for the globe, for nations and even communities, what does it mean for individuals? How are we to understand what is happening around us? In a competitive but also interdependent world, what do we need to know? We are all involved in the world of policy and action to some degree. How can we link

our understanding of these issues to the values that must inform our decisions and our actions? Put differently, what values are relevant to sensible, ethical and professional choices in cities for the next century? In our eagerness to discover and analyse urban realities, this normative dimension must not be lost. Indeed, regardless of the multiple worlds in which cities exist, it is precisely those values that permit us to maintain our bearings in an atmosphere of buffeting change. (Cohen 1997, pp. 113,114)

If "local" refers to place, it is clear that place itself is being redefined to include cyberspace. I have an address and a mailbox, but they are no longer stationary, they can move and be accessed in infinite locations. If I have become "delocalized," what are the roots that bind me to "place." And yet I do live in one place, but in two worlds, one "virtual" and the other "terrestrial." (Cohen 1997, p. 119)

As we run faster towards the future, the past may become more important in helping to clarify our identities and enduring values. New tensions will appear between the permanent and the transient. (Cohen 1997, p. 120)

Allott (1997) noted, in a pragmatic vein, that city problems will continue to be addressed on a one-by-one basis, but he also proclaimed that they could be faced on a philosophical level or even on a fundamental consciousness or spiritual level. He proposed that the city should be re-conceived as the place of human self-perfecting and the natural home of a whole life for people.

The problems of city life can, and will, continue to be dealt with by the usual processes of piecemeal social engineering and the methods of rationalistic reform. But they might also be addressed at another level - the level of social philosophy. And they might even be addressed at the ultimate level - the level of human consciousness as a whole, including its spiritual aspects.

Would it be possible to re-imagine human life in the city in such a way that there was a reversal of focus? - so that the ideal of the city came to be a place for human self-perfecting rather than an arena for competitive wealth production? It would mean reconceiving the city as the chosen instrument of human self-evolving rather than merely an inevitable and comprehensible by-product of a certain stage of human social organization. ...

In short, the change of mind in question would be a psychic taking of power over the idea and the fact of the city, including recognition of the great benefits it has brought and the terrible price it has exacted, with a view to treating it as the natural home of the good life for human beings.

Given the processes that now exist for bringing into fruitful contact, at the global level, forms of human consciousness that express an indefinite number of forms of philosophy and culture and experience, and an indefinite number of forms of historical development, it may be that we have the opportunity to reconsider the city at the two higher levels - of philosophy and spirituality. It may be that it will be our last chance to do so before inhuman and instrumental urbanization takes absolute power over the whole of humanity. (p. 197)

Mitlin and Satterthwaite (1997) had a very pragmatic and institutional approach. They noted that citizens are acquiring more power and therefore institutions will change. They further noted that constraints to sustainable development are seldom environmental in nature. Rather, they stem from egocentric values operating through individual people.

How can the unmet needs of the city be articulated and addressed without imposing environmental costs on other people or depleting environmental capital to the point where it imposes high environmental costs on future generations? This requires considerable change for most city and municipal authorities as the citizens within their jurisdictions acquire more power to define their needs and influence how they are addressed. It also means an expansion of the responsibilities of city and municipal authorities because the use of resources and the generation of wastes within city boundaries must take account of the needs and rights of others living elsewhere and of future generations. ... In very few cities is it environmental constraints that prevent the achievement of sustainable development goals. It is much more institutional constraints within government structures and the vested interests within nations, and within the increasingly globalized economy who do not want the redistribution of power, the greater accountability and the control of environmental degradation that the achievement of sustainable development goals requires. (p. 156) [2,3,4,10,11]

Change Must Happen At the Municipal Level and Be Value-Based

Many scholars have acknowledged that the focus for change must be at the local level. Cities are where sustainable development must happen. For example, the Marmaris experts endorsed the local focus of sustainable development and suggested that the central issue for cities was one of choice.

It is at the local level, "in our habitats" that the myriad of political, economic, social and cultural forces which shape our lives come together. It is at this level too, that

people participate - or fail to participate - in their own, and social development. (UNDP 1996, p. 1)

The urban challenge is not a quantitative one, a problem of urban growth rates or the size of cities. Rather it is a qualitative one, a question of re-orienting our development strategies to achieve three major goals:

1. Balance between economic growth, social progress and the environment;
2. Partnership among all the development players;
3. Full resource mobilization, including public and private resources, financial and non-financial resources.

More sustainable and humane cities are primarily a matter of policy choice; do-able policy options, as well as requisite resources are available. How tomorrow's generation will live largely depends on us. (UNDP 1996, p. 2) [1,2,8,12]

Girardet (1997) saw the city in a network of cities as the key place to focus sustainable development efforts. He stated categorically that the necessary changes cannot happen without change in values.

Cities today are highly dependent systems with their tentacles stretching across the planet. Modern cities have a global hinterland partly as a result of abundant supplies of energy. Modern communications have dramatically improved the nervous systems of cities, as the production centres, the nerve centres and the brains of the global human effort. ... Many of our global environmental problems centre on the resource use of our cities. The critical issue is how to initiate a cultural process of urban self-regulation in which cities take on the role of monitoring, comprehending and ameliorating their impact on ecology. Ultimately, this cannot be done without changing the value systems underpinning our cities as well as taking concrete measures improving their resource efficiency. ... Cities today certainly dominate global resource consumption. With nearly half the world's population, they take up only 2% of the world's land surface, yet they use more than 75% of the world's resources. (Girardet 1997, p. 172)

Binde (1997) painted a dramatic picture of the scale of change that the world's cities face and he noted that changes are both quantitative and qualitative. He warned against dangers of major imbalances, profound inequities, the drive for profits and the price of inattention to the dynamics of human values:

Changing our cities means changing our lives. ... It is expected that by 2025, 80% of the world's urban population will be living in the developing countries. ... This dramatic upheaval will require definition of a new development policy for cities and,

above all a change in the scale of development strategies of all actors involved, public and private. If the entire population of the next millennium is to be housed - can we imagine at least two billion homeless people worldwide by the year 2050? - almost as many cities will have to be built as already exist today.

The urban revolution of the 21st century will be qualitative as much as quantitative. ... This new type of [conurbation] is a source of major imbalances and profound inequities in the social fabric. Those sectors that are the driving forces behind urban globalization produce profits that are greater than all those ever achieved before, but are not incorporated directly into the urban economy and the daily needs of its residents. That is why there is [already] a 'North' in the south and a 'South' in the north. The price to pay for the opportunities that these major conurbations seem to offer is high indeed; poverty of the ghettos, social apartheid, overpopulation in shanty-towns, violence and insecurity, air and water pollution, proliferation of urban waste, urban chaos and congestion, as well as the loss of solidarity, atomization, loosening of ties to rural populations and the decline of citizenship. (Binde 1997, pp. 214, 215)

National and International Agencies Must Help Focus Change at the Local Level

Emmerj (1997) perceived that not only are cities the important fora within which to carry out sustainable development, it is equally important for senior governments to realize that this is the case in their policy initiatives with respect to the devolution of power.

To "get cities right" we need to support three clusters of policy initiatives. First, regions and cities must receive decision-making power and financial resources. ... Too often decentralization consists of delegating responsibilities down the line while the financial resources remain centralized in the national government. Decentralization must include giving local authorities the financial means to meet their new decision-making responsibilities. Second, decentralization within cities must give more initiatives to neighbourhoods, districts and [other municipal] components. Third, the macro context must be correct for the productivity of the urban population and the demand for labour to increase. (Emmerj 1997, pp. 106, 107)

Similarly Cohen (1997) argued that there needs to be a recognition of power dynamics *vis-a-vis* the city and an appropriate devolution of power from governments to cities.

As globalization spreads, cities must come to terms with many changes including:

- * new perceptions of the dynamics and power of global economic and financial forces;
- * new technological opportunities for information and communication;

- * continued high urban demographic growth far outstripping earlier projections;
- * New urban spatial patterns that have extended from central cities and suburbs to edge cities, network cities, urban corridors, and urban regions;
- * new emerging labour forces and shifting patterns of employment and livelihoods;
- * mobilization of neighbourhoods and communities, new political forces, nongovernmental organizations and parts of civil society; and
- * growing social conflicts over the access to opportunities.

These changes have led to:

- * a new realization that the negotiated solution to those city problems will have important impacts on global patterns, and
- * an awareness that environmental impacts of cities have the power to alter the earth's ecological balance itself. (Cohen 1997, pp. 109, 110)

Wilheim (1997) was quite definite in his opinion that humanity has entered into a period of transition, that the transition involves the whole system of governance in institutions and that the inherent challenges are to be found mainly in cities.

It is certainly not "history" that is coming to an end; only a cycle, a certain "world" is coming to an end, and with it, the whole system of governance and institutions to which we have grown accustomed is being severely challenged. In other words, humanity has entered into a transition period. We are now observing some symptoms of change and some examples of the gradual birth of a new era. (Wilheim 1997, p. 123)

Although many of the issues have financial, technological and managerial dimensions, on the whole they necessitate a political commitment: to make the international, national and local communities aware that at the local level, humanity itself is at stake; that peace-keeping and development are at stake; that human solidarity and the partnership of a new "social contract" are at stake. And that in this dramatic transitional period, when the role of the state and government must change and must be reinforced, the challenges and strategies of sustainable development for all, are to be found mainly in human settlements. That is where we have to change; that is where change is already occurring. From there, we can learn. (Wilheim 1997, p. 127)

The United Nations Department of Policy Co-ordination and Sustainable Development, at the request of the General Assembly, prepared a background report for Earth Summit+5

evaluating critical trends for global change and sustainable development. In the report the UN brought to the attention of the international community important and emerging problems that require urgent policy deliberation and action if threats to economic prosperity, human welfare and environmental sustainability are to be averted. The Report states that:

Despite record rates of global economic growth wealth disparities have increased between the rich developed countries and the developing world; differentiation is also becoming more apparent between more successful developing countries and those which remain least developed. The phenomenon of marginalization whereby the poorest countries become progressively less able to participate in the global economic system has become sharply apparent since the 1980s. Environmental quality with respect to air and fresh water has generally improved in the developed world but is still worsening in many areas of newly industrializing regions.

Many goals relating to human development and environmental protection that were established in the 1960s and 1970s have been reaffirmed in the international conferences of the 1990s - indicating that they have yet to be achieved. For example:

1. Persistent and growing poverty is undermining socio-economic development in many regions of the world. In some countries social disaffection fuelled by gross inequity is hindering the ability of governments to govern and the private sector to conduct business.
2. Population growth and urbanization are often most rapid in low-income developing countries which lack the resources to provide infrastructure and basic social services to promote employment, health and economic growth. ... Urban population growth from rural-urban migration and natural increase will place unprecedented logistical and financial burdens on municipal authorities.
3. Fossil fuel consumption in industrialized countries is slowly stabilizing, but many polluting emissions continue to rise. Rapid economic growth in many developing countries is leading to severe environmental pollution and damage to human health.
4. Rapid and continuous degradation of the natural resource base on which economic activity and life itself depends may constitute the most serious of all threats to human well-being in the future. ... Declining resource availability, especially in combination with rising population numbers, leads to increased competition, social dislocation and potential conflict.
5. Fertility rates are declining more rapidly than anticipated in most world regions. Many developing countries can now plan for a stabilizing population within the next generation.
6. Education and health have improved significantly in developing countries, in some cases dramatically. Healthy, educated populations are of prime importance in economic growth and social development.

7. Economic forecasts are positive for most world regions. Many indicators of human welfare in developing countries can be expected to rise in line with income growth. ... Never-the-less, the pace and scale of pollution and resource degradation in some developing countries is such that they are likely to incur very high costs in terms of health care, environmental remediation, and substitution of damaged resources.
8. Technological innovation continues to accelerate, often in response to the implementation of effective policy incentives. ... The potential for more radical economic and social transformation, through entirely new technologies, is unknowable but cannot be dismissed for the longer term.
9. The spread of democratic institutions and rising levels of education are encouraging greater public participation in decision-making. Community groups and Non-Governmental Organizations in developed and developing countries are demonstrating their ability to manage problems of resource scarcity and develop successful responses to social and environmental challenges. (UN-DPCSD 1997, pp. 72-74)

Habitat II was the last in the planned series of global conferences beginning with the Earth Summit and progressing through the Children's Summit, the Global Conference on Human Rights, The Global Conference on Population and Development, the World Summit on Social Development, the IV World Conference on Women and lastly Habitat II. Gilbert et al (1997) prepared a background document for Habitat II in which they sought to outline the main roles of cities and local authorities in sustainable development. They stated that:

The adverse environmental, social and economic impacts of human activity are for the most part local and should be addressed locally; the same goes for the main barriers to sustainable development. Six main themes concerning the roles of cities and local authorities with respect to a sustainable world are:

1. Most of the world's population and most of the environmental challenges will be in cities and towns. Actions to secure a sustainable future must be concentrated in urban areas.
2. Local governments are the only bodies with the mandate, responsibility and potential to represent and act for all of the different and often conflicting interests on the urban scene. Local governments need to be at the centre of efforts to deal with urban sustainability in all its interconnected aspects.
3. Providing local authorities with the recognition and the capacity they need for the roles that only they can play should be among the highest priorities of international bodies and nation states.
4. Action by cities and towns will only be effective if it involves leadership by elected officials and a style of governing that is genuinely participatory and

inclusive. Urban development will not be sustainable without the commitment of the major elements of the community and unless the needs of all sectors are addressed.

5. For most issues of urban sustainability, local governments cannot act effectively using only their own resources. They need to work with partners within the community and, for issues that transcend municipal boundaries, with other governments.
6. International municipal collaboration in the interests of urban sustainability is working and worldwide networks of local authorities are becoming an active presence on the international scene. (Gilbert *et al* 1996, pp. 120, 121)

In reviewing Habitat II, Binde (1997) noted that Habitat II brought together delegations from 185 Nations on the theme of cities and their future. Binde suggests there were seven lessons to be learned from Istanbul:

1. *Access to the negotiating room for civil society and local actors (p. 217)*
At all previous summits, while civil society was certainly invited, it was kept on the sidelines, confined to global forums whose geographical isolation reflected their political isolation. Society, represented essentially by the NGOs, was a witness to the proceedings, but they had no say in them. The Istanbul process heralded the emergence of civil society as an active participant in the proceedings of the international system. It encouraged a new, global and integrated approach to urban policy bringing together all the players involved. Local and municipal authorities, NGOs and the private sector were therefore able to take part in the proceedings not only by formulating their recommendations at the innumerable peripheral forums, but also by being heard by the conference itself, through having access to the negotiating rooms and by contributing directly to the drafting of the world action program.
2. *New partnerships for development (p. 221)*
Istanbul witnessed the emergence of the key concept of new partnerships for development. This concept is tending to acquire greater weight in international negotiations under the influence of a variety of factors such as globalization, the reduction in the importance of the role of the state in production and economic activities, the decline of governmental funding, and the advent of powerful non-governmental players on a national and trans-national scale.
3. *Anticipating the significant comeback (p. 222)*
One of the most significant peripheral manifestations of the conference was entitled *Dialogues For the 21st Century*, and was composed of 10 forecasting forums focusing, for example, on problems relating to water, transport, urban funding, democracy and citizenship, health in the cities of the future, and links between the city and the urban environment. Bringing together international experts, political leaders, agents from the private sector, intellectuals and leading figures in public and

cultural life, the forums provided an opportunity for putting forward recommendations for the conference itself to which their reports were submitted.

4. *The right to housing recognized (p. 222)*

At the end of lengthy negotiations, substantial progress was achieved in the field of the right to housing. The final act of the conference included this right amongst human rights of universal importance and stressed that national policies should ensure that it is implemented.

5. *Sustainable development - the achievements of Rio have been preserved (p. 224)*

What was achieved at the Rio Summit cannot be considered to have been accepted once and for all unless it is constantly reasserted. ... As to what had been achieved in Rio and previous summits with regard to sustainable development, Istanbul laid down the development of cities within the context of respect for common principles for a responsible, more caring world asserted at earlier United Nations' conferences.

6. *Making cities more human (p. 225)*

A new urban culture could come into being in the 21st Century. It is a matter of political will rather than a technical problem. The message UNESCO brought to the summit can be summarized in the title to the report it submitted, "Humanizing the City." I believe The World Bank shared the same objective in the report it submitted to the conference, "Livable Cities of the 21st Century." ... Restoring the city to its rights and turning it into a place of civility will be one of the main urban tasks of the 21st Century. As the place where democracy was born, the city must be revisited by democracy itself.

7. *Practical solutions within our reach (p. 226)*

The Istanbul conference also provided the opportunity for disseminating good practices [or as they were officially called, 'Best Practices'] likely to be transferable to other urban environments and carefully reported by the international media.

It is interesting to note that gradually some of the changes described in Table 1 are beginning to be proclaimed. For example, it appears from recent literature that society is beginning to proclaim co-operation - although it is not yet ready to relinquish competition. (Perhaps in view of the definition of competition put forward by Emmerj, society should not give up competition; just transform it into co-operation.) Similarly, society seems to be ready to embrace common-interest, but not ready to trust common-interest enough to devalue self-interest. People acknowledge that it is important to achieve a greater balance among economic, environmental and social pursuits but they are not yet ready to de-emphasize economic growth. Tension due to change and the unknown is understandable. Change is

an incremental process. Moldow (1997) acknowledged this but also noted that in the end, transformation is imperative. She stated that:

In spite of our growing sense of the human race as one global family, we continue to live separated by national boundaries and ethnic and religious identities. One of the results of this is a richness of cultural heritage that is a treasure of humanity and encourages us to champion our diversity. Another result is the natural inclination to want our own group to have its share of the land, the resources and the power. We have not yet expanded our feelings of family to match our thoughts. This is natural given how new the concept of global family is. Even in close knit families there is a struggle for dominance that demands patience and maturity from all members. But the challenge of the next millennium will be to achieve this transformation of consciousness which is the only road to lasting peace. (Moldow 1997, p. 219)

As we shall see, the results of the case study indicate a strong willingness to undergo change in values in one community. However, actual change in behaviour is a much harder reality than willingness to change values. Nevertheless, it is clear from both the case study to follow and the literature reviewed that Table 1 will become progressively more relevant to sustainable development in local communities.

The following chapters examine how the real world responds to the changes in emphasis proposed in Table 1 and to explore whether or not there is an apparent relationship among the philosophical, institutional and practical aspects of sustainable development. As Norgaard has stated, (p. 68 above) "Learning is mostly a process of trial, error and selection. Deductive reasoning, hypothesizing, experimenting and testing play an important role, but the only real experiments and tests are conducted in practice". The following chapters describe the case study conducted in Kitchener/Waterloo which examines how local people respond to the changes described in Table 1.

Chapter Four:

Case Study Procedure

INTRODUCTION

The objective of the case study was to examine, in a First World urban community, the propensity and the willingness for change in fundamental values with respect to issues raised by the concept of sustainable development. A second objective was to provide a model procedure that could be used in any community to design and monitor a sustainable development program. Based on Table 1 (p. 98 above), a telephone survey was designed to measure the propensity for values change and a follow-up mail survey was designed to obtain more detailed information. The telephone survey was analysed and then the mail survey was designed, administered and subsequently analysed.

RATIONALE FOR CHOICE OF KITCHENER/WATERLOO

There are three prime reasons for the selection of Kitchener/Waterloo as the case study community. The first is that Kitchener/Waterloo has already made a commitment to sustainable development. The cities of Kitchener and Waterloo, and the Region of Waterloo, have all proclaimed sustainable development principles with respect to their planning and development policies (See Regional Official Policies Plan 1995; City of Kitchener Municipal Plan; City of Waterloo Municipal plan). The second is that Kitchener/Waterloo is an excellent example of an urban community in which stresses of the past, the present and the future are clearly evident. The third is that the community is home to the author. Since this is unfunded research, it could be most cost effectively carried out in the home community.

Within the Region of Waterloo, the cities of Kitchener and Waterloo function as one geographic unit and are, together, the principal urban component of the region. Together

they are a good example of an evolving Canadian city and a community whose leadership has already embraced sustainable development. For example, over 20 years ago, the city of Kitchener, in conjunction with the Region of Waterloo, pioneered what has become widely recognized as the “blue box recycling program” in which residents sort recyclable waste (paper, cardboard, glass, tin/aluminum cans, and various plastics) into blue boxes for segregated curbside pickup on regular garbage days. This program has reduced the solid waste stream to landfill by 50%, and has been adopted by many other municipalities as a program to copy. (Trachinsky 1997)

As a second example, the City of Waterloo, in conjunction with the Region of Waterloo and the Grand River Conservation Authority, conducted from 1990 to 1993 a Laurel Creek Watershed Study, which was a complete and comprehensive ecosystem study of the surface and underground water characteristics of the city of Waterloo and all its upstream neighbours. The study included 27 smaller sub-watersheds as distinct elements of the study. Many recommendations emerged from the study, all of which have subsequently been accommodated in the Official Plan. For example:

- * All wood lots within the city of Waterloo not already approved for development (92%) were withdrawn from availability for development;
- * Silver Lake, the largest lake in the City of Waterloo which is solely under the jurisdiction of the city, was recommended for dredging and redesign with substantial public input;
- * Environmental monitoring is required on all creeks, wetlands, woodlands, hedgerows and ground water recharge areas for a minimum of two seasons prior to development, during development and two years following total completion;
- * On 600 hectares of city-owned open space, pesticide use has been reduced to 1%. (Trachinsky 1997)

Other examples of environmental initiatives of the Region in conjunction with the cities of Kitchener and Waterloo include the subsidization of low volume replacement toilets, provision of free water conservation kits to each household, the provision of free composters to encourage recycling of yard waste and the banning of grass clippings from the regional land-fill site.

Not only is Kitchener/Waterloo a good example of an environmentally conscious community, it is also a good example of the emerging phenomenon of the dispersed city. Based on empirical evidence drawn from the Region of Waterloo, Bunting and Filion (1996) recognized Waterloo Region as a good example of a dispersed city which they described as an insight to current evolutionary urban change, a model of things to come and the most recent progression of Canadian urban form. They claimed that a dispersed city represents:

... a shift from a concentration to a scattering of activities, from high to low densities and from transit-oriented land use patterns to fragmented, fully car-oriented city systems. ... The dispersed city is characterized by spatially extensive land use arrangements, and an absence of clear accessibility gradients. [It is] the demise of an unchallenged dominant central place referred to as either downtown or the central business district [and] associated with the movement towards post-industrialism, - dramatically enhanced physical mobility by virtue of transportation improvements, household form diversification, telecommunications, profound workplace transformation and growth in the service economy. ... The dispersed city is a reflection of near total dependence on the car along with proliferation of high capacity roadways. Other factors of dispersion include a changing retail structure, space consuming single story industries, and widespread consumer preference for the detached home. (Bunting and Filion 1996, pp. 2, 9)

Bunting and Filion (1996) projected that the dispersed city is likely to persist. They stated that, although it will undergo stressful adaptation primarily in response to impending environmental and socioeconomic constraints, the dispersed city will not be a passing phenomenon.

This entrenchment of the dispersed city does not mean that it will necessarily face future circumstances without tensions. Acute pressures that we see confronting society as a whole, and large urban areas in particular, will demand that adjustments be made. There will be many pressures but the two foremost, and probably unavoidable ones, are environmental and socioeconomic. ... The most immediate problems pertain for the most part to the dispersed city's voracious consumption of land and to its contribution to global air pollution, consequential to its ever growing reliance on private vehicles ... [since] the dispersed city is a city built on widespread affluence. ... Our second main concern is that this type of city may come out as singularly misadapted to the difficult socioeconomic conditions that have been with us since 1989, and are likely to persist well into the future, far into the twenty-first century. (Bunting and Filion, 1996 pp 39, 40, 41)

Bunting and Filion suggested that the phenomenon of the dispersed city has not been planned. In much the same way as the environmental crisis was initially identified and documented by Rachel Carson as an accumulation of unrecognized and unassessed side effects, Bunting and Filion suggested that the dispersed city was never developed as a policy option. It just happened.

The dispersed city has taken us by surprise since it did not result as such from a clear policy option, as was the case in the early development of the suburb which was supported by all levels of government. ... In fact, dispersal contradicts planning's near unanimous adherence since the mid 1980s to "intensification principles" meant to reverse urban sprawl. ... Dispersal, as we know it today, is the unforeseen accretive impact of individual decisions taken by consumers, entrepreneurs and developers; of suburban municipalities' attempts to maximize their growth in a form that is consistent with contemporary preferences; and of transportation agencies adopting a demand-led approach to road and infrastructure provision. ... Cities are at once a product and an agent of economic change. (Bunting and Filion 1996, pp. 36, 37)

If, as Bunting and Filion suggest:

1. The dispersed city is already an entrenched phenomenon;
2. The dispersed city will be severely challenged by environmental and socioeconomic change, i.e., sustainable development;
3. The dispersed city is caused by many individual choices of consumers, entrepreneurs, corporations and political entities; and
4. Kitchener/Waterloo is an excellent example of a dispersed city;

it follows that, since Kitchener/Waterloo is committed to the philosophy of sustainable development, it is an excellent community in which to examine the changes in values that underlie people's many choices in relation to sustainable development in the context of a dispersed city.

THE TELEPHONE SURVEY

In the questionnaire used for the telephone survey, several general questions were posed to establish whether or not respondents have a perception of difficulties or crises with respect to economic, social and environmental issues and to establish the level of awareness of sustainable development. In the detailed part of the questionnaire, using Table 1, a neutral

statement about each of the entries in the table was presented. The rights vs. responsibilities statements were combined into three comparative statements. All 23 statements were arranged by a random selection of question numbers to minimize any potential influence among questions in the minds of respondents. Respondents were asked to what extent they agreed or disagreed with each statement both for the present and for the future.

This survey was conducted by telephone in order to get respondents' first reaction with respect to their underlying values and attitudes rather than a more reflective or considered opinion which can occur if prior notice of the survey is given. As noted above, sustainable development can be applied broadly at all levels of society. Accordingly, samples were chosen in order to produce results with respect to the general public, macro level decision makers, various vocations or professional orientations, income, age, level of education, gender and municipal location. Each respondent was telephoned without prior notice, informed that they were selected randomly from a given sector of the community, and asked to respond in a personal capacity. A copy of the telephone questionnaire is included in Appendix B. Profiles of the survey samples appear in Appendix B. The surveys were conducted from February to July, 1994.

The nine sectors surveyed were chosen for their role in the urban market place. They were:

CATEGORY	SAMPLE
General Public (GP -randomly from the phone book)	90
Independent Business (IB -C of C directory)	75
Students (ST - University of Waterloo directory)	50
Decision Makers (DM-Gov -elected & senior staff)	32
Decision Makers (DM-NonGov)	
-executives of large employers and unions	33
Influencing Professions:	
Accountants (I-Acc)	30
Lawyers (I-Law)	30
Church Leaders (I-Ch)	30
Media personalities (I-M)	30
Total interviewed	400

The general public (random selection from the phone book) was taken to represent the urban market place itself. The independent business sector (random selection from the Chamber of Commerce directory, but excluding the few large employers (over 100 employees) who are also members of the Chamber), being businesses which are relatively small and locally owned, was deemed to represent the business sector which is most easily responsive to local/urban market conditions. The two decision-maker sectors, non-government and government, were taken to represent those people who make decisions on behalf of large numbers of people and with respect to considerations far beyond the local urban marketplace (i.e. regional, provincial, national and international.) Samples were generated by random selection from a list of all such people in the city. Four professional categories, accountants, lawyers, media and church leaders, were selected as professions which influence, in a general way, how people act and react in the urban marketplace. Samples for these groups were also generated by random selection from appropriate lists. The students were deemed to represent those people who are at the threshold of leaving home and taking their place in society as tomorrow's consumers, voters, professionals and decision makers.

In addition to the general public and eight vocational populations surveyed, nineteen further groups were disaggregated and analysed: male, female, Kitchener, Waterloo, five income cohorts, six educational cohorts and four age cohorts as follows:

INCOME		EDUCATION		AGE
< \$29,999	Low	< High School		
\$30,000 - \$49,999	Low/mid	H.S. graduate		20 - 34 young
\$50,000 - \$69,999	Mid	College Diploma		35 - 50 boomers
\$70,000 - \$89,999	Uppr/Mid	Trade/profession		50 - 65 older
> \$90,000	High	Univ. graduate		over 65 seniors
		Post Grad		

The rationale for choosing these disaggregate categories is to investigate whether gender, municipal location, income, education or age influences the values and attitudes people hold towards sustainable development.

ANALYSIS PROCEDURE

Respondents were given the option of answering 'yes' or 'no' for the general questions and a range of six possible answers for the value statements: Agree Strongly (AS), Agree Moderately (AM), Agree Weakly (AW), Disagree Weakly (DW), Disagree Moderately (DM), Disagree Strongly (DS). The responses were coded with numerical values of 1 for 'yes', 2 for 'no', and 1 through 6 for responses AS through DS respectively.

Some caution has to be exercised in the interpretation of these numbers as they are clearly relative values. The degree or strength of opinion represented by 'weak' or 'moderate' or 'strong' is not calibrated with respect to any standard. However, for all respondents the progression of 'weak .. moderate .. strong' represents a direction of increasing strength of opinion. Late in the survey administrations a respondent asked for the meaning of 'weak, moderate, strong' in relation to the survey. The answer given was that 'weak' means noticeable, 'moderate' means strong enough to consider the implications for behaviour and 'strong' means strong enough to influence behaviour. This definition was not given to most respondents but regardless, the numbers assigned to each must be identified as ordinal data.

The data were entered into a specialized survey program called *SURVEYIT* by Conway Information Systems Inc. *SURVEYIT* compiled the data to show a frequency count, an average and the standard deviation using the coded numbers for each of the possible answers. The numerical averages were used to show an overall indication of degree of agreement or disagreement. The standard deviations were used to assist in ordering the results and to indicate the strength of the result and whether or not it showed a tendency to be bi-modal. These distinctions were derived by considering the shape of the graphs of various hypothetical results (see Appendix C).

Care must be exercised in considering what these numbers represent. It is not normal to use the parametric characteristics of average and standard deviation to describe a set of ordinal (non-parametric) numbers. In this case the ordinal set of numbers, being the frequency

counts of observations ranging from 'Agree Strongly' to 'Disagree Strongly', represents a continuum of opinion. It can be argued that between 'agree' and 'disagree' there is a zero point and that 'weak,' 'moderate' and 'strong' represent approximately equal progressions in opposite directions from the zero point. Therefore it can be further argued that the data sets produced by the research simulate parametric data sets. Since the results from the research are advisory rather than definitive, this treatment of the data is considered defensible.

NUMERICAL AVERAGE CLASSIFICATIONS ¹

AS+	0 ... 1.35	N	> 3 ... < 4
AS	1.35 ... 1.65	DM-	4.00 ... 4.34
AS-	1.66 ... 1.99	DM	4.35 ... 4.65
AM+	2.00 ... 2.34	DM+	4.66 ... 4.99
AM	2.35 ... 2.65	DS-	5.00 ... 5.34
AM-	2.66 ... 2.99	DS	5.35 ... 5.65
N	> 3 ... < 4	DS+	5.65 ... 6:00

STANDARD DEVIATION CLASSIFICATIONS ²

Standard deviation	0 - 1.2	Clear indication ©
Standard deviation	1.2 - 1.3	In between
Standard deviation	1.3 - 1.7	Soft result (s)
Standard deviation	1.7 - 2.0	Tendency to be bimodal

The average is a useful characteristic to indicate the tendency towards an overall opinion of the collective represented by the sample surveyed. Similarly, the standard deviation is a useful characteristic to indicate the strength of that tendency. Standard deviation is a measure of variance from central tendency. A low standard deviation indicates a strong tendency of observations to cluster around the numerical average. As variance of the results from central tendency increases so does the standard deviation. In the extreme, a result with an average near the mid point of the continuum between 'Agree Strongly' and 'Disagree

¹ These classifications are established by the proportional assignment of the range between 1 - 3 for agree categories and between 4 - 6 for the disagree categories. The range between 3 - 4 is considered to be neutral.

² Derivation of Standard Deviation Classifications is found in Appendix .

Strongly' and a high standard deviation indicates a tendency to be bi-modal. In other words, there is evidence of both strong agreement and strong disagreement for the same statement which the average by itself would not indicate. Such a bi-modal result indicates a potentially controversial issue. The statistic more appropriate to non-parametric data sets would be the median rather than the average. However, the median would not also describe the tendency for the data to cluster around it, as in the case of an average with a low standard deviation, or the tendency of the data to be distributed toward its extremes, as in the case of a bi-modal distribution indicated by an average near the midpoint of the data set and a high standard deviation. Furthermore, the interquartile range, which is like 'standard deviation' for the median, would give little useful information about the data. Since only six responses were possible, and since at least one instance of each response was given in the results of most questions, the interquartile range would be similar for every situation. As Freund (1987, p 71) pointed out,

The [interquartile] range is easy to calculate and easy to understand, but despite these advantages it is generally not a very useful measure of variation. It tells us nothing about the dispersion of the values that fall between the [quartiles].

The information most desired was to discover whether the opinions expressed by the sample groups surveyed were the same or significantly different from each other, and whether or not their opinions of the present were significantly different from their opinions of how things should be in the future. In order to make these determinations, nonparametric tests were used and applied to the original frequency data. Two separate situations were involved. For all those situations involving tests of the data pertaining to the nine vocational sectors, six education cohorts, five income cohorts and four age cohorts, (and for any relevant sub-sets of these groups), a test for multiple samples and multiple independent variables is required. For situations involving only two samples such as comparing men and women, or respondents from Kitchener and those from Waterloo, a two sample test could be used. Siegel (1956) described three nonparametric test procedures for multiple independent samples, and several procedures for two sample tests. For multiple independent samples

Siegel (1956) identified the Median test, the Kruskal-Wallis test and the Chi-square Test as being appropriate. He described the Chi-square test as,

. . . useful when the data are in frequencies and when the measurement of the variables under study is in a nominal scale or in discrete categories of an ordinal scale. It tests whether the proportions, or frequencies, in the various categories are independent of the condition under which they were observed. That is, it tests the null hypothesis that the k samples have come from the same population or from identical populations

. . . We have no choice among these tests if the data are in frequencies rather than scores, i.e., if we have enumerative data, and if the measure is no stronger than nominal. The chi-square test for k independent samples is uniquely useful for such data (Siegel, 1956 p. 193).

Accordingly, the Chi-square test is used for all cases when more than two samples are being compared.

With respect to cases of two independent samples, Siegel (1956) identified eight different tests for various situations. Three of these tests, the Kolmogorov-Smirnov two-sample test, the Wald-Wolfowitz test, and the Chi-square test are appropriate when the differences between the samples being considered include differences of central tendency and/or distribution and/or skewness. As all ready noted, this is the case for the data in this research. Siegel (1956, p. 157) advised that the Kolmogorov-Smirnov and the Wald-Wolfowitz tests are appropriate for continuously distributed data and the Chi-square test is suitable when the distribution is of a discrete variate, i.e., the variate is non-continuous. It is argued here that although the variate is a continuum of opinion and therefore its data represent a continuity, the variate is represented as a scale of discrete variables and therefore the Chi-square test is most appropriate to the data. For consistency's sake, it is used throughout.

The null hypothesis of the Chi-square test is that there is no significant difference between the observation frequency counts of the groups being tested; that whatever variation is encountered in frequency of observations is entirely due to chance and sampling error. If the null hypothesis is not rejected the conclusion may be drawn that the sample sets being tested

are drawn from the same or identical populations. If the calculated value of Chi-square is greater than the critical value drawn from the Chi-square probability table, the null hypothesis can be rejected, indicating that there is a statistically significant difference among the sample sets tested and the populations that they represent. The critical values used from the Chi-square probability table for testing in this research are for 99% probability that the null hypothesis is true, i.e. there is no significant difference among survey samples. Either of 95% or 99% probability is commonly selected. In this case the higher of the two was selected in order to demonstrate the clearest consistency of the data being tested with respect to the present or the future, and the clearest separation between the present and the future. In other words the option was for the least possibility of error due to chance or sampling error. Examples of Chi-square testing can be found in Appendix E.

THE MAIL SURVEY

All respondents to the telephone survey were asked at the end of the survey if they would be willing to participate in further research procedures, specifically, a mailed survey. In preparation for the mail survey, an introduction to the researcher and a descriptive report of the phone survey were written to accompany the mail survey document. The report presented Table 1, described the underlying ideas, and also described the process of preparing and carrying out the telephone survey. It explained that the mail survey was based on the telephone survey and provided a brief description of the results of the telephone survey. (See Appendix E)

The mail survey questions presented the findings of the related value statement from the telephone survey and a number of possible options for achieving the desired result. It asked the respondent to indicate, on a range of six choices, which of the options was most/least likely to contribute to achieving the result indicated as desirable by the phone survey. In addition, the respondents were asked questions which probed the most/least appropriate ways of financing the promotion of values change, the most/least important areas for the investment of effort and the most/least significant barriers to the change process.

Respondents were asked to identify which of the changes described in Table 1 they would personally be most/least willing to undertake, how much they would be willing to contribute to the process of values change, and how much they would expect others to contribute. The purpose of these questions was to move beyond the mere recording of expressed opinion to get some indication of willingness to act. More specifically, these questions were designed to indicate a priority for action and the extent to which the willingness to act may be related to those areas of expressed need for attitudes and values change in the future.

In late October, 1994, mail survey packets were sent to 330 of the respondents to the telephone survey who had agreed to participate in the further research. The data from the 80 mail surveys returned were entered into the SURVEYIT program by adding the mail survey data to the telephone survey data. This procedure gave great capacity and scope for cross analysing the results. Analysis of the mail survey was carried out in similar fashion to the telephone survey. SURVEYIT calculated frequency counts, averages and standard deviations and the results were ordered according to increasing average and standard deviation. The results were then subjected to t-tail tests for significant difference between means proceeding progressively according to increasing average and standard deviation in order to establish ranking. The null hypothesis of the t-tail test is that there is no significant difference in the averages of the two samples being considered. The critical value for acceptance or rejection of the null hypothesis, selected from the t-test probability table, was 95% at infinite degrees of freedom. For reasons described below, 99% probability as used in the Chi-square tests was deemed to be unnecessarily rigorous. Results which showed no significant difference in means were deemed to be of the same rank. An example of the t-tail procedure can be found in Appendix E.

The selection of the t-tail test for ranking the results of Tables 7 through 19a was largely a matter of convenience. The t-tail is a parametric test rather than a nonparametric test and therefore it could be considered as inappropriate. However, several considerations were taken into account in the decision to use the t-tail test. As noted above, although the data are

nonparametric, it can be argued that they simulate parametric data and therefore the average and standard deviation is a valid representation of the samples. In addition, the results gained from the tests are advisory rather than definitive. Nonstatistical considerations, which can be discerned by visual inspection, will necessarily enter into any final decisions concerning categorization of the lists in these tables. For example, in Table 7 which lists various elements which could be included in a recycling program, 'Agricultural Chemicals' would probably be considered in a category by themselves, regardless of statistical considerations and various forms of packaging would probably be considered separately from process wastes regardless of statistical considerations. The value of ranking the elements of the table is the provision of advice based on the difference in importance as perceived by the people sampled.

In order to discern how closely related the results of the telephone and the mail surveys were to each other, their profiles were compared and the results of the telephone survey questions and statements were compared between the 350 telephone respondents (students were excluded) and the 80 mail survey respondents. These were all two sample situations. Although, as noted above either the Komogorov-Smirnov, or the Wald-Wolfowitz tests could have been used, for consistency's sake, the comparisons were made by Chi-square testing.

Both the telephone and the mail surveys, and the procedures for their administration, were reviewed and approved by the Office of Human Research, University of Waterloo prior to their use.

Chapter Five:

Case Study Findings

INTRODUCTION

Chapter Five presents the findings of the case study. It presents the response rates, sectoral breakdowns and information gathered in the telephone survey and the mail survey together with brief comments on their relevance to Table 1.

THE TELEPHONE SURVEY

The response rate for all sectors surveyed in the telephone survey, other than the general public, was very high. Between 88% and 97% of the non-general public groups approached agreed to respond to the telephone survey. For the general public, 458 people were approached between 7:00 pm and 9.30 pm by random selection from the telephone book. Of these, 44% were answering machines, busy or no answer¹ and 56% yielded a live answer. Of the live answers, 40% were men and 60% were women. Of the men, 43% agreed to do the survey. Only 31% of the women agreed to do the survey. Overall, 35% of the general public approached agreed to participate in the survey.

TABLE 2: Response Rates for Telephone Survey

Students	98%;
Independent Business	97%;
Decision Makers - government	97%;
Media	96%;
Decision Makers - non-government	94%;
Church Leaders	94%;
Accountants	88%;
Lawyers	88%;
General Public	35%.

¹ When any of 'answering machine', 'busy' or 'no answer' were encountered for the non-general public surveys, additional follow-up attempts were made until the prospective respondent either refused or participated in the survey. In the case of the general public, no additional follow-up attempts were made. Instead, the next random selection was made.

Results for the general questions of the telephone survey are found in Table 3 expressed as a percentage of respondents who answered 'yes' to the questions posed. The actual questions can be found in the survey instrument in Appendix A. Results for the general questions indicate that 99-100% of the respondents think society faces environmental, economic and social difficulties. No Chi-square tests were performed on this data. The results are virtually unanimous.

Approximately 66% of the people surveyed thought these problems were serious enough to be called crises, specifically 62%, 70% and 65% respectively for economic, environmental and social crises. Chi-square tests with respect to economic and social crises determined that differences among the results of the groups analysed (the general public, eight vocational groups, male, female, Kitchener, Waterloo, five income groups, six educational groups and four age groups) were in many cases either not significant or only marginally so. With respect to the perception of environmental crises, there was a statistically significant difference among some vocational groups and age groups but no significant difference between male and female, between Kitchener and Waterloo, or among income or educational groups. Church Leaders and Students were most likely to classify environmental difficulties as crises at 90% and 82%, respectively. Non-government Decision Makers and Independent Business are least likely at 46% and 59%, respectively.

There is some variability among various sectors concerning the awareness of crises. Awareness of economic crises decreased with increasing income from 84% for the poor to 58% for the wealthy. It decreased with increasing levels of education, ranging from 75% for the 'less-than-high-school' level to 53% for the 'university' level, indicating that awareness of economic crisis is inversely related to education. It increased with increasing age from 52% for the young to 72% for older people. Awareness of environmental crises decreased with increasing age from 75% for the young to 57% for older people. Awareness of social

**TABLE 3: FINDINGS OF TELEPHONE SURVEY - GENERAL QUESTIONS
(Percent YES Responses)**

	Economic Difficulties?	Environmental Difficulties?	Social Difficulties?	Economic Crisis?	Environmental Crisis?	Social Crisis?	Heard of Sustainable Development?	Does Sustainable Development Have Meaning?	Participate Further?	NUMBER IN SAMPLE
SECTORS										
General Public	100	100	100	66	73	70	31	23	70	90
Independant Business	100	99	100	56	59	56	60	37	96	75
Students	100	100	100	56	82	60	48	36	82	50
Govt. Decision Makers	97	94	100	50	66	63	94	88	100	32
Non-govt. Decision Makers	94	97	100	55	46	64	67	55	85	33
Accountants	100	100	100	73	70	67	67	53	73	30
Church Leaders	100	100	100	83	90	93	60	53	90	30
Media People	100	100	100	63	67	67	87	53	87	30
Lawyers	100	100	100	60	77	53	73	53	73	30
Male	99	98	100	60	65	62	66	49	85	263
Female	100	100	100	66	79	71	47	35	80	137
Kitchener	99	99	100	63	67	62	60	42	84	198
Waterloo	99	98	100	62	73	69	58	46	83	202
All Sectors	99	99	100	62	70	65	59	44	84	400
Income:										
less than \$30,000	100	100	100	84	72	76	28	20		25
\$30,000 to \$50,000	100	100	100	61	71	76	39	25		44
\$50,000 to \$70,000	100	100	100	61	71	64	58	44		69
\$70,000 to \$90,000	98	98	100	63	71	71	61	46		59
over \$90,000	98	98	100	59	64	57	78	63		116
Education:										
less than high school	100	100	100	75	69	81	13	6		16
high school grad	100	100	100	64	68	63	38	20		60
college grad	100	100	100	69	69	69	44	29		45
trade or profession	96	96	100	69	77	85	46	31		26
university grad	99	99	100	53	60	60	78	63		88
post graduate	99	99	100	64	71	64	75	62		113
Age:										
20 - 34	100	100	100	52	75	62	43	37		65
35 - 49	99	99	100	63	71	60	67	49		182
50 - 65	97	97	100	68	57	65	63	51		81
65+	100	100	100	72	61	72	50	28		18

crises decreased with increasing income levels from 76% to 56% from young to seniors. It increased with increasing levels of education ranging from 60% to 81%. Differences among the number of people who had heard of sustainable development and the number for whom it had meaning varied widely. According to Chi-square tests, there was no statistical difference between Kitchener and Waterloo or among age groups as to whether or not people had heard of sustainable development and whether or not it had meaning. There were significant differences among vocational, income and educational groups and between men and women. Vocational groups vary widely from 31% to 94% for 'heard of sustainable development' and 23% to 88% for whether or not it had meaning. Awareness and meaning of sustainable development increased with income and education. Men were more aware of sustainable development and its meaning than women. Government Decision Makers were most aware of sustainable development (94%). The General Public was least aware (31%). With respect to whether or not sustainable development had meaning the percentages drop to 88% for Government Decision Makers and to 23% for the General Public. This large discrepancy between leaders and their public is statistically significant. Awareness of the term increased with income, from 28% for the poor to 78% for the wealthy and with educational level from 12.5% for high school drop-outs to 78% for those with a post grad degree. Awareness of sustainable development increased with age from 20% for the young to 63% for seniors.

The results for the statements pertaining to the propensity for change in values identified by each component of the complementary pairs of values identified above in Table 1 are presented in Table 4. The data were entered into Table 4 according to classifications for the numerical average derived above (p. 184). The results were consistent with respect to both the present and the future, and show for the most part a reversal from the present to the future. The results from the 400 respondents were analysed for six different sample groupings for each of 13 complementary pairs of values change for both the present and the future. The six different groupings were: the general public and eight vocational samples, gender, municipal location, income, education and age. In the majority of cases Chi-square

TABLE 4 (PART 1): FINDINGS OF TELEPHONE SURVEY - PROPENSITY FOR VALUES CHANGE

VALUES	Competition/Self-Interest		Co-operation/Common-Interest		Economic Growth		Economic/Environmental/Social Balan		Urgency		Patience		Dominance over Nature		Harmony with Nature		Individual over Collective Rights		Individual Rights over Responsibilities		Collective Rights over Responsibilities	
	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F	Pt	F
Sectors:																						
General Public	AS-	N	N	AS+	A+	A	N	AS	AS-	N	DS-	AS	A-	D+	D+	AS-	A	N	A+	D+	A	D
Independant Business	AS	N	A-	AS+	A+	A+	N	AS	A+	N	D+	AS-	A-	D+	D	AS-	A-	D-	A	DS-	A	D
Students	AS	N	N	AS	AS-	N	N	AS	A+	N	DS-	AS-	A+	D+	DS-	AS	N	N	A+	D	A	D-
Govt. Decision Makers	AS	N	A-	AS+	AS-	A-	N	AS	A+	N	DS-	AS-	A+	DS-	DS-	AS	A	D	A+	DS	A-	D
Non-govt. Decision Makers	AS	N	N	AS	A+	A	D-	AS	A	N	DS-	A+	A	D	DS-	AS	A	D	A+	DS-	A	D
Accountants	AS	N	A-	AS-	A-	A	N	AS	A	D-	DS-	AS-	A-	D	D	AS-	A	D-	A+	DS	A	D+
Church Leaders	AS	D	N	AS	AS	D-	D-	AS-	A+	D-	DS-	AS	A+	DS-	DS	AS	AS-	DS-	AS	DS	AS-	DS-
Media People	AS-	N	A-	AS+	AS	A	D	AS+	AS+	N	DS	AS	A+	DS	DS-	AS	N	N	A+	DS	A+	DS-
Lawyers	AS	N	N	AS+	AS-	A+	D-	AS-	A+	N	DS-	AS-	A-	DS-	DS-	AS-	A	N	AS-	DS	A	DS-
Male	AS	N	N	AS+	AS-	A-	N	AS	A+	N	DS-	AS-	A	D+	D+	AS-	A	D-	A+	DS-	A	D
Female	AS	N	N	AS+	AS-	A	N	AS	A-	N	DS	AS	A+	DS-	DS-	AS	A	N	A+	DS-	A	D+
Kitchener	AS	N	N	AS+	AS-	A	N	AS	A+	N	DS-	AS-	A	D+	D+	AS-	A	D-	A+	DS-	A	D
Waterloo	AS	N	N	AS+	AS-	A-	N	AS	A+	N	DS-	AS-	A+	D+	DS-	AS	A	D-	A+	DS-	A	D
All Sectors	AS	N	N	AS+	AS-	A	N	AS	A+	N	DS-	AS-	A+	D+	D+	AS-	A	D	A+	DS-	A	D+
Income:																						
less than \$30,000	AS-	N	N	AS+	A+	A	D-	AS	AS-	D-	DS-	A+	A+	D+	D+	AS-	N	N	AS-	D+	A	D
\$30,000 to \$50,000	AS	N	N	AS	A+	A-	N	AS	AS-	N	DS	AS	A+	D+	D+	AS-	A+	D	A+	D+	A	D
\$50,000 to \$70,000	AS-	N	A-	AS+	AS-	A-	N	AS	AS-	D-	DS-	AS	A	D+	DS-	AS	A	D	A+	DS-	A	D+
\$70,000 to \$90,000	AS	N	N	AS	AS-	A	D	AS+	A	N	D+	AS-	A-	D+	D+	AS	A	N	A+	DS-	A	D
over \$90,000	AS	N	N	AS+	AS	A	N	AS	A	N	DS-	AS-	A	D+	D+	AS-	A	D-	A+	DS	A	D+
Education:																						
less than high school	AS	N	N	AS+	AS	A	D	AS	AS	D	AS-	AS	A+	D	DS-	AS-	A	D-	A+	D	AS-	D+
high school grad	AS	N	A-	AS+	A+	A+	N	AS	AS-	D-	DS-	AS	A+	D+	D+	AS-	A	D-	A+	D+	A	D
college grad	AS	N	A-	AS+	AS-	A	N	AS	AS	N	DS-	AS-	A+	D+	D+	AS	A	D	A+	D+	A	D
trade or profession	AS	N	A-	AS+	AS+	A+	D	AS	A+	N	DS	AS	A	AS-	DS-	AS+	A	D	A+	DS-	A-	D
university grad	AS-	N	N	AS	AS-	A	N	AS	A+	N	DS-	AS-	A+	D+	D+	AS-	A	N	A+	DS-	A	D+
post graduate	AS	N	N	AS+	AS-	N	N	AS	A	N	D+	AS-	A	DS-	DS-	AS-	A	D-	AS-	DS	A+	D+
Age:																						
20 - 34	AS-	N	N	AS+	AS-	A-	N	AS	AS-	N	DS-	AS	A+	D+	D+	AS-	A	D	AS-	DS-	A+	D
35 - 49	AS-	N	N	AS+	AS-	A	N	AS	A+	N	DS-	AS-	A+	D+	D+	AS-	A	D-	A+	DS-	A	D+
50 - 65	AS	N	A-	AS	A+	A	D-	AS	A+	N	DS-	AS-	A	D+	D+	AS-	A	D	A-	DS	A	D+
65+	AS	N	N	AS	A	A+	D-	AS	A-	N	DS-	AS	A+	D+	DS-	A+	N	N	A-	D+	N	N

LEGEND:
 P = PRESENT
 F = FUTURE
 AS+, AS, AS- = 'AGREE STRONGLY'
 A+, A, A- = 'AGREE'
 N = 'NEUTRAL'
 D-, D, D+ = 'DISAGREE'
 DS-, DS, DS+ = 'DISAGREE STRONGLY'

TABLE 4 (PART 2): FINDINGS OF TELEPHONE SURVEY - PROPENSITY FOR VALUES CHANGE

VALUES	Consume Resources		Conserve Resources		Dump Waste		Reduce, Reuse, Recycle		Profit Means \$\$		Profit Means Time, Energy, Quality of Life		Save/Protect Own/Accumulate		Share the Wealth		Image is Important, OK to Bend the Truth		Honesty		Management by Control		Management by Encouragement	
	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F	Pr	F
Sectors:																								
General Public	AS+	DS-	D	AS+	AS-	DS	N	AS+	AS	D-	D-	A	AS-	A	D+	AS-	AS-	DS-	D-	AS+	AS-	D	D-	AS-
Independent Business	A	DS	D	AS+	AS-	D+	N	AS+	AS+	N	D	A-	A-	AS+	D-	A	A+	DS-	N	AS+	AS-	D	D-	AS-
Students	AS-	DS-	D-	AS	AS-	DS-	N	AS+	AS+	D-	D-	A	AS	A	D+	A+	AS-	D	N	AS	A+	D-	N	AS-
Govt. Decision Makers	A+	DS+	D+	AS+	AS-	DS	N	AS+	AS+	D	D-	A	A+	A	D-	AS	AS-	DS-	A-	AS+	A+	D	N	AS
Non-govt. Decision Makers	AS-	DS	D+	AS-	A+	D+	D-	AS	AS	D-	D	N	AS-	A-	D+	A+	A	DS	A	AS+	A	D+	D-	A+
Accountants	AS-	DS	D+	AS	AS-	DS-	N	AS+	AS+	N	DS	N	AS-	AS-	D	A+	AS-	D+	A-	AS+	A+	D	D+	A+
Church Leaders	AS-	DS	D+	AS+	AS	D-	D-	AS+	AS+	D+	D-	A	A+	A-	D	AS	AS-	DS	N	AS+	A+	D-	D	AS
Media People	AS	DS+	D	AS+	AS-	DS	N	AS+	AS+	D	D	A+	AS-	A-	D	AS-	AS-	DS-	N	AS+	AS	DS+	D+	AS
Lawyers	AS-	DS+	D+	AS+	AS	DS-	D	AS+	AS+	D-	D-	A-	A+	A	D	A+	A+	DS-	N	AS+	AS+	D	D	A+
Male	A+	DS	D	AS+	AS-	DS-	N	AS+	AS+	N	D	A-	A+	A+	D	A+	A+	DS-	N	AS+	AS-	D	D-	AS-
Female	AS-	DS	D	AS	AS-	DS	N	AS+	AS+	D-	D	A	A+	A	D	AS-	AS-	DS-	N	AS+	A+	D	D-	AS-
Kitchener	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	N	D-	A	A+	A+	D	AS-	A+	DS-	N	AS+	A+	D+	D-	AS-
Waterloo	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	D-	D	A	AS-	A	D	A+	AS-	D+	N	AS+	AS-	D	D-	AS-
All Sectors	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	D-	D	A	A+	A	D	A+	AS-	DS-	N	AS+	AS+	DS	D-	AS-
Income:																								
less than \$30,000	AS	DS	D-	AS	AS-	DS-	N	AS+	AS	D-	N	A+	AS-	A	D	AS-	AS-	DS-	N	AS+	AS	D	N	AS+
\$30,000 to \$50,000	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	D	D-	A+	AS-	A	D	AS-	AS-	DS	D-	AS+	AS-	D+	D	A+
\$50,000 to \$70,000	AS-	DS	D	AS	AS-	DS-	N	AS+	AS+	D-	D-	A	A+	A+	D+	AS-	AS-	DS-	N	AS+	A+	D	D-	AS
\$70,000 to \$90,000	AS+	DS	D	AS+	AS-	DS-	D-	AS+	AS+	D-	D+	A-	AS-	A	D	A+	A+	DS-	N	AS+	A	D	D-	AS-
over \$90,000	AS-	DS	D+	AS+	AS-	DS-	N	AS+	AS+	N	D	A-	A+	A+	D	A+	A+	DS-	N	AS+	A+	D	D	AS-
Education:																								
less than high school	AS-	DS	D+	AS	AS-	DS	N	AS+	AS	D-	D-	A-	A+	A-	D+	A+	AS-	DS	D	AS+	AS-	D	D-	A
high school grad	AS-	DS-	D	AS	AS-	DS-	N	AS+	AS+	N	N	A-	A+	A+	D+	A	AS-	DS-	N	AS+	AS-	D	N	AS-
college grad	AS+	DS	D-	AS	AS-	DS	N	AS+	AS+	D	D-	A	A+	A+	D	A+	AS-	DS-	N	AS+	AS-	D	D-	AS
trade or profession	AS	DS	D	AS+	AS-	DS-	N	AS+	AS	D-	DS	A	A+	A	D	AS-	AS-	DS	N	AS+	A+	D	N	AS+
university grad	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	N	D	A	A+	A+	D-	AS-	AS-	DS-	N	AS+	A+	D+	D-	AS-
post graduate	AS-	DS+	D+	AS+	AS-	DS-	D-	AS+	AS+	D-	D	A+	A+	A	D	AS-	A+	DS-	N	AS+	A+	D	D	AS-
Age:																								
20 - 34	AS-	DS-	D	AS+	AS-	DS-	N	AS+	AS+	D	D-	A	AS-	A	D	AS-	AS-	DS-	N	AS+	AS-	D+	D-	AS-
35 - 49	AS-	DS	D	AS+	AS-	DS-	N	AS+	AS+	D-	D	A+	A+	A+	D	A+	A+	DS-	N	AS+	AS-	D	D-	AS-
50 - 65	AS-	DS	D	AS+	AS-	D+	N	AS+	AS+	N	D+	A+	A+	A+	D-	AS-	A+	DS	N	AS+	AS-	D	D-	AS-
65+	AS-	DS	D+	AS	AS-	DS-	N	AS	AS	N	D+	A+	A	A-	D+	A+	A+	DS-	N	AS	AS-	D	D	A+

LEGEND
 Pr = PRESENT
 F = FUTURE
 AS+, AS, AS- = 'AGREE STRONGLY'
 A+, A, A- = 'AGREE'
 N = 'NEUTRAL'
 D-, D, D+ = 'DISAGREE'
 DS-, DS, DS+ = 'DISAGREE STRONGLY'

tests demonstrated that the null hypothesis could not be rejected; i.e. the samples were drawn from the same or identical populations. Of the 1794 possible combinations which were tested for significant difference among the compared combinations of the values statements, only 50 (3%) of the results indicate that the samples tested represented different positions (note: the survey asked for agreement or disagreement with respect to the way things are in the present and the way things should be in the future). The remainder, 1744 (97%), did not reject the null hypothesis at a 98% confidence level within their compared combinations. The 50 instances in which the various groups tested held statistically different degrees of agreement or disagreement with respect to the value statements areas are detailed below:

Differences among general public and vocational groups:

The General Public

Patience - future (General Public agree more strongly than the others).

Profit = increase in \$ - present (General Public agrees less strongly than all the others).

Honesty is important - present (General Public and Students disagree, Non-government Decision Makers agree, the others agree slightly or are neutral).

Economic growth - future (General Public agree more strongly than the others).

Management by control - present (General public agree more strongly than the others).

Independent Business

Profit = increase in \$ - future (Independent Business and Accountants are neutral, the others all disagree).

Accumulate wealth - present (Independent Business agrees less strongly than all the rest).

Accumulate wealth - future (Independent Business agrees more strongly than all the rest).

Students

Individual over collective rights - present (Students and Media Personnel are neutral whereas all the others agree).

Individual rights over individual responsibilities - future (Students disagree less strongly than all the others).

Consumption - future (Students disagree less strongly than all the others).

Image is important - future (Students disagree less strongly than the others).

Management by encouragement - present (Students are neutral, the others all disagree)

Decision Makers (Government)

3Rs - present (Governments Decision Makers, Non-government Decision Makers and Lawyers all disagree more strongly than the others).

Decision Makers (non-Government)

3Rs - present (Governments Decision-makers, Non-government Decision makers and Lawyers all disagree more strongly than the others).

Image is important - present (Non-government Decision Makers agree less strongly than the others).

Church Leaders

Competition - future (Church Leaders disagree more strongly than the others).

Economic growth - future (Church Leaders disagree more strongly than the others).

Share the wealth - future (Church Leaders agree more strongly than all the others).

Media Personnel

Individual over collective rights - present (Students and Media Personnel are neutral whereas all the others agree).

Collective rights over collective responsibilities - future (Media Personnel disagree more strongly than all the others).

Management by control - present (Media Personnel agree more strongly than the others).

Management by control - future (Media Personnel disagree more strongly than the others).

Accountants

Economic growth - present (Accountants disagree more strongly than the others)

Profit = increase in \$ - future (Independent Business and Accountants are neutral, the others all disagree).

Profit = increase in quality of life - present (Accountants disagree more strongly than others).

Lawyers

3Rs - present (Government Decision Makers, Non-government Decision Makers and Lawyers all disagree more strongly than the others).

Differences among education groups:

Individual rights over responsibilities - future (Post graduates disagree more strongly than others).

Consumption - future (Post graduates disagree more strongly than the others).

3Rs - present (Post graduates disagreed, the others were neutral).

Share the wealth - future (Post graduates agree more strongly than the others).

Image - future (University graduates disagree less strongly than the others)

Management by encouragement - future (Trades people agreed more strongly than others)

Differences between male/female:

Patience - present (Women disagree more strongly than men)

Consumption - present (Women agree more strongly than men)

Dumping waste normal - future (Women disagree more strongly than men).

Honesty is important - present (Men tend to agree and women tend to disagree).

Differences between Kitchener/Waterloo:

Image is important - future (Kitchener residents disagree more strongly than Waterloo residents).

Management by encouragement - future (Waterloo residents agree more strongly than Kitchener residents).

Differences among income groups:

Individual rights over individual responsibilities - future (Low income group disagrees less strongly than others).

Profit = increase in quality of life - future (Low income group agrees more strongly than the others).

Image is important - future (Low income group disagrees less strongly than the others).

Honesty is important - present (All are neutral or slightly disagree but high income group tends to agree)

Differences among age groups:

Collective rights are more important than collective responsibilities - present (The oldest age group agrees less strongly than the others)

Consumption - future (The youngest age group agrees less strongly than the others).

3Rs - present (The youngest age group is neutral, the others tend toward disagree).

Image - future (All age groups are statistically different disagreeing more strongly with increasing age).

Management by encouragement - future (The oldest age group agrees less strongly than the others).

In all other cases the samples tested or the disaggregations analysed may be considered, as a result of Chi-square testing, to be drawn from the same or identical populations and therefore, to espouse the same values. In brief, the results are very consistent.

With respect to the comparison between present and future, the results for the value statements for each of the complementary pairs were combined for the entire 400 respondents and subjected to Chi-square testing for significance between the present and the future. In almost every case the null hypothesis was rejected for 98% confidence limit and in all but two cases by a large margin. This demonstrates a significant difference between the values people hold for the present and the values they hold for the future. The two cases in which rejection of the null hypothesis was marginal were 'economic growth' and 'accumulating wealth'. For these two cases, further Chi-square testing determined that of 28 possible sample sets for each, 15 indicated change from the present to the future and 13 groups indicated no change from the present to the future with respect to the value of 'economic growth'. For the value of accumulating wealth, 20 groups indicated change from the present to the future and 8 groups indicated no change. Details of these are as follows:

Economic growth - no change indicated from present to future by:

- Government Decision Makers
- Non-government Decision Makers
- Accountants
- Church Leaders
- Men
- Kitchener
- Lower Middle Income Group
- High Income Group
- High school Grads
- College Grads
- Post graduate People
- Age group 35 - 49
- Age group 50 and older

Accumulate wealth - no change indicated from present to future by:

- General Public
- Independent Business

Non-Government Decision Makers
 Accountants
 Lower Middle Income Group
 High School Graduates
 College Graduates
 Age group 50 and older

In other words, these groups hold the same level of agreement or disagreement for economic growth, or accumulation of wealth in the future as they do in the present. For all other sample groups, their level of agreement or disagreement changes from the present to the future, and the change is from egocentric values towards envirocentric values.

Figure 17 shows in chart form the propensity for values change in the case study community of Kitchener/Waterloo. It is compiled from the results of all sectors combined. The vertical scale for the chart is taken from the numerical average classifications derived above (p. 184). The entries on the chart are the numerical averages for each value statement for both the present and the future. A straight line has been drawn from the entry for the present to the entry for the future for each statement, showing in graphical representation the propensity for attitudinal change. A negative slope indicates a propensity for change away from “agree” and towards “disagree” and a positive slope indicates a propensity for change from ‘disagree’ towards ‘agree’. Since there is no scale on the x-axis, but the spacing is uniform, the steepness of the slope indicates relative strength and can be used for comparative purposes only.

The following summary presents each of the value changes and describes the propensity for change indicated by the results of the case study. The language of ‘strong agreement’, ‘agreement’, ‘disagreement’ and ‘strong disagreement’ is brought forward from the actual results. For instance, a numerical average of 1.65 would be reported as ‘strong agreement’ while a result of 4.5 would be reported as ‘disagreement’.

Figure 11: Chart of Propensities for Values Change (page 1)

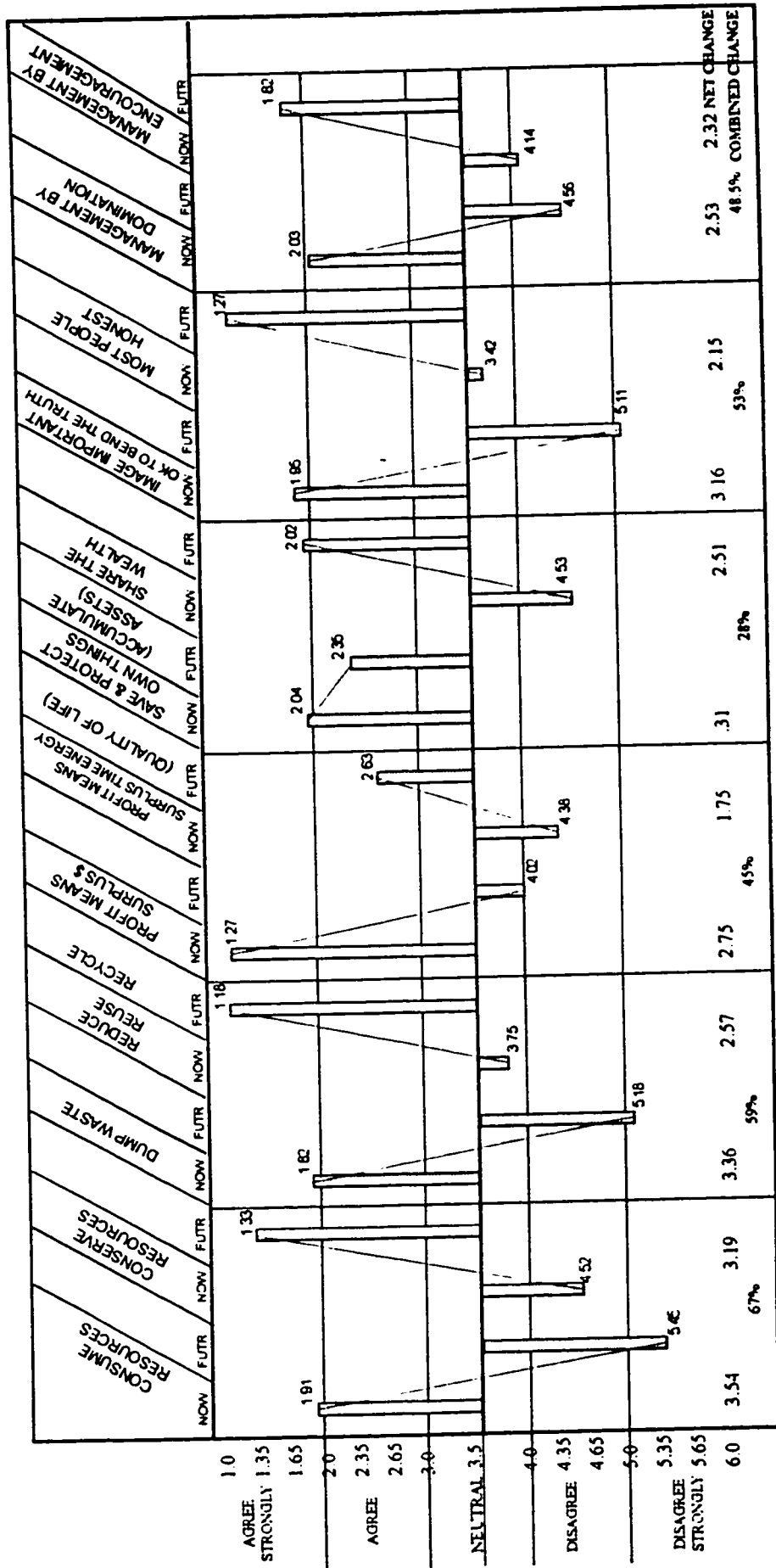
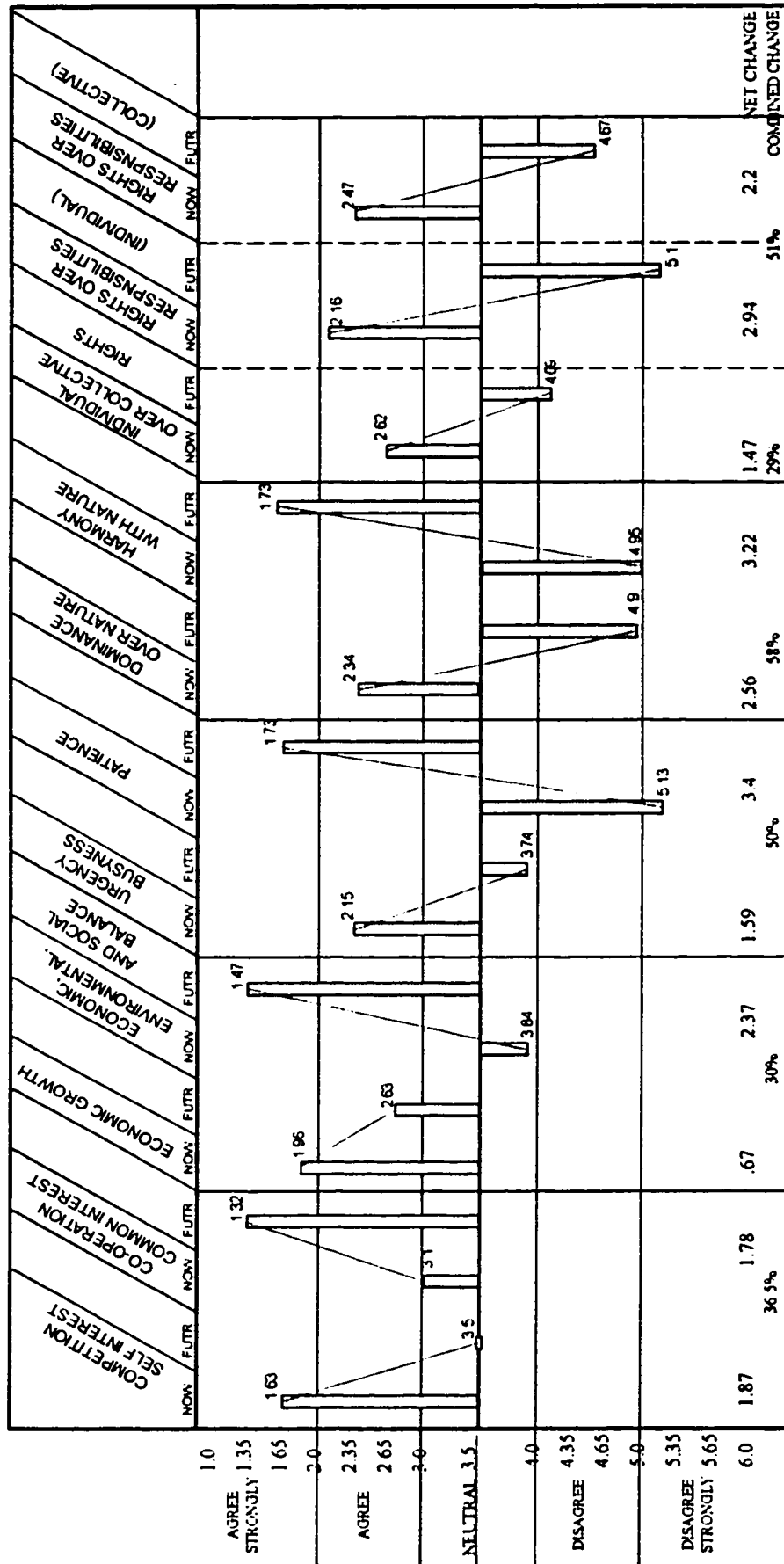


Figure 11: Chart of Propensities for Values Change (page 2)



COMPETITION / CO-OPERATION

The telephone survey results demonstrated strong agreement that people compete with respect to their own self-interest in the present. There was similarly strong agreement that people should co-operate for the common interest in the future.

ECONOMIC GROWTH / BALANCE WITH NATURE

The telephone survey demonstrated strong agreement that people believe economic growth provides the basis for a healthy society in the present and only agreement in the future. The survey results were neutral with respect to whether balance among economic, environmental and social issues provides the basis of a healthy society in the present and strong agreement that it should be that way in the future.

URGENCY / PATIENCE

The telephone survey results demonstrated agreement that busy-ness (urgency) is common and people lack patience in the present. There was strong agreement that patience should be common in the future.

DOMINANCE / HARMONY

The telephone survey demonstrated agreement that economic systems operate regardless of natural systems in the present and disagreement that it should be that way in the future. It demonstrated strong disagreement that economic systems operate in harmony with nature in the present and strong agreement that it should be that way in the future.

RIGHTS AND RESPONSIBILITIES

The statements in the telephone survey which prompted the most comments were those concerning rights and responsibilities. The survey results demonstrated agreement that people give more importance to rights in the present and further demonstrated that more importance should be given to responsibilities in the future. Furthermore, they demonstrated that individual rights are given more importance in the present and collective rights should be given more importance in the future.

CONSUMPTION / CONSERVATION

The survey results demonstrated strong agreement that society consumes resources extravagantly in the present and also demonstrated strong agreement that it should conserve resources in the future.

DUMP WASTE / REDUCE, RE-USE, RECYCLE

The survey results demonstrated strong agreement that dumping wastes is common practice in the present and strong agreement that "Reduce, Re-use and Recycle" should be common practice in the future.

PROFIT

The survey results demonstrated agreement that profit means a surplus of money in the present and that it should mean an increase in the quality of life in the future.

ACCUMULATE ASSETS / SHARE THE WEALTH

There seems to be ambivalence of interpretation here. The survey results indicated agreement that people save and protect (i.e. accumulate) their own things in the present and slightly less agreement that they should do so in the future. On the other hand, the results showed disagreement that people are generous in sharing their

wealth in the present and demonstrated strong agreement that people should share their wealth in the future. The direction of change was appropriate but the degree of change in the two sides of the FROM/TO complement is noticeably different. This shows quite clearly on the chart.

IMAGE / HONESTY

The survey results demonstrated strong agreement that people think it is acceptable to bend the truth in the present and strong disagreement that they should do so in the future. They indicated an ambivalence as to whether or not people are honest in the present and demonstrated strong agreement that they should be honest in the future.

CONTROL / ENCOURAGE

The survey results demonstrated agreement that authorities manage by imposing control in the present and demonstrated strong agreement that the management style of the future should be by encouragement.

The 'net change' numbers state the change in perception indicated by the results from the present to the future for each of the components. The 'combined change' numbers represent the combined change for each complementary pair expressed as a percent of the total ten units of possible change. Table 5 shows the rank order of greatest to least propensity for values change as determined for all 400 respondents in Figure 11. If there was great variety of results among different sectors and disaggregates, Figure 11 could be produced for all 28 possible sample sets. Due to the consistency of results, this was deemed to be unnecessary. Accordingly, only one Figure 11 was produced for all 400 respondents combined.

TABLE 5: Rank Order of Propensity for Values Change

From/to	Rank	%
Consume / Conserve	1	67
Dump waste / Reduce, reuse, recycle	2	59
Dominance over / Harmony with nature	3	58
Individual / collective	4	58
Image / honesty	5	53
Rights / responsibilities	6	51
Urgency / patience	7	50
Control / encourage	8	49
Profit = \$ / Profit = quality of life	9	45
Competition / co-operation	10	37
Growth / balance	11	30
Save and protect(accumulate) / share the wealth	12	28

A few results showed a tendency to be bi-modal. Of the 1288 separate results of the value statements, 31 (2.4%) were potentially bi-modal. Of these, 11 were weak (high standard deviation but less than 1.6) and 20 were clearly bimodal (standard deviation greater than 1.7). The following summary presents these bi-modal results. Marked in brackets is the average result (Agr=Agree, Ntrl=Neutral, Dis=Disagree).

Bi-modality for all results combined:

None

Bi-modality for the General Public:

A sense of urgency (busy-ness) should be common in the future (Ntrl).

Individual rights should be more important than collective rights in the future (Ntrl).

Bi-modality for Independent Business:

A sense of urgency (busy-ness) should be common in the future (Ntrl).

Individual rights should be more important than collective rights in the future (Dis).

Most people believe that profit means a surplus of money in the future (Ntrl).

Bi-modality for Students: None

Bi-modality for Government Decision Makers:

Most people believe economic growth should be healthy in the future (Agr).

A sense of urgency (busy-ness) should be common in the future (Ntrl).

Most people believe that profit should mean a surplus of money in the future (Dis).

Most people should save and protect (accumulate) their assets in the future (Agr).

Bi-modality for Non-government Decision-makers:

A sense of urgency (busy-ness) should be common in the future (Ntrl).

Bi-modality for Accountants:

A sense of urgency (busy-ness) is common in the present (Agr).

Bi-modality for Church Leaders:

A sense of urgency (busy-ness) should be common in the future (Dis).

Most people should save and protect (accumulate) their assets in the future (Agr).

Bi-modality for Media Personnel:

Individual rights are more important than collective rights in the present (Ntrl).

Individual rights should be important than collective rights in the future (Ntrl).

Most people should save and protect (accumulate) their assets in the future (Agr).

Most people should be generous in sharing their wealth in the future (Dis).

Bi-modality for Lawyers:

Most people believe that profit should mean a surplus of money in the future (Dis).

Most people believe profit means an increase in the quality of life - present (Dis).

Authorities should manage by imposing control in the future (Dis).

These instances of bi-modality indicated conflict within the group. In other words, many of the respondents within the sample group have opposing opinions to others in the same group regarding their agreement or disagreement. The usefulness of bi-modality and the issue of conflict are considered further in Chapter Six.

In summary, the response rates to the telephone survey were strong. Virtually 100% of respondents believed society faces problems with respect to economic, environmental and social equity issues, and 60-70% of respondents believe these problems are serious enough to be called crises. The survey also indicated that whether or not people had heard of the term 'sustainable development', and whether or not it had meaning for them did not have a significant influence on the results. The survey results support the view that the set of values underlying the characteristics of society in the present are the egocentric values found on the left side of Table 1 and that a desirable set of values to describe society in the future are the envirocentric values found on the right side of Table 1, and further, that there is a statistically strong difference between the present values and those desirable for the future. Notwithstanding this distinction between present and future, there is some variance in the strength of views among the different groups analysed and some conflict within groups.

THE MAIL SURVEY

In total, 330 mail survey packets were mailed in late October, 1994, to respondents who indicated in the telephone survey that they would be willing to participate further. There were 80 returns, yielding a response rate of just under 25%. The profile of the 80 respondents of the mail survey compared to the profile of 350 respondents to the telephone survey is detailed in Table 6. These samples are drawn from a total combined population in Kitchener/Waterloo of approximately 225,000. The numbers of respondents to the telephone survey have been adjusted to exclude the influence of the 50 university students surveyed since their inclusion would significantly change the age, income, education and location categories, and only two students answered the mail survey. Chi-square testing demonstrates that for all aspects of the profile comparison (vocation, age, income, education, gender and location) the samples are drawn from the same or statistically equivalent populations at 98% confidence level.

Of the 80 respondents to the mail survey, 45 (56%) stated on the telephone survey that they believed economic, environmental and social difficulties were all serious enough to be called

crises. An additional 7 people (total 52, i.e. 65%) believe we face economic crises but not environmental and social. An additional 12 (total 57, i.e. 71%) believe we face social crises but not environmental and economic and an additional 13 (total 58, i.e. 73%) believe we face environmental but not economic or social crises. The balance of 3 (4%) of the respondents stated on the telephone survey that they did not believe economic, environmental or social difficulties are serious enough to be called crises.

A further comparison between the telephone survey and the mail survey involved comparing, by Chi-square tests, the results of all 54 general questions and value statements of the telephone survey between the 350 people (400 minus 50 students) who responded to the telephone survey and the 80 people who responded to the mail survey. In all but two instances, the null hypothesis at a 98% confidence level could not be rejected, indicating that the two samples of 350 and 80 were drawn from the same, or identical populations. The first instance in which the null hypothesis was rejected was that people who answered the mail survey disagreed more strongly (5.5) than people who answered the telephone survey (5.1) that individual rights should be more important than collective rights in the future. The second instance in which the null hypothesis was rejected was that people who answered the mail survey disagreed more strongly (5.8) than people who answered the telephone survey (5.4) that extravagance in the consumption of resources should be normal in the future.

In all cases, results of the mail survey questions concerning change in values reinforce the change in emphasis described in Table 1. In the following tables, which present the detailed results of the mail survey, the derived data are comparative data ranging from most to least. They are not absolute measures. When a respondent answered that something was 'most' (coded as 1) it indicates the issue has a high priority in the respondent's mind. It may indicate that the priority is strong enough that the respondent is willing to consider change or would at least be willing to support or accept change. When the answer is 'least' important (coded 6), it indicates a low priority in the respondent's mind and probably means that the respondent would not be willing to entertain changes and may in fact resist change.

TABLE 6: Profile of Mail Survey Respondents

		Telephone Survey(350)		Mail Survey(80)	
		#	%	#	%
	General Public	90	26	33	41
	Independent Business	75	21	11	14
	Decision Makers - Government	32	9	10	12
	Decision Makers - Non-government	33	9	8	10
	Accountants	30	9	2	3
	Church Leaders	30	9	6	8
	Media personnel	30	9	4	5
	Lawyers	30	9	6	8
		350	100%	80	100%
Age	20-34	67	19	18	23
	35-49	182	52	31	39
	50-65	81	23	25	31
	65+	18	5	5	6
		350	100%	80	100%
Income	Low	26	8	10	13
	Low-middle	44	14	9	11
	Middle	69	22	13	18
	Upper Middle	59	19	13	18
	High	116	37	27	38
		350	100%	80	100%
Education	< High School	16	5	2	3
	High School	60	17	14	18
	College	45	13	8	10
	Trade/Professional	26	7	5	6
	University Graduate	88	25	24	30
	Post Graduate	113	32	27	34
		350	100%	80	100%
Gender -	Male	240	69	49	61
	Female	110	31	31	39
		350	100%	80	100%
Location -	Kitchener	194	56	40	50
	Waterloo	156	43	40	50
		350	100%	80	100%

Somewhere in the mid-range there is a threshold between a mind set which may support change and a mind set which may resist change. Exactly where the threshold is located is not as important as the ranking of results since the actual location of the threshold will vary with circumstances. The standard deviations indicating strength of the result (low standard deviation - stronger; high standard deviation - weaker) are recorded to assist with ordering

and ranking. A result with a standard deviation below 1.2 is considered to be a clear result. Results with standard deviation above 1.3 are weak. Results above 1.7 have a tendency to be bi-modal (see Appendix C). The order of listing in these tables is in ascending order of numerical average, i.e. from most to least. When two results have the same average, they are listed in ascending order of standard deviation, i.e. from stronger to weaker. The results, i.e. the averages, are then subjected to t-tail testing to determine whether or not there is a significant difference between them. Results are given the same rank moving down the list until the t-tail test indicates a significant difference in averages at 95% confidence level.

Table 7 concerns element 5 from Table 1 regarding change from dumping waste to reducing, re-using and re-cycling waste. The overall order from most to least importance are, generally

TABLE 7: From Dump to Reduce, Re-use, Recycle

Respondents to the telephone survey agreed strongly that dumping wastes is common practice in the present and agreed strongly that 'Reduce, Re-use and Recycle' should be common practice in the future. Indicate which of the following are MOST/LEAST IMPORTANT to reduce, re-use and recycle in the future;

	MOST	LEAST	Avg.	SD	Rank
Toxic residues.....	1 2 3 4 5 6		1.26	.69	1
Industrial chemicals.....	1 2 3 4 5 6		1.38	.72	1
Process water.....	1 2 3 4 5 6		1.41	.74	1
Agricultural chemicals.....	1 2 3 4 5 6		1.49	.77	2
Process residues.....	1 2 3 4 5 6		1.50	.76	2
Combustion products.....	1 2 3 4 5 6		1.54	.84	2
Plastic packaging.....	1 2 3 4 5 6		1.61	.97	2
Pop/beer cans.....	1 2 3 4 5 6		1.68	.79	3
Metal packaging.....	1 2 3 4 5 6		1.73	.89	3
Newsprint.....	1 2 3 4 5 6		1.84	.95	3
Glass bottles.....	1 2 3 4 5 6		1.84	1.04	3
Cardboard.....	1 2 3 4 5 6		1.99	.93	3
Paper packaging.....	1 2 3 4 5 6		1.99	1.12	3
Cars, trucks, Automotive equip	1 2 3 4 5 6		2.04	.99	3
Sewage.....	1 2 3 4 5 6		2.05	1.23	3
Kitchen waste.....	1 2 3 4 5 6		2.09	1.26	3
Heavy machinery.....	1 2 3 4 5 6		2.28	1.19	4
Yard waste.....	1 2 3 4 5 6		2.38	1.42	4
Light machinery.....	1 2 3 4 5 6		2.39	1.11	4
Home appliances.....	1 2 3 4 5 6		2.44	1.27	4
Clothing.....	1 2 3 4 5 6		2.63	1.22	4
Furniture.....	1 2 3 4 5 6		2.74	1.27	4

speaking, toxics and chemicals, packaging products, metals and other categories such as sewage, kitchen waste and yard waste interspersed in the lower rankings. All the entries in Table 7 fall into the range of 1.26 - 2.74, indicating that all aspects of 3R's are considered important. Most of these results fall into the range of standard deviation of less than 1.2, indicating firm results. Five are in the indeterminate range and only one, recycling of yard waste with $sd = 1.42$, could be regarded as a soft result.

These results indicate strong confirmation of Table 1, element 5, which states that although dumping waste into the environment is the predominant value in the present reducing, recycling and re-using waste should be the predominant value in the future

Table 8 concerns element 4 from Table 1 regarding change from consumption to conservation. All entries, except one, are on the "most important" side of the list indicating that the community would support all action concerning conservation. High on the list, ranking 1 and 2 in importance, are those resources associated with air and water. A notable inclusion is educational resources. The next ranking group are natural resources particularly those to do with economic production, such as agriculture, fish and forest resources. The notable inclusion in this group is conserving wilderness. After these, the next ranking group include conserving natural gas, hydro energy, oil resources and financial capacity. The last ranking group includes conservation of human resources such as the built environment, urban, cultural and historical resources, and non-renewable resources. High standard deviations indicate wide variance of opinion regarding these results. The lowest priority in the list concerns conserving nuclear energy. With a numerical average of 3.01 and a standard deviation of 1.85, this is well into the bi-modal range and is a potentially controversial issue.

TABLE 8: From Consume to Conserve

Respondents to the Telephone Survey agreed strongly that society consumes resources extravagantly in the present and agreed strongly that it should conserve resources in the future. Indicate which of the following resources need the Most/Least CONSERVATION EFFORT.

	MOST						LEAST	Avg.	SD	Rank
* Fresh (ground) water.....	1	2	3	4	5	6	1.18	.41	1	
* Atmospheric quality.....	1	2	3	4	5	6	1.29	.53	1	
* Lakes.....	1	2	3	4	5	6	1.38	.60	2	
* Educational resources.....	1	2	3	4	5	6	1.39	.83	2	
* Rivers.....	1	2	3	4	5	6	1.41	.63	2	
* Wild life habitat.....	1	2	3	4	5	6	1.63	.85	3	
* Wet lands.....	1	2	3	4	5	6	1.68	.82	3	
* Shorelines.....	1	2	3	4	5	6	1.69	.77	3	
* Agricultural resources.....	1	2	3	4	5	6	1.74	.91	3	
* Wilderness.....	1	2	3	4	5	6	1.74	1.01	3	
* Fish stocks.....	1	2	3	4	5	6	1.75	.86	3	
* Farm land.....	1	2	3	4	5	6	1.78	.95	3	
* Topsoil -(thickness and quality).....	1	2	3	4	5	6	1.80	.97	3	
* Forest resources.....	1	2	3	4	5	6	1.86	.98	3	
* Productive capacity(economic).....	1	2	3	4	5	6	1.96	1.12	4	
* Natural landscapes.....	1	2	3	4	5	6	2.00	1.19	4	
* Natural gas.....	1	2	3	4	5	6	2.01	1.01	4	
* Hydro electric energy.....	1	2	3	4	5	6	2.05	1.10	4	
* Parkland.....	1	2	3	4	5	6	2.15	1.11	4	
* Oil.....	1	2	3	4	5	6	2.28	1.11	4	
* Financial capacity.....	1	2	3	4	5	6	2.33	1.02	4	
* Urban environment.....	1	2	3	4	5	6	2.60	1.44	5	
* Cultural resources.....	1	2	3	4	5	6	2.61	1.32	5	
* Historical heritage.....	1	2	3	4	5	6	2.62	1.28	5	
* Minerals (Construction materials).....	1	2	3	4	5	6	2.69	1.24	5	
* Minerals (ores and metals).....	1	2	3	4	5	6	2.74	1.31	5	
* Coal.....	1	2	3	4	5	6	2.84	1.41	5	
* Nuclear.....	1	2	3	4	5	6	3.01	1.83	6	

Table 9 concerns element 7 from Table 1 regarding change from image to honesty. It is in two parts. The first part concerns the propensity to bend the truth. The first ranked reasons why people bend the truth all have to do with people preserving their image and position. The second ranked reasons for dishonesty concern fear and protection and the third ranking reasons involve shortage and frustration. The last ranking reason, 'don't know any better',

with a an average of 3.98 and a high standard deviation is not supported by the survey as a reason for bending the truth.

The second part of Table 9 concerns those ideals which are most likely to encourage people to be honest in the future. All results fall into the 'most likely' range. The first ranking group of responses concern role models of honesty in political, business and media

TABLE 9: From Image to Honesty

Respondents to The Telephone Survey agreed strongly that people think its OK to bend the truth in the present and agreed strongly that people should be honest in the future. Indicate which of the following reasons do you think are the MOST/LEAST LIKELY REASONS PEOPLE BEND THE TRUTH;

	MOST						LEAST						Avg.	SD	Rank
Enhance a desired image.....	1	2	3	4	5	6	1	2	3	4	5	6	1.89	1.09	1
Cover up mistakes.....	1	2	3	4	5	6	1	2	3	4	5	6	1.94	1.06	1
Protect a perceived image.....	1	2	3	4	5	6	1	2	3	4	5	6	2.00	1.29	1
Protect privileged position.....	1	2	3	4	5	6	1	2	3	4	5	6	2.08	1.34	1
Keep out of trouble.....	1	2	3	4	5	6	1	2	3	4	5	6	2.09	1.09	1
Insecurity.....	1	2	3	4	5	6	1	2	3	4	5	6	2.15	1.19	1
Fear of reprisal.....	1	2	3	4	5	6	1	2	3	4	5	6	2.31	1.16	2
Protect material assets.....	1	2	3	4	5	6	1	2	3	4	5	6	2.33	1.29	2
Shortage of money.....	1	2	3	4	5	6	1	2	3	4	5	6	2.86	1.45	3
Frustration.....	1	2	3	4	5	6	1	2	3	4	5	6	3.01	1.33	3
Don't know any better.....	1	2	3	4	5	6	1	2	3	4	5	6	3.98	1.53	4

Indicate which of the following ideals you think are MOST/LEAST LIKELY TO ENCOURAGE PEOPLE TO BECOME HONEST in the future.

	MOST						LEAST						Avg.	SD	Rank
Honesty in government.....	1	2	3	4	5	6	1	2	3	4	5	6	1.85	1.04	1
Honesty in business.....	1	2	3	4	5	6	1	2	3	4	5	6	1.98	1.03	1
Honesty in media reporting.....	1	2	3	4	5	6	1	2	3	4	5	6	2.18	1.20	1
Examples of role models.....	1	2	3	4	5	6	1	2	3	4	5	6	2.19	1.09	1
Knowledge: benefits of honesty	1	2	3	4	5	6	1	2	3	4	5	6	2.40	1.21	2
Honesty in advertising.....	1	2	3	4	5	6	1	2	3	4	5	6	2.60	1.26	2
Knowledge:costs of dishonesty.	1	2	3	4	5	6	1	2	3	4	5	6	2.68	1.39	2
Financial security	1	2	3	4	5	6	1	2	3	4	5	6	2.81	1.24	3
Moral persuasion.....	1	2	3	4	5	6	1	2	3	4	5	6	2.94	1.40	3

leadership. The second ranking group concern knowledge of the costs and benefits of honesty which provide strong encouragement to people to be honest. Financial security and

moral persuasion are the third ranking ideals for encouraging honesty. They still fall within the 'most likely' range, but only marginally so. The two parts of Table 9, considered together, demonstrate strong support for the change from a value which accepts dishonesty in the present to a value which endorses honesty in the future as described in element 7 of Table 1.

Table 10 concerns elements 9, 10, 11 from Table 1 regarding change in values from the reliance on rights to the acceptance of responsibilities. The results identify those responsibilities which are most important for the future. Almost all the entries fall into the 'most important' range. The highest ranking group of responses concern the responsibility to be honest (element 7 of Table 1). This group of results has the lowest averages in the whole survey and the lowest standard deviations indicating that the responsibility to be honest in the future is the strongest result in the whole survey. The next ranking is a large group which includes various aspects of social responsibility such as the responsibility to vote, to be law abiding, and to protect the rights of others. It also refers to other elements of Table 1 such as the responsibility to contribute to society (element 2), to protect nature and ecological systems (elements 3 and 12) and to conserve (element 4). The third ranking group concerns the responsibility to maintain one's own capacity to contribute to society, (element 1 of Table 1). The fourth ranking group of responses concerns the responsibility to maintain key precepts of society such as the expression of dissent, the respect for government and the responsibility to pay common expenses. Most of the responsibilities listed in Table 10 fall well within the 'most important' range and have a low standard deviation, indicating very strong results. The fifth ranking group of responses concerning spiritual or religious responsibilities are fairly neutral between 'most' and 'least' important. Only one single response rank concerning the 'responsibility to consume' is clearly in the least important range. These results in Table 10 concerning the promotion of responsibility in the future are strongly supportive of Table 1, actually touching on nine elements of the table.

TABLE 10: From Rights to Responsibilities

The statements in the telephone survey which prompted the most comments were those concerning rights and responsibilities. Respondents to The Telephone Survey agreed that people give more importance to rights in the present and indicated that people should give more importance to responsibilities in the future. Indicate which of the following responsibilities you think are MOST/LEAST IMPORTANT for the future.

	MOST	LEAST	Avg.	SD	Rank
Responsibility:					
to be honest (re: others).....	1	2 3 4 5 6	1.35	.35	1
to be honest (re: self).....	1	2 3 4 5 6	1.38	.72	1
to be honest (re: government).....	1	2 3 4 5 6	1.39	.64	1
to be honest (re: society).....	1	2 3 4 5 6	1.43	.67	1
to respect others (person, property, culture).....	1	2 3 4 5 6	1.54	.94	1
to provide for self and family.....	1	2 3 4 5 6	1.58	.79	2
to resist violence	1	2 3 4 5 6	1.61	.75	2
to vote	1	2 3 4 5 6	1.61	.85	2
to abide by the intent of laws	1	2 3 4 5 6	1.63	.79	2
to contribute to society	1	2 3 4 5 6	1.64	.66	2
to learn	1	2 3 4 5 6	1.65	.76	2
to give the opportunity to vote	1	2 3 4 5 6	1.66	.75	2
to protect the integrity of nature and ecological systems	1	2 3 4 5 6	1.71	.78	2
to conserve	1	2 3 4 5 6	1.75	.88	2
to communicate	1	2 3 4 5 6	1.78	.94	2
to protect the rights of others	1	2 3 4 5 6	1.86	1.03	2
to give evidence as requested in the process of justice	1	2 3 4 5 6	1.89	.97	3
to pay personal expenses	1	2 3 4 5 6	1.90	1.03	3
to inform and be informed	1	2 3 4 5 6	1.91	.83	3
to forgive others.....	1	2 3 4 5 6	1.94	.95	3
to correct one's transgressions.....	1	2 3 4 5 6	2.03	.87	3
to teach	1	2 3 4 5 6	2.15	.98	3
to express dissent.....	1	2 3 4 5 6	2.53	1.25	4
to seek spiritual guidance.....	1	2 3 4 5 6	2.68	1.44	4
to respect government authority.....	1	2 3 4 5 6	2.69	1.20	4
to pay common expenses of society.....	1	2 3 4 5 6	2.72	1.23	4
to be frugal	1	2 3 4 5 6	2.96	1.23	5
to pray.....	1	2 3 4 5 6	3.08	1.72	5
to worship.....	1	2 3 4 5 6	3.13	1.56	5
to share spiritual experience.....	1	2 3 4 5 6	3.22	1.36	5
to consume	1	2 3 4 5 6	4.56	1.24	6

Table 11 is also a two-part table. It concerns element 8 in Table 1 regarding change from management by control to management by encouragement. The first part concerns the most/least appropriate control mechanisms. Only one, imposition of 'financial penalties', falls into the neutral area between 'most' and 'least'. The results of all other entries fall into the least appropriate range. The four least appropriate forms of control mechanisms are intimidation and violence of any kind - (physical, emotional or against nature). The next group of least appropriate control mechanisms concerns the imposition of restrictions, such as restricting information, neglect, exclusiveness, ostracism, causing delays and restricting opportunity. 'Detention' and 'taxes' as control mechanisms are considered inappropriate.

TABLE 11: From Control to Encourage

Respondents to the telephone survey agreed that authorities manage by imposing control in the present and agreed strongly that the management style of the future should be by encouragement. Indicate which of the following you think are the MOST/LEAST APPROPRIATE CONTROL MECHANISMS:

	MOST						LEAST						Avg.	SD	Rank
Financial penalty/fines.....	1	2	3	4	5	6	1	2	3	4	5	6	3.37	1.56	1
Detention.....	1	2	3	4	5	6	1	2	3	4	5	6	4.33	1.01	2
Increased taxes/prices.....	1	2	3	4	5	6	1	2	3	4	5	6	4.45	1.45	2
Restrict opportunity.....	1	2	3	4	5	6	1	2	3	4	5	6	4.67	1.49	2
Cause delays.....	1	2	3	4	5	6	1	2	3	4	5	6	4.74	1.16	3
Ostracize.....	1	2	3	4	5	6	1	2	3	4	5	6	4.87	1.42	3
Neglect / forget / exclude.....	1	2	3	4	5	6	1	2	3	4	5	6	4.91	1.15	3
Restrict information.....	1	2	3	4	5	6	1	2	3	4	5	6	5.01	1.22	3
Intimidation.....	1	2	3	4	5	6	1	2	3	4	5	6	5.13	1.28	4
'Violence' against nature.....	1	2	3	4	5	6	1	2	3	4	5	6	5.24	1.11	4
Emotional / psychological violence.....	1	2	3	4	5	6	1	2	3	4	5	6	5.37	1.03	4
Physical violence.....	1	2	3	4	5	6	1	2	3	4	5	6	5.43	1.02	5

Indicate which of the following you think are the MOST/LEAST APPROPRIATE ENCOURAGEMENT MECHANISMS:

	MOST						LEAST						Avg.	SD	Rank
Praise/Compliment.....	1	2	3	4	5	6	1	2	3	4	5	6	1.65	.88	1
Enhanced opportunity.....	1	2	3	4	5	6	1	2	3	4	5	6	1.72	.85	1
Freedom of information.....	1	2	3	4	5	6	1	2	3	4	5	6	2.20	1.06	2
Notice/remember/be inclusive.....	1	2	3	4	5	6	1	2	3	4	5	6	2.21	1.02	2
Financial rewards.....	1	2	3	4	5	6	1	2	3	4	5	6	2.35	1.26	2
Promptness of reply.....	1	2	3	4	5	6	1	2	3	4	5	6	2.39	1.05	2
Balance of demands and resources.....	1	2	3	4	5	6	1	2	3	4	5	6	2.51	1.07	2
Discounts.....	1	2	3	4	5	6	1	2	3	4	5	6	2.84	1.40	3
Discipline.....	1	2	3	4	5	6	1	2	3	4	5	6	2.93	1.13	3

The second part of Table 11 concerns the most/least mechanisms for encouragement. The results indicate that all forms of encouragement are appropriate. Most appropriate are 'praise', 'compliments' and 'enhanced opportunities'. Following closely in rank are 'freedom of information', 'inclusiveness', and 'financial rewards'. The lowest priority of appropriate encouragement mechanisms are 'discounts' and 'discipline'. Take together these two parts of Table 11 are strong endorsement of element 8 of Table 1 concerning the change in value from management by control to management by encouragement.

Table 12 concerns element 13 of Table 1 regarding change from profit being considered as a 'surplus of money' to profit being considered as an 'increase in quality of life'. It describes the ideals of what profit should be in the future. All except two of the listed aspects of profit describe profit as quality of life. Four of the top five ideals describe aspects of relationship. The single most important aspect of profit in the future is 'wholesome relations within the family'. Others concern 'achievement', 'relations with friends and neighbours', 'less negative impact on the environment' and 'capacity to help others' and freedom from stress, particularly financial and Psychological stress. The next ranking group concerns increasing opportunity, stability and less hostility. The fourth ranking group concerns faith, peacefulness and their benefits. All these results are well within the 'most describe' range with fairly low standard deviations. The two listed ideals that the survey results identify as least descriptive of profit in the future are 'surplus of money' and 'surplus of material possessions', although high standard deviations indicate that some respondents still regard these as aspects of profit in the future. The results shown in Table 12 clearly support element 13 of Table 1 that in the future profit will be much less associated with money and material possessions than is the case in the present.

TABLE 12: From Profit = Money to Profit = Quality of Life

Respondents to the telephone survey agreed that profit means a surplus of money in the present and indicated that there should be other ideals for profit in the future. Which of the following ideals MOST/LEAST DESCRIBE WHAT PROFIT SHOULD BE in the future;

	MOST						LEAST						Ave	SD	Rank
Wholesome relations with family.	1	2	3	4	5	6	1	2	3	4	5	6	1.31	.59	1
Satisfaction of achievement.	1	2	3	4	5	6	1	2	3	4	5	6	1.60	.74	2
Wholesome relations with friends and neighbours.	1	2	3	4	5	6	1	2	3	4	5	6	1.64	.70	2
Less negative impact on natural environment. ...	1	2	3	4	5	6	1	2	3	4	5	6	1.65	.72	2
Capacity to help others.	1	2	3	4	5	6	1	2	3	4	5	6	1.73	.77	2
Freedom from financial stress.	1	2	3	4	5	6	1	2	3	4	5	6	1.83	1.06	2
Freedom from psychological stress.	1	2	3	4	5	6	1	2	3	4	5	6	1.85	1.09	2
More opportunity.	1	2	3	4	5	6	1	2	3	4	5	6	1.88	.90	3
Freedom from physical stress.	1	2	3	4	5	6	1	2	3	4	5	6	1.96	.96	3
Increasing faith in one's self.	1	2	3	4	5	6	1	2	3	4	5	6	2.01	1.04	3
Political stability.	1	2	3	4	5	6	1	2	3	4	5	6	2.03	.94	3
Less hostility.	1	2	3	4	5	6	1	2	3	4	5	6	2.08	1.14	3
Peace with one's adversaries.	1	2	3	4	5	6	1	2	3	4	5	6	2.18	1.05	4
Increasing faith in society.	1	2	3	4	5	6	1	2	3	4	5	6	2.28	1.15	4
Surplus of discretionary time.	1	2	3	4	5	6	1	2	3	4	5	6	2.50	1.20	4
Less negative impact on minority cultures.	1	2	3	4	5	6	1	2	3	4	5	6	2.56	1.30	5
Surplus of money.	1	2	3	4	5	6	1	2	3	4	5	6	3.29	1.49	5
Surplus of material possessions.	1	2	3	4	5	6	1	2	3	4	5	6	3.65	1.33	6

The results of how to pay for change (Table 13) show a wide range of responses from most appropriate (1.5) to least appropriate (5.15). On the most appropriate side are reduced consumption and cost cutting by government, followed by reduced consumption and cost cutting by institutions, individuals and business. Export of resources and individual contributions of money are in the neutral range. Increased prices/taxes and borrowing were considered to be the least appropriate ways of paying for change.

TABLE 13: Paying the Cost of Change

To effect changes in attitude and behaviour will cost a great deal of money. Indicate which of the following are the MOST/LEAST APPROPRIATE WAYS OF PAYING FOR CHANGE.

	MOST						LEAST						Avg.	SD	Rank
Reduced consumption -government.....	1	2	3	4	5	6	1	2	3	4	5	6	1.52	.86	1
Government cost cutting.....	1	2	3	4	5	6	1	2	3	4	5	6	1.80	1.17	1
Reduced consumption -institutional.....	1	2	3	4	5	6	1	2	3	4	5	6	1.86	.99	2
Reduced consumption -personal.....	1	2	3	4	5	6	1	2	3	4	5	6	1.89	1.07	2
Individual contribution of effort.....	1	2	3	4	5	6	1	2	3	4	5	6	1.99	1.06	2
Reduced consumption -business.....	1	2	3	4	5	6	1	2	3	4	5	6	2.00	1.11	2
Business cost cutting.....	1	2	3	4	5	6	1	2	3	4	5	6	2.35	1.25	3
Export of resources.....	1	2	3	4	5	6	1	2	3	4	5	6	3.14	1.47	4
Individual contributions of money.....	1	2	3	4	5	6	1	2	3	4	5	6	3.38	1.45	4
Increased prices.....	1	2	3	4	5	6	1	2	3	4	5	6	4.13	1.54	5
Increased taxes.....	1	2	3	4	5	6	1	2	3	4	5	6	4.53	1.39	5
Corporate borrowing.....	1	2	3	4	5	6	1	2	3	4	5	6	4.61	1.27	6
Government borrowing.....	1	2	3	4	5	6	1	2	3	4	5	6	5.15	1.09	7

TABLE 14: Investment of Effort

Quite apart from the cost in dollars, the changes in values, attitude and behaviour will require investment of time and effort. Indicate which of the following areas are MOST/LEAST IMPORTANT for the investment of effort:

	MOST						LEAST						Avg.	SD	Rank
Realignment of government priorities...	1	2	3	4	5	6	1	2	3	4	5	6	1.62	.82	1
Personal learning.....	1	2	3	4	5	6	1	2	3	4	5	6	1.65	.82	1
Restructuring of social systems.....	1	2	3	4	5	6	1	2	3	4	5	6	1.99	1.25	2
Realignment of business priorities.....	1	2	3	4	5	6	1	2	3	4	5	6	2.08	.88	2
Technological research.....	1	2	3	4	5	6	1	2	3	4	5	6	2.09	1.03	2
Sus Dev awareness programs.....	1	2	3	4	5	6	1	2	3	4	5	6	2.31	1.07	3
Pay off debt (institutional).....	1	2	3	4	5	6	1	2	3	4	5	6	2.32	1.40	3
Personal reputation.....	1	2	3	4	5	6	1	2	3	4	5	6	2.45	1.24	3
Academic research.....	1	2	3	4	5	6	1	2	3	4	5	6	2.47	1.08	3
Pay off debt (education).....	1	2	3	4	5	6	1	2	3	4	5	6	2.53	1.41	3
Networking non-government activities..	1	2	3	4	5	6	1	2	3	4	5	6	2.55	1.27	3
Voluntarism.....	1	2	3	4	5	6	1	2	3	4	5	6	2.58	1.00	3
Pay off debt (personal).....	1	2	3	4	5	6	1	2	3	4	5	6	2.58	1.35	3
Electronic information systems.....	1	2	3	4	5	6	1	2	3	4	5	6	2.69	1.10	4

In terms of the most/least important areas for the investment of effort (Table 14), all 14 options were rated between 1.6 to 2.69 in the most important range. The highest importance in investment of effort involves realignment of government priorities and personal learning.

The next ranking group included restructuring of social systems, realignment of business priorities and technological research. The third ranking group of responses concerning the investment of effort includes sustainable development awareness programs, academic research, networking and voluntarism. Interspersed in this group are three categories of paying off debt all of which had high standard deviations and should be considered weaker priorities. The survey indicates all aspects of bringing about change in values described by Table 1 by the investment of effort are important.

Table 15 is in two parts and concerns the willingness to contribute to the process of change in values described in Table 1. Part one shows people's expectation of themselves. People are, on the whole, willing to contribute first their ideas and expertise and second, their time, questions and answers although the results for 'questions' and 'answers' have a high standard deviation and are therefore weak. People are not so anxious to contribute their money. Part

TABLE 15: Willingness to Contribute

The process of attitudinal and behavioural change involves facing difficult challenges that many people prefer not to consider. It is not easy. It may include discovering why things cannot be the way we would like. Everyone is part of society. Everyone has something to contribute. Indicate the degree to which you personally are willing to contribute to the process of attitude and behavioural change in society with no specific monetary gain;

	A LOT			A LITTLE			NOT	Avg.	SD	Rank
Your ideas.....	1	2	3	4	5	6	7	2.20	1.13	1
Your expertise.....	1	2	3	4	5	6	7	2.26	1.19	1
Your time.....	1	2	3	4	5	6	7	2.59	1.19	2
Your questions.....	1	2	3	4	5	6	7	2.64	1.43	2
Your answers.....	1	2	3	4	5	6	7	2.68	1.41	3
Your money.....	1	2	3	4	5	6	7	3.81	1.43	3

Indicate the degree to which you expect others to be willing to contribute for no specific monetary gain:

	A LOT			A LITTLE			NOT	Ave	SD	Rank
Their ideas.....	1	2	3	4	5	6	7	2.36	1.37	1
Their expertise.....	1	2	3	4	5	6	7	2.40	1.39	1
Their questions.....	1	2	3	4	5	6	7	2.58	1.52	2
Their answers.....	1	2	3	4	5	6	7	2.70	1.55	2
Their time.....	1	2	3	4	5	6	7	2.96	1.45	3
Their money.....	1	2	3	4	5	6	7	3.99	1.55	3

two shows people's expectation of others. The results are quite similar. For the most part, people expect others to do the same as themselves with the minor variation that people are slightly more willing to commit their own effort, especially time, than to expect others to commit theirs. However, the standard deviations for people's expectations of others are noticeably higher than for their expectation of themselves, indicating that people are more sure of their own effort than that of others. In summary, most people are willing to contribute effort, but not as willing to contribute money, to bring about changes in the value systems which underlie sustainable development, and they expect others to do the same.

Table 16 examines in more depth the categories of who is willing to contribute personal time and effort to the process of change values. T-tail testing at the 95% confidence level indicates there are three ranking groups in each of the categories of contribution: those most willing, those least willing and the rest which are grouped in between. Government decision makers, with across the board the lowest averages and the lowest standard deviations, appear to stand alone in a class by themselves in terms of their strong willingness to contribute personal effort and time to bring about change in values. This group is most willing to contribute their expertise, then their ideas and answers, then their time and their questions and lastly, their money. The least willing to contribute their time, expertise, questions and answers are independent business. Both independent business and non-government decision makers are least willing to contribute their ideas and non-government decision makers are least willing to contribute their money. All other vocational categories cluster together in a group of similar willingness to contribute being significantly less willing than the government decision makers and significantly more willing than independent business and non-government decision makers. All groups indicated a willingness to contribute some money. Only two individual responses indicated unwillingness to contribute any effort other than money. Chi-square testing with respect to men and women, and with respect to respondents from Kitchener and Waterloo, indicate there is no significant difference between the willingness of men and women, or people from Kitchener and Waterloo with

respect to their willingness to contribute to bringing about change in values for sustainable development.

TABLE 16: Who Will Help - Avg. (sd)

Category(number)	Time	Expertise	Ideas	Questions	Answers	Money
General Public(27)	2.63 (1.24)	2.37(1.24)	2.07(1.04)	2.41(1.34)	2.67(1.41)	3.93(1.62)
Indep. Business(11)	2.91(1.14)	2.82(1.25)	2.45(1.13)	3.18(1.47)	3.45(1.69)	3.73(1.19)
Students(6)	insufficient	data				
Decision Mkrs (gov)(10)	2.20(1.14)	1.50(0.53)	1.80(0.79)	2.20(1.55)	1.80(0.78)	3.10(1.20)
(Non-gov)(8)	2.75(1.04)	2.25(1.16)	2.71(1.11)	2.75(1.04)	2.50(0.93)	4.63(1.06)
Accountants(2)	insufficient	data				
Church Leaders(6)	insufficient	data				
Media people(4)	insufficient	data				
Lawyers(6)	insufficient	data				
Men(49)	2.51(1.21)	2.18(1.13)	2.27(1.17)	2.73(1.48)	2.73(1.45)	3.86(1.43)
Women(31)	2.71(1.16)	2.39(1.23)	2.10(1.06)	2.10(1.06)	2.58(1.36)	3.74(1.46)
Kitchener(39)	2.54(1.23)	2.15(1.11)	2.21(1.22)	2.62(1.62)	2.62(1.57)	3.82(1.48)
Waterloo(40)	2.65(1.17)	2.40(1.22)	2.23(1.04)	2.70(1.22)	2.78(1.25)	3.85(1.39)

Table 17 further investigates peoples' willingness to contribute by comparing the willingness to contribute money across different income groups. Table 17 shows, by income category, the number and percentages of the 350 respondents in the telephone survey and the 72 with income data who answered the telephone survey. The percentages are quite similar. A Chi-square test indicates that the two samples are drawn from the same or identical populations. All income categories show a mid-range (3.4 to 3.8) willingness to contribute money. Only two individual respondents indicated no willingness to contribute money.

TABLE 17: Who Will Spend Money

Income Category	Telephone Survey		Mail Survey		Result
	Number	%	Number	%	
Low	54	15.5	9	12.5	3.4
Low Middle	47	13.5	9	12.5	3.4
Middle	70	20	13	18	3.5
upper Middle	60	17	14	19	3.8
High	118	34	27	37	3.8
Total	349	100	72	100	

Some of the most intriguing information for this research concerned people's perception of the barriers to and their willingness for values change. Table 18 compares results for all respondents combined, general public, independent business, decision makers, professions, men, women, Kitchener and Waterloo with respect to the most/least significant² barriers to change in values. The barriers are listed by ascending average and standard deviation as they appear for all sectors combined and then ranked by tests for significant difference between averages. While many of the survey results are remarkable for their consistency, both similarities and differences show up with respect to barriers to changes in values.

All barriers are rated on the 'most significant' side of the most/least continuum, except for 'lack of technology' which is the least significant in all eight sectors. 'Ignorance of the issues', is the most significant barrier to values change, ranking number 1 in seven of the eight sectors. It is ranked 2 for Independent Business. 'Lack of trust', and 'lack of leadership', are ranked 1 or 2 in all eight categories. 'No-one willing to be first', is ranked 3 or 4 in all sectors, except women (for whom it is rank 2), and the general public (for which it is rank 1).

For all eight sectors combined, the middle ranks of barriers include 'cost in dollars', 'bureaucratic gridlock', 'greed', 'maintaining the status quo', 'fear' and 'debt', followed by 'hidden agendas' and 'prejudice'. Significant differences in these rankings occur for several sectors. Greed is ranked 1 by the general public. For independent business, 'lack of leadership' is the single most important barrier, while 'greed' and 'maintaining the status quo' are significantly further down the list. For decision makers, 'fear of change' is a first

² In this discussion of Barriers to Values Change, 'significant' refers to the perception of the respondent rather than the results of a statistical analysis. Unfortunately, the word 'significant' was used inadvertently in the survey question and is quoted here as from the survey question. It is improper to interpret the use of 'significant' in this discussion as descriptive of the results of statistical testing unless so indicated.

TABLE 18: FINDINGS OF MAIL SURVEY - BARRIERS TO VALUES CHANGE 222

Willingness to Change: 1=most, 6=least

	BARRIERS TO VALUES CHANGE													
	Ignorance	Lack of Trust	Lack of Leadership	Cost in Dollars	Bureaucratic Gridlock	Greed	Status Quo	Fear of Change	Debt - No Room to Move	Hidden Agendas	Prejudice	No One Willing to be First	Lack of Technology	
SECTORS														
All	M	1.85	2.04	2.10	2.26	2.26	2.29	2.43	2.43	2.50	2.58	2.65	2.68	3.71
	SD	1.04	1.15	1.09	1.34	1.20	1.37	1.36	1.38	1.33	1.23	1.58	1.48	1.48
	R	1	1	1	2	2	2	2	2	2	3	4	4	5
General Public	M	1.70	1.70	2.03	2.09	2.09	1.97	2.03	2.15	2.27	2.42	2.15	1.94	3.55
	SD	1.02	0.92	0.95	1.26	1.07	1.29	1.12	0.97	1.15	1.03	1.39	1.03	1.54
	R	1	1	2	2	2	1	2	2	2	3	2	1	4
Business	M	2.09	2.09	1.45	2.09	2.36	3.00	3.82	2.45	2.82	2.82	3.27	3.18	3.83
	SD	0.83	1.45	0.69	1.38	1.50	1.84	1.60	1.21	1.47	1.83	1.85	1.33	1.17
	R	2	2	1	2	2	4	5	3	3	3	4	4	5
Decision Makers	M	1.72	2.11	2.11	2.67	2.39	2.39	2.44	2.06	2.67	2.67	2.72	3.17	3.89
	SD	0.96	1.13	1.08	1.53	1.24	1.46	1.42	1.26	1.37	1.41	1.56	1.82	1.81
	R	1	2	2	3	2	2	2	1	3	3	4	4	4
Professions	M	2.11	2.56	2.61	2.28	2.39	2.33	2.28	3.28	2.56	2.61	3.11	3.62	3.78
	SD	1.28	1.25	1.33	1.27	1.24	0.97	1.02	1.87	1.54	0.98	1.80	1.50	1.22
	R	1	2	2	1	1	1	1	3	2	2	3	4	4
Male	M	1.84	2.14	2.06	2.06	2.24	2.37	2.45	2.55	2.33	2.51	3.00	2.82	3.63
	SD	1.07	1.27	1.18	1.21	1.23	1.36	1.37	1.50	1.21	1.21	1.67	1.67	1.59
	R	1	1	1	1	2	2	2	2	2	2	3	3	4
Female	M	1.87	1.87	2.16	2.58	2.29	2.16	2.39	2.23	2.77	2.68	2.10	2.45	3.84
	SD	1.02	0.92	0.93	1.48	1.16	1.39	1.36	1.15	1.48	1.28	1.27	1.48	1.29
	R	1	1	1	2	2	2	2	2	3	3	1	2	4
Kitchener	M	1.77	1.94	2.08	2.26	2.05	2.10	2.54	2.69	2.59	2.36	2.36	2.69	2.54
	SD	0.87	1.09	1.01	1.33	1.30	1.33	1.50	1.61	1.48	1.27	1.55	1.56	1.48
	R	1	1	2	2	1	2	3	3	3	2	2	3	4
Waterloo	M	1.95	2.10	2.15	2.25	2.48	2.48	2.35	2.20	2.43	2.80	2.98	2.70	3.90
	SD	1.20	1.24	1.17	1.37	1.09	1.14	1.21	1.07	1.20	1.18	1.59	1.42	1.48
	R	1	1	1	1	2	2	2	1	2	3	3	3	4

LEGEND:

M = Mean

SD = Standard Deviation

R = Rank

ranked barrier, while the professions perceive all of 'ignorance', 'cost', 'bureaucratic gridlock', 'greed' and 'maintaining the status quo' as first order barriers to change in values. For men, the ranking is the same as for all sectors combined. For women, 'prejudice' and 'no one willing to be first' are ranked 1 and 2. In Kitchener, 'ignorance', 'bureaucratic gridlock', 'lack of leadership' and 'lack of trust' are all first ranked barriers to change and in Waterloo, the first ranked barriers are 'ignorance', 'lack of trust' and 'bureaucratic gridlock'.

Several bi-modal results in Table 18 indicate conflict in the following areas: for independent business people, there is conflict as to how serious the barriers are with respect to 'greed', 'hidden agendas' and 'prejudice'. For decision makers, the conflict concerns 'no one willing to be first' and 'lack of technology'. For professionals, the conflict concerns 'fear of change' and 'prejudice'.

The priority of willingness for change in values is shown in Table 19a. The value changes are listed in the order of ascending average and standard deviation as they appear for all categories combined and then ranked by tests for significant difference between averages. There is a wealth of information available from this table concerning the willingness of respondents to change from the current set of values towards a sustainable development set of values. All aspects of value change are rated on the 'most willing' side of the most/least continuum. This is important statistical information and should be borne in mind with respect to all the comparative information to follow.

Generally speaking, the rank order established by all sectors combined, shown in Table 19a, is reflected in the other eight categories. The changes from dumping waste to the 3Rs and from image to honesty are in the highest ranking group in all eight categories. The change from accumulating wealth to sharing wealth is the lowest ranking of most willing to change. Only two sectors show notable departures from the overall rank order established by the combined results of all respondents. For the general public, the change from competition to

TABLE 19a: FINDINGS OF MAIL SURVEY - WILLINGNESS TO CHANGE

Willingness to Change: 1=Most, 6=Least

	WILLINGNESS TO CHANGE	FROM Dump Waste TO 3R'S	FROM Image TO Honesty	FROM Consume TO Conserve	FROM Rights TO Responsibilities	FROM Control TO Encourage	FROM Profit = \$ TO Profit = Quality	FROM Dominance TO Harmony	FROM Competition TO Co-operation	FROM Growth TO Balance	FROM Busy-ness TO Patience	FROM Self-interest TO Common-intere	FROM Individual TO Collective	FROM Accumulate TO Share	Sector Averages	Sector Standard Deviations
All	M	1.63	1.67	1.85	1.87	1.87	2.05	2.20	2.20	2.33	2.43	2.46	2.68	2.90		
	SD	0.91	1.12	1.04	1.03	0.92	1.18	1.02	1.32	1.18	1.21	1.17	1.36	1.42		
	R	1	1	1	1	1	2	2	2	2	3	3	3	4		
General Public	M	1.53	1.53	1.72	1.78	1.72	2.00	1.88	1.78	2.06	2.13	2.19	2.47	2.75	1.97	0.36
	SD	0.88	1.08	1.08	1.04	1.05	1.24	0.83	1.04	1.01	1.04	1.18	1.19	1.59	1.10	0.19
	R	1	1	1	1	1	2	2	1	2	2	2	3	3		
Business	M	1.82	1.91	2.18	2.45	2.27	2.82	2.75	2.82	2.91	2.82	3.00	3.27	3.64	2.67	0.52
	SD	1.40	1.22	1.40	1.37	1.01	1.40	0.90	1.33	1.30	1.17	1.34	1.56	0.81	1.25	0.22
	R	1	1	1	2	2	3	3	3	3	3	3	4	4		
Decision Makers	M	1.44	1.61	1.56	1.39	1.89	2.00	2.17	2.28	2.22	2.50	2.72	2.67	3.22	2.18	0.56
	SD	0.51	1.20	0.51	0.70	0.76	1.19	1.10	1.45	1.17	1.25	1.36	1.37	1.66	1.10	0.36
	R	1	1	1	1	2	2	2	3	3	3	4	4	5		
Professions	M	1.89	1.83	2.17	2.17	1.89	1.72	2.50	2.50	2.56	2.67	2.33	2.72	2.39	2.26	0.34
	SD	0.90	1.10	1.04	0.86	0.76	0.67	1.15	1.50	1.34	1.41	0.69	1.53	0.85	1.06	0.31
	R	1	1	2	2	1	1	3	3	3	3	2	3	2		
Male	M	1.63	1.55	1.92	1.92	2.00	2.16	2.20	2.39	2.59	2.59	2.61	2.67	2.96	2.17	0.39
	SD	0.97	1.00	1.11	1.15	0.98	1.26	1.12	1.54	1.27	1.32	1.32	1.46	1.41	1.22	0.19
	R	1	1	2	2	2	2	2	3	3	3	3	3	4		
Female	M	1.63	1.87	1.73	1.80	1.67	1.87	2.20	1.90	1.90	2.17	2.20	2.70	2.80	2.03	0.37
	SD	0.81	1.28	0.91	0.81	0.80	1.01	0.85	0.80	0.88	0.95	0.85	1.21	1.45	0.97	0.21
	R	1	1	1	1	1	1	2	2	2	2	2	3	3		
Kitchener	M	1.79	1.85	1.87	1.90	1.95	2.08	2.31	2.54	2.33	2.54	2.64	2.56	3.08	2.27	0.40
	SD	1.13	1.31	1.26	1.21	1.05	1.29	0.98	1.55	1.28	1.14	1.22	1.47	1.42	1.26	0.16
	R	1	1	1	1	1	1	2	2	2	2	2	2	3		
Waterloo	M	1.49	1.51	1.85	1.87	1.79	2.05	2.13	1.90	2.26	2.36	2.26	2.79	2.74	2.08	0.41
	SD	0.60	0.88	0.78	0.83	0.80	1.07	1.06	0.97	1.09	1.27	1.12	1.28	1.43	1.01	0.23
	R	1	1	2	2	2	2	3	2	3	3	3	4	4		

LEGEND:

M = Mean

SD = Standard Deviation

R = Rank

co-operation is in the first rank of willingness to change whereas it is in the second or third for all other categories. Professional respondents show less willingness to change from consume to conserve and from rights to responsibilities, and relatively more willingness to change from control to encourage and from dominance over nature to harmony with nature. The professions also show more willingness to change from self-interest to common interest than the other categories.

Table 19a also provides interesting overall comparative evidence. Averaging the averages shows the comparative willingness of the various categories to accept change. Tests indicate the general public, with the lowest overall average, shows the greatest willingness to undergo change in values. This willingness is significantly greater than that of independent business, decision makers or professionals. There is no significant difference between decision makers and professionals but both are more willing for change than respondents from independent business. There is no significant overall difference between men and women or between respondents from Kitchener and Waterloo.

Tests with the averages of the standard deviations indicate the comparative strength of the results of Table 19a. With the lowest standard deviations the general public, decision makers and professionals are most consistent in their responses and there is no significant differences among them. Independent business respondents are significantly less consistent in views than is the case in the other categories. Similarly, women are more consistent than men, and respondents from Waterloo are more consistent than respondents from Kitchener. Using tests, a great deal of detailed comparative information can be derived from Table 19a.

As an alternative, the information in Table 19a can be presented as percentages, (see Table 19b) which makes it easier to identify the relative strengths of differences among the different groups sampled. Table 19b is derived from the relative frequencies of the 80 respondents to the mail survey who chose each of the 'Most to Least' options concerning their willingness to change values. For all sectors combined, all the results are given on the

TABLE 19b: FINDINGS OF MAIL SURVEY - WILLINGNESS TO CHANGE 226
Percent of Respondents

	WILLINGNESS TO CHANGE	FROM Competition TO Co-operation	FROM Control TO Encourage	FROM Profit = \$ TO Profit = Quality	FROM Dump Waste TO 3R'S	FROM Rights TO Responsibilities	FROM Image TO Honesty	FROM Consume TO Conserve	FROM Dominance TO Harmony	FROM Self-interest TO Common-interest	FROM Growth TO Balance	FROM Busy-ness TO Patience	FROM Individual TO Collective	FROM Accumulate TO Share	AVERAGE	
All	most	34	41	38	57	44	61	46	29	19	28	24	20	15	35	
		2	37	37	38	29	34	24	35	33	39	33	34	29	30	33
		3	18	20	13	10	15	10	11	29	29	24	24	30	27	20
	sub	89	98	89	96	94	95	92	91	87	85	82	80	72	88	
		4	3	1	5	1	4	0	5	6	6	11	13	8	11	6
		5	4	0	5	3	1	3	1	3	3	1	3	8	10	3
	least	5	1	1	0	1	3	1	0	4	3	3	3	5	6	3
	sub	11	3	12	4	6	5	8	9	13	15	18	20	28	12	
General Public	most	92	89	89	89	85	85	85	73	73	73	65	62	50	78	
		4	8	4	8	12	12	12	27	19	23	35	31	31	17	
	least	4	4	8	4	4	4	4	0	8	4	0	8	19	5	
Business	most	46	55	46	82	64	82	64	46	36	55	46	36	9	51	
		46	46	36	9	27	9	27	46	55	36	46	36	83	39	
	least	9	0	18	9	9	9	9	9	9	9	9	27	9	11	
Decision Makers	most	61	78	72	100	89	94	100	67	39	56	50	44	44	69	
		28	22	22	0	11	0	0	33	50	45	45	44	22	25	
	least	11	0	6	0	0	6	0	0	11	0	6	11	33	6	
Professions	most	61	78	89	67	67	78	72	50	67	56	61	56	61	66	
		22	22	11	78	33	17	28	44	35	39	28	29	39	33	
	least	17	0	0	17	0	6	0	6	0	6	11	17	0	6	
Male	most	65	76	74	90	80	92	84	67	53	53	53	51	43	68	
		20	23	18	6	16	4	12	29	37	41	39	35	41	25	
	least	14	2	8	4	4	4	4	4	10	6	8	14	16	8	
Female	most	80	80	80	80	77	73	77	53	67	73	67	47	50	69	
		20	20	17	20	23	20	23	47	33	27	33	43	33	28	
	least	0	0	3	0	0	7	0	0	0	0	0	10	17	3	
Kitchener	most	64	77	82	77	80	82	79	62	54	64	56	59	41	67	
		21	21	8	18	15	10	15	36	47	31	38	26	41	25	
	least	15	3	10	5	5	8	5	3	8	5	5	15	18	8	
Waterloo	most	77	77	69	95	77	87	82	62	64	56	59	41	49	69	
		21	23	28	5	23	10	18	36	31	41	36	49	36	27	
	least	3	0	3	0	0	3	0	3	5	3	5	10	15	4	

Note: 'Most' = Categories 1 & 2; Untitled row = categories 3 & 4; 'Least' = categories 5 & 6

scale of 1 to 6 from most to least with subtotals for 1, 2 & 3 and for 4, 5 & 6. Allowing that choices 1,2, and 3 can be interpreted as indicating a willingness to change values, and choices 4, 5, and 6 can be interpreted as indicating a resistance to change values, it is clear that most respondents (88%) indicated a willingness to change and only 11% indicated a resistance to change. For the remainder of Table 19b, the percentages reported are for choices 1&2 combined, representing those respondents who were 'most willing', choices 3&4 combined, representing those respondents who may have been ambivalent, and choices 5&6 combined representing those respondents who were 'least willing' to change. On an overall average basis, Table 19b indicated that the General Public was most willing to change, Independent Business people were least willing to change and the other groups were all very similar.

Table 20 shows the comparative willingness of the various groups in the community to accept change with respect to the various elements of Table 1. In conjunction with this information, it should be recalled from above that all the analysed groups registered average results in the range of most willing to change. There were individual responses in the least willing to change range but no averages.

TABLE 20: Comparative Willingness to Change Values

		Table 1 Element
<i>Women more willing than men to change</i>		
From competition, self interest	To co-operation, common interest.	1
From urgency, busy-ness and a degree of intolerance	To patience and compassion.	6
From management by control	To management by encouragement.	8
From economic growth	To economic, environmental and social balance.	12
From profit means surplus of money	To profit means increased quality of life e.g. surplus time and energy.	13
<i>Men more willing than women to change</i>		
From image is important; OK to bend the truth	To honesty is important.	7
<i>Waterloo respondents more willing than Kitchener respondents to change</i>		
From competition, self interest	To co-operation, common interest.	1
From dump waste into environment	To reduce, re-use, recycle waste.	5
<i>Decision makers more willing than independent business and professionals</i>		

From dominance over nature	To harmony with nature.	3
From consume resources	To conserve resources.	4
From dump waste into environment	To reduce, re-use, recycle waste.	5
From individual rights more important than collective rights	To collective rights more important than individual rights.	9
From individual rights more important than individual responsibilities	To individual responsibilities more important than individual rights.	10
From collective rights more important than collective responsibilities	To collective responsibilities more important than collective rights.	11
<i>Professionals more willing than independent business to change</i>		
From competition, self interest	To co-operation, common interest.	1
<i>Decision makers and professionals more willing than independent business</i>		
From competition, self interest	To co-operation, common interest.	1
From management by control	To management by encouragement.	8
From economic growth	To economic, environmental and social balance.	12
From profit means surplus of money	To profit means increased quality of life e.g. surplus time and energy.	13
<i>Professionals more willing than decision makers and independent business</i>		
From accumulate material assets	To share the wealth.	2
<i>Decision makers more willing than public to change</i>		
From dump waste into environment	To reduce, re-use, recycle waste.	5
From individual rights more important than individual responsibilities	To individual responsibilities more important than individual rights.	10
From collective rights more important than collective responsibilities	To collective responsibilities more important than collective rights.	11
<i>General public more willing than decision makers to change</i>		
From competition, self interest	To co-operation, common interest.	1
From urgency, busy-ness and a degree of intolerance	To patience and compassion.	6
<i>General public more willing than professionals to change</i>		
From dominance over nature	To harmony with nature.	3
From consume resources	To conserve resources.	4
From dump waste into environment	To reduce, re-use, recycle waste.	5
From urgency, busy-ness and a degree of intolerance	To patience and compassion.	6
From image is important; OK to bend the truth	To honesty is important.	7
From individual rights more important than individual responsibilities	To individual responsibilities more important than individual rights.	10
From collective rights more important than collective responsibilities	To collective responsibilities more important than collective rights.	11
From economic growth	To economic, environmental and social balance.	12
<i>General public more willing than independent business to change</i>		
All elements		All

SUMMARY

The overwhelming evidence of the case study, both general and detailed, is in support of Table 1. There is strong evidence that respondents accept the set of egocentric values on the left side of Table 1 as those that prevail in the present, and similarly strong evidence that respondents endorse the set of envirocentric values on the right side of Table 1 as those that are relevant to a desirable future, i.e., sustainable development. Furthermore, there is strong evidence that, although there are major barriers to change in values, there is also considerable willingness to accept change and participate in the change process.

In terms of overall results of the mail survey, Chi-square tests on the 240 questions and statements in the mail survey indicate that the samples of men and women, respondents from Kitchener and Waterloo, and among those for whom the term sustainable development has meaning and those for whom it has no meaning are virtually all drawn from the same populations. Only two statements show a significant difference between those for whom the term sustainable development has meaning and those for whom it has no meaning. Those for whom sustainable development has meaning would encourage a wider participation in business decision-making processes and the same group of people are more willing to change from an ethic of competitiveness to one of co-operativeness. With respect to Kitchener and Waterloo, there are only two of the 240 questions and statements for which there is a significant difference. People in Kitchener are more strongly in favour of conserving wetlands than people in Waterloo and as well, people in Kitchener are more strongly in favour of paying off institutional debt than people in Waterloo. There are six statements in which men and women differ. Women feel a stronger sense of responsibility to communicate with others than men do. Women are more strongly in favour of conserving shorelines than men are. Women are more likely than men to excuse people for bending the truth due to frustration or because they do not know any better. Men believe more strongly than women that people will be encouraged to become honest by witnessing honesty in advertising and honesty in government.

This wealth of information can now be used to custom design a sustainable development program for the case study community which is sensitive to the community's barriers to change, its willingness to change and the vagaries of different sectors within the community. Such a custom-designing process is described in Chapter Six.

Chapter Six:
Discussion of The Case Study

INTRODUCTION

The case study investigated how the community of Kitchener/Waterloo responded to the changes of emphasis in values described in Table 1. This chapter presents discussions evolving from the case study, beginning with discussions of the case study itself. In keeping with the third objective of the research, the discussion of the case study includes the development of a model procedure for custom designing a sustainable development program and also the derivation of two sustainable development indices based on the results of the surveys. The discussion then ties back to the philosophical aspects underlying Table 1, and to the meaning of sustainable development, particularly with respect to holism. It further reviews the significance of the case study with respect to examples of envisioning change in society both at the municipal and the institutional level. Lastly, it discusses the importance of conflict and the importance of entrepreneurship for sustainable development.

DISCUSSION OF THE SURVEYS

The third objective of this research was to develop a process through which awareness of change in the underlying values with respect to sustainable development can become common in the politics and economics of First World urban systems. To that end the case study procedure in Kitchener/Waterloo is examined as a model for investigating the propensity and willingness in any community for change in values implicit in sustainable development (i.e. Table 1, p. 209). In the context of the mandate of the Brundtland Commission, the objective is to raise the levels of understanding and commitment to sustainable development among individuals, voluntary organizations, businesses, institutes and governments. This may be achieved by focusing people's attention on the survey issues and using the information generated to develop a sustainable development program.

The Telephone Survey

The telephone survey was designed to measure the present awareness of sustainable development, the present status of values in the case study community and the propensity for change. The response rates were excellent. Among the non-general public samples, the response rate was an average of more than 93%. Even the response rate of the general public, which is subjected to telephone interviews, solicitations and surveys continuously, was gratifying at 35%. In the general public survey, women were 50% more likely to answer the phone than men, but of those who answered, men were 30% more likely than women to agree to participate in the survey.

The virtually unanimous recognition that society faces problems with respect to economic, environmental and social equity issues, and the strong views that these problems are serious enough to be called crises, indicate that the population of the case study community is aware of sustainable development issues and agrees in principle with attempts to pursue sustainable development. There is a wide variation in awareness of the term sustainable development, and similarly a wide variation in the different sample groups as to whether or not the term has meaning. The greatest discrepancy in awareness and knowledge of sustainable development is between decision makers and their constituency. However, Chi-square testing demonstrates that whether or not people recognize the term, and whether or not it has meaning, does not affect the other results of the survey. Similarly, gender, location between Kitchener and Waterloo and vocation seem to have little effect on the results. In other words, respondents in the case study community showed an awareness for change of emphasis in values described in Table 1, regardless of what sustainable development does or does not mean.

There is a remarkable consistency among the 28 sample sets analysed that there needs to be change between the present and the future, (i.e. from the 'old' set of values to the sustainable development set of values identified in Table 1). With respect to the present values which

underlie society's decision-making processes, there is strong evidence in most cases that the dominant value set includes the left side of Table 1 and it does not include the right side. The results, as indicated in Figure 11 above (p. 200), are neutral in the present as to whether or not society does a good job at the 3Rs, whether or not people are honest, whether or not most people co-operate for the common good, and whether or not people believe balance among economic, environment and social equity issues is healthy for society. Similarly, there is strong evidence that the dominant value set for the future should be the right side of Table 1 and it should not include the left side of the table except for two items. The results are neutral in the future as to whether or not people should compete with respect to self-interest and whether or not a sense of urgency and busy-ness should be normal. The two exceptions, according to the survey results, are that in the future people should continue to believe in economic growth and accumulate their own assets but this view is held less strongly than in the present. This presents an apparent dichotomy. It indicates that, according to the survey, people should both save and protect (accumulate) their assets in the future but also should be generous in sharing their wealth with others. It also indicates people believe that in the future both economic growth and balance among economic, environmental and social equity provide the basis of a healthy society. The survey data do not allow for investigating this inherent conflict. However, it is noted for future research.

In the process of conducting the telephone survey, three statements, 3a), 10b) and 11a), caused some confusion for respondents and the author was frequently asked for clarification about them. These three statements should be clarified in any future use of the model as follows:

- 3a) For some people the term 'urgency' conveyed a positive or negative connotation. It was meant to convey only busy-ness and an accompanying measure of intolerance. In future surveys, 'busy-ness and intolerance' would be better.
- 10b) For some the idea that profit could be 'time and energy', or anything other than money, was startling. 'Profit = increases in quality of life' would be a better expression.

- 11a) For some the idea of 'save and protect' conveyed a positive connotation and for others, a negative one. It was meant to convey only the accumulation of material assets for oneself, which would be a better expression in the future.

Since the results of the telephone survey were quite consistent, consideration must be given as to whether the consistency is valid or whether it is the result of bias. Bias may have been introduced in three ways: by how the sample participants were selected, by how the questions were worded, or by how the questions were presented. The nine different sample sets of participants were selected for specific reasons as explained in Chapter 4. In that sense, any bias was obvious and declared. However, within the sample sets the selection was random. Chi-square testing indicated that the nine sample sets were from the same or identical populations. Therefore, it is unlikely that any appreciable bias resulted from the selection process. With respect to the wording of the survey 'questions', they were designed to be neutral statements. Every effort was made to ensure there was no indication of pro or con in the statement. The question part was in each case the same: to what extent do you agree or disagree with the neutral statement? Therefore, because the question was structurally separate from a neutral statement, it is unlikely that any appreciable bias was introduced by the wording of the neutral statements. The only way to test for this would be to write separate neutral questions with essentially the same meaning as the originals, conduct a control survey and then compare the results statistically for significant difference.

The third opportunity for bias concerns how the questions were asked. It is possible to make a statement or ask a question in a way that voice inflection indicates the response expected. In the case of this survey, all neutral statements were read in a normal matter-of-fact voice for making a neutral statement without any particular voice inflections. The actual question merely presented a range of choices which were the same in every instance. In most cases, after the first two or three questions, the respondent knew the choices available and it became unnecessary to repeat them. There would seem to be little opportunity for bias in this procedure. However, to be rigorous, the way to test would be to have several people

administer a portion of the surveys and then compare the results statistically for significant difference among those administering the surveys.

The Mail Survey

The mail survey was designed to corroborate the findings of the telephone survey and to generate detailed information for the design of a sustainable development program. The results of the mail survey did provide confirmation of the propensity for change in values demonstrated by the telephone survey and an initial level of detail as to how particular value changes might be accomplished. The mail survey also examined the willingness for values change, the barriers to such change, and the willingness to contribute effort and money to affect change in values. The results demonstrated that there is a strong willingness to change, a variety of positions regarding the barriers to change, and a modest willingness to contribute effort and money in aid of change.

Two components could be usefully added to the mail survey and one aspect of procedure should change. First, some people with whom the findings of this research have been discussed consider that the family is a primary place for the establishment, practice, modification and passing on of values which shape, energize and constrain social organizations. Consideration should be given to introducing some questions concerning nuclear vs. extended families and the role of the family in sustainable development. A second component, which should be added to the mail survey, concerns entrepreneurship; (i.e. the application of human ingenuity to sustainable development issues). Entrepreneurship has played a significant part in the evolution of sustainable development. Therefore, it has a place in the study of sustainable development processes in urban systems. It would be useful to pose some questions about changing ways of perceiving, thinking, being and behaving in relation to entrepreneurship, particularly with respect to the evolution of systems, organizations and social processes.

With respect to procedure, the detailed options in the mail survey questions were generated by the author with a minimum of feedback from selected colleagues. In a future situation, lists of options would be more relevant to a particular community if they were produced by brainstorming with a group of representatives from that community. Such a group could simply be generated by random selection of a few respondents from the telephone survey who agree to be involved with further research.

CUSTOM DESIGNING A SUSTAINABLE DEVELOPMENT PROGRAM

The surveys produced general guidance with respect to designing a sustainable development program which could be best suited to the conditions in the community at the time the surveys were taken. Custom designing a sustainable development program inherently means identifying the most appropriate elements of an information and action program. The selection of information and the process of its communication are influenced, perhaps even determined, by the values which both individuals and organizations embrace. Therefore attention to the values which influence individuals and organizations is necessary in order to affect change in them. The case study provides a model for a 12-step procedure to design a process for influencing change in values. The survey data provide the source of information for conscious intervention in the change of emphasis in values inherent in sustainable development.

Examination of the general information in Table 3 (p. 192) indicates there may be a desire for sustainable development awareness training. It can be presented as a need for awareness building, as shown in Table 21. If awareness of the term 'sustainable development' is deemed to be important by leaders in the community, then information and discussion concerning some basic issues are needed for those sectors which are weak in awareness: What is sustainable development? What are the difficulties which give rise to the perception of crisis? How are these difficulties with respect to economics, environment and social equity related to sustainable development? What solutions may be available? For groups which, and people who, are already strong in awareness, such basic knowledge can be presumed.

However, this appears to be entirely a matter of choice. Chi-square testing demonstrates that there is virtually no difference in responses to either the telephone survey or the mail survey between those for whom sustainable development has meaning and those for whom it has no meaning. Therefore it may be useful, but not essential, to employ the term, 'sustainable development'. Similarly, it may be considered useful but not essential to provide basic knowledge about sustainable development in the case study community. If awareness and knowledge of sustainable development are considered to be similar to awareness and knowledge of economic, environmental and social crises, then learning opportunities should be provided for those who are weak in understanding with respect to sustainable development. What was clearly demonstrated in the case study community was the recognition of need, propensity, and willingness for society to undertake fundamental change in its values with respect to the integration of economics, environment and social equity, regardless of the meaning of sustainable development. The same surveys conducted in other communities may indicate that learning opportunities for sustainable development are more strongly needed than is the case in the case study community.

TABLE 21: Table of Awareness
(% 'Yes' answers to General Questions)

ISSUE	WEAKEST SECTORS	STRONGEST SECTORS
Economic crisis(62%)	Decision-makers, gov't(50%) Age = 20-34(52%) University Graduates(53%)	Church leaders(83%) Accountants(73%)
Environment (70%)	Decision-makers, non-gov't(46%) Age = 50 -65 (57%) University Graduates(60%) Age = 65+ (61%)	Church Leaders(90%)
Social crisis(65%)	Lawyers (53%) Independent Business(56%)	Church Leaders(93%)
Knowledge of S.D.(59%)	Less than High School(13%) Low income(28%) General Public(31%) Middle income(39%)	Decision Makers gov't(94%) Media (87%)
Meaning of S.D.(44%)	Less than High School(6%) High School grads(20%) Low income(20%) General Public(23%) low/middle income(25%) College grads (29%)	Decision Makers, Gov't(88%)

An important area of interest in designing a sustainable development program concerns the priority of value change. In designing a sustainable development program, it is suggested here that three components should be considered. First, areas of strong agreement or disagreement indicate subject areas for which action programs can be undertaken. Second, areas of moderate to weak agreement or disagreement indicate subject areas in which education programs should be undertaken. And third, areas of change which produced both strong agreement and disagreement, i.e. bi-modal results, indicate areas of potential controversy in which public programs of discussion or debate should be encouraged.

For establishing priorities for consideration, Table 22 was created by combining the ranking for change from Table 5 (p.203) and the ranking for change from Table 19 (p.224). Table 5 was developed from the results of the telephone survey. It represents the immediate reaction and therefore indicates the underlying propensity in the community for change in the specified values. The strength of propensity (in brackets) can be read from Figure 11 directly. Table 19a was developed from the results of the mail survey and can be taken to represent the considered opinion after a process of reflection and interpretation by the respondents. The strength of this willingness (in brackets as a percent of maximum measurement) is derived by using the equation:

$$[(5.0 - (m - 1.0)) / 5.0] * 100,$$

where 'm' is the numerical average for 'All' in Table 19.

This is the same process used to generate the combined changes from Figure 11 for the case study community. The strength of willingness to change is much stronger than the underlying propensity to change, with only minor changes in ranking.¹ These two rankings were summed to yield a combined ranking of propensity for, and willingness to, change. Table 5 and Table 19a, and therefore also Table 22, are combined data for all respondents

¹ Consideration was given to weighting either 'Propensity' or 'Willingness' as having greater importance. However, both options made only minor differences in the overall ranking.

(except the students) to each survey. Chi-square testing demonstrated that these two samples (350 and 80) were drawn from the same or statistically identical populations. Therefore it is valid to combine the rankings in this way.

TABLE 22: Priority Ranking for Values Change

(Strength of propensity and strength of willingness as % of maximum measurement)			
Change Category	Propensity Ranking	Willingness Ranking	Combined Ranking
From dump to 3Rs	2 (59%)	1 (87%)	3
From consume to conserve	1 (67%)	3 (83%)	4
From image to honesty	4 (53%)	2 (86%)	6
From rights to responsibilities	5 (51%)	4 (82%)	9
From dominance to harmony	3 (58%)	7 (76%)	10
From control to encouragement	7 (49%)	5 (82%)	12
From profit(\$)\$ to profit(quality)	8 (45%)	6 (79%)	14
From urgency to patience	6 (50%)	10 (72%)	16
From competition to co-operation	9(37%)	8 (76%)	17
From growth to balance	10(30%)	9 (74% ⁰)	19
From individual to collective	11(29%)	11 (64%)	22
From save to share	12(28%)	12 (62%)	24
Overall Average	46%	77%	

The combined rankings are listed in order of priority in Table 22. If an information program pertaining to a specific group, for example, the Chamber of Commerce, seniors or a professional organization, were desired, the same process could be used to isolate a rank order for any specific group for which a Figure 11 had been prepared.

Derivation Of Sustainable Development Indices

Table 22 produces important information which leads to the derivation of two indices for sustainable development. Each of the two rankings produces an overall average ranking. For the propensity ranking the average is 46% and for the willingness ranking it is 77%. These are both expressed as a percentage of the maximum measurement possible. A score of 100% would result from all respondents choosing either 'Agree Strongly' or 'Disagree Strongly' for the present and all choosing the opposite extreme for the future. This would indicate that

the maximum change possible is deemed necessary or desirable. A zero score would result from all respondents making exactly the same choice for the present as for the future, indicating that no change is deemed necessary or desirable.

The average of 46% propensity ranking from Table 22 is for all respondents to the telephone survey. It can be regarded as an index of the overall propensity for change of values as described in Table 1, or more simply, an 'Index of Propensity' for sustainable development in the case study community at the time of the surveys. The average of 77% in willingness ranking is for all respondents to the mail survey. As noted above, Chi-square testing demonstrated that these two sample groups are from the same or identical populations. It can therefore be regarded as an 'Index of Willingness' for sustainable development in that same community. The difference between the two indices is that the 'Propensity Index' yields a measure of the relatively spontaneous, subconscious response and the 'Willingness Index' yields a measure of the considered thoughtful response. If a greater variance in response from various samples of the overall community is experienced than happened in the case study community, indices can be calculated for each sample group for which a Figure 11 is generated, subject to normal statistical requirements (e.g. sample size).

There are two possible types of index results; the two indices can be essentially the same or one may be significantly higher than the other. If the numerical indices are divided arbitrarily into three ranges, low (less than 40%), medium (40%-60%) and high (greater than 60%) there are nine possible results with respect to the potential response of the measured community to a sustainable development program. In each case the 'Propensity Index' is given first and the 'Willingness Index' is given second.

Low-Low: Any aspect of a sustainable development program will experience great difficulty and expense, and will suffer great resistance from the community.

Mid-Mid: A sustainable development program should be limited to a public education program targeted to raise awareness of and willingness for SD.

High-High: The community is ready for any responsible leadership to initiate sustainable development action and education programs. If there is not already a sustainable development program in place, some individuals, organizations and groups in the community may already be doing things spontaneously.

High-Mid: This indicates that the community is very aware of sustainable development issues but is less willing to do anything about them. Community leadership may initiate sustainable development action programs in areas of strong willingness following up with education programs in weaker areas.

High-Low: This indicates the community is very aware of sustainable development but harbours great resistance to sustainable development. Community leadership should identify significant barriers and sensitivities to value change from the survey results and initiate education programs to deal with those barriers and sensitivities.

Mid-Low: This indicates the community is modestly aware of sustainable development but harbours resistance to doing anything about it. Community leadership should identify, from the survey results, areas of existing awareness of difficulties, crises and the need for change in values and attitudes, then develop an education program to reinforce that awareness and targeted to understanding the need for action programs in non-threatening areas.

Low-Mid: This indicates that the community is relatively unaware of the need for change in values, but when the issues are brought to its attention there is reasonable willingness to act. Community leadership should use areas of potential controversy to design an education program for raising awareness of problems, difficulties and crises leading toward understanding the need for action in areas of potential willingness.

Low-High: The community is unaware of sustainable development but when the issues are brought to people's attention there is a latent willingness to act. Community leadership can safely initiate action programs in areas of strongest willingness and develop an awareness-raising education program based on the results of the action programs.

Mid-High: This indicates a reasonable awareness of the need for values change and a strong willingness to act in accordance with sustainable development. Community leadership can initiate ambitious action programs in areas of strength and ambitious education programs in areas of controversy, targeting specific sectors of the community to accept co-management of sustainable development programs.

The data for the case study community yielded a mid-range 'Propensity Index' and a high-range 'Willingness Index'. This is perhaps the most desirable result. It indicates that there is a solid base of awareness in the community of the need for, and desire for, sustainable development and therefore very little 'wake up' work needs to be done. For the case study respondents, the conscious intervention of willingly being exposed to a survey concerning economic, environmental and social problems/crises, and fully participating in it, resulted in an even stronger willingness to be involved in values change associated with sustainable development activities. This may indicate that the inherent awareness in the community may provoke leadership to lead and further that when leadership leads, the community can be expected to follow.

Barriers

The next step in the process is to identify the principal barriers and sensitivities to embracing change which need to be overcome both in general and with respect to particular target groups. This information is based on Table 18 (p.222) concerning the barriers to change. In the case study community, there was a dichotomy between the decision makers and their public. The public identified 'ignorance', 'lack of trust', 'no one-willing-to-be-first' and 'greed' as the principal barriers to change. The decision makers identified 'ignorance' and 'fear of change' as major barriers. This indicates that an interactive public education and promotion campaign for sustainable development is called for, including selected action programs around which the campaign can be designed. This is practical 'how, what, where, when,' kind of information. It would appear from the survey data that many people are unaware of how much is already being done by way of environmental initiatives in the case

study community. Such a campaign should attempt to gather feedback as to the nature of, and the reason for, the lack of trust on the part of the public. It should also attempt to discern specifics of why decision makers are fearful of change in values implied by sustainable development and seek ways to mutually resolve both the lack of trust on behalf of the public and the fear of change on behalf of decision makers. This implies a major investment of time, energy, expertise and some money in openly and honestly sharing information. If a sustainable development program is to be designed for use with all groups, 'ignorance', 'lack of trust', 'lack of leadership' are the principal aspects which should receive attention. For business people, 'lack of leadership' is the main barrier to be addressed. For professionals, 'ignorance', 'cost in dollars', 'bureaucratic gridlock', 'greed' and 'maintenance of the status quo' should be addressed, and for women, 'prejudice' is a principal barrier.

Responsibility and Support

The next step in the program is to consider which sector should be responsible for the program and which sectors should be looked to for active support. Guidance for this is derived from Table 15 (p. 218), Table 16 (p. 220) and Table 17, (p. 220) which describe the extent to which people are willing to contribute to the change process. In the case study community, most people are willing to contribute their ideas, expertise, time, questions and answers, although they are more reluctant to contribute their money. They expect others to be essentially the same. The willingness of individuals to be involved is high and includes some willingness to contribute money. Responsibility for the program should rest with municipal government decision makers since they registered the highest willingness to contribute ideas, expertise, time, questions and answers but people from all sectors of the community indicated willingness to be supportive. Therefore, it is also important for the program to be widely open to participation by people from all sectors.

Identifying Program Elements

The survey data produce many ideas with respect to the design and development of a sustainable development program for the subject community. Perusal of Table 22 indicates

that, for the case study community, all categories of change should be considered for inclusion in a sustainable development program since they all scored well in excess of 50% in the willingness ranking. The highest combined score identified concerns about change from a value of just discarding things no longer wanted or useful to a value of retaining them for potential re-use. Or, stated as an attitude, it is an attitude that dumping waste is normal practice in the present to an attitude that reducing, re-using and recycling waste should be common practice in the future. The detailed information on this change is provided from the mail survey and is reproduced in Table 7 (p. 208). Table 7 shows that all aspects of 3Rs are important and warrant attention. In the ranking provided by the survey results, the most important wastes are hazardous and toxic chemicals, next are packaging wastes, and third are metals and other wastes. Reducing, re-using and recycling of toxic, chemicals, newsprint, glass, cardboard, plastic and paper packaging are all aspects in which action programs should be encouraged. Re-using and re-cycling of cars, trucks, heavy machinery, light machinery, appliances, clothing and furniture are all matters in which education programs would be appropriate. With respect to the results concerning yard wastes, many people agree and many disagree. There is a slight tendency towards bimodal results, indicating this area could require greater advertising, promotion and incentive than other categories.

These results are not surprising for the case study community. It is quite understandable that toxic and chemicals generate the most concern because of the sense of fear, or at least concern, that accompanies the improper disposal of both. The next group (plastic packaging, drink cans, newsprint, glass, cardboard and paper packaging) represents the common items of household recycling which has been in place for many years. The ambivalence about yard waste is also understandable since, at the time of the survey, the exclusion of grass clippings and the inclusion of yard waste in the local recycling program were new.

The next category of importance in designing a sustainable development program for this community is the change from consumption to conservation. The detailed results are found in Table 8 (p. 210). The information from this table indicates that the principal emphasis

for a conservation policy could include water resources, air quality, wildlife habitats, wetlands and production capacity related to farm, fish and forest resources. Farm, fish and forest resources would appear initially to be rural rather than urban issues. However, they are urban issues in that the principal markets for farm, fish and forestry products are in urban centres which are voracious markets. These are all areas in which action programs could be initiated and the table is a useful guide in the selection of potential action programs. For example, action programs involving ground water, rivers, wetlands, shorelines, wildlife habitats and wilderness areas could all be expected to meet with public acceptance. Since these are all issues in which the local municipal governments are already active, an aggressive public education program would be in order leading to an even more ambitious program of action. Areas of useful education programs are indicated from Table 8 to be forest conservation, conservation of energy sources such as natural gas, hydroelectric and petroleum resources and conservation of urban, cultural, historical and heritage resources. Some interesting connections could be made between action and education programs. For instance, an action program involving conservation of ground water, wetlands, wildlife habitats and wilderness areas could have a component concerning conservation of cultural, historical and heritage resources and their connection to urban conservation. Not unexpectedly, conservation of nuclear resources has a tendency to generate a bimodal response which indicates the nuclear issue is controversial in this community. Therefore, it could be a useful approach to feature public debate on the nuclear issue as one component of an energy conservation program.

Table 9 (p. 211) describes the third element in designing a sustainable development program for Kitchener/Waterloo. It concerns making the distinction between image and honesty. First, the program must address the reasons why people bend the truth. There are several different aspects to consider. The first ranked aspects involve the enhancement and protection of a desired or perceived image, covering up of mistakes, protecting a privileged position and keeping out of trouble. Table 9 indicates that people would readily accept these reasons for why people bend the truth. 'Fear of reprisal', 'protecting material assets',

'shortage of money' and 'frustration' can all be regarded as avoiding negative consequences. Table 9 indicates people agree that these are reasons why people bend the truth, but may not accept them so readily. Therefore, they are good potential discussion topics for developing understanding of why people bend the truth. The table further indicates that the explanation of 'don't know any better', is a weak excuse for dishonesty. Indeed, it shows a weak tendency to be bimodal, and therefore possibly controversial, indicating that a debate about 'not knowing any better' could be a useful device for exploring the issue of why people bend the truth.

Part 2 of Table 9 gives guidance as to how honesty may be engendered in the community. The table indicates examples of honesty in government, honesty in business, honesty in media reporting and examples of role models are likely to have the greatest influence in engendering an ethic of honesty in the community. An action program in this area might involve a program of public recognition in which incidents of noteworthy honesty receive a very complementary citation in the public media. Areas of useful education initiatives include the significance of honesty in news reporting and advertising, and information about the benefits of honesty and the costs of dishonesty. The indication from the table is that moral persuasion would be the least useful expenditure of resources. It does not even appear to be potentially controversial enough to be useful as a topic for public debate.

A fourth element for a sustainable development program should be to promote a decrease in the pursuit of rights and an increase in the acceptance of responsibility. Of high importance to the community, as identified by Table 10 (p. 213), is responsibility to be honest in all respects and to respect others. This requirement of honesty pervades all the aspects of responsibility shown in the table. An effective mechanism would be to share stories of the benefits of being honest and the costs of being dishonest. Next are various aspects of being socially and democratically responsible, such as providing for self and family, resisting violence, contributing to society, abiding by the intent of laws and regulations, protecting the integrity of nature, keeping informed, communicating and voting. The results in the table

indicate that in any of these areas of responsibility it would be appropriate to encourage the development of action programs. For example, young professionals could be encouraged to get involved in projects to preserve the natural environment, parent/teacher associations could be encouraged to set up programs for keeping the community informed, all ages could be encouraged to respect others and contribute to society, and young people especially should be encouraged and prepared to exercise their responsibility to vote and participate democratically. The active volunteer programs already in existence is an ideal way to combine many of these objectives on a local basis.

Areas in which education programs might be effectively designed feature the responsibility to correct one's mistakes, the responsibility to teach, to express dissent, to seek guidance, to respect authority and to bear the common expenses of society. A last area of interest is the responsibility to worship and the responsibility to pray. The results on these two items indicate a tendency toward bimodal results and therefore a tendency to be controversial, particularly with respect to a responsibility to pray. Here, a number of religious leaders in the community might be encouraged to engage in a public debate concerning the responsibility to worship and pray for various aspects of sustainable development problems and solutions. The result may not have much influence on people's willingness to engage in religious activity but it would serve a very useful function of focussing people's attention on the need for individual people, and groups, in the community to shoulder responsibility for bringing about change.

The next element in a sustainable development program for the case study community is the promotion of a change in management style from management by control to management by encouragement, as outlined in Table 11 (p. 214). The judgement of the community is that management by control, particularly by any form of force, is not acceptable and management by encouragement is desirable in the future. All forms of management by encouragement are welcomed by the community, particularly extending both praise and compliments, and providing enhanced opportunities. Any of these aspects would lend

themselves to the development of action programs. For instance, the community might institute a practice of issuing bows and bouquets for sustainable development achievement in conjunction with a Chamber of Commerce program or the volunteer program mentioned above. This could be underpinned by the practice of declaring, and giving public notice to, new opportunities which evolve as change happens. All aspects of encouragement such as freedom of, and access to, information, inclusiveness, financial rewards and a balancing of demands and resources would be acceptable for the development of public education programs. Awarding discounts and imposing disciplinary activity are lower in the order of importance in the development of management by encouragement. There are no areas of potential controversy in this table.

One of the more intriguing aspects of change suggested by the case study data is the change from the ideal of profit as being a surplus of money to the ideal of profit as being quality of life described in Table 12 (p. 216). With respect to changing the values and the attitudes with respect to profit, this community should design action programs first and foremost around wholesome relations among families, followed by programs of activities among friends and neighbours including various community associations. Such a program should be focussed on developing opportunities for projects which reduce all aspects of stress, including environmental stress. For all these areas, the data indicate strong support from the community. These things are profit in a sustainable development paradigm. In an extended phase, the concept of neighbours can be projected to include people farther afield geographically, politically, psychologically and culturally.

In developing a public education program around promoting new ideals of profit as an increase in the quality of life, the emphasis should be on the beneficial results of political stability, decreasing hostilities, greater 'peace' in the adversarial milieu of society, less negative impact on minority cultures, and an overall increase in a realistic, informed faith that people and society are able to resolve problems and crises. None of the results in Table 12 are bimodal, indicating that there are no potentially controversial issues.

A further aspect in the development of a sustainable development program is to develop linkages among various change components. For example, the data indicate a public education and action program in the case study community would be well received if developed around the themes of how 3Rs activity reduces consumption and how conservation activities, particularly in relation to water, water courses and renewable resources, enhance understanding of the relationship between society and nature. An added feature should be the conservation of urban, cultural, and historical resources. Since the community is already active in many of these aspects, a public education and activity program will be easy to accomplish. Such a program should offer opportunities for people, especially families, friends and neighbours, to become involved and be encouraged to do so. During operation of the program, issues such as the benefits of building trust through truth in information and reporting and the pre-eminence of rights or responsibilities could also be included.

The matter of paying for the costs of change in values is also illuminated by the research data. Tables 13, 14, 15, 16 and 17 all give guidance with respect to costs. Table 13 (p. 217) describes the most/least appropriate ways of paying the costs of attitudinal change. In the case study community, reduced consumption and cost cutting are regarded as the most appropriate ways of paying for change. Increased prices, taxes and government (or corporate) borrowing are regarded as least appropriate ways of paying the cost of change. Table 14 (p. 217) describes the most/least important areas for the investment of effort in the process of values change. Most important in the investment of effort is the realignment and restructuring of government, social and business institutions. This indicates an awareness that change in values are linked to structural change in institutions. Technological research and sustainable development awareness programs appear to be perceived as a more important investment than academic research. Of lesser perceived importance are non-governmental activities, voluntarism and electronic information systems. The data indicate that on a personal basis most people are willing to contribute their ideas, expertise time questions and answers. To a lesser extent they are willing to contribute some money.

Costs and Limitations

It is important to recognize that the foregoing discussion with respect to costs is not exhaustive. It only provides guidance to some potential and generic sources of both monetary and human resources. It is not possible from the survey data to do detailed planning and costing. The surveys provide information for determining priorities, components and emphasis of a program to promote change from egocentric values to envirocentric values in the surveyed community. Detailed design, planning and costing of program components follow from the guidance derived from the survey information. For each program component, a six-step design process would be required. The six steps are:

1. Determine what are the objectives and the elements of the program component;
2. Determine what are the obstacles, difficulties and contradictions which may be encountered in achieving the objectives;
3. What are the prospective ways of dealing with the problems, difficulties and contradictions in order to achieve the objectives;
4. What is the appropriate action plan in the light of 1, 2 & 3 complete with the identification of necessary people, resources (both financial and nonfinancial), indicators and timelines necessary to achieve the objectives;
5. What is the budget, and its potential sources, necessary to carry out the action plan;
6. Who of the various parties have the power of decision to proceed and how do they need to relate to each other in order to proceed ².

Although it is not possible to do detailed planning and costing from the survey information, it is possible to develop an appreciation for the cost of carrying out the surveys and designing the customized program. Based on the experience from this research, there are three elements to the cost: planning, administering the surveys, and follow-up. The first involves five to ten days of professional time to establish terms of reference for the overall project, establish the size and classification of samples, prepare sample lists and customize the surveys to the local community. The second involves actually administering the surveys. Although in the context of this research the actual telephone survey only took about 15 minutes to complete, the cumulative time cost per completed survey was an average

² The author is a trained facilitator. These are the normal steps for facilitating a strategic planning process for a project of this nature.

of 31 minutes. This included the time cost for call preparation, answering questions by the respondent after the survey was completed, time for non-response calls, call backs, refusals and postponements. In addition, a further 25 minutes per survey were taken up entering the telephone survey data into the computer, preparing and sending the mail survey, telephone follow-up to the mail survey, entering the mail survey data into the computer and filing the documents. On average, each completed and entered survey costs approximately one hour of research time. The third element of the cost concerns the analysis and reporting of the survey information to the lead agency. This will vary according to the preferences of the lead agency. Assuming a straight-forward reporting process, the analysis, reporting, reviewing and any re-analysis will involve four to six weeks of professional time. Program component design workshops will involve three to five days of professional time to plan, facilitate, perform background research and compile the workshop report.

The Process Of Custom Designing

A process can be developed using the results of these surveys to custom design a sustainable development program. The process can work for any community which will administer the surveys to a random sample of its membership, whether it is a geographic community or a community of interest living in dispersed places. Furthermore, when related communities undertake these surveys, the results can be analysed in order to discern, by Chi-square testing, which areas of a sustainable development program can be combined. The steps to this process are as follows:

1. Identify an agency to initiate and be responsible for the study and an agency to administer and analyse the surveys;
2. Examine general information;
3. Identify priority ranking for values change and calculate the sustainable development indices;
4. Identify the key barriers and sensitivities;
5. Identify best sectors for responsibility and support for the program. Involve representatives of each in development of program components;

6. Determine education aspects, action aspects and areas of controversy for each value change selected as a priority;
7. Identify interface areas between education and action aspects;
8. Discern from the survey results which community sectors will be most/least participative in various education and action areas;
9. Undertake detailed design and costing of individual components;
10. Involve community groups from the sectors identified in step 8 in the actual design and implementation of education or action components;
11. Involve the local media in reporting the experience, achievement and progress of the education and action programs. The media should be informed at the outset and be encouraged to be involved by way of reporting at this stage;
12. At some later date repeat the surveys and compare the new results to the original results in order to discern progress and update the program accordingly.

In pursuing such a process, it will become evident that participants at all levels must learn to keep the big picture in mind and also deal with details of education and action programs. This means learning to practice holistic perceiving, thinking and being able to gain clear direction, along with reductionist perceiving, thinking and being able to research, develop and carry out detailed action plans.

THE CASE STUDY: A HOLISTIC / REDUCTIONIST APPROACH

The central component of the case study is Table 1 which presents the elements of change from the egocentric values of the present to the envirocentric values of the future. In considering the concept of sustainable development, one must ask, however, what are the invisible values which frustrate or facilitate its processes? Which values have steered society into the present? Those are in the left column of Table 1. What different values do people believe will steer the world anew? These are in the right column of Table 1. These changes in emphasis from egocentric to envirocentric describe the potential for healthy social change

and the renewal of environmental, economic, political, social and cultural systems which are essential to the process of sustainable development.

The results provided by the case study yield information by which to understand sustainable development as a holistic process i.e., a change in philosophical direction of society. Table 22 above indicates a priority for changes in values for this community. For example, the highest priority is to change from dumping waste to reducing, re-using and re-cycling waste materials. The second priority is to change from extravagant consumption of resources to the conservation of resources. There is a structural relationship between these two changes whereby attention to the one yields results for the other. Dealing with how resources are used comes at the beginning of the production/consumption process. Dealing with waste comes at the end of the same process but change in values links the two by perceiving and utilizing waste materials as resources. The next priority of change in values, a change from the prominence of image to the prominence of honesty, demonstrates a more descriptive kind of change. The fourth priority of change is from the importance of rights to the importance of responsibilities. This illustrates a hybrid aspect of change which is both structural and descriptive. This priority of values change is important. The community deems it far more important and desirable to deal with waste issues than to try and deal with distinctions related to saving versus sharing. This priority of values change developed by the research data from this community helps to develop an agenda, a pathway, a route to sustainable development for this community. Another community might have a different priority, a different agenda, a different pathway for change since there can be many pathways in the pursuit of sustainable development.

Table 22 indicates a preferred route for one community. This is the holistic approach. It provides re-direction. It must be complemented by the development of detailed action plans for individual components as outlined above. This is the reductionist approach. It provides action. The case study treatment of Table 1, and the survey results, indicate a willingness in the case study community to reach toward new values. The data also indicate a

willingness to let go of the current values in their present form so that other emphases of values and attitudes can emerge in new forms of social systems and organizations. In this sense, the case study community demonstrated both resiliency and, at the same time, flexibility for change.

SIGNIFICANCE OF THE CASE STUDY

It is instructive to consider the significance of the case study with respect to the meaning of sustainable development and Table 1. It is equally instructive to consider it in relation to processes of envisioning the future such as the *Health of the Planet Study*, local examples, institutional examples, and also in relation to the concept of entrepreneurship.

The Meaning of Sustainable Development and Table 1

The case study anchors in reality the perception of sustainable development as being a process of changing from egocentric values to envirocentric values. It was noted above (pp. 74 & 108,9) that further to Brundtland's description of sustainable development, it involves, includes and implies several components. These are reinforced by the survey results. The results demonstrate that respondents from the community recognized the severity of environmental, economic and social crises and demonstrated a fairly strong awareness of the need for change from current values, which are egocentric, toward a new, 'sustainable development paradigm' set of values which are envirocentric. There was also an awareness of the need to approach human affairs from a holistic as well as a reductionist point of view. This was demonstrated by the willingness to move from self-interest to common interest, the general willingness to move from the left to the right side of Table 1 and by most respondents' willingness to contribute time, expertise, ideas, questions, and answers in order to do so. Brundtland observed (quoted p. 59 above) that there are two prerequisites for sustainable development: (1) the sustainability of ecosystems must be secure, and (2) the relationships among human actors must be secure. The results of the case study reinforce this observation.

The case study also anchors the realization that sustainable development involves a transition in understanding social organization. Norgaard (p. 68 above) explained that the complexity of natural and social systems is infinite and constantly evolving, and that people cannot separate or be apart from their social systems. He suggested that people are able to perceive themselves as a part of their society through intellectual models and through the institution of social organizations. Norgaard observed that social organizations are 'alive' in that they learn, acquire knowledge, make decisions, make mistakes and change their ways. The survey results demonstrated that the respondents are willing to be involved in their social system in that they were willing to learn, acquire knowledge, make decisions, make mistakes and change their ways. Perhaps one of the most significant results of the case study is the discovery that most people were willing to contribute their expertise, ideas, time, questions answers and some of their money to this process of change.

Wildavsky argued (p. 23 above) that distinctions among concepts or values are not found in nature. They are found among people within a society. He suggested that values are the most important collective goods which a society produces. He further argued that the values of a society are secure only as long as people regard them as secure but that there is nothing inherently natural about them. In the light of the case study results, this suggests that the values which underlie the left side of Table 1 are not secure, at least in the case study community, because people believe they should change toward the right side of Table 1 (i.e. from egocentric to envirocentric). Schwartz suggested (p. 24 above) that values are used for selecting what is good (better or best) among ways of life and social and political institutions. He stated that values operate at the level of individuals, of institutions and of entire societies and are constrained by the character of the social institutions and the social order in which the individual lives. In the context of the case study, Schwartz would presumably therefore identify the right side of Table 1 as describing the values of choice in the case study community. The evidence from the case study supports the interpretation that sustainable development involves a change of emphasis in values from egocentric to envirocentric, i.e., from left to right of Table 1.

Other Surveys - *Health of the Planet Study*

The survey for the *Health of the Planet Study* (HOP) was conducted about two years prior to the case study in Kitchener/Waterloo. The two studies differed in that the HOP was fairly general in its questions and somewhat vague as to the distinction between present and future, while the case study was quite specific with respect to present and future. Even so, in many ways the results of the two reinforce each other. Both identify environmental issues as posing serious problems to society and both demonstrate that when given the choice, most people rate dealing with environmental issues as more important than economic growth. The HOP presented eight statements in which its survey results refuted what its authors referred to as conventional wisdom. If conventional wisdom is considered to represent the philosophical perspective which society is coming from and the survey statements to represent where society should be headed, then seven of the eight HOP statements align quite well with Table 1 and the case study as indicated in the following ³:

1. the first statement presents a change from primary concern for self-interest to a primary concern for common interest with respect to environmental issues;
2. the second statement expresses a change from a priority for economic growth to a priority for environmental protection;
3. the third statement expresses need for change from the polarity of either economics or environment to a change in relative emphasis between them.
4. the fourth statement expresses a change from people being human-centred, or egocentric, to being much more nature-centred, or envirocentric;.
5. the fifth statement speaks of people changing from being blame-oriented (which is a result of being overly rights-oriented) to accepting responsibility for environmental problems; and
6. the sixth statement expresses a change from self-interest and hoarding of wealth by developed nations to a willingness to share costs with developing nations.

Statement seven expresses change from a kind of numbness and unwillingness by citizens to get involved to an attitude of deep concern, responsibility and a willingness to participate with government, business, and institutions of society. Only statement number eight does

³ For statements refer to pages 115-116 above.

not align with the case study. Statement eight expresses the idea that people in general are changing from following their leaders to taking initiatives themselves, and that people are more willing to act in accordance with sustainable development than are their leaders. In fact, in the case study community, the leaders hold stronger views than their community in their awareness and their willingness to act.

Local Municipal Examples

In three of the four examples of evaluating the present and envisioning the future at the municipal level (Kitchener/Waterloo, Hamilton, London), the community did not engage value issues directly. Only the city of London made a concerted effort to elucidate the value dimension and then, only in relation to the future. Therefore, in these example communities, although the visioning process has been well done, a perspective of change in values can be perceived, appreciated, planned for and harnessed only with great difficulty, or not at all.

Region of Waterloo

The mandate given to the Citizens Advisory Committee on the Quality Life (CACQL) did not ask for an assessment of values with respect to the present or the future. It was silent on the matter of values. The CACQL made 170 recommendations, 154 of which were directed to the Regional Council and its area municipalities and 16 of which were directed to senior governments. While most of the recommendations imply change in values, only the first one could be regarded as being explicitly related to change in values:

CACQL recommends that the principle of sustainable development become the basis of all individual and community decision-making. (CACQL 1991, p. 10)

Although CACQL is comprehensive about the variety of situations and processes which should be different, it does little to investigate which economic, environmental and social processes are necessary for operationalizing any of its recommendations from the point of view of changing underlying values which influence people's and institution's decision-making processes. This might be expected since the committee's mandate omitted the issue of values.

In keeping with its mandate, the report of the committee is advice to regional council, and through it, to the provincial and federal governments where appropriate. However, the CACQL noted a very important weakness of its own structure. The findings of the study were articulated, and therefore filtered, by the committee which was made up of ten people, all of whom were prominent in their own field, and who struggled to reconcile the range of opinions expressed by the community with their own opinions. In other words, in the absence of any direct expression of values from the community, the committee had to write the report, and articulate its recommendations based on the bias of its own values. However, the recommendations can only be implemented through the participation and the will of the people who live, work, shop and recreate in the Region and its area municipalities.

The CACQL study was well done in so far as it went, but it was deficient in that it only considered how the municipal, regional and senior levels of government should be different. It did not consider how the people of the Region themselves, in all their different capacities, should become different. This importance of what 'the people' are aware of, and willing for, was evident to CACQL even though it was not part of the study. It explicitly stated in the conclusion of its report that past patterns of individual, group, business, institutional and governmental behaviour were no longer adequate to meet the community's needs and it encouraged all residents to review their expectations and take personal action. The usefulness of the CACQL's report and recommendations would be greatly enhanced by the inclusion of a process for developing a values profile of the community, and a sustainable development program as developed in the case study. Such a profile could serve to launch a program of residents reviewing their expectations and taking personal action.

City of Hamilton

The City of Hamilton, as with the Region of Waterloo, made no stipulation that consideration of people's values was to be a part of its review process. Beyond the acknowledgment of a basic policy of striving for a sustainable future, which had been established by the Region of Hamilton-Wentworth, the City's visioning process did not

address values issues or sustainable development directly. The process which Hamilton adopted was an in-house, staff directed and operated process. It was conducted for the explicit purpose of reviewing its Official Plan. From that point of view it was probably an efficient and an effective process. However, the public debate regarding Hamilton's future would seem to have been very much constrained by the contents of the 24 discussion brochures produced by staff, restrained by the exigencies of reviewing the Official Plan, and largely devoid of the idea that a changing physical and material environment connotes changing human values as much as does a changing social, cultural, psychological and philosophical environment.

Very little in the way of values change crept through the process into the final form of Hamilton's *CityView*, even implicitly, either at the individual or institutional level. This was partly due to the editorial style of writing all aspects of Hamilton's *CityView* in the present. But it was also because there was little attempt to elicit people's values at any level. The Hamilton *CityView* purported to represent the collective values of the community. It appears to do so only from the point of view of the physical and material parameters, with little attention to how they may differ in the future from what they are in the present or how they may be influenced by the more psychological and philosophical human values which underlie them.

The process adopted by Hamilton is vulnerable to establishing a policy framework for the development of a future environment in which people believe according to the values they hold in the present with little flexibility to adjust as people's underlying values evolve and change in the future. The Official Plan to be put in place in accordance with Hamilton's *CityView* may turn out to be appropriate. It may turn out to be quite wrong. Without assessing the underlying values which influence people's political, economic, environmental and social decision-making process, it may be difficult for Hamilton's Official Plan to be responsive to change in values. Hamilton's *CityView* would be greatly enhanced by an

approach of compiling a values profile and sustainable development program based on Table 1 as in the case study of Kitchener/Waterloo.

City of London

The process of evaluating the present and envisioning the future adopted by London was forthright and aggressive about soliciting people's values. The values identified became enshrined in the final vision statement, in the statements of goals and objectives for reaching that vision, and in various statements of principles included in the strategic plan and its various sub-plans. Virtually all the values identified for the future in the London process are in accordance with the envirocentric values identified on the right side of Table 1 and demonstrated to be important for the future in the Kitchener/Waterloo case study. The process for identifying and articulating the values held by the community, and the results of the process, became, through wide participation, owned by the whole community. This was formally acknowledged in the statement of commitment to the community by the City of London "to provide leadership as we work to realize our common vision and goals for the future".

This process of evaluating and envisioning in London was geared towards articulating values for the future. It gave little attention to discerning a profile of values in the present. The process would be enhanced by also articulating priority values in the present and therefore in developing a clear picture of the challenges inherent in change from a current state towards a future state. Derivation of a sustainable development program based on Table 1 through a process similar to that developed in the Kitchener/Waterloo case study would be a valuable community development tool to assist the citizens of London to embrace envisioning the future and to developments indicators for achieving results. Indeed, developing and amending such a program can be achieved just as effectively after the visioning process as it can be achieved during the visioning process.

Reflection

The four examples of envisioning the future provided by the Region of Waterloo, the City of Hamilton and the London Centred Area present four different approaches to the visioning process. The Region of Waterloo established an elite committee appointed and funded by the Region but set apart from the Region structurally. The committee received input from the community but was accountable only to itself in terms of compiling its report which was formally submitted to Regional Council as part of a larger process of review. The City of Hamilton made the visioning process part of the mandate of the City Department of Planning and Development and funded it directly. City staff received input from the community and in many cases participated in the process in a facilitating role. However, the City staff were at all times accountable to the City and its management as was normal in their work. The City of London established and funded a steering committee whose role was to guide the process. The steering committee promoted the process widely and comprehensively into the community such that the visioning process became a community process. The steering committee was as accountable to the community and to the City Council, and the final report was as much a report to the community as it was to the City Council.

Each of these models was quite different in terms of its mandate, process, accountability, resources and ultimate product. However, each would be enhanced and supplemented by the inclusion of an evaluation of the values change implied from the present to the future envisioned based on Table 1 and a process similar to that used in the case study community. It can also be argued, as it was in Chapter 2 in the discussion of Assertion 2, that a change in values is essential to the realization of the vision. Values change may be conscious and direct or unseen and indirect. To make the choice to address values change consciously and directly will identify weaknesses of the vision, give guidance to their resolution and accelerate the achievement of all components of the vision. As was demonstrated in the case study and the discussion of its findings, it is possible to include conscious change in values as part of the overall change process initiated by envisioning a future condition which is substantially different from the present.

International Examples

The *Rio Declaration*, signed by nations at the Earth Summit in Rio, was an international statement of principles reflecting a world vision of the future. It strongly promoted partnership and co-operation. Its primary focus was protection and integration of the world's environmental and economic systems, and it implied changes in values with respect to humans' relationships with nature, humans' relationships with each other, and humans' rights and responsibilities. It was strongly supportive of the changes of emphasis in values from egocentric to envirocentric as described in Table 1. *Agenda 21* was an evaluation of the way things were and an envisioning of the need for change. It was a wide-ranging and comprehensive program of action based on the principles contained in the *Rio Declaration*. *Agenda 21* advocated and promoted broad public participation and active involvement of NGOs and other groups and full respect for the *Rio Declaration*. It was the blueprint for a new global partnership for sustainable development. It too was supportive of Table 1. The *Alternative Treaties* by the NGOs focused attention on those areas of needed change in which people of special interests believe their groups can move faster and perhaps more assertively than governments. They were a manifestation of the principles of participation, and they stressed co-operation and support among NGOs. Many of these treaties were also supportive of the changes described in Table 1.

The World Summit for Social Development was a high profile event which argued persuasively to turn the tide of 'progress' towards dealing with the pervasive issues of poverty, unemployment and social exclusion. It made social development issues, which plague most of the developing world societies and parts of the developed world societies, a third and equal aspect along with environment and development in the meaning of progress towards sustainable development. In conjunction with the Slovenia Seminar, it put recognition of the values debate described in Table 1 on the international agenda as a vital aspect of sustainable development.

The World Bank has traditionally been an economic development organization which adopted policies that assumed progress in social development would automatically follow progress in economic development. It further assumed that environmental considerations seldom needed more than cursory attention. Following the Earth Summit it began to move, tentatively at first and after a very short time, aggressively, into a policy of automatic inclusion of environmental and social development considerations in the development process. The Ethics and Spiritual Values in Promoting Environmentally Sustainable Development Conference was a tentative step. It was a rich outpouring of philosophical and practical thinking which supported the change in values described in Table 1. Although it was an associated event of the Bank, not a mainstream activity, it was an officially sponsored event and to have the World Bank and its senior officers being leaders in the recognition and promotion of change in values as an important element of sustainable development was truly profound. When the set of values which people and their institutions embrace undergo change, it follows that the activities in which they engage, and on which they are willing to spend money, also should undergo change. Only national governments are 'owners' and clients of the World Bank. Therefore this action by the World Bank indicates that while national governments may not yet be able to deal *directly* with fundamental change in values, they are willing for their institutions to do so.

Habitat II established the primary fora for the achievement of sustainable development squarely in urban settlements such as, for instance, Kitchener/Waterloo, Hamilton, London and Nanaimo. It also established that all sectors of society, such as NGOs, local authorities and municipalities, business corporations, labour unions, educational institutions, and financial institutions, have a crucial role to play. Habitat II championed the ideal of partnership. It further opened the official process of international diplomacy to participation by partnership sectors and established that sustainable development is not just an activity of national and international affairs, it is also an activity of local affairs. It is an activity of governments, partnership sectors and individual actors working together at all levels of

society. Habitat II endorsed, at least indirectly, the insights of the Slovenia Seminar and the changes in emphasis described in Table 1.

In the international examples, the future concerned the way humans should relate to each other and the way they should relate to their natural environment. The future envisioned is not nearly as concrete as was the case with the municipal examples. When the vision of the future is fairly concrete, Table 1 and the case study process can be very useful in designing and implementing desired change. When the future envisioned is international, more remote from the local jurisdiction and less concrete, Table 1 is particularly useful in explaining change - or the lack of it - rather than actually designing and implementing change.

In the international examples, Table 1 and the case study in Kitchener/Waterloo helped to understand what is going on at the level of international politics. Each of the international events described was an exercise in evaluating the present, identifying key sustainable development issues which were believed to be pressing problems or valuable opportunities, and envisioning a future state in which the problems and opportunities have been embraced. As was demonstrated in the case study, when people envision a future which is substantially different from the present, even if only by answering a series of questions, they open up the possibility of significant change in their fundamental values. One of two things must happen. To the extent the future vision becomes embraced and internalized, the set of fundamental values begins to adjust in accordance with the vision of the future. Or, to the extent that the existing set of fundamental values resists change, the vision adjusts to be in accordance with the existing set of fundamental values. The importance of the municipal experiences in Kitchener/Waterloo, Hamilton, London and Nanaimo, and the international experiences at the Earth Summit, the NGO *Alternative Treaties*, the Social Summit, the World Bank conference, and Habitat II was that visions of the future were concretized into official documents. Both officials and citizens can subsequently return to those documents again and again to re-evaluate the vision and embrace it or change it, making value choices either way in the process.

With respect to sustainable development, as a result of the publication and wide popularity of the Brundtland Report, the world and many of its institutional parts and local communities entered a period of ongoing change in their individual and collective vision of the future and their set of underlying, fundamental values. Table 1 provides a 'From/To map' of values change associated with sustainable development. The case study provides a documented example of this sustainable development process in one local community. The result of the vision/values change process will not be all old or all new. It is a process of complementary change in both. In relation to the pressing environmental and social problems the world faces, the objective is not to seize upon one best all-encompassing definition of sustainable development, but to engage the process of envisioning change, and in so doing, allow and encourage the change in values to take place in conjunction with evolving visions of the future. This appears to have happened, and to be happening, to a greater or lesser extent, in the four municipal communities reviewed and four of the international examples. The experience of Earth Summit+5 was different.

Earth Summit+5 was in part an evaluation but it was also, in a sense, a cover-up. With Table 1 in mind, it becomes apparent what happened at Earth Summit+5. It was not an unravelling of the *Rio Declaration* and *Agenda 21*. Earth Summit and its documentation remain as seminal achievements in the declaration of humanity's need to find its balance with nature and the articulation of the ways and means of striving towards the goal of sustainable development. Nor was Earth Summit +5 a fundamental split between North (the developed world) and South (the developing world) either at the government level or the civil society level. It was a struggle among three philosophical positions: the huge private and public vested interests in preserving institutions based on old paradigm thinking, the interests of those who are determined to bring in new paradigm thinking, and those who are fearful of both. People of all positions exist in both the North and the South and in all the 'in between' countries such as small island states and the former communist countries. The failing of Earth Summit +5 was the result of a fundamental dissention between whether the objectives of sustainable development can best be achieved by doing a better, more effective and more

efficient job of operating the local and global institutions based on the values, attitudes and emphasis of the old paradigm (egocentric values) or whether global, national and local institutions have to be completely overhauled in accordance with values, attitudes and emphasis of the new paradigm (envirocentric values).

In the face of common knowledge that international political progress since Rio has been poor, the nations of the world declared at Earth Summit+5, at least by default, that there was no solidarity in North or South or East or West. Some people, at all levels and from various points of view, were protecting their positions. Others were recognizing that honesty, openness, accountability and transparency about sustainable development was more important than image; that 'papering over the cracks' in order to get an agreement in the final hour was no longer good enough. NGOs and citizens who were attempting to call their politicians and diplomats to account were being heard, at least unofficially. People and officials alike were recognizing that common interest and co-operation are more relevant ideals to sustainable development than self interest and protectionism, that the real issues involve responsibilities not rights, and that the people, institutions and nations which have the greatest capacity to be responsible are also the ones who are most accountable, and have the greatest duty to share their material and intellectual wealth. Although none of this made it into the official documentation, this growing awareness of underlying values is the untold story of Earth Summit+5.

Conflict

Conflict is inherently a part of sustainable development. As has been shown, sustainable development involves changes in emphasis of fundamental values and there will be variance among the values which people espouse, and which they yearn for, as they progress through stages of change. It follows that there will be conflicts among people of varying values. Harmon (1995, p. 6) observed:

It is the values embedded in the institutions of business, finance and the whole global system that are the problem. People feel a discrepancy between what they

know in their hearts is right and what they feel forced to through [i.e. by] their institutions' values and goals.

Goulet (1995, p. 10) asked some very searching questions concerning conflicts that arise from differences in values concerning sustainable development.

1. Is sustainable development compatible with the global economy? ... The philosophy inherent in these accords [GATT and NAFTA] is directly opposed to the idea of sustainable development as promoted in Rio. Governments have abetted this transformation by forging agreements that ensure a nation's powerlessness to defend itself against commercial activities that harm its citizens and its environment.
2. Is sustainable development compatible with a high material standard of living as presently defined for all human populations? If limits need to be placed on growth, must there not be cutbacks in present consumption of the haves and the future aspirations of the have nots? Sacrifices for the sake of sustainability will not be readily consented to.
3. Is sustainable development compatible with widening global disparities? Does not such development presuppose at least the abolition of absolute poverty among the masses of the poor in the world? But what realistic prospects exist for diminishing such disparities? The danger we face is of falling into a worldwide depression.
4. How can strategists promoting sustainable development cope with hundreds of millions who have a vested interest in the destructive dynamism now prevailing in the world? What incentives, what countervailing power, what persuasive alternative interests can dissuade corporations from continuing to place short-term profit above long-term environmental protection? Sustainable development will be monumentally difficult.

Macdonald (1995, p. 29) adopted the point of view that conflict is inevitable and that it should be viewed as an opportunity for progress towards sustainable development.

Why not recognize that some development projects will cause conflicts? For example, the World Bank reports that over the course of the next eight years Bank projects will force the resettlement of two million people. This guarantees ample potential for conflict and the Bank claims few skills in conflict prevention or conflict resolution. What if the Bank required a conflict resolution impact statement for each project in the same way that it now requires an environmental impact statement?

Perhaps the most powerful part of the process of examining the changes in values underlying sustainable development which is modelled by the case study is its capacity to elucidate not

only consensus, but also dissention and conflict both with respect to issues and among different sectors of society. Four examples will illustrate this point.

First, the survey results demonstrate that there is widespread consensus with respect to the prevailing values of the present. They are essentially egocentric. The survey results also indicate there is widespread consensus on what the prevailing values of the future should be. They should be envirocentric. It follows that the survey results indicate widespread conflict between the values that are and the values that should be. As has been demonstrated, examination of these conflicts yields much valuable information regarding how to move from one to the other. Second, the analysis of change in values from present to future revealed that 21 of the 23 areas of change identified in Table 1 received widespread agreement. Two of the areas, 'Economic Growth' and 'Accumulation of Wealth', generated dissention (pp. 198, 199 above). Analysis of the dissention revealed which of the groups favoured change and which did not. Further examination of such dissentions can reveal whether a group's values should adjust to their vision or the vision to their values in order to achieve an overall objective. Similarly, such examination can demonstrate when an individual is at variance with a larger group, in which case that knowledge alone may be sufficient to inspire adjustment in either values or vision or both. A third example concerns the telephone survey data. For values statements, 97% of the situations indicated consensus while only 3% (50 situations) indicated dissention (p. 196 above). These 50 instances of dissention among different sectors of society offer opportunities for learning and sharing information about values change from different points of view.

A fourth example concerns the bi-modality of results. In the analysis of value statements with respect to different sectors of society, at the level of all sectors combined, there was no bi-modality. However, when analysed at the level of the sectors individually, the results of 20 of them were bi-modal, indicating conflict within some sample groups analysed (p. 204 above). This also indicates that further analysis of the conflict can yield additional information such as whether or not the conflict is influenced by age, gender, education or

income. This is all potentially useful information in discerning how to deal with, by way of harnessing or dispelling, the conflict. For instance, it may be that the dissenting groups do not even realise that they are at odds with most other people, and the knowledge that they are isolated from the mainstream by their reluctance to adjust their values may encourage them to change. On the other hand, it may be that the people in conflict with the others are in possession of knowledge which the majority needs in order to adjust either their values or their vision. Either way the knowledge of dissention and conflict leads to change on a local scale. A further example in which bi-modality identified conflicts as useful information concerns barriers to values change (Table 18). Analysis indicated that the business community was divided as to whether or not 'greed', 'hidden agendas' and "prejudice" impose barriers to change in values. Decision makers were divided as to whether or not 'no-one willing to be first' and 'lack of technology' constitute barriers to change and the professions were divided over whether or not 'fear of change' impedes change in values. Examination and the development of knowledge regarding these conflicts will help to adjust peoples' values and their visions, thereby helping to resolve the conflicts.

At the municipal level, many communities may be locked in, by their immediate past history, to both environmental and socioeconomic pressures arising from the phenomenon of the dispersed city, as pointed out by Bunting and Filion (1996). Many other communities may be locked in to environmental and socioeconomic pressures arising from increasing congestion and pollution due to rapidly increasing population, rising consumption and inadequate infrastructure. In both situations, these pressures can be softened by the knowledge of how people's values are changing, or should and should not be encouraged to change, in order to support the quest for sustainable development.

Knowledge of consensus and conflict with respect to change in people's values is similarly useful on larger scales. During the time of this research, the Government of Ontario has undertaken a major program of economic, political and social restructuring, the Government of Canada has undertaken a major project of dealing with Canada's debt and deficit by

balancing its budget and controlling inflation, and international interests have been negotiating a Multilateral Agreement on Investment (MAI) in secret which seeks to give international investors government-guaranteed world-wide preferred status . Although these issues are all beyond the scope of this research, they all have the potential to induce great conflict arising from fundamental differences in basic values. Each would benefit from knowledge of how people's visions and values may be, and/or should be, changing.

The Importance of Entrepreneurship

Entrepreneurship is a process of change from an original vision or insight to the point of practical application in a future reality. It has been noted above that entrepreneurship has always been a driving force of economic, environmental and social change as independent and competitive development themes. The articulation of sustainable development is a point of original vision for the future. It acknowledges the interdependent nature of these three modes of development, recognizes the potential damage caused by competition for primacy among them, and proposes that future development should be based on co-operation and integration among them. Although the future state implied by sustainable development is still vague in its details, the change in values inherent in the process of sustainable development is clearer. Many individual problems and entrepreneurial opportunities regarding sustainable development will arise from the pursuit of the change in values presented in Table 1. Therefore, sustainable development can be considered as an adventure in entrepreneurship.

Because the outcome of sustainable development is still vague, it is unlikely that profit, power and financial gain will be the prime motivations of sustainable development, although they may be with respect to some individual opportunities. Profit, power and financial motivations are likely to be more closely associated with 'old' paradigm problems and opportunities. The probable motivations of sustainable development as an adventure in entrepreneurship will be among service, justice, prestige, respect, ego satisfaction, and on a grand scale, survival. Indeed, if we now consider again the dynamics represented in

Figures 1 and 2 in relation to Table 1 in context of the municipal and institutional examples and the case study itself, the egocentric values of Table 1 (e.g. competition, self-interest, dominance over nature, the importance of image, the emphasis on profit, etc.) can be appreciated as those which tend to hold the three distinct approaches to development (economics, environment and social equity) apart from each other. The envirocentric values on the right side of Table 1 (e.g. co-operation, common interest, harmony with nature, patience, compassion, honesty, the acceptance of responsibility and the quest for progress as an increase in the quality of life for all, etc.) can be appreciated as holding the promise for the merging of the three approaches to development into realms of 'triple E' entrepreneurship. Triple E entrepreneurship is the type of entrepreneurship, the process of innovation, which will take sustainable development from the idea stage, where it now is, to practical application in the real world of human and natural environment. Two types of initiatives will help to carry sustainable development forward. The first is wide-spread acceptance of the ideal of change in values in accordance with Table 1 - a 'Campaign for Sustainable Development'. The second is leadership training of the values represented on the right side of Table 1 - a 'Partnership Ambassadors Training Program'. These will be presented in chapter 7 as recommendations arising out of the research.

REVIEW

This chapter presented a number of discussions concerning Table 1 and the case study conducted in Kitchener/Waterloo. First, it presented a discussion of the case study itself, and in keeping with the third objective of the research, described a model for custom designing a sustainable development program for any community based on the experience of the case study. Second, it reviewed Table 1 and the case study as a holistic approach to sustainable development. Third, it considered the significance of the case study in relation to the meaning of sustainable development, particularly in relation to Table 1. It also considered its significance in relation to the visioning processes carried out by the Region of Waterloo, the City of Hamilton, the City of London. Fourth, it discussed the usefulness of the research findings in understanding sustainable development with respect to five international events:

Earth Summit, World Summit for Social Development, a World Bank Conference, Habitat II and Earth Summit+5. Fifth, it considered some implications of the research with respect to conflict of values and entrepreneurship. It remains to draw conclusions and make recommendations.

Chapter Seven: Conclusions, Recommendations, Suggestions and the Challenge

INTRODUCTION

This research arose from a fundamental research problem, began with three primary objectives, was founded upon three assertions, and addressed the third mandate of the Brundtland Commission. This chapter includes a discussion which draws together the main themes and findings of the research, presents conclusions, recommendations and suggestions, and then reiterates the challenge of sustainable development for the future.

DISCUSSION

The Research Problem, Objectives and Assertions

Recognizing that sustainable development implies change in emphasis of attitudes and behaviour, as Brundtland and others have asserted, the fundamental research problem was to discern what changes in the underlying values should be *from* and what they should be *towards*. The first objective was to clarify that the concept of sustainable development is deeply challenging to prevailing social, economic, financial and political practices. The second objective was to demonstrate an appreciation that sustainable development requires change in values by individuals, organizations and international structures. The third was to develop a model whereby awareness of change in underlying values and attitudes can become a local practice in the politics, economics and culture of First World urban systems and thereby energize the process of sustainable development.

The first assertion examined was that the world faces economic, environmental and social equity difficulties which are of crisis proportions. The second assertion was that the current patterns of values, attitudes and resultant behaviour which shape the First World voting and consuming urban marketplace are interconnected and interlocked. Furthermore, in the absence of 'conscious intervention', such patterns predispose the 'invisible hand' of the

marketplace to reinforce the same patterns. Therefore, conscious intervention is required to change the patterns. The third assertion was that global economic, political and social systems are driven and constrained primarily by the demands and expectations of the First World voting and consuming marketplace. Therefore, if sustainable development is to become operational, First World cities are a requisite fora for its pursuit.

The first assertion was not only amply demonstrated by the literature review, it was validated by the results of the general questions in the telephone survey in the case study. Almost 100% of the survey respondents believed that society faces economic, environmental and social difficulties and a majority (66%, 73% and 70%, respectively) believed these difficulties are serious enough to be called crises. The validity of the second assertion was similarly anchored in literature and was amply demonstrated by the remarkable consistency of the case study data. The 'conscious intervention' contemplated was the eliciting of responses to widespread evidence that nature is not keeping up with the impact of human activities and the raising of awareness, and thereby helping people to question and assess their values, by using a survey format. A further potential aspect of 'conscious intervention' follows directly from this research. The model procedure described provides a research tool for any community to assess the existence of, the strength of, and the perceived propensity for change in the values held by its members, and furthermore to design educational and action programs to embrace the evidently desired changes. The third assertion must remain simply an assertion. It is not within the scope of this research to go beyond the argument presented in Chapter 2, although strong affirmation is available from the Wackernagel (1997) research presented in Chapter 3.

With respect to the research problem, the literature reviewed that sustainable development requires a shift, at both the macro and the grass roots levels, in the set of values which influence and inform individual and international decision-making processes from those which are essentially *egocentric* to those which are essentially *envirocentric*. This was demonstrated by the case study results in which, with minor exceptions, respondents

identified egocentric values with the present and envirocentric values as desirable for the future. This change, often referred to as a 'paradigm shift', is most succinctly described in Table 1. A weakness was discerned in the use of the word 'environment.' The term is widely used to mean simply the biophysical environment; however, it also has a much wider meaning, including all aspects of the human environment such as economic, biophysical, social, cultural, psychological, spiritual and intellectual environments. It is this wider meaning which is implied in the term 'envirocentric.'

With respect to the first objective, the research has shown that sustainable development is indeed a deeply challenging concept. This was perhaps most evident in the detailed exploration of the meaning of sustainable development and in the experiences of the World Summit for Social Development, Habitat II and Earth Summit+5 where it was apparent that, although there was widespread support and respect for the ideal of sustainable development, there was also a wide variance regarding the priorities and the pathways for achieving it. The challenge of sustainable development was also evident in the results of the case study. In spite of there being strong barriers to change, there was also strong willingness to change. The overall measure of willingness to change was 77%. With respect to the second objective, it was evident in the case study that respondents appreciated the need for reform within themselves and through them, the institutions of society. It was also notable that respondents did not expect others to do more than they themselves were willing to do.

The evidence from the examples at the municipal level indicated that change in values needs to be pervasive throughout local society in order to pursue the objectives of sustainable development. Furthermore, the experience of involving civil society in the official process of Habitat II also demonstrated the need, and willingness, for reform of values at both the individual and the institutional level. With respect to the third objective, the process developed in the case study clearly aroused an awareness of change in underlying values of the respondents and suggested that the process could be easily replicated over time and in

other communities. Whether or not this awareness can become widespread is a matter of future research. The case study provides a useful model.

The third mandate of the Brundtland Commission was “to raise the levels of understanding and commitment [to sustainable development] of individuals, voluntary organizations, businesses, institutes and governments”. Replication of the case study procedure by any community, and the attendant development of local sustainable development educational and action programs based on the intention of changing the emphasis of values can serve to raise the levels of understanding and commitment to sustainable development of individuals, voluntary organizations, businesses, institutes, governments and organizations that participate in the programs.

Table 1

In considering the application of Table 1 to any community by using the model procedure, two related questions arose which called for re-examination of the Table. These questions were, “Is racism an important aspect of sustainable development?” and “Can the procedure be used for addressing racial issues?” The immediate answer was “yes,” to both questions since racism is, at least partly, a manifestation of egocentric values. Indeed, Bullard (1990, 1993), Bowen et al (1995) and Arp and Kenny (1996) all identify a relationship between racism and environmental issues. Due to the holistic nature of values-based development, any change towards envirocentric values will indirectly mollify tendencies towards racism. Furthermore, many of the questions in the mail survey which present detailed options for resolving value transitions identified in the telephone survey could feature custom-designed options that deal with racial issues. However, the addition of value transitions more directly relevant to racial issues, and other divisive issues, would be helpful. Therefore, two additional elements to Table 1 under section C should be added as follows:

From elitism; some people are more important than others

To egalitarianism; all people have equal importance.

From exclusive approaches

To inclusive approaches.

The relevant additional statements for the telephone survey would be:

1. Most people are elitist, meaning that some people are more important than others.
2. Most people are egalitarian, meaning that all people have equal importance.
3. Most people tend to exclude others not directly relevant to their concerns.
4. Most people tend to include others who might be interested in their concerns.

A revised version of Table 1 appears in Figure 12.

The Case Study and the Model Procedure

Several aspect of the case study provide greater understanding to the significance of Table 1 in the operationalization of sustainable development. Table 1 provides a concise statement of philosophy which underlies the concept of sustainable development. It can stand alone as a decision-making guideline for individuals who, or for formal and informal organizations which, seek to conduct themselves in accordance with the vision and objectives of sustainable development. As such, it is very flexible to the context of the individual's or the organization's situation. Decisions which are made in accordance with Table 1 as a guideline will tend to align themselves in the direction of sustainable development because they have been made with regard to a common set of values. However, such actions may also tend to be isolated from the mainstream of the status quo. Table 1, as the central element of the model procedure provides a bridge from the philosophical into practical reality in that the model procedure provides a way of promoting the use of Table 1 widely. Not all decisions made with Table 1 as a guideline will be in agreement with each other. There can be many pathways toward sustainable development. Some decisions may even appear conflicting, but they will tend to lead in the same direction because they will have been made in respect of a common set of values.

The sustainable development indexes provide a measure of the community's compatibility with sustainable development. The index of propensity for sustainable development

**Figure 12: Table 1 (Revised) CHANGES in EMPHASIS of VALUES
INHERENT IN SUSTAINABLE DEVELOPMENT**

FROM Egocentric Values	TOWARDS Envirocentric Values ¹
A: Self Interest vs. Common Interest	
1 From competition, self interest	To co-operation, common interest.
2 From accumulate material assets	To share the wealth.
B: Relationship with Nature	
3 From dominance over nature	To harmony with nature.
4 From consume resources	To conserve resources.
5 From dump waste into environment	To reduce, re-use, recycle waste.
C: Relationship with Each Other	
6 From elitism; some people are more important than others	To egalitarianism; all people have equal opportunity.
7 From exclusive approaches	To inclusive approaches.
8 From urgency, busy-ness and a degree of intolerance	To patience and compassion.
9 From image is important; OK to bend the truth	To honesty is important.
10 From management by control	To management by encouragement.
D: Rights vs. Responsibilities	
11 From individual rights more important than collective rights	To collective rights more important than individual rights.
12 From individual rights more important than individual responsibilities	To individual responsibilities more important than individual rights.
13 From collective rights more important than collective responsibilities	To collective responsibilities more important than collective rights.
E: The Notion of Progress	
14 From economic growth	To economic, environmental and social balance.
15 From profit means surplus of money	To profit means increased quality of life e.g. surplus time and energy.

¹ Envirocentric values is not an ideal term for a set of values that embrace natural and built biophysical environments as well as social, cultural, psychological, spiritual and intellectual environments. A perfect term has not yet been found to describe the values of this still emerging paradigm.

measured at the outset by the telephone survey was 46%. It is a cumulative measure of how the respondents view society in the present and in the future, and how much change in the values of Table 1 is implied by the difference. The index is given as a percent of the maximum possible measurement. The index of willingness measured at the end of the mail survey was 77%. It is a cumulative measure of the extent to which the respondents declare themselves individually willing to engage in the change of values identified in Table 1. The first is a measure of how the members of the community view their community with respect to sustainable development, the second is a measure of how the members of the community view themselves with respect to sustainable development. Both are measures of the compatibility of the community to changes in values implied by sustainable development.

In future applications of the model procedure, it would be expedient to mail to each telephone respondent, immediately after the telephone interview, a brief description of the overall procedure identifying Table 1 as the basis for the questions and presenting the willingness question for their immediate response. The comprehensive mail survey would follow later after the completion of the telephone survey. The willingness question should still be included at the end of the mail survey, thus providing the possibility of a comparative measure. This would have an added benefit of sharing with respondents knowledge of the complete process at an early stage and may help to reduce the drop-off experienced in the case study in which only 25% of the respondents who expressed their desire to be included in further research actually responded to the mail survey.

The early invitation to respondents to participate in the process customization is important to the community. In the case study procedure, the options for the individual questions in the mail survey were generated by the author. This was deemed to be acceptable for research purposes, since the author was a member of the community and knowledgeable of it, and there were no research funds available for community activity. However, in an actual community situation, options for the mail survey questions should be provided by members of the community, so that the results are demonstrably from the community itself. Following the

telephone survey, two or more brainstorming workshops should be held with members of the community in order to generate the options for the mail survey questions. The mail survey can then be compiled with sensitivity to the issues of concern to the community itself. The results of the mail survey will similarly provide guidance for policy and program development with respect to the community's own sense of sustainable development. In this manner, any sustainable development program developed for a specific community will be flexible to, and in accordance with, the context of that community, and reflective of the overall direction of change inherent in the concept of sustainable development.

The full procedure is quite complex and provides a rich source of information for guidance to the community. However, the full complexity also requires considerable time and effort to assess and absorb the significance of all the information provided. Fortunately, the procedure is sufficiently flexible that it can be simplified both with respect to its scope, and with respect to compiling reports. With respect to scope, the community leadership may decide to simplify the process by including only a portion of the questions in the telephone survey. Limiting the scope of the telephone survey also necessarily limits the scope of the mail survey. Alternatively, the entire telephone survey may be used, but only a portion of the value transitions carried forward into the mail survey. For example, the telephone survey has the capacity to identify those value transitions for which there is overall agreement, overall disagreement, and ambivalent response, or a bi-modal response. The community leadership may decide to go forward with only those areas of agreement for the purpose of gathering information to design action programs, or those areas of disagreement for the purpose of gathering information to design of educational programs. Alternatively, the leadership may decide to go forward with only those areas which produced bi-modal results for the purpose of gathering information to design promotional programs to generate public awareness and public support for sustainable development. The price of simplifying the scope and complexity of the procedure, is of course, the scope and variety of information derived. The community leadership must suit the scope of the procedure to the objectives desired.

With respect to reporting on the information provided, there is similarly great flexibility inherent in the model procedure. All reports can be centred around the chart, or profile of values change, which presents graphically the information derived from the telephone survey. The chart may present all the data combined, as in the case study. Alternatively it may be subdivided for specific cohorts and also to include or exclude areas of agreement, disagreement, ambivalency or bi-modality. Similarly, reporting of design activities for educational, promotional or action programs resulting from selecting and applying the information gathered may be centred on the complete profile chart or a portion of it. For example, an 'action' report may first present the relative value transitions from the telephone survey, second the action ideas identified and articulated by a brain-storming workshop, third a report of the mail survey results and fourth, a program design based on the mail survey results. Educational and promotional programs can also be reported separately and on a similar format based on a values profile chart. The common element of all such reports would be an identification of 'now values,' and 'future values' presented graphically and a program, based on community input, of how to get from 'now' to 'then.' Reporting of the full procedure can be very complex, but it can also be greatly simplified and still completely maintain its validity as based in the community itself.

The model procedure lends itself to being repeated over time and thereby developing historical data which can be used to develop trends of change over time. The full procedure should always be conducted when it is being done by a community for the first time. That allows the establishment of baseline data for all the aspects of value changes identified in Table 1. However, after the first time, the question of frequency of repetition comes up. The community being considered should repeat the relevant parts of the procedure for each subsequent time period in which major policy or activity changes are possible or contemplated. The 'community being considered' may not be the same as the one originally surveyed. It may be a subset of the original community. For example, the original procedure may have been done by a municipal community, out of which the local Chamber of Commerce designed some education or action programs for its own constituency. Due to

a policy change, the Chamber may decide to repeat the procedure, or parts of it, for their own purposes, independently of the municipality. So also might a local social development council or a conservation authority. All repetitions of the procedure could be related to previous data with respect to changes over time even though their frequency of repetition and target constituency might be different from the municipality itself.

The research problem, its objectives and assertions, Table 1 and the findings of the literature review and the case study lead to a number of conclusions, recommendations and suggestions, and also to the overall challenge of sustainable development.

CONCLUSIONS

The vision of sustainable development has the capacity to transcend the various ideological points of view in society and the divisions, boundaries and inequities which politics, religion, science, economics, environmental considerations, ethnic culture, gender, geographic location and social issues tend to create. Similarly, the transition of values described in Table 1, and derived from the concept of sustainable development, has the capacity to transcend the historical divisions, boundaries and inequities that separate people from people and people from the natural environment upon which society depends. The model procedure, developed in the case study and based on Table 1, provides a bridge from the philosophical to the practical ~ a way to operationalize sustainable development. Several conclusions can be drawn from this research.

1. **Sustainable Development is More Than Description.** Past models of the bi-polar nature of society have been retrospective and descriptive. The concept of sustainable development identifies the bi-polar nature of society as between the present and the future. This research involves a descriptive approach to the present and adopts a prescriptive approach to the future. It identified a set of values in accordance with a desired vision of the future and proposed a procedure for achieving changes in direction, or emphasis, of society necessary to achieve the desired future.

2. **Sustainable Development Means Change in Values.** Sustainable development is a process of changing from egocentric values, which characterize the dominant social paradigm, towards envirocentric values with respect to the future. It also involves making individual and organizational changes that flow from changes in values. It is a process which produces evolving results regarding the health of the relationship of humans to the Earth, all life and to each other. The idea of values-based development described herein provides a connection from the philosophical quest to the practical application of sustainable development.
3. **Sustainable Development Applies to All Levels of Society.** The process of change in values is deeply challenging to prevailing social, economic, financial and political practices which, for the most part, are founded in egocentric values. Sustainable development, as change in values, is flexible with respect to context. It is applicable to both reductionist and holistic approaches to development and its pursuit is equally important at both the macro and the grass roots levels.
4. **The Model Procedure is a Valuable Operational Tool.** The model procedure developed in the case study (with minor revisions noted) is a valuable research tool and a useful procedure for encouraging the pursuit of sustainable development at the local level. It provides a research tool for any community to assess the existence of, the strength of, and the perceived propensity for change in the values held by its members, and furthermore to design educational and action programs to embrace the desired changes identified. The telephone survey is immediately usable and the mail survey can be easily customized to the individual community. The procedure is easily modifiable to fit communities of interest or practice as well as physical or geographic communities. Therefore, it has capacity to assist in promoting institutional change in values at all levels of society.
5. **The Case Study Demonstrated the Importance of the Model Procedure.** In the case study community the data demonstrated that:
 - a) There was an overall strong agreement in favour of change from egocentric to envirocentric values;

- b) The values of co-operation for the common interest, balance among economic, environmental and social issues, patience and compassion, harmony with nature, conservation, reducing waste by the 3Rs, honesty at all levels, and management by encouragement are all very strong with respect to the future in the case study community.;
- c) The data concerning present values, values for the future and propensity for change in social values from the present to the future were very consistent among cohorts of vocation, age, income, level of education, location and gender. Only minor differences and no overall trends appeared among these groups;
- d) Tables 19a, 19b and 20 identified some significant differences in respondents' declared willingness to embrace change in values. For the General Public, 78% of the respondents indicated they were "most willing" to change, only 5% indicated they were "least willing" to change and 17% were ambivalent. For Independent Business, only 51% of the respondents indicated they were "most willing," 11 % were least willing and 39% were ambivalent. For all other groups 66-69% were most willing, 3-8% were least willing and 25-33% were ambivalent. Many differences were evident with respect to individual value transitions as detailed in Table 20, which demonstrated the importance of the procedure in custom designing a sustainable development program for the sensitivities of the surveyed community.

6. **Environment Has Both a Narrow and a Broad Meaning.** The word 'environment' must be recognized as applying in a narrow sense to the biophysical environment and in a broad sense to the many aspects of the human environment such as economic, biophysical, social, cultural, psychological, spiritual and intellectual environments.

RECOMMENDATIONS . . .

Five recommendations and two suggestions for entrepreneurial opportunities flow from the findings of the research and its conclusions. The recommendations are:

1. To the Councils of each of the communities reviewed (Region of Waterloo, City of Hamilton and City of London), that their achievement in envisioning and planning for the future could be enhanced and supplemented by the model process developed herein;

2. To an appropriate research institution, such as the International Council for Local Environmental Initiatives (ICLEI) or an appropriate municipal networking organization such as the Federation of Canadian Municipalities (FCM), that further research be undertaken to implement the case study procedure in selected municipalities to supplement the local sustainable development programs;
3. To any community utilizing the model procedure,
 - a) that the procedure should be carried out in its full complexity the first time that a community does it and that the procedure, or relevant parts of it, should be carried out for each subsequent time period in which major policy or activity changes are possible or contemplated. For example, a municipal community should carry out the procedure, or parts of it, every three years.
 - b) Thought must be given to indicators which connect the research aspect of the model procedure to subsequent change in behaviour, or lack of it. For generic indicators, this may be the subject of future research. In customizing the model procedure to a specific community, this must be specific and practical research as part of the customizing process. Thought should also be given to evaluating the model procedure itself in the context of its design for the specific community.

... SUGGESTIONS ...

As noted in Chapter 3, progress in economics, environmentalism and in social development are motivated by entrepreneurship. Similarly, the merging of these three into sustainable development will also be motivated by entrepreneurship. Two suggestions for entrepreneurial opportunities are based on the conclusions and founded in Table 1. The first relates to a 'campaign for sustainable development', which involves marketing Table 1 as a guideline for sustainable development initiatives. The second relates to leadership training for sustainable development which involves training in knowledge and skills for the advancement of sustainable development.

A Campaign for Sustainable Development

It has become clear during this research that political, corporate and financial decision makers will not, and in some respects can not, institute changes greatly different from what their voting and consuming public demonstrates to be the prevailing demand. It follows that sustainable development must be a bottom-up, or grass roots level process. Therefore a campaign is needed to encourage individuals, and through them their institutions, to embrace the need to change from egocentric values to envirocentric values in order to help engender a social climate in which leaders and decision makers can lead a transition to sustainable development. The concrete suggestion arising out of this research is to offer the value changes described in Table 1 as the foundation for a 'Campaign for Sustainable Development' and to enshrine them in a pledge (Figure 13) to which people can subscribe. Such a campaign would extend an invitation to all people to develop a common purpose and to exercise responsibility on behalf of the earth, to cross all human, social, cultural and political boundaries, and to restore healthy relationships among humans, between humanity and other life forms and with the earth itself. It could inspire thousands of independent initiatives aligning with each other because they would be motivated by a common purpose of healing human relationships with the earth and among its people, and be based on a common set of value objectives, i.e., Table 1.

Integral to the actual campaign would be the development of a web-site which can act as the co-ordinating 'home' of the campaign. A promotional part of the web-site would be open to the public and an operational part would be restricted to subscribers. The operational part of the web-site would feature reporting of activity and educational programs in which subscribers become involved and thereby act to implement a cross fertilizing of ideas. Thus the web-site would become a driving force of the campaign. This would not only provide a philosophical base to the campaign but also a subscriber base, and an activity base. Furthermore, it would provide a driving force for sustainable development. Figure 13 presents the draft of such a pledge.

FIGURE 13: Draft Campaign Pledge For Sustainable Development

As a Campaigner for Sustainable Development

I support the vision of *Sustainable Development*:

- * that the Earth can become a vital, beautiful, healthy and harmonious place for all living things;
- * that each person contributes to what the Earth is, and what it becomes, through all their decisions and small daily acts;
- * that it is us, the people of the Earth working together, who must choose to create a world that can work for everyone.

I pledge to do my part in this global campaign of conscience -

- * by accepting my inherent authority to act, by accepting responsibility for the consequences of my actions, inactions and intentions and, when necessary, by forgiving myself and others ;
- * by respecting, and appreciating the diversity of humanity and the sanctity of all life;
- * by promoting changes in the emphasis of values (attached)² implicit in caring for the earth on behalf of present and future generations,
- * by identifying myself as a subscriber and supporter of the *Campaign for Sustainable Development* and by signing and displaying this pledge in a prominent location for others to see and be inspired to join me.

Name _____

² Table 1 to be attached to the certificate as a companion page.

A Training Program for Sustainable Development

The second suggestion for an entrepreneurial opportunity concerns a leadership training program. It can be deduced from the institutional gridlock described in Chapter 2 that grass roots change cannot proceed very far without corresponding change at the institutional level. It follows that sustainable development must also be a top-down or a macro level process. Accordingly, an education and training program be designed and launched to develop expertise, guidance and leadership in the transition from egocentric values towards envirocentric values and further that this training program be promoted to the leadership of business, social, educational, financial, governmental and non-governmental institutions and organizations.

Habitat II in Istanbul formally recognized that various sectors of civil society, such as business, industry, cities and local governments, NGOs, professional organizations, foundations and unions should all have a role in working in partnership with each other and with senior governments to render human settlements sustainable and to help achieve the ideal of sustainable development. This principle of civil society working in partnership with senior governments was endorsed at the United Nations General Assembly debates during November 1996. Thus, Habitat II provided a high profile forum in which to establish the vision of partnership sectors working together and with senior governments in order to achieve the ideal of operationalizing sustainable development at the municipal level in an urbanizing world. However, this ideal of partnership and co-operation among major sector institutions for the pursuit of sustainable development does not yet have a tradition. The dominant tradition is one in which sectors of civil society compete with each other for resources, for the pre-eminence of the 'rightness' of their philosophy of development and for the attention of senior governments and trans-national corporations. In fact, the primary tradition has been one which predominantly embraces the values on the left side of Table 1. An awareness of competition and co-operation as complementary roles is needed. Increasingly many people realize

and accept responsibility for environmental, economic and social crises; their resolution must be shared by all in a spirit of partnership and be anchored in urban communities where people live, work and play.

To become meaningful and powerful, such an ethic of partnership must become operational in the context of actual businesses and organizations in real life urban and rural situations. It will not happen by accident or by expectation. It will require people, perhaps called 'Partnership Ambassadors', to be specially trained to develop partnership relations and projects among businesses and organizations in various sectors of society.

... AND THE CHALLENGE

In looking towards the future, and envisioning healthy relationships among humans and with the world they inhabit, Serageldin (1998, p. 5), World Bank Vice-President for Sustainable Development, stated:

It is clear that the problems of development we are addressing must be approached with a moral compass that will help us maintain the sense of purpose and the moral outrage necessary to tackle the enormous inequities that lie at the nexus of environmental protection in the interests of future generations, current patterns of production and consumption, and related questions of food security, poverty and empowerment.

In the end, everyone must re-evaluate from their own perspective the economic, environmental and social equity issues which arise from our individual and collective behaviour in human societies and our relationships to each other and the ecosystems of the earth on which we depend for life. If we fail, we may be doomed to a tragic future of misery in deprivation for the poor and a misery of isolation in wealth for the rich. Brown *et al* (1991, p. 18), President of the World Watch Institute, eloquently places this prospect before us:

As the twentieth century draws to a close, the tale of the Titanic comes uncomfortably close to describing the perpetual gap we now face: our

inability to comprehend the scale of the ongoing degradation of the planet and how it will affect our future. Few understand the magnitude of the potential tragedy; fewer still have a 'good idea' of what to do about it.

But human society can only reap a tragic future by accepting or ignoring the momentum of civilization. The fear that society might accept, or ignore, the momentum of civilization was eloquently expressed by a 12 year old girl, Severn Suzuki, speaking for the world's children to the entire plenary of world leaders at the Earth Summit in Brazil. Suzuki (1992)³ said:

I am here to speak for all generations yet to come. I am here to speak for the starving children around the world whose cries go unheard. I am here to speak for the countless animals dying across the planet - because they have no where to go.

We can't afford not to be heard. I'm afraid to go out in the sun now because of the holes in the ozone. I'm afraid to breathe the air because I don't know what chemicals are in it. I used to go fishing in Vancouver with my Dad until just a few years ago when we found the fish full of cancers. And now we hear about animals and plants going extinct everyday - vanishing forever.

In my life I have dreamt of seeing great herds of wild animals, jungles and rainforests full of birds and butterflies, but now I wonder if they will even exist for my children to see. Did you have to worry about these things when you were my age?

All this has happened before our eyes and yet we act as if we have all the time and all the solutions. I'm only a child and I don't have all the solutions, but I want you to realize, neither do you! You don't know how to fix the holes in our ozone layer. You don't know how to bring salmon back up a dead stream. You don't know how to bring back an animal now extinct. And you can't bring back the forests that once grew where there is now desert.

If you don't know how to fix it, please stop breaking it.

. . . At school, even in kindergarten, you teach us to behave in the world. You teach us:

- * not to fight with others,
- * to work things out,
- * to respect others,
- * to clean up our mess,
- * not to hurt other creatures,

³The full text of Suzuki's speech can be found in Appendix F.

* to share - not to be greedy.

Then why do you go out and do the things you tell us not to do?

. . . My Dad always says, "You are what you do, not what you say." Well, what you do makes me cry at night. You grown ups say you love us. I challenge you, please, make your actions fit your words.

Human society has the capacity to question, to learn, to evaluate and to make changes in direction. In so doing it has the capacity to make wise choices in so far as people are able to perceive them as wise. In the past, humans perceived the pursuit of materialism as wise, pursued it aggressively and, as is now increasingly evident, achieved it much too successfully for the overall health of the Earth. Now sustainable development offers a new vision of wisdom in which the reality of practical affairs and the ideals of morality and spirit can meet in the values people embrace. This research offers a 'good idea' of what to do about impending tragedy; it provides a model by which the challenge of sustainable development, the process of change from egocentric to envirocentric values, can be placed before individuals and communities in a non-threatening way.

Maurice Strong, Senior Advisor to the President of the World Bank, President of the Earth Council, Under Secretary-General of the United Nations, entrepreneur and long-term activist on behalf of the human environment, speaking at the Promoting Ethics and Spiritual Values in Effective Financing of Environmentally Sustainable Development Conference (1995), described the challenge of sustainable development most succinctly:

The behaviour of individuals and the priorities of society depend on people's moral, ethical and spiritual values. It is too often assumed that there is a dichotomy between the real world of practical affairs and the ideal world of morals and the spirit.

The transition to sustainable development is not a soft option but an imperative for our survival. Our current patterns of production and consumption are unsustainable, and we must change course. We have lost our innocence. We know what we are doing to the environment which God

has bequeathed to us as our endowment on this Earth. We know what we are doing to future generations. We know what we are doing to each other. These realizations pose the ultimate moral challenge to our civilization.

In the final analysis the behaviour of individuals, as well as the priorities of society, respond to the moral, ethical and spiritual values of people. The radical changes occurring in our society herald an historic convergence between the practical aspects of human life and its moral and spiritual dimensions. How we treat each other, and how we treat the Earth, must be motivated by a new sense of co-operative stewardship, rooted in our deepest ethical, moral and spiritual traditions, as well as in our common interests and responsibilities. (Serageldin and Barratt, 1996, p. 2)

A World Bank Vice-President, the President of a Research Institute, the quintessential champion of sustainable development and a child have all placed before the world the imperative of sustainable development. Society itself must embrace the vision, and its values, in its top-most leadership, in its grass roots, and at all levels in between. Recalling Miller's comment quoted above, that crises are unstable conditions in which abrupt or decisive changes are pending, it is clear that sustainable development, as a process of change in values, is a wise and timely choice for policy and action.

Sustainable development is like a forest of trees which can be encouraged to grow by nurturing their roots rather than grafting on new leaves and branches. Nurturing the roots of sustainable development means enhancing the values of individual people, and the families, organizations and institutions in which they live, work, play and relax.

R E F E R E N C E S a n d S O U R C E S

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APPENDIX A
SURVEY INSTRUMENTS

**SUSTAINABLE DEVELOPMENT
TELEPHONE SURVEY**

John Maskell

PREAMBLE

Hello, my name is John Maskell. I am a PhD Student at the UW in the Faculty of Environmental Studies. I got your name from May I describe my research to you and invite you to participate in a telephone survey?

My research involves the principles which underlie environmental, economic and social issues and how they may change. It has been approved by the UW Office of Human Research which you may call directly if you would like to do that. My supervisor is Dr. George Mulamoottil.

The first phase is a telephone survey which consists of a series of 25 statements which I read and ask you to agree or disagree. It takes about 15 minutes. A second and possible third stage may involve a written survey or a personal interview. Participation in all phases is voluntary and the information is confidential. No one will be identified in research reports and you may withdraw at any time you wish.

Would you be willing to participate in this telephone survey?
Is now a good time, or would you prefer.....?

GENERAL QUESTIONS

Do you think there are difficulties in modern society with respect to?

economic issues	YES	NO
environmental issues	YES	NO
social issues	YES	NO

Are these difficulties serious enough to be called crises?

economic issues	YES	NO
environmental issues	YES	NO
social issues	YES	NO

Have you heard of the term "Sustainable development"?

YES	NO
-----	----

Does the term "Sustainable Development have meaning for you?

YES	NO
-----	----

EXPLANATION

I will read each statement to you and then ask you two questions, the same two questions about each one:

a. Does this statement represent the way things ARE in society today?
 Agree strongly, Agree moderately, Agree Weakly, Disagree Weakly, Disagree moderately, Disagree Strongly

b. Do you think the statement describes the way things should be sometime in the future?
 Agree strongly, Agree moderately, Agree Weakly, Disagree Weakly, Disagree moderately, Disagree Strongly

1. Balance among economic, environmental and social issues provides the basis of a healthy society.
 (2b) AS AM AW DW DM DS; AS AM AW DW DM DS;
2. People are normally honest in their relations with others.
 (9b) AS AM AW DW DM DS; AS AM AW DW DM DS;
3. Economic systems operate in harmony with natural systems.
 (4b) AS AM AW DW DM DS; AS AM AW DW DM DS;
4. A sense of urgency(busy-ness/intolerance) is common in society.
 (3a) AS AM AW DW DM DS; AS AM AW DW DM DS;
5. Individual rights are more important than collective rights.
 (5ab) AS AM AW DW DM DS; AS AM AW DW DM DS;
6. The three R's(Reduce, Reuse, Recycle) are normal in society.
 (6b) AS AM AW DW DM DS; AS AM AW DW DM DS;
7. Most people save and protect (accumulate) their OWN things.
 (8a) AS AM AW DW DM DS; AS AM AW DW DM DS;
8. Authorities manage by stimulating people to achieve positive results.
 (10b) AS AM AW DW DM DS; AS AM AW DW DM DS;
9. Most people believe profit means to derive a surplus of time and energy
 (7b) (i.e. increase in quality of life)
 AS AM AW DW DM DS; AS AM AW DW DM DS;
10. Image is important. Most people believe its OK to bend the truth a little as long
 (9a) as they don't get caught.
 AS AM AW DW DM DS; AS AM AW DW DM DS;

11. Authorities manage by imposing control.
 (10a) AS AM AW DW DM DS; AS AM AW DW DM DS;
12. Extravagant use of resources is normal in society.
 (6a) AS AM AW DW DM DS; AS AM AW DW DM DS;
13. Most people are co-operative about preserving the common interests of their
 (1b) community
 AS AM AW DW DM DS; AS AM AW DW DM DS;
14. Individual's rights are more important than individual's responsibilities.
 (5ab) AS AM AW DW DM DS; AS AM AW DW DM DS;
15. Most people are generous in sharing their wealth with others.
 (8b) AS AM AW DW DM DS; AS AM AW DW DM DS;
16. Most people believe economic growth provides the basis for a healthy society.
 (2a) AS AM AW DW DM DS; AS AM AW DW DM DS;
17. Conservation of resources is normal in society.
 (6b) AS AM AW DW DM DS; AS AM AW DW DM DS;
18. Most people are competitive in preserving their own self interest.
 (1a) AS AM AW DW DM DS; AS AM AW DW DM DS;
19. Dumping(land filling) waste is normal in society.
 (6a) AS AM AW DW DM DS; AS AM AW DW DM DS;
20. Patience is common in society.
 (3b) AS AM AW DW DM DS; AS AM AW DW DM DS;
21. Collective rights are more important than collective responsibilities.
 (5ab) AS AM AW DW DM DS; AS AM AW DW DM DS;
22. Economic systems operate regardless of natural systems.
 (4a) AS AM AW DW DM DS; AS AM AW DW DM DS;
23. Most people believe profit means to derive a surplus of money.
 (7a) AS AM AW DW DM DS; AS AM AW DW DM DS;
24. Would you be willing to participate in either a written or an interview survey at a
 later date? YES NO

25. Would you mind telling me why you would-be/rather-not-be willing to do that?

INFORMATIONAL QUESTIONS and analysis data (optional)

Phone Number

Respondents name

Address/postal code

Male/female

Age range

Household gross income range

Education level

MAIL SURVEY RESULTS

Note: The original mail survey was somewhat different than presented here. The questions here have been annotated to present results with the questions. Accordingly the questions have been re-ordered to reflect the rank order of the results. The original ordering and grouping of the possible responses was random and in no way reflective of, or relevant to, the results.

COMPETITION VS CO-OPERATION

The Telephone Survey agrees strongly that people compete with respect to their own self-interest in the present. It also agrees strongly that people should co-operate for the common interest in the future. Indicate which of the following activities are MOST/LEAST LIKELY TO ENCOURAGE CO=OPERATION:

	MOST	LEAST	Ave	SD
Knowledge of social benefits.....	1 2 3 4 5 6		1.98	.89
Knowledge of environmental benefits.....	1 2 3 4 5 6		2.0	.93
Availability of information.....	1 2 3 4 5 6		2.03	.98
Knowledge of economic benefits.....	1 2 3 4 5 6		2.06	1.02
Examples of good role models.....	1 2 3 4 5 6		2.25	1.29
Knowledge of environmental costs.....	1 2 3 4 5 6		2.26	1.12
Knowledge of social costs.....	1 2 3 4 5 6		2.28	1.15
Knowledge of economic costs.....	1 2 3 4 5 6		2.41	1.29
Examples of fair play.....	1 2 3 4 5 6		2.55	1.42
Voluntarism.....	1 2 3 4 5 6		2.56	1.34
Wider participation in Government decision processes.....	1 2 3 4 5 6		2.74	1.3
Wider participation in Business decision processes.....	1 2 3 4 5 6		2.99	1.27
Comments;				

PATIENCE

The Telephone Survey agrees busy-ness (urgency) is common and people lack patience in the present. It agrees strongly that patience should be common in the future. Indicate which of the following are MOST/LEAST LIKELY TO PROMOTE PATIENCE in the future.

	MOST .	LEAST	Ave	SD
Good listening skills.....	1 2 3 4 5 6		1.94	.95
Common courtesy.....	1 2 3 4 5 6		2.05	1.15
Compassion.....	1 2 3 4 5 6		2.13	1.02
Co-operation.....	1 2 3 4 5 6		2.19	.90
Higher quality of life (non-material).....	1 2 3 4 5 6		2.28	1.11
Cultural understanding.....	1 2 3 4 5 6		2.31	1.23

Priority management skills.....	1 2 3 4 5 6	2.55	1.10
Less dependence on money.....	1 2 3 4 5 6	2.60	1.49
Meditative/contemplative skills.....	1 2 3 4 5 6	2.66	1.38
Time management skills.....	1 2 3 4 5 6	2.76	1.18
Courteous driving habits.....	1 2 3 4 5 6	2.85	1.40
Higher Standard of living (material).....	1 2 3 4 5 6	3.71	1.46
Competition.....	1 2 3 4 5 6	4.56	1.13
Comments:			

RIGHTS AND RESPONSIBILITIES

The statements in the Telephone Survey which prompted the most comments were those concerning rights and responsibilities. The telephone survey agrees that we give more importance to rights in the present and indicates that we should give more importance to responsibilities in the future. Our rights are defined in the constitution. Indicate which of the following responsibilities you think are MOST/LEAST IMPORTANT for the future.

	MOST	LEAST	Ave	SD
Responsibility:				
* to be honest;(re. others).....	1 2 3 4 5 6		1.35	.35
* to be honest;(re. self).....	1 2 3 4 5 6		1.38	.72
* to be honest;(re. government).....	1 2 3 4 5 6		1.38	.64
* to be honest;(re. society).....	1 2 3 4 5 6		1.43	.67
* to respect others (person, property, culture).....	1 2 3 4 5 6		1.54	.94
* to provide for self and family.....	1 2 3 4 5 6		1.58	.79
* to resist violence;.....	1 2 3 4 5 6		1.61	.75
* to vote;.....	1 2 3 4 5 6		1.61	.85
* to abide by the intent of laws;.....	1 2 3 4 5 6		1.63	.79
* to contribute to society;.....	1 2 3 4 5 6		1.63	.66
* to learn;.....	1 2 3 4 5 6		1.65	.76
* to give the opportunity to vote;.....	1 2 3 4 5 6		1.66	.75
* to protect the integrity of nature and ecological systems;.....	1 2 3 4 5 6		1.71	.78
* to conserve;.....	1 2 3 4 5 6		1.75	.88
* to communicate;.....	1 2 3 4 5 6		1.78	.94
* to protect the rights of others;.....	1 2 3 4 5 6		1.86	1.03
* to give evidence as requested in the process of justice;.....	1 2 3 4 5 6		1.89	.97
* to pay personal expenses;.....	1 2 3 4 5 6		1.90	1.03
* to inform and be informed;.....	1 2 3 4 5 6		1.91	.83
* to forgive others.....	1 2 3 4 5 6		1.94	.95
* to correct one's transgressions.....	1 2 3 4 5 6		2.03	.87
* to teach;.....	1 2 3 4 5 6		2.15	.98
* to express dissent.....	1 2 3 4 5 6		2.53	1.25

* to seek spiritual guidance.....	1	2	3	4	5	6	2.68	1.44
* to respect government authority.....	1	2	3	4	5	6	2.69	1.20
* to pay common expenses of society;.....	1	2	3	4	5	6	2.72	1.23
* to be frugal;.....	1	2	3	4	5	6	2.96	1.23
* to pray.....	1	2	3	4	5	6	3.08	1.72
* to worship.....	1	2	3	4	5	6	3.13	1.56
* to share spiritual experience.....	1	2	3	4	5	6	3.22	1.36
* to consume;.....	1	2	3	4	5	6	4.56	1.24

Comments;

CONSERVATION

The Telephone survey agrees strongly that society consumes resources extravagantly in the present and agrees strongly that it should conserve resources in the future. Indicate which of the following resources need the MOST/LEAST CONSERVATION EFFORT.

	MOST	LEAST	Ave	SD				
SPACE RESOURCES								
* Fresh (ground) water.....	1	2	3	4	5	6	1.18	.41
* Atmospheric quality.....	1	2	3	4	5	6	1.29	.53
* Lakes.....	1	2	3	4	5	6	1.38	.60
* educational resources.....	1	2	3	4	5	6	1.39	.83
* Rivers.....	1	2	3	4	5	6	1.41	.63
* Wild life habitat.....	1	2	3	4	5	6	1.63	.85
* Wet lands.....	1	2	3	4	5	6	1.68	.82
* Shorelines.....	1	2	3	4	5	6	1.69	.77
* Agricultural resources.....	1	2	3	4	5	6	1.74	.91
* Wilderness.....	1	2	3	4	5	6	1.75	1.01
* Fish stocks.....	1	2	3	4	5	6	1.75	.86
* Farm land.....	1	2	3	4	5	6	1.78	.95
* Topsoil - (thickness and quality).....	1	2	3	4	5	6	1.80	.97
* Forest resources.....	1	2	3	4	5	6	1.86	.98
* Productive capacity(economic).....	1	2	3	4	5	6	1.96	1.12
* Natural landscapes.....	1	2	3	4	5	6	2.01	1.19
* Natural gas.....	1	2	3	4	5	6	2.01	1.01
* Hydro electric energy.....	1	2	3	4	5	6	2.05	1.10
* Parkland.....	1	2	3	4	5	6	2.15	1.11
* Oil.....	1	2	3	4	5	6	2.28	1.11
* Financial capacity.....	1	2	3	4	5	6	2.33	1.02
* Urban environment.....	1	2	3	4	5	6	2.60	1.44
* Cultural resources.....	1	2	3	4	5	6	2.61	1.32
* Historical heritage.....	1	2	3	4	5	6	2.61	1.28
* Minerals (Construction materials).....	1	2	3	4	5	6	2.69	1.24
* Minerals (ores and metals).....	1	2	3	4	5	6	2.74	1.31

* Coal.....	1	2	3	4	5	6	2.84	1.41
* Nuclear.....	1	2	3	4	5	6	3.01	1.83

Comments;

REDUCE, RE-USE, RECYCLE

The telephone survey agrees strongly that dumping wastes is common practice in the present and agrees strongly that "Reduce, Re-use and Recycle" should be common practice in the future. Indicate which of the following are MOST/LEAST IMPORTANT to reduce, re-use and recycle in the future;

	MOST					LEAST					Ave	SD
toxic residues.....	1	2	3	4	5	6	1.26	.69				
Industrial chemicals.....	1	2	3	4	5	6	1.38	.72				
process water.....	1	2	3	4	5	6	1.41	.74				
Agricultural chemicals.....	1	2	3	4	5	6	1.49	.77				
process residues.....	1	2	3	4	5	6	1.50	.76				
combustion products.....	1	2	3	4	5	6	1.54	.84				
Plastic packaging.....	1	2	3	4	5	6	1.61	.97				
Pop/Beer cans.....	1	2	3	4	5	6	1.68	.79				
Metal packaging.....	1	2	3	4	5	6	1.73	.89				
Newsprint.....	1	2	3	4	5	6	1.84	.95				
Glass bottles.....	1	2	3	4	5	6	1.84	1.04				
Cardboard.....	1	2	3	4	5	6	1.99	.93				
Paper packaging.....	1	2	3	4	5	6	1.99	1.12				
Cars, trucks, Automotive equipment.....	1	2	3	4	5	6	2.04	.99				
Sewage.....	1	2	3	4	5	6	2.05	1.23				
Kitchen waste.....	1	2	3	4	5	6	2.09	1.26				
Heavy machinery.....	1	2	3	4	5	6	2.28	1.19				
Yard waste.....	1	2	3	4	5	6	2.38	1.42				
Light machinery.....	1	2	3	4	5	6	2.39	1.11				
Home appliances.....	1	2	3	4	5	6	2.44	1.27				
Clothing.....	1	2	3	4	5	6	2.63	1.22				
Furniture.....	1	2	3	4	5	6	2.74	1.27				

SHARE THE WEALTH

The Telephone Survey disagrees that people are generous in sharing their wealth in the present and agrees strongly that people should share their wealth in the future. Indicate in which of the following ways people should be MOST/LEAST WILLING TO SHARE their wealth in the future;

	MOST					LEAST					Ave	SD
Knowledge.....	1	2	3	4	5	6	1.38	.62				
Information.....	1	2	3	4	5	6	1.46	.71				

Wisdom.....	1 2 3 4 5 6	1.49	.86
Skills.....	1 2 3 4 5 6	1.54	.71
Experience.....	1 2 3 4 5 6	1.60	.89
Companionship.....	1 2 3 4 5 6	1.89	.94
Time.....	1 2 3 4 5 6	1.99	1.01
Material resources(other than money).....	1 2 3 4 5 6	2.49	1.23
Employment opportunities(job sharing).....	1 2 3 4 5 6	2.63	1.32
Financial resources(money).....	1 2 3 4 5 6	3.1	1.38

PROFIT

Modern society seems to believe having and acquiring a surplus of money is an end in itself. In fact acquiring money, having it and spending it are only means. Profit, or its absence, results from how money is spent and what it is spent for.

The Telephone Survey agrees that profit means a surplus of money in the present and indicates that there needs to be other ideals for profit in the future. Indicate which of the following ideals MOST/LEAST DESCRIBE WHAT PROFIT SHOULD BE in the future;

	MOST	LEAST	Ave	SD
Re MATERIAL ASSETS				
* Wholesome relations with family;.....	1 2 3 4 5 6		1.31	.59
* Satisfaction of achievement;.....	1 2 3 4 5 6		1.60	.74
* Wholesome relations with friends and neighbours;.....	1 2 3 4 5 6		1.64	.70
* Less negative impact on natural environment;.....	1 2 3 4 5 6		1.65	.72
* Capacity to help others;.....	1 2 3 4 5 6		1.73	.77
* Freedom from financial stress;.....	1 2 3 4 5 6		1.83	1.06
* Freedom from psychological stress;.....	1 2 3 4 5 6		1.85	1.99
* More opportunity;.....	1 2 3 4 5 6		1.88	.90
* Freedom from physical stress;.....	1 2 3 4 5 6		1.96	.96
* Increasing faith in one's self;.....	1 2 3 4 5 6		2.01	1.04
* Political stability;.....	1 2 3 4 5 6		2.03	.94
* Less hostility;.....	1 2 3 4 5 6		2.08	1.14
* Peace with one's adversaries.....	1 2 3 4 5 6		2.18	1.05
* Increasing faith in society;.....	1 2 3 4 5 6		2.28	1.15
* surplus of discretionary time;.....	1 2 3 4 5 6		2.50	1.20
* Less negative impact on the minority cultures;.....	1 2 3 4 5 6		2.56	1.30
* Surplus of money;.....	1 2 3 4 5 6		3.29	1.49
* Surplus of material possessions;.....	1 2 3 4 5 6		3.65	1.33

Comments:

HONESTY

The Telephone survey agrees strongly that people think its OK to bend the truth in the present and agrees strongly that people should be honest in the future. Indicate which of the following reasons do you think are the MOST/LEAST LIKELY REASONS PEOPLE BEND THE TRUTH;

	MOST					LEAST					Ave	SD		
Enhance a desired image.....	1	2	3	4	5	6	1	2	3	4	5	6	1.89	1.09
Cover up mistakes.....	1	2	3	4	5	6	1	2	3	4	5	6	1.94	1.06
Protect a perceived image.....	1	2	3	4	5	6	1	2	3	4	5	6	2.00	1.29
Protect privileged position.....	1	2	3	4	5	6	1	2	3	4	5	6	2.08	1.34
Keep out of trouble.....	1	2	3	4	5	6	1	2	3	4	5	6	2.09	1.09
Insecurity.....	1	2	3	4	5	6	1	2	3	4	5	6	2.15	1.19
Fear of reprisal.....	1	2	3	4	5	6	1	2	3	4	5	6	2.31	1.16
Protect material assets.....	1	2	3	4	5	6	1	2	3	4	5	6	2.33	1.29
Shortage of money.....	1	2	3	4	5	6	1	2	3	4	5	6	2.86	1.45
Frustration.....	1	2	3	4	5	6	1	2	3	4	5	6	3.01	1.33
Don't know any better.....	1	2	3	4	5	6	1	2	3	4	5	6	3.98	1.53

Indicate which of the following ideals you think are MOST/LEAST LIKELY TO ENCOURAGE PEOPLE TO BECOME HONEST in the future.

	MOST					LEAST					Ave	SD		
Honesty in government.....	1	2	3	4	5	6	1	2	3	4	5	6	1.85	1.04
Honesty in business.....	1	2	3	4	5	6	1	2	3	4	5	6	1.98	1.03
Honesty in media reporting.....	1	2	3	4	5	6	1	2	3	4	5	6	2.19	1.20
Examples of role models.....	1	2	3	4	5	6	1	2	3	4	5	6	2.19	1.09
Knowledge re benefits of honesty.....	1	2	3	4	5	6	1	2	3	4	5	6	2.40	1.21
Honesty in advertising.....	1	2	3	4	5	6	1	2	3	4	5	6	2.60	1.26
Knowledge re costs of dishonesty.....	1	2	3	4	5	6	1	2	3	4	5	6	2.68	1.39
Financial security	1	2	3	4	5	6	1	2	3	4	5	6	2.81	1.24
Moral persuasion.....	1	2	3	4	5	6	1	2	3	4	5	6	2.94	1.40
Comments														

CONTROL / ENCOURAGE

The telephone survey agrees that authorities manage by imposing control in the present and agrees strongly that the management style of the future should be by encouragement.

Indicate which of the following you think are the MOST/LEAST APPROPRIATE CONTROL MECHANISMS:

	MOST					LEAST					Ave	SD		
Financial penalty / fines.....	1	2	3	4	5	6	1	2	3	4	5	6	3.37	1.56
Detention.....	1	2	3	4	5	6	1	2	3	4	5	6	4.33	1.01
Increased taxes/prices.....	1	2	3	4	5	6	1	2	3	4	5	6	4.45	1.45

INVESTMENT OF EFFORT

Quite apart from the cost in dollars the changes in attitude and behaviour will require investment of time and effort. Indicate which of the following areas are MOST/LEAST IMPORTANT for the investment of effort:

	MOST						LEAST						Ave	SD
Realignment of government priorities.....	1	2	3	4	5	6	1	2	3	4	5	6	1.62	.82
Personal learning.....	1	2	3	4	5	6	1	2	3	4	5	6	1.65	.82
Restructuring of social systems.....	1	2	3	4	5	6	1	2	3	4	5	6	1.99	1.25
Realignment of business priorities.....	1	2	3	4	5	6	1	2	3	4	5	6	2.09	.88
Technological research.....	1	2	3	4	5	6	1	2	3	4	5	6	2.09	1.03
Sus Dev awareness programs.....	1	2	3	4	5	6	1	2	3	4	5	6	2.31	1.07
Pay off debt (institutional).....	1	2	3	4	5	6	1	2	3	4	5	6	2.32	1.40
Personal reputation.....	1	2	3	4	5	6	1	2	3	4	5	6	2.45	1.24
Academic research.....	1	2	3	4	5	6	1	2	3	4	5	6	2.47	1.08
Pay off debt (education).....	1	2	3	4	5	6	1	2	3	4	5	6	2.53	1.41
Networking non-government activities.....	1	2	3	4	5	6	1	2	3	4	5	6	2.55	1.27
Voluntarism.....	1	2	3	4	5	6	1	2	3	4	5	6	2.58	1.00
Pay off debt (personal).....	1	2	3	4	5	6	1	2	3	4	5	6	2.58	1.35
Electronic information systems.....	1	2	3	4	5	6	1	2	3	4	5	6	2.69	1.10
Comments														

BARRIERS

The telephone survey indicates there is considerable potential for change within the community surveyed. What do you think are the MOST/LEAST SIGNIFICANT BARRIERS to change.

	MOST						LEAST						Ave	SD
Ignorance of the issues.....	1	2	3	4	5	6	1	2	3	4	5	6	1.85	1.04
Lack of trust.....	1	2	3	4	5	6	1	2	3	4	5	6	2.04	1.15
Lack of leadership.....	1	2	3	4	5	6	1	2	3	4	5	6	2.10	1.09
Cost in dollars.....	1	2	3	4	5	6	1	2	3	4	5	6	2.26	1.34
Bureaucratic gridlock.....	1	2	3	4	5	6	1	2	3	4	5	6	2.26	1.20
Greed.....	1	2	3	4	5	6	1	2	3	4	5	6	2.29	1.37
Status quo: Those who have keep.....	1	2	3	4	5	6	1	2	3	4	5	6	2.43	1.36
Fear of change.....	1	2	3	4	5	6	1	2	3	4	5	6	2.43	1.38
Debt - no room to move.....	1	2	3	4	5	6	1	2	3	4	5	6	2.50	1.33
Hidden agendas.....	1	2	3	4	5	6	1	2	3	4	5	6	2.58	1.23
Prejudice.....	1	2	3	4	5	6	1	2	3	4	5	6	2.65	1.58
No one willing to be first to change.....	1	2	3	4	5	6	1	2	3	4	5	6	2.68	1.48
Lack of technology.....	1	2	3	4	5	6	1	2	3	4	5	6	3.71	1.48
Comments														

THE BOTTOM LINE

Please consider these last few questions carefully. They are the most important part of the survey.

Attitude and behaviour change cannot happen at a community or society level unless significant numbers of individuals change. Indicate which areas you AS INDIVIDUAL are MOST/LEAST WILLING to change;

FROM	TO	MOST	LEAST	Ave	SD
Dump waste	3Rs.....	1	2 3 4 5 6	1.63	.91
Bend the truth	Honesty.....	1	2 3 4 5 6	1.67	1.12
Consume	Conserve.....	1	2 3 4 5 6	1.85	1.04
Rights	Responsibilities.....	1	2 3 4 5 6	1.87	1.03
Impose control	Encourage.....	1	2 3 4 5 6	1.87	.92
Profit = money	Profit = quality of life.....	1	2 3 4 5 6	2.05	1.18
Dominance	Harmony.....	1	2 3 4 5 6	2.20	1.02
Competition	Co-operation.....	1	2 3 4 5 6	2.20	1.32
Growth	Balance.....	1	2 3 4 5 6	2.33	1.18
Busy-ness	Patience.....	1	2 3 4 5 6	2.43	1.21
Self interest	Common interest.....	1	2 3 4 5 6	2.46	1.17
Individual Rights	Collective Rights.....	1	2 3 4 5 6	2.68	1.36
Accumulate wealth	Share the wealth.....	1	2 3 4 5 6	2.90	1.42
Comments					

The Bottom Line (Cont'd)

The process of attitudinal and behavioural change involves facing difficult challenges that many people prefer not to consider. It is not easy. It may include discovering why things can not be the way we would like. Everyone is part of society. Everyone has something to contribute. Indicate the degree to which you personally are willing to contribute to the process of attitude and behavioural change in society with no specific monetary gain;

	A LOT	A LITTLE	NOT	Ave	SD
			At All		
Your ideas.....	1	2 3 4 5 6	7	2.20	1.13
Your expertise.....	1	2 3 4 5 6	7	2.26	1.19
Your time.....	1	2 3 4 5 6	7	2.59	1.19
Your questions.....	1	2 3 4 5 6	7	2.64	1.43
Your answers.....	1	2 3 4 5 6	7	2.68	1.41
Your money.....	1	2 3 4 5 6	7	3.81	1.43

Indicate the degree to which you expect others to be willing to contribute for no specific monetary gain:

	A LOT		A LITTLE				NOT	Ave	SD
	1	2	3	4	5	6	7		
Their ideas.....	1	2	3	4	5	6	7	2.36	1.37
Their expertise.....	1	2	3	4	5	6	7	2.40	1.39
Their questions.....	1	2	3	4	5	6	7	2.58	1.52
Their answers.....	1	2	3	4	5	6	7	2.70	1.55
Their time.....	1	2	3	4	5	6	7	2.96	1.45
Their money.....	1	2	3	4	5	6	7	3.99	1.55

Has the process of participating in this survey and the telephone survey influenced the way you answered these last three questions?

	A LOT		A LITTLE				NOT	Ave	SD
	1	2	3	4	5	6	7		
								5.20	1.6

Would you like to be involved in learning or "doing" activities which may result from this research?

Learning	YES	NO
"Doing"	YES	NO

APPENDIX B
PROFILES OF SURVEY SAMPLES

APPENDIX B: PROFILES OF SURVEY SAMPLES
NUMBER OF INDIVIDUALS IN SAMPLE

	GENERAL PUBLIC	INDEPENDENT BUSINESS	4TH YEAR UNIVERSITY STUDENTS	DECISIONMAKERS - GOVERNMENT	DECISION MAKERS - NON-GOVERNMENT	ACCOUNTANTS	CHURCH LEADERS	MEDIA PERSONNEL	LAWYERS	TOTALS
TOTAL IN SAMPLE	90	75	50	32	33	30	30	30	30	400
AGE										
0-19	2	0	0	0	0	0	0	0	0	2
20-34	38	4	50	1	2	4	3	6	9	118
35-50	33	48	0	20	17	21	15	23	16	193
50-65	12	23	0	11	14	5	12	1	5	83
over 65	5	0	0	1	0	0	0	0	0	6
GENDER										
Male	42	59	23	21	29	23	27	17	21	263
Female	48	16	27	11	4	7	3	13	9	137
LOCATION										
Kitchener	48	37	0	18	16	20	18	20	17	194
Waterloo	42	38	50	11	17	10	12	10	13	203
INCOME										
less than \$30,000	18	1	30	1	1	0	1	0	2	54
\$30,000 to \$50,000	23	5	3	2	1	1	8	3	0	46
\$50,000 to \$70,000	23	10	1	8	4	3	11	9	1	70
\$70,000 to \$90,000	7	15	0	4	6	8	5	8	7	60
over \$90,000	9	27	2	15	19	16	3	8	19	118
EDUCATION										
less than high school	10	5	0	0	1	0	0	0	0	16
high school grad	26	20	0	4	2	0	2	6	0	60
college grad	18	8	0	7	5	2	0	5	0	45
trade or profession	4	11	0	1	5	2	1	2	0	26
university grad	20	22	50	13	7	8	4	13	1	88
post graduate	12	8	0	7	11	18	23	4	29	113

APPENDIX C
DERIVATION OF STANDARD DEVIATION
CLASSIFICATIONS

This Appendix features a range of observation frequency tables (each with 30 observations) which could be used to produce generic shaped bar graphs. In each case the related bar graph could be produced by arranging the numerical value of the observation along an “x-axis” and the frequency of observations along the “y-axis.” Since these bar graphs would exactly duplicate the “shape” of the frequency the actual graphs have been omitted for brevity’s sake. For each table, a weighted average and a standard deviation is calculated by multiplying the frequency with the numeric value of the observation. The purpose is to explore the usefulness of numerical average and standard deviation of the results as indicators of the type and strength of results which could otherwise be described by a bar graph.

Table #1 - Average near centre in range of responses, weak central tendency

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	2	6.7
Agree Moderately	2	5	16.7
Agree Weakly	3	7	23.3
Disagree Weakly	4	8	26.7
Disagree Moderately	5	5	16.7
Disagree Strongly	6	3	10.0
	Average	3.6	Standard Deviation 1.4

Table #2 - Average near centre in range of responses, moderate central tendency

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	1	3.3
Agree Moderately	2	5	16.7
Agree Weakly	3	9	30.0
Disagree Weakly	4	10	33.3
Disagree Moderately	5	4	13.3
Disagree Strongly	6	1	3.3
	Average	3.47	Standard Deviation 1.14

Table #3 - Average near centre in range of responses, strong central tendency.

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	1	3.3
Agree Moderately	2	3	10.0
Agree Weakly	3	12	40.0
Disagree Weakly	4	11	36.7
Disagree Moderately	5	2	6.7
Disagree Strongly	6	1	3.3
	Average	3.43	Standard Deviation 1.01

Table #4 - Average near extremity in range of responses, weak central tendency

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	8	26.7
Agree Moderately	2	9	30.0
Agree Weakly	3	6	20.0
Disagree Weakly	4	4	13.3
Disagree Moderately	5	2	6.7
Disagree Strongly	6	1	3.3
	Average	2.53	Standard Deviation 1.38

Table #5 - Average near extremity in range of responses, moderate central tendency

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	8	26.7
Agree Moderately	2	10	33.3
Agree Weakly	3	6	20.0
Disagree Weakly	4	4	13.3

Disagree Moderately	5	2	6.7	
Disagree Strongly	6	0	0.0	
	Average	2.4	Standard Deviation	1.22

Table #6 - Average near extremity in range of responses, strong central tendency

Response	Numerical Value	Frequency	% Surveyed	
Agree Strongly	1	14	46.7	
Agree Moderately	2	9	30.0	
Agree Weakly	3	4	13.3	
Disagree Weakly	4	2	6.7	
Disagree Moderately	5	1	3.3	
Disagree Strongly	6	0	0.0	
	Average	1.9	Standard Deviation	1.09

Table #7 - Flat Graph

Response	Numerical Value	Frequency	% Surveyed	
Agree Strongly	1	5	16.7	
Agree Moderately	2	5	16.7	
Agree Weakly	3	5	16.7	
Disagree Weakly	4	5	16.7	
Disagree Moderately	5	5	16.7	
Disagree Strongly	6	5	16.7	
	Average	3.5	Standard Deviation	1.74

Table #8 - Bi-modal Tendency - centre/centre

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	5	16.7

Agree Moderately	2	6	20.0
Agree Weakly	3	4	13.3
Disagree Weakly	4	4	13.3
Disagree Moderately	5	6	20.0
Disagree Strongly	6	5	16.7
	Average	3.5	Standard Deviation 1.78

Table #9 - Bi-modal tendency, centre/extremity

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	7	23.3
Agree Moderately	2	4	13.3
Agree Weakly	3	4	13.3
Disagree Weakly	4	7	23.3
Disagree Moderately	5	4	13.3
Disagree Strongly	6	4	13.3
	Average	3.3	Standard Deviation 1.74

Table #10 - Bi-modal Tendency, extremity/extremity

Response	Numerical Value	Frequency	% Surveyed
Agree Strongly	1	7	23.3
Agree Moderately	2	5	16.7
Agree Weakly	3	3	10.0
Disagree Weakly	4	3	10.0
Disagree Moderately	5	5	16.7
Disagree Strongly	6	7	23.3
	Average	3.5	Standard Deviation 1.96

Examination of the above tables indicates that the numerical average in conjunction with the standard deviation can be useful as an indicator of the strength of the results obtained from the surveys. As the numerical average tends towards the extremity of the range of observations a standard deviation between 1.2 and 1.3 can be considered to give a fairly clear

result. However, as the numerical average tends towards the centre of the range of observations a standard deviation between 1.2 and 1.3 is less conclusive.

The following classifications for standard deviations are adopted for analysis purposes:

Standard deviation < 1.2 Clear indication (C)

Standard deviation $> 1.2 < 1.3$ In between

Standard deviation > 1.3 Soft result (S)

Standard deviation > 1.7 Tenancy to be bimodal

APPENDIX D
REPORT TO RESPONDENTS

Cover Letter

Dear

You will recall answering a telephone survey with me concerning economic, environmental and social issues. Of the people surveyed, 99% think modern society faces economic, environmental and social problems. Approximately 65% think the problems are serious enough to be called crises and 84% have agreed to continue their participation in my ongoing research.

This correspondence is my reply to the 84%. Included are four things: a description of the research, a report of the results of the telephone survey and the written, mail-in survey, based on the results of the telephone survey. The fourth is a page of background notes about myself and statement of how I am funding the research.

The written mail-in survey is designed to yield results which will give guidance to anyone interested in how change in attitude and behaviour with respect to sustainable development can be promoted and encouraged. If you are short of time, I would appreciate it if you would go straight to the mail-in survey and send it back to me as soon as possible. It is not necessary to read the other material before completing the mail-in survey, although you may find it very interesting. I did!

Thank you so much for doing the telephone survey, for being interested, and for being willing to participate in the on-going research. I am especially pleased by the large number of people who want to remain involved with the research and are interested in the results. The positive responses from so many of you means a great deal to me. I look forward to receiving your completed survey.

Sincerely

Description of Research

(Reviewed and approved by the University of Waterloo, Office of Research)

John Maskell, PhD Candidate, Faculty of Environmental Studies

"Humanity has the ability to make development sustainable; to ensure it meets the needs of the present without compromising the ability of future generations to meet their own needs. (p8) It is not a fixed state of harmony, but rather a process of change. (p9) No single blueprint of sustainability will be found. . . . Each nation will have to work out its own concrete policy implications (p40). . . . Without reorientation of attitudes and emphasis little can be achieved. We have no illusions about quick fix solutions. (p309) The transition to sustainable development will require a range of public policy choices that are inherently complex and politically difficult. Reversing unsustainable policies will require immense efforts to inform the public and secure its support. (p326) To achieve the goals of sustainable development involves very large changes in attitude, (p335).

Gro Harlem Brundtland,
Report of the World
Commission on Environment
and Development(1987)

The realization is becoming common that society faces difficult choices for everyone, even the privileged, with respect to tradeoffs among economic, environmental and social issues. Some scholars have suggested that if society is to resolve potential crises, there have to be changes in the values and attitudes which motivate and shape society. This research concerns the attitudes we should change from and those we should change towards.

The research is based on several assertions which are presented below, following which is a Table of From To Attitude changes. The Telephone survey, which 400 people responded to, was designed to get people's first response to these prospective changes and thereby provide a measure of inclination for change. Its analysis is attached. The written survey is based on the results of the telephone survey. It is designed to investigate in more detail the changes indicated in the telephone survey. (If you are short of time, please go directly to the mail-in survey)

Approach

Traditionally the process of scholarly and scientific research is proclaimed to be objective. It becomes increasingly narrow, focussed and detailed as extraneous considerations are rejected. It is seen by some to be more and more interesting to fewer and fewer people and less and less relevant to more and more people. It is an exclusive process referred to as being reductionist.

I have chosen not to adopt this approach for several reasons. I believe the topic of sustainable development is wholistic and needs to be treated with wholistic sensitivity. My research

concerns values and attitudes and therefore, inherently, many people; I want it to be relevant and interesting to many people. Values and attitudes are subjective -- so subjective that they become deeply embedded in people's psyche and are regarded as part of their "human nature." They become accepted without question as "given." Values and attitudes are general in nature. When they are exposed to increasingly narrow, focused and detailed study, they tend to dissolve into differing opinions. I believe many of the difficulties and crises society is facing are the result of reductionist thinking. One cannot easily resolve problems with the same order of thinking which caused the problems in the first place. Reductionist problems may be best resolved with a wholistic approach.

Underlying Assertions Regarding Sustainable Development.

1. Society is facing increasing difficulties, even crises, as a result of its own impact on the economic, natural and social environments within which it must operate. This is a result of human behaviour which flows from values and attitudes with deep roots in society. Values, attitudes and their related behaviour need to be questioned by society in a complementary process of both leadership and followership.
2. Unless people individually and collectively change their values and attitudes, their behaviour remains essentially the same except perhaps with respect to degree. It may be arguable which begins to change first, values, attitudes or behaviour. But if values and attitudes don't change, behaviour won't either.
3. Global economic, political and social systems are driven and constrained primarily by the demands and expectations of the Western Industrial marketplace, i.e., the urban systems of Europe, North America and parts of the Pacific Rim, notably, Japan. Sustainable development initiatives which may be contemplated in any part of the world but are not demanded, or at least sanctioned, by the industrial world's urban market place will not happen at all, or will happen partially, slowly and with great difficulty.
4. The values, attitudes and behaviour which shape industrial society are interconnected and interlocked. It is not important what changes first. It may be quite different in different times and places. What matters is that values, attitudes and behaviours change. When some changes happen, others will follow.
5. Kitchener/Waterloo is as good an example of an industrial World urban system as any within which to develop a process for studying the inclination for attitudinal change and encouraging it to happen.

CHANGING FROM / CHANGING TO

Beginning with this set of assertions a list was made of the values and attitudes which seem to have motivated Western Industrial Society for the past two or three centuries. It is logical to accept that these are the values and attitudes which have propelled society into its present

state -- for better or for worse. If the result is difficulties and crises instead of the utopia people hoped for, it is also logical to accept that changes are needed from this first list of values and attitudes to some other list of values and attitudes. A second list was composed by proposing an opposite, or complement, to the items on the first list. These lists are presented as the FROM/TO Table of Attitudinal Change.

Using the FROM/TO Table, a neutral statement about each of the entries in the table was written. The Rights/Responsibilities were combined into three comparative statements. The statements were then disorganized into random order to minimize their influence on each other in the minds of the respondents. Respondents were asked to what extent they agreed or disagreed with the statements both for the present and for the future.

Several general questions were posed to establish whether or not there is a perception of difficulties or crises. Sustainable development is defined in the Brundtland Commission Report as development which meets the needs of the present without compromising the ability of future generations to meet their own needs. It refers to challenges of economic, environmental and social development. Respondents were also asked if they had heard of the term, and if it has meaning to them. They were not asked to define it.

FROM/TO TABLE of VALUES and ATTITUDES CHANGE

FROM	TO
1a Competition; self interest	1b Co-operation; Common interest
2a Economic Growth	2b Economic, environmental and social balance.
3a Urgency, busy-ness and a degree of intolerance.	3b Patience.
4a Dominance over nature.	4b Harmony with nature.
5a Individual more important than collective rights.	5b Collective more important than individual rights.
6a Rights more important than Responsibilities (individ)	6b Responsibilities more important than Rights(individ)
7a Rights more important than Responsibilities (Collect)	7b Responsibilities more important than Rights(collect)
8a Consume Resources.	8b Conserve resources.
9a Dump Waste.	9b Reduce, Re-use, Recycle.
10a Profit means surplus of money.	10b Profit means quality of life eg surplus time and energy.
11a Accumulate material assets. (save and protect one's own)	11b Share the wealth.
12a Image is important. OK to bend the truth.	12b Honesty is important.
13a Management by control.	13b Management by encouragement.

Results of the Telephone Survey

This survey was conducted as a telephone survey in order to get respondents first reaction rather than an argued or considered opinion. Each respondent was told that they had been selected randomly from a particular sector of the community and were asked to respond in a personal capacity. The surveys were conducted between February and July, 1994.

In keeping with the assertions presented above, the sectors to be surveyed were chosen for their relationship to the urban market place. The general public (random selection from the phone book) was taken to represent the urban market place itself. The Independent Business sector (random selection from the Chamber of Commerce directory), being businesses which are relatively small and locally owned, was deemed to represent the business sector which is most easily responsive to local urban market conditions. The two Decision-Maker sectors, non-government and government, were taken to represent those people who make decisions on behalf of large numbers of people and with respect to considerations far beyond the local urban market place i.e. regional, provincial, national and international. Four professional categories, accountants, lawyers, media and church leaders, were selected as professions which influence, in a general way, how people act and react in the urban market place. The students were deemed to represent those people who are at the threshold of leaving home and taking their place in society as tomorrow's consumers, voters, professionals and decision makers.

The nine sectors surveyed were:

	Sample
General Public (GP -randomly from the phone book)	90
Independent Business (IB -C of C directory)	75
Students (ST - University of Waterloo directory)	50
Decision Makers (DM-Gov -elected & senior staff)	32
Decision Makers (DM-NonGov -executives of large employers and unions)	33
Influencing Professions:	
Accountants (I-Acc)	30
Lawyers (I-Law)	30
Church Leaders (I-Ch)	30
Media personalities (I-M)	<u>30</u>
Total interviewed	400

The response ratio for all sectors surveyed, other than the general public, was very high. With minor variations 95% of the non-general-public people approached agreed to do the telephone survey: (IB 97.4%; ST 98%; DMgov 97%; Dmnongov 94.3%; Acc 88%; Law 88%; Media 96.7%; CH 93.7%.) For the general public, 458 people were approached between 7:00 pm and 9.30 pm by random selection from the telephone book. Of these, 44%

were answering machines, busy or no answer¹ and 56% yielded a live answer. Of the live answers 40% were men and 60% were women. Of the men, 43% agreed to do the survey. Only 31% of the women agreed to do the survey. Overall, 35% of the general public approached agreed to do the survey.

The results are printed in the following chart and tables. The chart shows the overall propensity for values change for all sectors combined. The first Table presents the results of the general questions; the second table presents the results of the attitudes statements and shows all sectors comparatively.

Results for the general questions indicate that 99-100% of the respondents think society faces environmental and economic and social difficulties. Approximately 65% of the people surveyed think these problems are serious enough to be called crises, specifically 62%, 70% and 65% respectively for economic, environmental and social crises. Church leaders are most aware of all three categories of crisis. Government decision makers are least aware of economic crises, non-government decision makers are least aware of environmental crises and lawyers are least aware of social crises. Government decision makers are most aware of sustainable development. The general public is least aware and the gap between these two is large.

For the attitudinal statements, as well as the nine categories surveyed, nineteen further categories were analysed: male, female, Kitchener, Waterloo, five income groups, six educational groups and four age groups. In all cases, except two, change was indicated away from the FROM values and towards the TO values. In the economic growth category, Independent Business and Accountants indicated slightly higher agreement in favour of economic growth in the future than in the present. These are the only two cases of reversal from the norm. The overall change for "save and protect" and "economic growth" categories was marginal. In all other categories it was significant, and in some cases, quite strong. The results were fairly consistent across the 13 categories analysed.

Several interesting indications emerge. Media and Church Leaders show the greatest awareness of needed change. Students, Independent Business, non-government Decision Makers and accountants show the least. The general public registered the greatest awareness in the need for change in honesty. The survey shows a wide variance in awareness of the concept of sustainable development and a fairly high propensity for changes of attitude with respect to sustainable development issues whether or not the concept is familiar.

¹ When any of "answering machine", "busy" or "no answer" were encountered for the non-general public surveys additional follow up attempts were made until the prospective respondent either refused or participated in the survey. In the case of the general public, no additional follow up attempts were made. Instead, the next random selection was made.

Background of the Researcher

As a young engineering graduate I attended the United Nations Conference on the Human Environment (UNCHE) in Stockholm, 1972. It was an experience of local and global awareness of environmental issues. It affected me fundamentally and has influenced all the rest of my career.

I come to the role of graduate student and research scholar from 20 years of various work experience in engineering, construction, entrepreneurship, business consulting and most recently, economic development for which I am professionally qualified and hold a Master's Degree.

This research is inspired by my work experience, my long term concern for environmental issues and my professional focus. It is not funded by the university or by any form of government or corporate grants. So far this research, and my living expenses, have been funded entirely by my own savings and earned income. Recently I have launched a seasonal home business to help defray the costs.

APPENDIX E
STATISTICAL ANALYSES

APPENDIX E

statistical analyses

For most statistical tests in this research, the Chi-square nonparametric test was used. The null hypothesis (N_0) of the Chi-square test is that there is no significant difference between the observed frequency counts of the groups being tested; that whatever variance is encountered in frequency of observations is entirely due to chance and sampling error. In this appendix there are examples of the Chi-square test procedures as applied to the data in Table 3 and Table 4, and t-tail test procedures applied to the data in Table 7 as an example of its use in Tables 7 - 18. In Table 3 the data pertained to yes/no answer questions, which produced a Chi-square test concerning multiple samples of two independent variables. The Chi-square test was used in two different ways. The first use was to test whether or not there were significant differences among the groups being tested. The second use was to discern, by additional Chi-square testing, which sub-set(s) of the original data caused the significant difference and which sub-sets contained no differences. In Table 4 the data pertained to multiple choice questions (i.e., 1 to 6) which produced Chi-square tests concerning multiple samples of multiple independent variables. The two-step procedure of Chi-square testing an original data array, and subsequently subsets of the same original data array, was also used in testing the data of Table 4, and some other elements of the data throughout the remainder of the research.

The analysis with respect to ranking in Table 7 is an example of using the t-tail test to develop a statistical ranking of the elements in the list of results (in this case, the potential choices of waste elements with respect to the 3Rs). The Null Hypothesis of the t-tail test is that there is no significant difference between the means and standard deviations of the two samples being tested, i.e., that the samples are drawn from the same, or identical populations. In this procedure, the average and standard deviation for pairs of results were compared, using the t-tail test, beginning with the first item and moving down the list until the t-tail calculation revealed the necessity to reject the Null Hypothesis, thus indicating the beginning and the end of a rank, or category of the list. The average and standard deviation for the next item in the list became the first of a new pair and the procedure was repeated down the list until the next t-tail calculation revealing a significant difference identified the beginning of the next rank. This ranking procedure was used for Tables 7 through 18.

Chi Squared analysis with respect to contents of Table 3

GROUP	QUESTION	CHI-sq	dF	CRITICAL	REJECT
Economic, environmental, social problems, self evident					
9 Sectors					
	Economic crisis	12.59	8	20.09	no
	Environmental crisis	24.48	8	20.09	yes
	(Excl. NON	15.31	7	18.48	no)
	(Check NON against all others	7.20	1	6.64	yes)
	Social crisis	16.78	8	20.09	no
Male/Female					
	Economic crisis	1.21	1	6.64	no
	Environmental crisis	8.14	1	6.64	yes
	Social crisis	3.08	1	6.64	no
Kitchener/Waterloo					
	Economic crisis	0.07	1	6.64	no
	Environmental crisis	1.49	1	6.64	no
	Social crisis	1.98	1	6.64	no
Income					
	Economic crisis	5.76	4	13.28	no
	Environmental crisis	1.80	4	13.28	no
	Social crisis	7.66	4	13.28	no
Education					
	Economic crisis	5.55	5	15.09	no
	Environmental crisis	3.81	5	15.09	no
	Social crisis	7.57	5	15.09	no
Age					
	Economic crisis	4.66	3	11.34	no
	Environmental crisis	7.38	3	11.34	no
	Social crisis	1.55	3	11.34	no
9 Sectors					
	Heard of SD	60.10	8	20.09	yes
	(incl. Gov, Med, Law	4.52	2	9.21	no)
	(Incl. IB, St, NonG, Acc, Ch	4.08	3	11.34	no)
	(Check GP against other 2 groups	54.11	2	9.21	yes)
	SD has meaning	48.49	8	20.09	yes
	(Incl. IB, St, NonG, Acc,	7.85	6	16.81	no)
	Ch, Med, Law,)	40.59	2	9.21	yes)
Male/Female					
	Heard of SD	14.13	1	6.64	yes
	SD has meaning	9.20	1	6.64	yes
Kitchener/Waterloo					
	Heard of SD	0.20	1	6.64	no
	SD has meaning	0.69	1	6.64	no
Income					
	Heard of SD	34.27	4	13.28	yes
	(Less \$30, \$30-\$50	.80	1	6.64	no)
	(\$50-\$70, \$70-\$90	.12	1	6.64	no)
	(Check >\$90 against other 2 groups	33.39	2	9.21	yes)

GROUP	QUESTION	CHI-sq	dF	CRITICAL	REJECT
	SD has meaning	28.07	4	13.28	yes
	(Less \$30, \$30-\$50)	.73	1	6.64	no)
	(\$50-\$70, \$70-\$90)	.077	1	6.64	no)
	(Check >\$90 against other 2 groups	27.85	2	9.21	yes)
Education					
	Heard of SD	53.45	4	13.28	yes
	(Incl. HS, Coll, Tr or Prof.	0.62	2	9.21	no)
	(Incl. U.Grad, Post Grad	0.28	1	6.64	no)
	(Check <HS against other 2 groups	56.13	2	9.21	yes)
	SD has meaning	54.53	4	13.28	yes
	(Incl. HS, Coll, Tr or Prof.	1.61	2	9.21	no)
	(Incl. U.Grad, Post Grad	0.02	1	6.64	no)
	(Check <HS against other 2 groups	54.26	2	9.21	yes)
Age					
	Heard of SD	12.56	3	11.34	yes
	(Excl 20-34	2.25	2	9.21	no)
	(Check 20-34 against allothers	10.41	1	6.64	yes)
	SD has meaning	5.87	3	11.34	no

Abbreviations

incl = include, excl = exclude GP = General Public ST = Students
 IB = Independent Business GOV = Government Decision Makers
 NON = Non-government Decision Makers Acc = Accountants CH = Church Leaders
 MED = Media people LAW = Lawyers HS = Highschool
 Coll = College Tr or Prof = Trade or Profession

Chi Squared analysis with respect to contents of Table 4

GROUPS TESTED		Differences among nine vocational sectors - now(n) and in future(f).			
QUESTION		CHI-sq	dF	CRITICAL	REJECT
Competition	n	1.99	8	20.09	no
	f	31.95	16	32.00	no
Cooperation	n	18.15	16	32.00	no
	f	12.12	8	20.09	no
Econ Growth	n	19.23	8	20.09	no
	f	47.40	16	32.00	yes
(excl CH		33.94	21	38.93	no)
(Check CH against all others		27.31	1	6.64	yes)
Balance	n	18.52	16	32.00	no
	f	12.93	8	20.09	no
Urgency	n	27.45	16	32.00	no
	f	14.42	16	32.00	no
Patience	n	18.31	24	42.98	no
	f	28.81	8	20.09	yes
(Excl GP		15.91	7	18.48	no)
(Check GP against all others		19.09	2	9.21	yes)
Dominance	n	17.93	16	32.00	no
	f	20.18	16	32.00	no
Harmony	n	23.75	16	32.00	no
	f	10.68	8	20.09	no
Ind/coll rights	n	36.58	16	32.00	yes
	(Excl St & Med	20.26	12	26.22	no)
(Check against all others		21.21	5	15.09	yes)
	f	29.80	16	32.00	no
Ind rights/ responsibility	n	7.22	8	20.09	no
	f	29.23	8	20.09	yes
(Excl St		13.71	7	18.48	no)
(Check St against all others		36.42	3	11.34	yes)
Coll rights/ responsibility	n	15.98	24	42.98	no
	f	34.05	16	32.00	yes
(Excl Med		19.78	14	28.14	no)
(Check Med against all others		11.76	1	6.64	yes)
Consumption	n	26.80	16	32.00	no
	f	30.10	8	20.09	yes
(Excl St		14.41	7	18.48	no)
(Check St against all others		10.55	1	6.64	yes)
Conservation	n	28.07	24	42.98	no
	f	6.21	8	20.09	no
Dump	n	10.44	8	20.09	no
	f	12.04	8	20.09	no
3Rs	n	55.18	16	32.00	yes
	(Excl GOV, NON & Law	20.56	10	23.21	no)
(Check against all others		24.33	2	9.21	yes)
	f	17.41	8	20.09	no
Profit = \$	n	19.31	8	20.09	no
	f	60.97	16	32.00	yes
(Excl IB		27.03	14	29.14	no)
(Check against all others		13.22	1	6.64	yes)

QUESTION		CHI-sq	dF	CRITICAL	REJECT
Profit = Quality	n	40.46	16	32.00	yes
(Excl Acc		22.04	14	29.14	no)
(Check against all others		16.23	1	6.64	yes)
	f	23.81	16	32.00	no
Accumulate	n	32.92	16	32.00	yes
(Excl IB		14.35	14	29.14	no)
(Check against all others		26.73	3	11.34	yes)
	f	30.66	16	32.00	no
Share	n	22.77	16	32.00	no
	f	36.11	8	20.09	yes
(Excl CH		9.57	7	18.48	no)
(Check against all others		27.54	1	6.64	yes)
Image	n	34.04	16	32.00	yes
(Excl NON		9.38	8	20.09	no)
(Check against all others		10.94	1	6.64	yes)
	f	41.88	16	32.00	yes
(Excl ST		13.13	14	29.14	no)
(Check against all others		31.56	3	11.34	yes)
Honesty	n	56.35	16	32.00	yes
(Excl. GP, ST & NON		19.65	10	23.21	no)
(Incl. GP, ST &NON		7.52	2	9.21	no)
(Check 2 groups		16.19	1	6.64	yes)
	f	15.18	8	20.09	no
Control	n	37.37	16	32.00	yes
(Excl Med		16.49	14	29.14	no)
(Check against all others		17.26	1	6.64	yes)
	f	38.29	16	32.00	yes
(Excl Med		23.61	14	29.14	no)
(Check against all others		11.36	1	6.64	yes)
Encourage	n	27.48	16	32.00	no
	f	19.08	8	20.09	no

Chi Squared analysis with respect to contents of Table 4 (continued)

GROUPS TESTED	QUESTION	Differences among 'All Respondents' between now (n) and the future (f).			
		CHI-sq	dF	CRITICAL	REJECT
	Competition	348.91	4	13.28	yes
	Cooperation	456.13	3	11.34	yes
	Econ Growth	49.78	5	15.09	yes
	Balance	436.35	5	15.09	yes
	Urgency	179.53	5	15.09	yes
	Patience	643.64	4	13.28	yes

QUESTION		CHI-sq	dF	CRITICAL	REJECT
Dominance	n	438.5	5	15.09	yes
	f				
Harmony	n	558.12	5	15.09	yes
	f				
Ind/coll rights	n	156.02	5	15.09	yes
	f				
Ind rights/ responsibility	n	505.31	5	15.09	yes
	f				
Coll rights/ responsibility	n	342.53	5	15.09	yes
	f				
Consumption	n	612.63	5	15.09	yes
	f				
Conservation	n	642.68	3	11.34	yes
	f				
Dump	n	583.94	4	13.28	yes
	f				
3Rs	n	635.21	3	11.34	yes
	f				
Profit = \$	n	531.37	3	11.34	yes
	f				
Profit = quality	n	231.62	5	15.09	yes
	f				
Accumulate	n	12.99	5	15.09	no
	f				
Share	n	424.88	5	15.09	yes
	f				
Image	n	532.64	5	15.09	yes
	f				
Honesty	n	491.63	2	9.21	yes
	f				
Control	n	391.5	5	15.09	yes
	f				
Encourage	n	423.93	5	15.09	yes
	f				

Chi Squared analysis with respect to contents of Table 4 (continued)

QUESTION TESTED	Accumulate Assets - differences from now to the future - details			
GROUPS	CHI-sq	dF	CRITICAL	REJECT
GP	4.97	4	13.28	no
IB	6.16	3	11.34	no
ST	21.3	2	9.21	yes
GOV	6.19	2	9.21	no
NON	1.51	2	9.21	no
ACC	1.82	3	11.34	no
CH	26.36	2	9.21	yes
MED	14.15	2	9.21	yes
LAW	7.23	2	9.21	no

GROUPS	CHI-sq	dF	CRITICAL	REJECT
Male	31.87	4	13.28	yes
Female	15.73	4	13.28	yes
Kitchener	15.31	4	13.28	yes
Waterloo	36.75	4	13.28	yes
Less \$30,000	16.47	3	11.34	yes
\$30 - \$50	5.65	2	11.34	no
\$50 - \$70	15.63	4	13.28	yes
\$50 - \$90	12.04	2	9.21	yes
Over \$90	12.62	4	13.28	no
HS/Coll	2.28	4	13.28	no
TR	2.89	2	9.21	no
Ugrad	34.63	3	11.34	yes
Post Grad	24.03	3	11.34	yes
age 20 - 34	32.25	3	11.34	yes
age 35 - 50	8.36	3	11.34	no
age 50 - 655	1.28	3	11.34	no

t-tail analysis with respect to ranking of Table 7

CATEGORIES	Ave	st-dev	t-test Calc	dF	CRIT @95%	Reject Null	RANK
Toxic residues	1.26	.69					1
Industrial chemicals	1.38	.72					1
Process water	1.41	.74	1.33	inf	1.96	no	1
Agricultural chemicals	1.49	.77	1.99	inf	1.96	yes	2
Process residues	1.50	.76					2
Combustion products	1.54	.84					2
Plastic packaging	1.61	.97					2
Pop/beer cans	1.68	.79					2
Metal packaging	1.73	.89	1.82	inf	1.96	no	2
Newsprint	1.84	.95	2.55	inf	1.96	yes	3
Glass bottles.	1.84	1.04					3
Cardboard	1.99	.93					3
Paper packaging	1.99	1.12					3
Cars, trucks, Automotive equip	2.04	.99					3
Sewage	2.05	1.23					3
Kitchen waste	2.09	1.26	1.42	inf	1.96	no	3
Heavy machinery	2.28	1.19	2.58	inf	1.96	yes	4
Yard waste	2.38	1.42					4
Light machinery	2.39	1.11					4
Home appliances	2.44	1.27					4
Clothing	2.63	1.22	1.83	inf	1.96	no	4
Furniture	2.74	1.27	2.36	inf	1.96	yes	5

APPENDIX F
LIST OF ALTERNATIVE TREATIES

Alternative Treaties:

Synergistic processes for Sustainable Communities and Global Responsibility

From the International NGO Forum
Rio de Janeiro, June 1-14, 1992

Declarations and General Principles

1. Peoples Earth Declaration
2. Rio de Janeiro Declaration
3. The Earth Charter
4. Ethical Commitments to Global Ecological Posture and Behaviour

Education, Communication and Co-operation

5. Treaty on Environmental Education for Sustainable Societies and Global Responsibility
6. Communication, Information, Media and Networking Treaty
7. Treaty for Non-governmental Organization Co-operation and Sharing of Resources
8. Treaty on a Technology Bank Solidarity System for Technological Exchange
9. Rio Framework Treaty on NGO Global Decision Making
10. Code of Conduct for NGOs

Alternative Economic Issues

11. Treaty on Alternative Economic Models
12. Alternative Treaty on Trade and Sustainable Development
13. Debt Treaty
14. Treaty of the People of the Americas
15. Capital Flight and Corruption Treaty
16. Treaty on Transnational Corporation: Democratic Regulation of Their Conduct.

Consumption, Poverty, Food and Subsistence

17. Treaty on Consumption and Lifestyle
18. Poverty Treaty
19. Food Security Treaty
20. Sustainable Agriculture Treaty
21. Fresh Water Treaty
22. Fisheries Treaty

Climate, Energy and Waste

23. Alternative non-government Agreement on Climate Change
24. Treaty on Energy
25. Treaty on Waste
26. Treaty on the Nuclear Problem

Land and Natural Resources

27. Forest Treaty
28. Treaty Regarding Arid and Semi-Arid Zones
29. Treaty on "Cerrados" (Scrubland)

Marine and Ocean Issues

30. Pollution of the Marine Environment
31. Minimizing Physical Alteration of Marine Ecosystems
32. Protecting the Sea from Global Atmospheric Changes
33. Marine Protected Areas
34. Resolution Concerning Guanabara Bay: Humankind's Heritage

Biodiversity and Biotechnology

35. Citizen's Commitments on Biodiversity
36. Marine Biodiversity Treaty
37. Draft Protocol on Scientific Research Components for the
Conservation of Biodiversity
38. Citizen's Commitments on Biotechnology

Cross-Sectoral Issues

39. Global Women's Treaty for NGOs Seeking a Just and Healthy Planet
40. Treaty on Population, Environment and Development
41. Youth Treaty
42. Treaty in Defence and Protection of Children and Adolescents
43. International Treaty between NGOs and Indigenous Peoples
44. Treaty Against Racism
45. Treaty on Militarism, the Environment and Development
46. Treaty on Urbanization

APPENDIX G
FULL TEXT OF SPEECH BY
SEVERN CULLIS SUZUKI

APPENDIX G
FULL TEXT OF SPEECH BY
SEVERN CULLIS SUZUKI

As delivered to the Plenary of World Leaders at the Earth Summit

(Note: This speech was given by Severn Cullis Suzuki, a 12 year old girl , at a plenary session of the Earth Summit in Rio Centro, Brazil. She received a standing ovation. One seasoned journalist reported that not a dry eye remained in the room when she had finished.)

Hello, I'm Severn Suzuki speaking for E.C.O. ~ The Environmental Children's Organization. We are a group of four 12 and 13 year olds from Canada trying to make a difference: Vanassa Suttic, Morgan Geisler, Michelle Quigg and me. We raised all the money ourselves to come six thousand miles to tell you adults that you must change your ways.

Coming up here today I have no hidden agenda. I am fighting for my future. Losing my future is not like losing an election or a few points on the stock market.

I am here to speak for all generations yet to come. I am here to speak for the starving children around the world whose cries go unheard. I am here to speak for the countless animals dying across the planet ~ because they have no where to go.

We can't afford not to be heard. I'm afraid to go out in the sun now because of the holes in the ozone. I'm afraid to breathe the air because I don't know what chemicals are in it. I used to go fishing in Vancouver with my dad until just a few years ago when we found the fish full of cancers. And now we hear about animals and plants going extinct everyday ~ vanishing for ever.

In my life I have dreamt of seeing great herds of wild animals, jungles and rainforests full of birds and butterflies, but now I wonder if they will even exist for my children to see.

Did you have to worry about these things when you were my age?

All this has happened before our eyes and yet we act as if we have all the time and all the solutions. I'm only a child and I don't have all the solutions, but I want you to realize, neither do you! You don't know how to fix the holes in our ozone layer. You don't know how to bring salmon back up a dead stream. You don't know how to bring back an animal now extinct. And you can't bring back the forests that once grew where there is now desert.

If you don't know how to fix it, please stop breaking it.

Here, you may be delegates of your government, business people, organizers, reporters or politicians ~ but really you are mothers and fathers, brothers and sisters, aunts and uncles ~ and all of you are somebody's child.

I'm only a child, yet I know that we are all part of a family, five billion strong, in fact, 30 billion species strong and we all share the same air, water and soil ~ borders and governments will never change that. I'm only a child, yet I know that we are all in this together and should act as one single body towards one single goal.

In my anger I am not blind, and in my fear I am not afraid to tell the world how I feel.

In my country we make so much waste; we buy and throw away, buy and through away, and yet northern countries will not share with the needy. Even when we have more than enough, we are afraid to lose some of our wealth; afraid to share.

In Canada we live the privileged life with plenty of food, water and shelter. We have watches, bicycles, computers and television sets.

Two days ago, here in Brazil, we were shocked when we spent time with some children living on the streets. This is what one child told us: "I wish I was rich, and if I were I would give all the street children food, clothes, medicine, shelter, love and affection." If a child on the street who has nothing is willing to share, why are we who have everything still so greedy?

I can't stop thinking that these children are my age; that it makes a tremendous difference where you are born; that I could be one of those children living in the favellas of Rio; I could be a child starving in Somalia, a victim of war in the Middle East, or a beggar in India.

I'm only a child and yet I know that if all the money spent on war was spent on ending poverty and finding environmental answers, what a wonderful place this earth would be!

At school, even in kindergarten, you teach us to behave in the world. You teach us:

- * not to fight with others,
- * to work things out,
- * to respect others,
- * to clean up our mess,
- * not to hurt other creatures,
- * to share ~ not to be greedy.

Then why do you go out and do the things you tell us not to do?

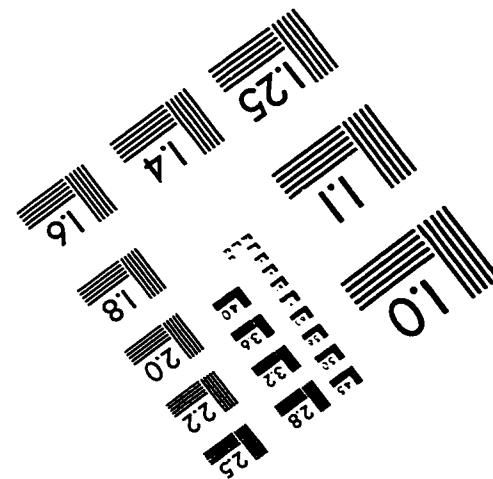
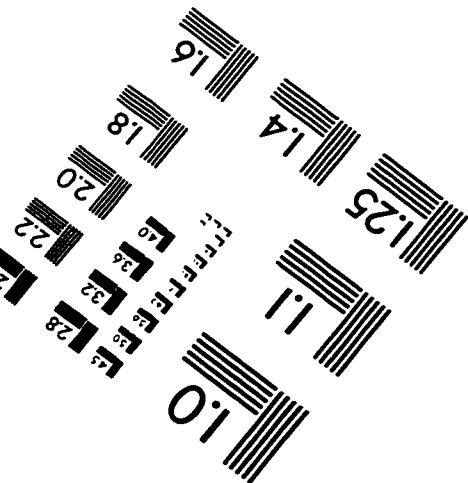
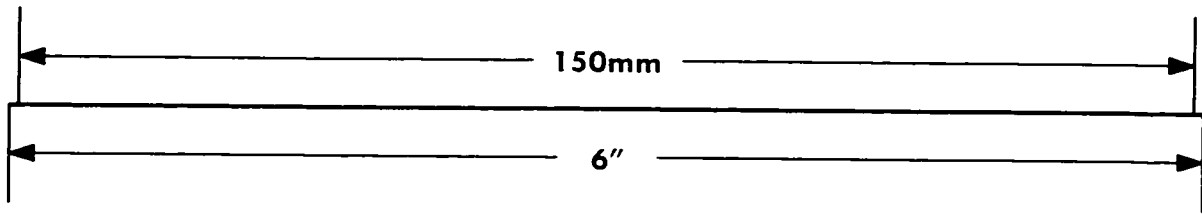
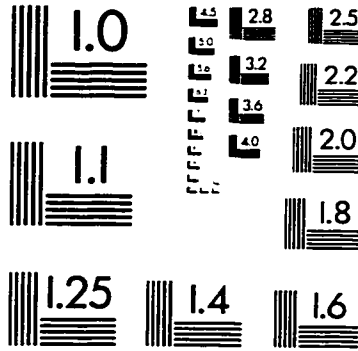
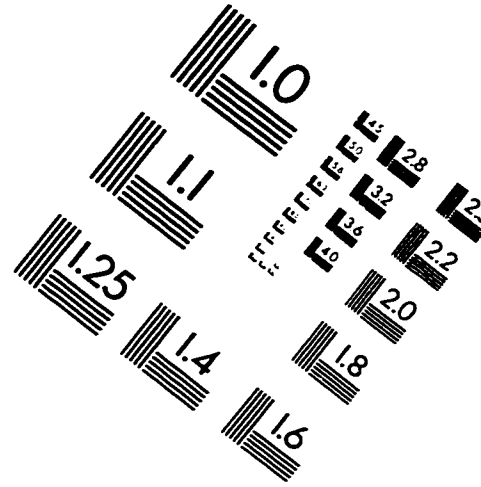
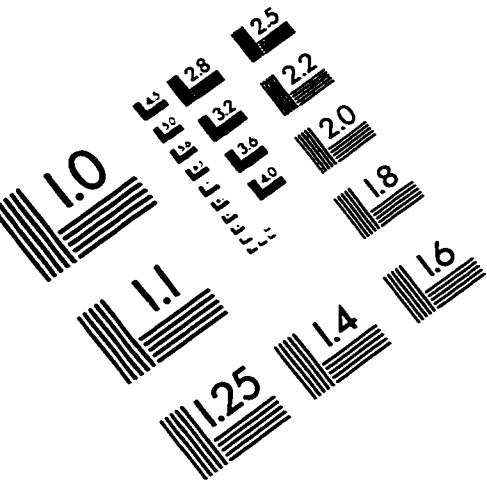
Do not forget when you are attending these conferences, who you are doing this for ~ we are your own children. You are deciding what kind of world we will grow up in.

Parents should be able to comfort their children by saying, "everything's going to be all right", "we're doing the best we can" and "it's not the end of the world." But I don't think you can say that to us anymore. Are we even on your list of priorities?

My Dad always says, "you are what you do, not what you say." Well, what you do makes me cry at night. You grown ups say you love us. I challenge you, please, make your actions fit your words.

Thank you for listening.

IMAGE EVALUATION TEST TARGET (QA-3)



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