

Environmental Perceptions and Knowledge
among Political Leaders in the
Eastern Cape Province and Some Implications
for Environmental Policy

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ABSTRACT

The environmental and development challenges facing South Africa are closely linked with the political and economic inequalities of the past. The achievement of sustainable development will require social and political change. Protection and conservation of the environment, improving environmental knowledge and understanding, the participation of all citizens, effective environmental management, inclusive and implementable policies and legislation, are all necessary components of sustainable development. These requirements are in line with the Rio Declaration on Environment and Development and Agenda 21, a programme of action coming out of the United Nations Conference on Environment and Development (UNCED 1992)

This study explores the environmental perceptions and knowledge of some representative Eastern Cape political leaders. The aim of the study was to share views on environmental issues, concerns and strategies that might lead to improved environmental understanding, informed policy change and effective environmental management. Different environmental ideologies were also explored because of the political and ideological nature of the concepts 'environment' and 'education'.

Data was collected from semi-structured interviews undertaken with ten political leaders in the Eastern Cape Province Legislature. The study revealed a general awareness and understanding of environmental issues with unsupported in-depth knowledge and detailed information. The political, development, social and economic dimensions of the environment were emphasised more than the ecological and physical aspects. The need for environmental information, policies and legislation was recognised. Both formal and non-formal environmental education were emphasised. The need to redefine

environmental education and make it more relevant, problem solving and action oriented was also emphasised. The challenge is to improve environmental understanding and making environmental information available to political leaders, government officials and citizens in general.

ACRONYMS USED IN THE STUDY

ANC	African National Congress
CNE	Christian National Education
COSATU	Congress for South African Trade Unions
DEAT	Department of Environment Affairs and Tourism
EE	Environmental Education
IDRC	International Development Research Centre
IUCN	World Conservation Union
GNP	Gross National Product
NIC	Newly Industrialised Countries
NGO	Non-Governmental Organisation
MEC	Member of Executive Council- Provincial equivalent to national cabinet minister
RDP	Reconstruction and Development Programme
SANCO	South African National Civic Organisation
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Science and Cultural Organisation
WCED	World Conference on Environment and Development
WHO	World Health Organisation
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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Chapter One

Introduction

Just as apartheid penetrated every aspect of South African life, so must the struggle against apartheid be all-pervasive; this struggle is first and foremost a battle for political rights, but it is also about the quality of life in a new South Africa. Apartheid not only degrades the inhabitants of our country, it degrades the earth, the air, and the streams. When we say *Mayibuye iAfrika*, come back Africa, we are calling for the return of the legal title, but also for restoration of the land, the forest, and the atmosphere; the greening of our country is basic to its healing.
(Sachs 1990:140)

1.1 Prologue

The study was initiated against the background of the historic political transformation that has taken place in South Africa since 1990. The researcher's involvement in the ANC Environment Desk in the Eastern Cape province stimulated her interest in exploring the environmental perceptions of new political leaders at a time when new policies are being developed. How political leaders see the environment is viewed as important in the transformation towards sustainable development.

According to Jones (1984), perceptions are important in the policy process because they condition the definitions of problems. In trying to clarify the concept "perception", Capra (1983:321) argues that responses to the environment are determined not so much by the direct effect of external stimuli on our biological system, as by our past experience, our expectations, our purposes, and the individual symbolic interpretation of our perceptual experience. Thus it is important to account for the perceptions - and factors that influence those perceptions - of Eastern Cape political

leaders, as they form part of the country's policy-making elite.

The rationale for the study was influenced by three considerations. Firstly, given South Africa's political past, there is a need for ideological concepts like environment, environmental education and sustainable development to be critically debated as policies are being formulated. Redclift (1987:14), for example, argues that the notion of environment itself is a heavily contested area, even though much consensus may seem to surround the subject. Robottom (1987) also reminds us that environmental education concepts need to be contested and critically debated.

The study takes the view that one cannot talk meaningfully about environmental issues, about how to solve environmental problems or the role environmental education can play, without understanding the range of ideologies which underpin these issues and the perceptions which people have of them. In O'Riordan's (1981:3) view, environmentalism is as much an attitude of mind and a certain code of behaviour as an ideology. He argues that:

Environmentalism interacts with the social, economic and political conditions in which it finds itself, changing current paradigms of thought and action and at the same time resonating to its own successes and failures

The second reason for the study relates to the first. The new political dispensation provides an ideal opportunity to infuse the goal of sustainable development into future economic, environmental and social policies. Sustainable development requires social equity, environmentally sound economic development, conservation of biodiversity and protection of the environment. Wilson (1991:37) noted that the process causing ecological destruction will not be halted or reversed.

until those people enduring the environmental deterioration acquire the political power necessary to reshape government policy. Perceptions of environmental issues by new policymakers in the Eastern Cape province are therefore viewed as important by the researcher.

The third consideration is that the matter of environment, according to the new Constitution, is both a national and a provincial responsibility. The new political leaders in the Eastern Cape province are expected to put environmental considerations onto the agenda of policy formulation and the implementation of the Reconstruction and Development Programme.

To achieve this, a sound understanding of the complexity of environmental issues by political leaders and Members of the Executive Council (MECs - the provincial equivalent to national cabinet ministers) is, in the view and experience of the researcher, much needed. Appreciation of the political, economic, ecological and ethical nature of environmental issues, and understanding of the complex and apparently contradictory relationship between economic growth and sustainable development, would seem to be prerequisites, if informed and rational decisions about environmental issues are to be made. As Kelly (1990:23) notes, ignorance about the consequences of well intended action has been the cause of many current environmental problems.

The critical challenge facing the new provincial governments is to develop policies that meet the needs of the majority of people, by pursuing economic development while at the same time ensuring that future generations will continue to have the use of renewable natural resources such as clean air and water, soil, plants and wildlife. Cairncross (1991) points out that environmental policy poses challenges to government

because of the intersectoral nature of the concept 'environment'. Politicians, he adds, tend to compartmentalise issues.

In the researcher's view the process of developing new environmental policy including environmental education and the challenge of infusing environmental considerations into policies is not going to be easy. The study is a modest attempt to start a process of conscientising and sharing with political leaders the importance of integrating environmental considerations into decision making and policy formulation. The study also hopes to redefine and broaden the concepts 'environment' and 'environmental education' and to develop a theory and practice for environmental education with political leaders in the Eastern Cape province.

Developing a relevant environmental education and an implementable and inclusive environmental policy in the emerging democratic South Africa with its new provincial governments, is going to be critical for any form of sustainability. Huckle (1993) argues that the need for environmental education during any period of transition to environmental sustainability as proposed by Agenda 21, cannot be underestimated. As The World Commission on Environment and Development (WCED 1987) has noted:

If humanity does not succeed in putting a message of urgency through to today's decision makers, it risks undermining its children's fundamental right to a healthy life-enhancing environment.

1.2 Global Context

World-wide, the magnitude, ubiquity and urgency of global, regional and local environmental problems are gradually being recognised. Merchant (1992) points that there is a general consensus that the world of the late twentieth century is

experiencing a global ecological crisis, one that is both a product of past ecological, political and economic patterns and a challenge for the future. As a result, environmental problems and their solutions promise to be among the most critical issues facing the twenty-first century.

Increasingly, environmental problems are seen as first and foremost a social crisis. It is people, through their social, political and economic systems, who have created these problems and it is people, as much as nature, who suffer from them (Fien 1993a). Di Chiro (1987:24) argues that:

The environment is what surrounds us, materially and socially. We define it as such by use of our own individual and culturally imposed interpretive categories, and it exists as the environment at the moment we name it and imbue it with meaning. Therefore, the environment is not something that has reality totally outside or separate from ourselves and our social milieux.

While there is a large degree of international consensus about the presence of environmental problems, there are substantial disagreements over how environmental problems are defined, their causes, their degree of seriousness, who is responsible for solving them and what is the most appropriate and effective response to the problems (Di Chiro 1987:23).

Globally there is a growing realisation that both *laissez faire* capitalist and orthodox Marxist policies provide unsuitable theoretical underpinnings for an ecologically benign, sustainable society. As evidence of ecological degradation in Eastern Europe mounts, communism in practice is being increasingly regarded as an unmitigated disaster from the point of view of ecological sustainability (Eckersley 1992).

The deteriorating quality of aspects of the environment in

some highly industrialised areas of the West (O' Connor 1994) and some of the East and South-East Asian 'tigers' makes it increasingly difficult for uncurbed economic and technological growth to continue to enjoy the same blind trust it has received in recent decades (Merchant 1992).

Commenting on the Newly Industrialised Countries' (NICs) - Korea, Taiwan, Singapore and Hongkong - experience with economic development and environment, the World Resources Institute (WRI 1992) points out that they are 'not a model of sustainable development'. This claim is based on the observation that the growth in these countries was achieved at the expense of severe environmental degradation through economic exploitation, often in other countries as well as their own (Jong-Il 1995).

The debate and disagreements between representatives of industrial and developing countries at the United Nations Conference on Human Environment in Stockholm in 1972, and the United Nations Conference on Environment and Development (UNCED) in Rio in 1992, indicate the political, economic and ideological nature of environmental issues. Ward (1982) argues that for many of environmental problems, the difficulty is not to identify the remedy, because the remedy is now understood, the real problems are rooted deeply within the political structures of society.

1.3 South African Context

South Africa, being a microcosm of the environmental challenges facing humankind, cannot escape the global environmental debate and the challenges posed by local environment and development problems. Many of South Africa's environmental problems are linked to the social engineering process pursued by successive apartheid governments, which

EASTERN CAPE IN NATIONAL CONTEXT



FIGURE 1: MAP 1

ensured that there was skewed distribution of access to natural resources and wealth in general (Ramphela & McDowell 1991). In the process, traditional communities were also alienated from the land and their harmonious connections with the environment disturbed. Baugh (1990:97) argues that the human domination of nature stems from the human domination of other human beings, while Cock & Koch (1991) point out that environmental issues in South Africa are deeply political. The crisis is embedded in people's lack of access to power and resources and cannot be resolved until these underlying causes are addressed.

As a result, South Africa is faced with global problems such as acid rain and toxic waste as well as regional problems peculiar to our own biophysical, socio-political and historical circumstances (Irwin 1991). The environmental problems of the Eastern Cape province are closely linked with its past political and socio-economic history. Poverty, soil erosion, depletion of marine resources, unemployment, lack of access to natural resources, water and sanitation, poor infrastructure, particularly in the rural areas of the former homelands of Transkei and Ciskei are part of the urban and rural environmental and development challenges facing the Eastern Cape government (see Fig. 1 Map 1).

For the Eastern Cape province, striking a balance between the need for development and to improve the quality of life, and the important imperative of environmental protection, conservation and sustainable use of resources, is not going to be an easy challenge.

1.4 Environmentalism and ideology - a theoretical and conceptual exploration

The new appreciation of the importance of the environment to the human condition, both locally and globally, is leading to

the gradual recognition of the interdependence of political, economic, social, ethical, ecological and environmental issues. (Mathews 1991). Within the South African context, particularly the Eastern Cape province, the socio-economic inequalities resulting from past apartheid politics are viewed by the researcher as having played an important role in shaping perceptions and values about the environment.

To understand political leaders' perceptions of the environment and the nature of their environmentalism, it would be useful to explore and critically assess different ideologies influencing environmental thinking, particularly in the context of the emerging environmental debate in South Africa. The vision of the Eastern Cape province, that of economic growth and sustainable development, requires an understanding of different environmental ideologies.

Redclift & Benton (1994:64) argue that the discourse surrounding environment and development is not neutral and convergent, but reflects both divergent historical experiences and differing interpretations of those experiences. These diversities in experience and contexts need, in the researcher's opinion, to be recognised in policy formulation.

Achievement of equity and social justice, promoting economic growth, meeting basic human needs, conserving biological diversity and protecting the environment need to be seen as part of the reconstruction and renewal of South Africa and the shift towards sustainable development.

According to Pepper (1993) the disagreement on the causes of and solutions to environmental problems reflects the old division between technological and ecological environmentalism. O'Riordan (1981) distinguishes between two major strands in environmental thinking, the ecocentric and

technocentric orientations. This binary division while problematic, helps to clarify different environmental approaches and practices. Pepper (1993:33) describes ecocentrism as follows:

Ecocentrism views humankind as part of a global ecosystem and subject to ecological laws. These and the demands of an ecologically-based morality constrain human action, particularly through imposing limits to economic and population growth. There is also a strong sense of respect for nature in its own right, as well as for pragmatic reasons.

This bioethical aspect of ecocentrism, which places non-human nature on a par with humanity, is, as Eckersley (1992) stresses, the key aspect of ecocentrism. It distinguishes ecocentrism from the anthropocentrism (human-centredness) of other political ideologies. Earlier traditional lifestyles of many rural communities in the Eastern Cape and their association with the environment could be linked with ecocentrism. Although the issue has been hotly debated throughout the years, Sessions (1991) argues that it seems accurate to conclude that the cultures of most primal societies throughout the world were characterised by a harmonious relationship with nature.

Fien (1993a) points out that ecocentric ideology contains two major positions, namely 'dark green' and 'red green'. The dark green or Gaianist position is derived from the ecocentric philosophies of Deep Ecology which decry dualism between people and nature in human thinking. It sees people, the land and other species as equal at every level and argues that the rights of nature should be respected.

The moral argument raised by 'dark green' ideology, while necessary, needs to link environmental ethics and positive values with efforts to alleviate poverty, particularly in

provinces like the Eastern Cape where apartheid policies have not only degraded the environment but have partly alienated people from nature. Most of the indigenous ecological knowledge and values of rural communities were lost during the colonial and apartheid years, when land was taken from communities and the sustainable use of natural resources denied. The revival of an ecological ethic needs to be part and parcel of the agenda for the improvement of the quality of life of impoverished communities in the Eastern Cape.

The 'red green' perspective, which Pepper (1993) describes as humanist and anthropocentric, though not in the capitalist technocratic sense, emphasises social justice, equitable development, environmental management and legislation. Fien (1993a) observes that the red-green environmental ideal can be achieved only when legislation reflects a concern for ecologically sustainable development and distributive social justice. Developing such appropriate policies remains a challenge for political leaders in the Eastern Cape. The quest for economic growth and development, however, poses the danger of overlooking environmental considerations.

Given the poverty and underdevelopment that characterise the Eastern Cape, red-green environmental thinking can provide some kind of direction toward a more sustainable path. Fien (1993a:28) describes red-green environmentalism as follows:

Red-green environmentalism is principally an ecocentric ideology which incorporates some of the technocratic light green case for improved environmental legislation and management in order to provide the economic resources to sustain an equitable standard of living for all people.

While the eco-socialistic orientation of the red-green perspective conjures fears of economic and environmental failures as experienced in Eastern Europe, its positive

elements of justice and respect for nature can inform the process of Reconstruction and Development in South Africa.

O'Riordan (1981) further distinguishes between 'cornucopian' and 'accommodating' technocentrism. Technocentric cornucopians tend to focus on maximising economic growth and exploitation of resources without any regard for the environment or social justice. Apartheid homeland policies were to some extent informed by environmental injustice. Bullard (1993:17) argues that racism plays a key factor in environmental planning and decision making.

Turner et al. (1994) point out that cornucopian technocentrism also supports an 'unfettered free market' philosophy and has strong faith in the power of technology to overcome any environmental limits and problems.

A less extreme position, 'accommodating technocentrism' or 'light green' environmentalism believes that the environment can be managed to satisfy human needs and wants, provided certain accommodations to ecological principles are made through improvements in environmental legislation and management practices (Fien 1993a). This position also accepts that free markets have beneficial effects on the environment, but only if individuals think and act green. This view is rationalist and technocratic and underlies approaches to the environment involving management, regulation, impact assessments and environmental planning. This view, while necessary in the Eastern Cape Province as environmental protection functions are defined and new departments developed, should be complemented by attention to the social and economic dimensions of the environment too.

While there are tensions and conflicts among different environmental ideologies, there is, in the researcher's view,

also common ground and complementarity. In a country like South Africa, with inequalities and complex environmental problems characteristic of rich and poor countries alike, understanding different environmental perceptions and combining different environmental strategies will be a more realistic approach to solving some of the problems. The Eastern Cape province with its rural and urban environmental challenges will require policies which recognise the need for equity, environmental management approaches and ethical and cultural values. The key phrase is sustainable development, which, according to O'Riordan (1981), is a blend of technocentric and ecocentric world-views.

1.5 Education and environmental ideologies - different approaches to Environmental Education

The different ideologies associated with the environmental movement have two important implications for education: they reveal the existence of different perspectives on the root causes of environmental problems, and they propose different ways of solving those problems. Buzatti-Traverso (1977) pointed to the ideological nature of environmental education, arguing that the very educational processes by which environmental issues are studied are also subject to the influence and struggles of a range of self-interests. Different approaches to environmental education are likely to be derived from a range of environmental and educational ideologies (Fien 1993a:23). Earlier approaches to environmental education in South Africa give testimony to the role of ideology in the study of environmental education.

In South Africa, where the ideology of apartheid was not only an instrument of domination but also central to the education system, an understanding of the ideologies influencing environmental education would seem to be particularly useful. In the main, black education was to be an integral part of a

carefully planned policy of segregated socio-economic development. Above all, apartheid education, informed by Christian National Education (CNE), emphasised the functional value of the school as an institution for the transmission and development of black culture, which was viewed as inferior.

It is not possible to address the question of democratic change and social transformation in South Africa without coming to terms with the challenges facing education. The political struggle waged by students in the field of education has played an important role in the national liberation. As South Africa reconstructs its politics and education, the role of environmental education needs to be redefined. Clarity on the socially critical and transformatory role of environmental education can make a contribution to the question of the role of education in general in the democratic South Africa.

Fien (1993a:61) has analysed educational and environmental ideologies to clarify the social assumptions, intentions and effects of education *about* the environment, education *through* the environment and education *for* the environment. This typology provides a useful framework for further discussion.

1.5.1 Ideology and education *about* and *through* the environment

Education about the environment is the most common form of environmental education (Robottom 1987). It emphasises the cognitive approach of knowledge - content, information gathering and assessing to develop understanding about natural processes and the ecological, economic and political factors that influence decisions about how people use the environment. The integration of natural and social systems is, according to Fien (1993a), often neglected in programmes of education *about* the environment. The teaching of subjects like geography,

agriculture and science in South Africa have also tended to focus on defining concepts and emphasising technical solutions to environmental problems at the expense of their human and political causes.

Education *about* the environment relates, according to Huckle (1993), to education for environmental management and control. It serves the technical human interest and is based-upon empirical-analytic science. Its scope and goals are derived from vocational/neo-classical and liberal/progressive ideologies of education and from technocentric environmental ideology. Education for environmental management is commonly practised because it is viewed as neutral. There is little consideration of the environment as a social construct. This approach has tended to produce scientists and engineers and environmental managers in South Africa, who tend to neglect the social dimension of the environment.

Given the environmental problems facing South Africa and the need for environmental management skills, education *about* the environment has a place in emerging environmental education in South Africa, particularly in tertiary education where there is a need for careers associated with the environment, for example engineering, architecture, economics and horticulture. The technocratic view, which characterises education about the environment can be infused with broader social and political understanding.

Education through the environment uses the environment as a resource for learning. It emphasises the experiential approach involving fieldwork, where students can develop and use skills through direct experience in the environment. The aims of this learner-centred approach to environmental education are to add reality, relevance and practical experience to learning. Such experiences may also develop skills for data gathering,

observation, sketching, interviewing and using scientific instruments, as well as social skills such as cooperation and group responsibility (Stapp & Cox 1974; Palmer & Neal 1994).

Given the history of inferior and unequal education in South Africa (Taylor 1993) and the need for more participative, problem-solving and action-oriented approaches to education, education *through* the environment can play a role in promoting participation in the learning and teaching processes.

Education *through* the environment can also promote appreciation of the environment and development of environmental understanding and skills.

Education *through* the environment, while useful, particularly for children, is conservative in that it often does not address issues of social change so necessary within both communities and schools in South Africa. Education *through* the environment is also liberal in that it focuses on the individual, emphasising personal values and cooperation, at the expense of the broader society and the socio-economic and political factors influencing that society.

1.5.2 Education *for* the environment

According to Fien (1993a:14) *education for the environment* provides for a socially critical or transformative orientation in environmental education and, as such, is neither neutral or value-free. Huckle(1991:61) adds that:

Education *for* the environment is a form of praxis which by allowing pupils and teachers to reflectively construct and reconstruct their social world, develops the critical and active citizens who are capable of bringing about the transition to sustainable development.

Fien (1993a) argues that education *for* the environment seeks

to contribute to the processes of social change through educational activities which promote personal and structural transformation. It is based more upon the 'red green' or ecosocialist tradition than the 'dark green' or Gaianist tradition

In South Africa, where education was informed by the ideology of apartheid, the transformatory attributes of education for the environment would seem to be relevant during this period of change. Redressing the inequalities, particularly in teaching strategies and content, is going to be one of the challenges facing education in South Africa. Provincial governments have an important role to play in the transformation of education and in the development of sound environmental education policies.

Education for the environment, with its socially critical orientation, is committed to active pedagogical initiatives that aim at promoting social justice, equality and democracy through the thoughtful, 'ethically based, responsible and critical examination of social problems and active participation in developing continually improving society Fien (1993a:22).

The socially critical orientation of education for the environment generally begins with the study of environmental issues and problems on a local scale and proceeds to global issues. According to O' Riordan (1981:15),

Radical environmental education has a philosophy, content and methodology that is trying to influence the attitudes and values of society so that care and justice are integral elements of human behaviour out of which will inevitably come a careful treatment of the world's resources.

The objectives of education for the environment include the

development of moral and political awareness as well as the knowledge, commitment and skills to analyse issues and participate in an informed and democratic way in environmental decision making and problem solving.

Fien (1993a) points out that the socially critical orientation in environmental education values the personal development and achievement objectives of liberal/progressive education, but also believes that these are insufficient educational goals in a world that is structurally unequal in terms of class, gender and race. Because both environment and education in South Africa bear the imprints of the apartheid past, any discussion of the nature, scope and future of environmentalism and environmental education should take place within a historical framework. Freire (1985) argues that to understand the present, in both institutional and social terms, history is of importance because it constitutes who we are as historical and social beings.

Given that education policy in South Africa was designed largely to sustain racial ideology and the educational doctrines of apartheid, there is, in the considered view of the researcher, a need for massive environmental education which will not only aim at changing attitudes and providing skills, but will encourage critical thinking which promotes understanding of the complex nature of the environment, its political, socio-economic, and ethical dimensions, and commitment towards environmental improvement and protection.

The changing political scene in South Africa provides a challenge and opportunity to develop a relevant environmental education theory and practice for South Africa. The socially critical and action-oriented goals of *education for the environment* are best suited, in the view of the researcher, to address some of the existing environmental and educational

problems in the Eastern Cape province.

1.6 General overview of the thesis

The study has been divided into six chapters. The first chapter, the introduction, has discussed the rationale for the study and attempted to locate the study within the broader political and historical context, both globally and in South Africa. The environmental and educational theories which form the backdrop of the study were also explored. Chapter two explains the methodology employed: the research is influenced by critical theory, and employs the method of semi-structured interviews. Chapter three offers an overview of relevant literature in the field.

The results of the interviews and the interpretation of the data are discussed simultaneously and divided into two chapters. Chapter four reports on the results and discusses data dealing with environmental issues. (Topic A: questions 1,2,3,4,5 - see Appendix 1). Chapter five reports on environmental education data analysis and discusses questions 6,7,8,9,10,11,12,13.

The ambitious aim of the research and the broad nature of issues to be covered - environmental issues, environmental education, sustainable development and policy issues - proved to be too extensive given the limited time-frame and the requirements for the study. This has led to the data and results of questions on economy and environment, sustainable development, environmental management and policy (see Appendix 1, questions 14-20) not being included in the study as intended. It is hoped that the interpretation and discussion of these will be tackled separately outside the thesis. The concluding chapter six ties the threads together, evaluates the research and makes some recommendations.

Chapter Two

Research Methodology

A more appropriate form of environmental education research is one which includes consideration of both human consciousness and political action and thus can answer all moral and social questions about educational programs which the dominant form cannot. It is one which is more consistent with the ecophilosophical view - which encourages individuals to be autonomous, independent, critical and creative thinkers, taking responsibility for their own actions and participating in the social and political reconstructions required to deal intelligently with social/environmental issues within mutually interdependent and evolving social situations.

(Willis 1981 in Robottom & Hart 1993:51)

2.1 Introduction

This chapter describes the methodology followed in the research. According to May (1993:20), social theory is not something which can be separated from the process of social research. Theory informs our thinking which in turn assists us in making research decisions about the world around us. Informed by the socially critical theoretical position described in 1.4 & 1.5, the research methodology is influenced by what Robottom & Hart (1993) refer to as the critical research paradigm. Kirby & McKenna (1993:63) observe that:

Methodology, theory and ideology are intertwined.
How you go about doing your research is
inextricably linked with how you see the world.

Robottom (1985) further adds that what is distinct about research paradigms is not their forms of data collection but their underpinning political theory or ideology. The approach is influenced by recognition of the socially constructed nature of perceptions, environmental problems and research itself. The aspirations of education for the environment, that

is, 'socially critical environmental education' which promotes social transformation and critical appraisal of environmental and socio-political situations, have also influenced the research methodology (see 1.5.2).

2.2 Background to the research

The research project took place in 1995, one year after the first democratic elections in South Africa. The new political leaders in the Eastern Cape province were still in the process of setting development priorities and formulating policies, including environment and education policies.

The study intended not only to uncover political leaders' perceptions and knowledge of environmental issues but also to explain the relationship between their interpretations of reality and the social conditions under which these interpretations occur (Carr & Kemmis 1986). Grindle & Thomas (1991:35) point out that those who become active in policy reform often have acquired ideological biases that influence their perceptions of what the problems are and how they should be responded to. Given the distortions created by apartheid history in South Africa, clarifying perceptions, redefining the problems and understanding the nature of environmental issues would seem to be vitally necessary.

The research was also meant to be educational, that is, to share knowledge and environmental concerns and to come up with ways of improving environmental policy. Freire (1985:157) likens the critical research process with conscientisation:

the process in which people, not as recipients, but as knowing subjects, achieve a deepening awareness both of the socio-historical reality which shapes their lives and of their capacity to transform that reality.

2.3 Methodology: theoretical foundation

The research is viewed as a small contribution towards the social and political change occurring in South Africa. Fine (1994:22) points out that if research is to be praxis-oriented, and if our purpose is somehow to change the world, then of necessity we must involve those whom we study in power-sensitive conversations which need to be transformative.

According to Green (1990) becoming 'critical' means developing an analytic posture toward arguments, procedures and language, using a lens related to issues of power and control in relationships, and developing an action-oriented commitment to common welfare. Critical theory has an emancipatory, action-constitutive interest, aimed at improving the quality of human existence. Elaborating on critical theory, Hart (1993:110) argues:

Critical theory goes beyond the demonstration of connections between thought and action, as in the notion of the reflective practitioner developed by Schon (1983) to a socially critical interest which aims at ideology critique (conscientisation), deliberative inquiry, and action aimed at improving both practice and theoretical understanding of education. That is individual enlightenment (Personal theory) is predicated on collaborative action in the form of theory-practice interaction (dialectic).

The view taken by the researcher is that social reality is not only about the way people perceive themselves or their situations and it is not simply structured by concepts or ideas. It is structured and shaped by such things as historical forces and economic and material conditions which determine the perceptions and ideas of individuals. According to the critical inquiry paradigm, educational and environmental problems may arise not only as individual matters but as social matters requiring collective or common

action if they are to be satisfactorily resolved
(Carr & Kemmis 1986).

2.4 Research approach and method

Critical theory, which informs the critical research paradigm underpinning this study, has a view of research as transformative, educative and participatory. To achieve this end interviews were viewed as social encounters for sharing and furthering understanding about environmental issues. Anderson (1990:222) describes interviews as a 'highly purposeful task which goes beyond mere conversation', while Gitlin & Russel (1994) regard an interview as an opportunity to stimulate others as well as ourselves to a higher degree of self-scrutiny and self-awareness.

Semi-structured interviews (Burroughs 1975; May 1993) were used as a principal data-gathering method because they can yield rich sources of data on people's experiences, opinions, aspirations and feelings (May 1993:91). Semi-structured interviews allowed participative dialogue without encouraging the unequal power relationship that exists in some research encounters.

Oakley (1981:66) describes non-exploitive interviews as being a situation in which the interviewer is 'more than an instrument of data collection'. Kirby & McKenna (1993:68) argue that the interview is a means of data collection but also a sharing of ideas, philosophy, experience and symbolic expressions, a sharing of self. While the researcher was aware of the need to keep some distance, she did not view herself as a disinterested participant. May (1993:40) argues that:

Research must be a co-operative endeavour in which the researchers and participants share information and experience. 'Correct' knowledge does not then come from detachment.

2.5 The interview participants

Ten interviews were conducted with Members of the Executive Council of the Eastern Cape Province, senior administrators and political leaders. All participants play an important role in environmental administration and policy formulation in the province.

The interview participating group were the following; Seven Members of the Executive Council (MECs) of the Eastern Cape Provincial Legislature in the following portfolios:

- Education and culture
 - Health and welfare
 - Agriculture and environmental affairs
 - Public works
 - Transport
 - Administration and development planning
 - Economic affairs
- In addition,
- The Speaker of the provincial legislature
 - Director General of the Eastern Cape Province
 - Director of land-use planning in the land and agriculture ministry.

The group was purposely selected to allow the researcher to focus in depth on issues pertaining to the environment in the Eastern Cape Province. Cantrel (1993:91) points out that group size in qualitative methods is based upon the purpose of the study, not on specific rules. This view is supported by Gitlin & Russel (1994:187), who argue:

The meaningfulness, and insights generated from qualitative inquiry have more to do with the purpose of the study and information richness of

the cases selected.

Commenting on reliability, Gitlin & Russel (1994:186) argue that when the central aim of the research process is to develop voice, reliability cannot be based on duplicating procedures, but rather must centre on attempts to satisfy the underlying principle of voice and its relation to the desired change.

2.6 - The interview process

The interviews were conducted in Bisho and Port Elizabeth over a period of three weeks during May and June 1995. The participants were approached through faxing two letters, one from the researcher, identifying herself as a M.Ed student at Rhodes University and member of the ANC Environment Desk. The purpose of the research was also explained. The second letter was a supporting letter from Rhodes University confirming the researcher's *bona fides* and requesting co-operation.

Follow-up telephone calls were made to participants to set the dates and to confirm the time of the interviews. Given the busy schedules of most participants, appointments proved difficult to procure at first, but with one or two follow-up calls, dates and times for the interviews were fixed.

The semi-structured interviews between the researcher and the ten political leaders were on a one-to-one basis and lasted for a period ranging from forty-five minutes to one hour. The interviews were tape-recorded with the permission of participants and later transcribed. The interviewees were also assured anonymity in the presentation of the data.

The interview process was preceded by pilot interviews in order to evaluate the interview schedule as well as to get a general sense of the nature of the research setting. For this

purpose two pilot interviews were conducted with two political leaders in Port Elizabeth. The pilot interviews went smoothly with positive feedback from the two participants. There were no substantial changes made to the content of the questions in the subsequent interview schedule.

Although the researcher viewed the research as an information sharing endeavour, and regarded herself as a 'comrade' coming to interact with fellow 'comrades', she was also conscious of the changed role of the participants who were now occupying positions of power. Seidman (1991) describes interviewing as both a research methodology and a social relationship. In all the encounters, however, the interviewer experienced a readiness by interviewees to talk and share concerns and aspirations. Kirby & McKenna (1993) point out that for quality interviewing, there must exist a sense of equality between the person gathering the information and the person whose knowledge or views are being sought.

Kirby & McKenna (1993) argue that the need for equality in the research relationship does not mean that the researcher and the research participants are the same. They may share the same experience, but the researcher is facilitating a guided conversation which needs to be focused.

After the interviews, many respondents remarked that the environment is a challenge facing the province and that they would be keen to be involved and be kept informed of environmental initiatives or activities in the province.

2.7 The interview schedule

Webster (1982) argues that questions intellectuals ask are crucially shaped by the ways in which they are linked to political practice.

The first section of the interview schedule, Topic A (see Appendix 1) was intended to obtain the views and understanding of political leaders on what the term 'environment' meant to them, what they perceived as major environmental issues and what the possible solutions were. It was assumed that this process would initiate a redefining of the contested term 'environment' and identify what the environmental problems in the Eastern Cape province are.

The second section, Topic B, comprises questions focusing on environmental education. The questions were meant to elicit political leaders' views on the concept 'environmental education', its role, what are the obstacles in promoting it and who needs environmental education in the Eastern Cape province.

The third part of the interview schedule, Topic C, which no longer forms part of the thesis, was about policy issues. The link between economy, development and environment was explored. Participants' views on the concept 'sustainable development', and some aspects of environmental policy and environmental management were also sought.

The broad range of questions was intended to help the interviewer to stay close to the research focus while helping participants respond to questions about their own experience in an insightful and thoughtful way. Most respondents elaborated on the questions, in some instances even relating their personal experiences. Many participants were positive about the interview and felt that the research was a positive step toward raising awareness of the need to integrate environmental considerations in different ministries.

2.8 Data analysis

The aim of the research and the nature of the data collected lent themselves to qualitative analysis. According to Dey (1993:101) interpreting and analysing are not processes the researcher does only near the end of the project. Analysis involves working with data, organising it, breaking it down, synthesizing it, searching for patterns, discovering what is important, what is to be learned and deciding what to tell others.

Individual transcripts were read closely so as to develop an insight into the interviews and obtain a familiarity with the data. This was accompanied by marking what was considered by the researcher to be important in the transcripts. Key ideas which were recurring were also marked. Seidman (1991:89) maintains that the researcher must come to the transcripts with an open attitude, seeking what emerges from the text. At the same time Rowan (1981) acknowledges that no interviewer can enter into the study of an interview as a clean slate. This data reduction (Miles & Huberman 1984) phase involved making summary sheets of different responses to each question and coding themes and phrases that were repeated or stood out.

In order to group and compare the data, categories were generated from recurring themes, from theoretical perspectives and from the literature read. Referring to how categories are established, Dey (1993:96) explains:

creating categories is both a conceptual and empirical challenge. Categories must be 'grounded' conceptually and empirically. That means they must relate to an appropriate analytic context, and be rooted in relevant empirical material. Categories which seem fine 'in theory' are no good if they do not fit the data. Categories which do fit the data are no good if they cannot relate to a wider conceptual context.

'Middle-order' categories (Dey 1993), that is, categories based on broad preliminary distinctions within the data, were developed, assigned meaning and then refined through constant comparison of data items and grouping the same data together and putting them into different categories and subcategories. Coding was done in order to aggregate the data about the same topic or theme. Issues relating to 'provision of bašič services' or 'lack of infrastructure', for example, were categorised under development (see 3.2). Glaser and Strauss (1967) coined the term 'constant comparative method' which, later adapted by Lincoln & Guba (1985), describes the process of progressive category clarification and definition.

According to Dey (1993:112) the categories that we create become the basis for organising and conceptualising the data. Data were organised in terms of categories that were developed. Once categorised, the data were viewed in the context of the new categories. This is described by Tesch (1990) as 'recontextualisation'. Further reflection and studying of data led to subdivision of some categories.

Once categories were distinguished and studied, connections within and between them could then be established.

Dey (1993:139) points out that 'we split categories in a search for greater resolution and detail and splice them in a search for greater integration and scope'. Most categories in the research data collected displayed interconnectedness within and between themselves. Interpretation and discussion of the research results followed.

2.9 Concluding comments

To conclude this chapter, some evaluation of the methodology adopted is deemed necessary. Based on the socially critical

paradigm and the associated educational and philosophical views, the study aimed to go beyond looking at the environmental perceptions and knowledge of political leaders. The research was also intended to educate, to conscientise and to initiate discussion, environmental awareness and action that might contribute to solutions of some of the problems and issues identified. The limited time frame of the research and the busy schedules of participants did not allow some of the intended objectives to be achieved.

The qualitative and participatory approach that was adopted through the use of semi-structured interviews did to some extent give participants an opportunity to point out their perceptions of environmental issues. The participants also had the opportunity of pointing out how environmental issues had tended to be influenced by the history, the political, economic, and educational systems of apartheid South Africa. Emphasising the need to understand participants' views, Breiting (1993:199) argues:

From an environmental education perspective, research should focus on gaining better understanding of people's own perceptions, ideas and other theories in relation to their environment, environmental issues and nature in order to obtain new insights in adapting environmental education (and environmental policy) to the social and physical context in which the school community (or political setting) is embedded.

Given the transformatory aim of the research and the need for more understanding of environmental issues by participants, action research which encourages collaborative action and commitment to improvement (Kemmis & McTaggart 1981) could have been an appropriate approach. The need for information on environmental issues and collaboration by different ministries on environmental matters has been pointed out by participants. A more focused strategy towards addressing environmental concerns would have been useful. Once again time on the sides

of both the participants and the duration of the study, did not permit the action research approach.

Chapter Three

Literature Overview

Social injustice causes environmental injustice. Likewise, environmental injustice can promote social injustice... Sometimes the imperatives to respect nature, satisfy basic needs and participate in self-government point in the same direction.
(Crocker 1986 in Engel & Engel 1990:159)

1 Introduction

This chapter offers a general literature overview of literature on the chosen topic. The absence of research related to political leaders' perceptions and knowledge on environmental issues has made reviewing the literature very difficult. A literature search related to research on environmental perceptions and knowledge among political leaders, both in South Africa and internationally, failed to produce any previous studies. The dearth of research literature on the chosen topic is partly attributed to the fact that environmental issues are just beginning to move to the centre stage of political and economic debate. Research linking political leaders' environmental perceptions with policy might still be at its early stages.

The major reference sources for educational and environmental material were consulted. These consisted of abstracts of journal articles, books and dissertations. A review of the Social Sciences Index also failed to produce any comparable studies. The key index words used to search for studies relevant to the research were: political leaders/ environmental perception/ environmental knowledge/ environmental attitudes/ environmental policy. The literature survey revealed some studies of students' knowledge and beliefs concerning environmental issues but none of political

leaders (Blum 1981).

There have been some attempts within various disciplines to look at leaders' attitudes towards the environment. The following two research studies from the disciplines of health and economics are useful: 'Attitudes to environment' (Harris & Taylor 1990) and 'Senior policy advisors' personal and professional views on the role of values in the environmental policy process' (Glasser, Craig & Kempton 1994).

The two identified studies, though not directly related or similar to the chosen topic, are viewed by the researcher as having some relevance.

3.2 The study of Harris and Taylor - 1990

Harris & Taylor (1990:32-37) conducted an opinion survey for the United Nations Environment Programme, of 8325 adults covering 16 countries, both developing and developed. The countries were Argentina, Brazil, China, the Federal Republic of Germany, Hungary, India, Jamaica, Japan, Kenya, Mexico, Nigeria, Norway Saudi Arabia, Senegal, the USA, and Zimbabwe. This was the first occasion on which the environmental attitudes of the public and leaders in various parts of the world had been studied and compared using the same questionnaire. The questionnaire was not published and that limited the value of the paper.

The difficulty of comparing results from different countries on different continents needs to be acknowledged, particularly when survey methods are being used. According to de Vaus (1986) surveys look at particular aspects of people's beliefs and actions without looking at the context in which they occur. Beliefs and attitudes, taken out of context, can easily be misunderstood.

Robottom & Hart (1993) caution that the behaviourist nature of the dominant approach to research is evident in the language used in research reports and in statements indicating authors' views on the purposes of the research. According to Harris & Taylor 1990: 33) 'the survey was intended to find out: awareness and perceptions of environmental issues; levels of concern about environmental issues; perceptions of causes of pollution and environmental degradation; attitudes to global and regional interdependence; and attitudes to possible policies for addressing environmental problems'.

Given that environmental issues are social issues that are complex and closely intertwined with economic, cultural and political factors, quantitative research can be problematic. Robottom & Hart (1993:7) point out that:

Positivism is based on an objectivist or empiricist epistemology where knowledge is expert-driven, cumulative and progressive; values are excluded through the adoption of a distant, non-interactive posture; and propositions (hypotheses) are subjected to empirical tests of falsification. Positivist methodology is preordinate and experimentalist, aimed at manipulation and control of variables.

Between 300 and 1250 interviews with members of the public were conducted in each country and approximately 50 interviews were conducted in each country with a sample of leaders drawn from a designated list of elected and appointed government officials, civil servants and leaders in the news media, business, religion, trade unions and the medical field.

The results showed that there was widespread concern about the quality of the environment except in Saudi Arabia, majorities rated the environment in their countries as only fair, or poor. In nine countries, majorities of the public believed that their environment had deteriorated over the previous

decade. The highest proportions of the public who saw a decline in environmental standards were in Argentina, Hungary, India, Jamaica, Norway, Mexico and Senegal. Countries least concerned about environmental degradation were Japan, Saudi Arabia and Zimbabwe.

In almost all countries there was concern about water pollution in some form: either pollution in drinking water or that of lakes or rivers. In the African countries, issues relating to the land topped the list of environmental concerns: the loss of agricultural land, the disappearance of trees and forests, and desertification were rated as most serious. In Hungary and Mexico, air pollution was one of the main concerns. In Saudi Arabia, radioactivity from nuclear reactors was a principal issue. In Argentina, Brazil, the Federal Republic of Germany, Japan and Norway, the main concerns included air pollution, pollution from various forms of chemical usage, and acid rain.

The findings in almost all countries generally indicated concern about the environment, particularly pollution. It was widely felt that governments were not doing enough and should do more in addressing environmental issues. Majorities in every country except Kenya, Saudi Arabia and Zimbabwe, felt that their countries were spending too little to protect the environment or prevent pollution. The largest majorities holding this view were in China, the Federal Republic of Germany, Jamaica, Japan and Norway. The majority favoured stronger action by their governments and stronger laws.

The majority of interviewees in almost all countries (Brazil, China, and India being the exceptions) believed that protecting the environment should be done in cooperation with other countries.

The claim that the public pay lip service to the idea of a cleaner environment by not being willing to pay the necessary economic price was refuted by the survey results. The majority of people interviewed in every country, ranging from 90% in Mexico to 62% in Zimbabwe, said they would prefer to have lower standards of living with lesser health risks rather than higher standards of living with greater health risks. The extent of air pollution in Mexico and Hungary indicates the price being paid if development fails to incorporate environmental considerations. Fewer people, even in developing countries like India (20%), Nigeria (25%) and Zimbabwe (32%), chose higher standards of living and greater health risks.

On the whole the results of the survey in many countries showed common trends. Human beings, not nature, were seen as the cause of environmental problems. Industrial activity and government failure or inertia were seen as the most important causes of environmental degradation. Most people, although pessimistic, were not fatalistic. They believed that environmental degradation could be contained or reversed if governments worked together and gave people all the facts. The attitudes of leaders were, on the whole, fairly close to those of the public. Most differences were of degree, not direction. Women were generally somewhat more aware of, or more concerned about environmental degradation than men, and also more critical of the failures of government to protect the environment.

The study indicates that the environment is not only perceived as multi-faceted, but has become a global political issue which governments cannot afford to neglect. The research, though positivistic, is viewed as useful. The results of the research emphasised the role of government in environmental management and highlighted differences and similarities in environmental concerns between developed and developing

countries. The research findings also pointed out environmental issues which are of concern to all countries irrespective of level of development. Similarities also exist between the findings of this study of political leaders' perceptions and understanding of environmental issues and the Harris and Taylor study on 'attitudes to environment'. In both studies, issues relating to land, agriculture, air and water pollution, government failure to protect the environment and the need for cooperation between government and civil society were cited.

The reviewed research would have been useful if an in-depth study of a few different countries was made in order to explore different contexts within countries at different stages of development and with different political and economic systems. Rural populations, for example, were not surveyed in most developing countries, which meant that the study perhaps missed some of the major environmental issues facing developing countries. The exclusion of women from the Saudi Arabian sample might have caused the omission of some environmental problems experienced by women. Adaptation of the research method in different countries might, in the researcher's view, have elicited more information on specific environmental problems.

3.3 The study of Glasser, Craig & Kempton 1994

Glasser, Craig & Kempton (1994:83-104) studied senior policy advisors' personal and professional views on the role of values in the environmental policy process. The researchers argue that environmental policy could be improved if widely-held environmental values were articulated and admitted into the process of policy analysis and deliberation. Glasser *et al.* (1994) also argue that the values and ethics that inspire many people's dedication to environmental concerns should be

seen as relevant to policy making.

According to Naess (1986), there is a rift in environmental policy discussion between experts, who tend to speak in 'objective' language that emphasises empirical data and utilitarian aims, and citizens, who often speak and argue for environmental policies using more heart-felt and ostensibly 'subjective' language that reveals a belief in the intrinsic value of the environment. Concern about the emphasis on the 'use value' of nature for humans and the prospect of the United Nations Conference on Environment and Development (UNCED 1992) prompted the study of the environmental values of policy advisors.

Glasser et al. 1994 point out that 'non-use' values, that is non-utilitarian values, were rarely mentioned in landmark environmental planning reports such as the IUCN's World Conservation Strategy (1980) and the WCED's Our Common Future (1987). These documents are said to be approaching the environment from an enlightened self-interest perspective, emphasizing the 'use value' or instrumental value of nature to humans, arguing the importance of preserving this use value well into the future through 'wiser use' and more careful stewardship. In the researcher's view, research looking at values, while useful, needs also to look at various factors like the level of economic and social development, cultural differences and the political system, all of which help to shape values. Ecologically responsible policies need to incorporate ethics and values, basic needs, social justice and sustainability.

Twenty-four senior policy makers from four developed countries, Austria, the United Kingdom, Sweden and Germany, who were involved in global climate change negotiations and the programs of United Nations Conference on Environment and

Development, (UNCED 1992) were interviewed. The in-depth interviews revealed that the practical requirements of policy can and do lead to suppression of personal environmental values. The Deep Ecology Platform used by Naess (1986) in his study of the inherent value of nonhuman life forms concludes that more fruitful approaches to policy analysis must attempt to incorporate fundamental values.

The prospects for policy formulation in the new South Africa pose the challenge of recognising both intrinsic value and the value of the environment to human beings. The increasing role of ethics in helping define a new social paradigm to promote sustainable development needs to be viewed in context (Engel & Engel 1990). In a country like South Africa, where conservation and environmental perceptions and attitudes have been largely shaped by a combination of cultural and political factors, a study of the values held by policy makers would be useful in informing policy processes.

Any study on values and the ethics of sustainable development would need to consider the moral problem of natural resource management and its relationship with the moral problem of creating just and equitable relationships between persons and societies. (Gudynas 1990).

3.4 Conclusion

While the two studies are influenced by positivist thinking and its reductionist approaches, they are useful to the current study as they point to the role of political leaders' and government officials' perceptions in environmental policy formation.

The findings of the research on 'attitude to environment' (Harris & Taylor 1990) are comparable with the findings of the

current study of political leaders' perceptions on environmental issues. The results are also informative to some extent, with regard to environmental issues and the question of ethics and values in environmental policy formation.

The challenge of integrating environment and development came out in both studies. Health concerns, which were raised in the study of 'attitudes to environment', were also raised as an aspect of environmental concerns in the Eastern Cape, with emphasis on the provision of basic services like water and proper sanitation. The concern about governments not doing enough in the environment field is also a pointer for the Eastern Cape as it develops new policies. Harris & Taylor (1990:37) conclude that 'environment has become a global political issue which government cannot neglect'.

Chapter Four

Results and Discussion of Data:

Environmental Issues

In a socially stratified society, the objectivity of the results of research is increased by political activism by and on behalf of oppressed, exploited and dominated groups. Only through such struggles can we begin to see beneath the appearances created by an unjust social order to the reality of how this social order is in fact constructed and maintained. (Harding 1986 in Fine 1994:13)

4.1 Introduction

This chapter deals with the results of the data from questions on the concept 'environment', major environmental issues in the Eastern Cape, environmental factors that might affect public health, solutions to these problems and the concept environmental quality. The understanding and perceptions of these concepts by political leaders will be presented and discussed.

The growing global and local concern about the environment has pushed environmental issues to the centre stage of political, economic, development and educational debate. The recognition by governments in Rio de Janeiro that the world's economy depends on the world's ecology offers a new way forward.

As the new democratic South Africa reconstructs its policies, there is a growing awareness that there is a need for a sound environmental policy. There is also a steady realisation that achievement of any form of sustainable development will require understanding of environment as a cross-sectoral issue that needs to be incorporated in economic, development, education and health policies (see chapter 1 - 1.2 & 1.3).

According to the new Constitution, political leaders at provincial level are expected to play a role in the support and development of new provincial policies (see 1.1). The environmental perceptions and knowledge of political leaders are viewed by the researcher as important during this period of policy formation. According to Jones (1984:52) perception simply means 'the reception and registering of an event through sight, hearing, touch, and smell'. Involved in the process is interpretation. Jones (1984) further points out that perception is important in the policy process because it conditions definitions of problems. Irwin (1991) argues that the majority of the world's people will probably become involved in 'environmental issues' which they perceive to be of direct relevance to them and their future.

4.2 The concept 'Environment' - theoretical and philosophical exploration

The complexity and ideological nature of the term 'environment' makes it difficult to define. Pointing to the changing perceptions of the environment, Elliot (1994:9) maintains that although people have held and articulated varying attitudes towards nature, stretching over many years, the 1960s have been identified as the period in which a coherent philosophy and language surrounding the environment were first formed. Since then, Elliot (1994) argues, there have been significant changes in the way in which the environment has been viewed, in terms of both people doing the viewing and the perceived conservation requirement.

Irwin (1991) points out that defining the term 'environment' is problematic in that although it normally denotes immediate surroundings, it has developed to mean a total complex of interrelationships making up the physical, biological and socio-political surrounding. The growing appreciation of the importance of the environment to the human condition and the

increase in environmental problems, ranging from pollution to resource depletion, have led to a realisation of the interdependence existing amongst political, economic, social and environmental issues.

Smith (1993:2) describes the environment as 'not just the biophysical, natural domain but also the socio-political, human components that constitute a global environment for which there is an interdependent, world ecology'. Using a political-economy approach, a number of scholars have referred to the political and contested nature of the concept 'environment' (Redclift 1987; Adams 1990). Arguing from the red-green or ecosocialistic perspective (see 1.4), Di Chiro (1987:25) points out that the environment is socially constructed and needs to be viewed conceptually as a set of interactions between physical and social surroundings and the social, political and economic forces that organise people in the context of these surroundings (see also 1.2).

Different ideologies influencing environmental thinking are viewed as important as they tend to provide different views on the concept 'environment', the causes of environmental problems, how environmental problems can be solved and how changes in social institutions and environmental values can be brought about (Fien 1993a:26).

4.3 Political leaders' understanding of the concept 'environment'

The interview opened with the conceptual question: 'What do you understand by the term environment?' (question 1 in Appendix 1). The aim of the question was to set the scene for the general interview and to elicit varying perspectives on the concept 'environment'. This question did not generate spontaneous responses. In most instances, after some pause, the participants came up with their understanding

and perception of the concept 'environment.'

Participants' views on 'environment' are given in Table 4.1. Because the researcher wanted the 'voices' of participants to be heard, examples taken directly from the interviews and representative of specific categories are quoted in the results.

The findings and interpretation of the data will be located within the broader socio-political context both locally and internationally. The discussion is also informed by the literature on environment and sustainable development.

TABLE 4.1 Categories occurring in understanding the term 'environment'

Categories	Examples of responses	Frequency of occurrence
Natural and human environment	'Environment is not only the natural environment but also what man has created for himself'	7
Broad and complex	'Environment is a broad term is not just nature and is not necessarily people-centred. It is life-centred'	5
Quality of life	'I see environment as whatever influences the quality of life for good or for bad'	5
Pollution	'Environment is about pollution too'	3
Nature conservation	'It clearly involves nature conservation'	2
Environmental management	'Environmental management too is important'	1
Litter	'Litter is a major problem'	1

4.3.1 Discussion of results: the concept 'environment'

Seven participants viewed environment as including both natural and human aspects. One participant explained:

To me environment will mean looking at broader aspects like nature, the living things like trees. People and their surroundings is also environment. Environment includes everything including even food. Environment has been narrowed in South Africa.

Five participants noted the complexity of the term. One participant elaborated:

Environment is a very broad term. It clearly includes man and nature. It is also about conservation of nature, education, management, pollution and littering.

Another participant refused to answer the question and he argued:

It is a difficult question. I am not prepared to answer. I don't like to define things, especially complex concepts like environment.

To explain the complex nature of the concept 'environment', two participants preferred to use the Xhosa term 'Imvelo', which one described as 'more comprehensive, deeper and more extensive'.

The concept refers to the view that in many African cultures, human beings and nature are not necessarily seen as separate, but as forming part of a whole. One interviewee went further to explain the concept 'Imvelo' as entailing the harmony that existed between traditional African communities and nature.

Another interviewee argued that the conservation ethic was endemic to most traditional African communities, but most of their ethical wisdom and ecological knowledge was lost as people were dispossessed of their lands and relocated to unproductive areas like Dimbaza or urbanised. The view that everything traditional is in harmony with nature needs to be critically understood. Within the South African context underdevelopment and poverty has too often been confused with traditional ways of life.

'Quality of life issues' were perceived by half of the participants as part of the environment. To make his point one MEC elaborated:

Ja.. when I grew up my understanding of environment you know was that you were not talking about something that is really affecting me, I thought people were talking about the wild out there. But as I become more aware, I realised environment is about the quality of life, the air, the water, my surroundings, everything.

One participant admitted:

Well my understanding of environment is basically simple. It means water availability, it means surroundings that are not catered for in terms of infra-structure, no toilets or sanitation, drain blockages without any attendance. These to me is environment and need to improve.

Three participants viewed pollution as part of the term 'environment'. One MEC explained her perception on environment:

Good that you came to us. Environment is important for us too. We are affected in the department of transport. Pollution on land, atmosphere, water and sea. We are using rivers and sea and we are affecting them. We also affect people, birds and fishes.

Though the question was not directly or fully answered, the term 'environment' was conceptualised in the form of pollution problems posed by transportation. Two participants referred to nature conservation as an aspect of environment while one participant referred to litter as a major problem (see 4.4). Environmental management was viewed as part of 'environment' by one participant.

Perceptions and understanding of the concept 'environment' ranged from the availability of water, to the provision of toilets, the conservation of nature and the problem of litter. The concept 'environment' seemed better understood by articulating environmental problems. The difficulty of explaining the concept 'environment' led to the interviewees' identifying environmental and development problems associated with access to clean water, sanitation, pollution and litter.

4.3.2 Conclusion

The results on the meaning of the concept 'environment' revealed a general understanding of the environment, its natural and human dimensions, and its relationship to the broader issues of development and basic services like water

and sanitation. In-depth theoretical and thorough understanding of the concept 'environment' was lacking. Responses were short and where there was elaboration it failed to evince a broad well-informed understanding of the term 'environment'.

4.4 Perceptions and understanding of major environmental issues confronting the Eastern Cape Province

Expanding on the first question dealing with the understanding of the concept 'environment', the second question was aimed at exploring political leaders' perceptions of the major environmental issues in the Eastern Cape. Di Chiro (1987) argues that the way the concept 'environment' is understood, influences the way environmental problems are viewed. The question: 'What do you think are the major environmental issues confronting the province?' (see Appendix 1 question 2), was asked to find out from political leaders what they perceived to be the environmental challenges facing the Eastern Cape. An overview of environmental issues will be followed by presentation of the results (see Table 4.2) and discussion of these.

4.5 Major environmental issues - an overview

South Africa is often viewed as a microcosm of world environmental problems. The Eastern Cape, as the second poorest province with high rates of unemployment and a rural-urban character, can be regarded as a microcosm of environmental challenges facing South Africa.

The Eastern Cape province is the second largest of the nine provinces and covers 16,4% of the area of South Africa. It is home to 16% of the population and has the fourth highest population density. It is a province of great natural diversity with a long, largely unspoilt and undeveloped

coastline .

Environmental issues facing the Eastern Cape range from water scarcity, land degradation and soil erosion to problems of access to clean water, solid waste and pollution. A major challenge facing the Eastern Cape is to ensure that the economic growth and development that is needed to improve the quality of life takes into consideration environmental protection and conservation of the natural beauty and biodiversity.

Concern about the environment and development has been expressed by many environmental and development scholars, such as Redclift (1987); Adams (1990); and Jackson (1990).

Linking environment and development, the Brundtland Report (1987:3) states:

Development and environmental issues cannot be separated: It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international inequality.

The environmental problems that countries face vary with their stage of development, the structure of their economies and their environmental policies. In the case of South Africa apartheid policies are seen as having contributed to environmental problems, particularly in the Eastern Cape with its two former homelands which seemed to have been targeted for economic and social neglect. Referring to the political nature of environmental issues in South Africa, Mather (1996:231) writes:

In the decades after the election of the apartheid government in 1948, the massive population removals of Africans from 'white' to 'black' rural areas led to new and increasingly unpopular conservation measures

to deal with the influx of people on to land which was already overcrowded and under stress. Environmental conservation in what would become South Africa's Bantustans several decades later was thus always controversial and highly politicized.

According to Pearce & Turner (1990:3) environmental stresses and strains are now ubiquitous phenomena appearing in all economic systems, regardless of political ideology, from the very poorest to the very rich. Both Western industrial capitalism and the former Eastern bloc economies face problems of toxic and solid waste, water and air pollution threats, and declining air quality. In developing countries pollution poses a significant health hazard, while lack of access to clean water and proper sanitation are major contributors to ill health. Municipal garbage that contaminates land and piles up in rubbish dumps and landfills is a problem. Poverty, which denies poor people the means to act in their own long-term interest, creates environmental problems such as overgrazing, soil erosion, loss of productive potential, resource degradation and growing population pressures.

While apartheid can be blamed for some of the environmental problems, the new political leaders, government officials and the people of the Eastern Cape need to cooperate towards building sustainability. Brundtland (Khan 1995:1) points out the many dimensions of sustainability:

Sustainability requires the elimination of poverty and deprivation, it requires the conservation and enhancement of the resource base which alone can ensure that the elimination of poverty is permanent. Third, it requires a broadening of the concept of development so that it covers not only economic growth but also social and cultural development. Fourth, and most important, it requires the unification of economics and ecology in decision making at all levels.

TABLE 4.2 Categories occurring in perceptions of major environmental issues confronting the Eastern Cape Province.

Categories	Examples of responses	Frequency of occurrence
Lack of development	'Provision of basic services' 'Addressing poverty through development'	7
Economic issues	'It is difficult to separate environment from broader economic issues'	6
Agriculture	'Pressure on land by agriculture' 'Agriculture needed for development' 'Toxic pesticides and herbicides are used in agriculture'	6
Soil	'Soil erosion in some areas is so bad that 77 000 hectare has been washed into the sea'	5
Land	'Over-utilisation of land' 'distribution of land, an issue'	4
Pollution	'We have situations where sewage is not there or inadequate and becomes polluting' 'emissions from industries pollutes'	5
Coastline	'Eastern Cape is having a challenge to conserve the coastline'	4
Tourism	'Environment impacts on everything including tourism'	3
Water	'pressure on water resources' 'there is no clean drinking water'	4
Population	'Overpressure on water resources caused by population and arid area'	3
Forestry	'Forestry geared for industry not for social purpose' 'deforestation caused by lack of electricity'	3
Species	'there is a real need to conserve species'	3
Litter	'Litter is a problem'	2

The question on major environmental issues elicited spontaneous and varied responses, with participants talking with deep personal concern and even referring to past experiences.

4.5.1 Lack of development

Seven participants pointed out various issues relating to lack of development - issues of poverty and the provision of basic services such as water, sanitation, housing and electricity - as major environmental issues. Some participants emphasised the rural areas, others referred to urban problems. The focus on development as a major environmental issue by many participants indicates that in the Eastern Cape, as in many other poorer parts of the Third World, alleviating poverty and improving living conditions are closely linked with environmental and ecological conditions. Emphasising the issue of poverty one MEC elaborated:

In the province one of the key challenges confronting environment is poverty. Lack of provision of services like water and sanitation is a problem. The province is predominantly rural, in rural areas it is worse. Lack of infra-structure affect our capacity to respond to environmental challenges. It is difficult to separate environment from the broader economic challenges.

Commenting on the connection between poverty and environment Adams (1990:87) argues: (see 5.3)

Poverty and environment are linked in a close and complex way. Poor people live in and suffer from degraded environments, and very often they create environmental degradation because their poverty forces them to do so.... It is on the environments which the poor live and from which they draw their sustenance that concern about sustainable development has to focus.

The World Resources Institute (1996) asserts that the environmental problems of poverty and lack of adequate water and sanitation, identified by more than half of the participants, have often been conspicuously absent from the

global environmental agenda. It is only in the past few years that the 'brown agenda', that is problems of poverty, pollution and waste disposal, have been noted. The Institute (1996) argues that global concerns such as ozone depletion, climate change, and the loss of biological diversity are intertwined with local and regional problems of air pollution and inadequate water supply, which need equally to be addressed.

From the results, it seems that in the Eastern Cape, development will need to address environmental and economic problems. Showing the link between environment and development, the World Development Report (1992:1) states that the protection of the environment is an essential part of development. Without adequate environmental protection, development is undermined; without development, resources will be inadequate for needed investments, and environmental protection will fail. Smith (1993:2) adds that development can occur only if and when there is recognition of the need to sustain and expand the environmental resource base. Economic growth, he argues, in and of itself is insufficient for the purposes of development.

Three of the seven participants cautioned against development which does not take into consideration environmental concerns. One respondent gave the development of Kei Bridge as an example that might affect the environment. Such concern needs to be echoed by all political leaders if the vision of sustainable development is to be achieved. The desirability of development is universally recognised in the Eastern Cape. However, cognisance needs to be taken of the rising concern about whether environmental constraints will limit development and whether development will cause serious environmental damage and in turn impair the quality of life of today and future generations (World Development Report 1992:91). The

Eastern Cape political leaders and government officials need to develop policies which are consistent with the concept of sustainable development by integrating attention to the environment into all policies. Emphasis on development, as the results indicated, need not undermine the need to conserve biological diversity. Three participants referred to the need to conserve species.

The results of the study point out that, within the South African context, improvement of the quality of life of the majority of people is the first step towards developing an appreciation and respect for the environment. The ANC-IDRC-COSATU-SACP-SANCO Report (1994) urged the need for Reconstruction and Development to take the environment into consideration if development is to be sustainable. The call for sustainable development in South Africa will have to recognise not only removal of social inequalities and alleviation of poverty, but also sustainable utilisation of resources and conservation of biological diversity.

4.5.2 Economic issues

Economic issues were cited by six participants as part of the environmental challenges facing the Eastern Cape. Some participants argued that economic development will lead to an improved environment, while others saw an improved environment as necessary for economic development. To clarify the point, one MEC explained:

Environment is so important for the economy and development. Tourism can offer jobs to local communities. Creating jobs and alleviating poverty is important. Environment is tied up with economic building. Improving the economy is not only about purifying the environment but also improving the economy.

Referring to the economy-environment relationship, Turner et al. (1994: vii) point out that the environment is not a

separate entity from the economy. Changes in one affect the other. No economic decision can be made that does not affect the natural and built environments. At the same time no environmental change can occur that does not have an economic impact.

There was also a general recognition that environment, equity and economy are interrelated. The newly elected democratic government of the Eastern Cape has inherited an economy which reflects the divisions and inequalities of the society from which South Africa is emerging. Illustrating the need for justice in ecological issues one participant explained:

Environment and economy are closely interrelated. You can just look along the coastline, most of the holiday resorts are in the hands of rich people and poorer people don't even have access. A few people can use environment selfishly and it doesn't help at all. So you have to find a balance between people using it for living but not destroying it and people using it selfishly and so on. Environment and the economy are interlinked, but there is no simple interlinking because you can be exploitative.

Turner *et al.* (1994:29) argue that the very nature of environmental issues requires an extension (a 'greening') of the conventional economic approach to encompass, among other things, distributional equity and environmental quality. Again, economic growth is necessary in the Eastern Cape, but if proper safeguards are not in place, it will occur at the expense of the environment (an issue which few participants did point out).

Addressing the issue of the economy, equity and environment will require from the Eastern Cape sound policies and sensitive development strategies. Integrating the environment into economic and development policies is going to require strong and effective institutions, improved information, public participation and coordination between various government departments.

4.5.3 Agriculture

Six interviewees cited agriculture as a major environmental issue in the Eastern Cape. The predominantly rural nature of the province was linked to the need to develop agriculture that is sensitive to the environment. Agriculture was mostly linked with the unfair distribution of land as a result of past apartheid policies. Soil erosion was seen as resulting from the overconcentration of people, and bad farming methods and a lack of environmental awareness among commercial farmers and rural communities. Two participants also referred to the overuse of pesticides and herbicides by commercial farmers. Linking agriculture with the distribution of land one participant commented:

Environmental situation is critical in the Eastern Cape. Particularly with agriculture. How can you expect people to farm where there's no land? land is a problem. Most areas are bare. Cropfields are missing in the Transkei. Without agriculture what do people do for a living?

Another MEC linked agriculture with water scarcity and population:

This province, I think has got problems of.... It is a climatically dry province. Because of poverty and pressure of subsistence farming for so many people, there is pressure on water resources both population-wise and because it is an arid area. Because of forced agricultural method people have to use, like farming on the hillside, it is a problem.

Wynberg (1993) notes that the global inequalities of land and water allocation are matched in South Africa, although here the disparities are even more glaring. The ANC-IDRC-COSATU-SACP-SANCO Report (1994) asserts that land and the denial of access to land resources have been the key area of political conflict in South Africa. The ecological consequences of apartheid land policies are everywhere to see in the Eastern Cape, particularly in the former homelands of Ciskei and Transkei. The importance of land for rural economic

development and agriculture was recognised by a few participants, even though full expatiation on the matter was lacking. The importance of the land has been clearly spelled out by Yudelman (Letsoalo 1987:1):

It is not a coincidence that rights to land have played a prominent part in social, political and economic upheavals in countries with large peasant societies. Peasants rarely have anything other than land and labour to sustain themselves. Without capital, with limited mobility and few alternative opportunities for making a livelihood, they are tied to the land; threats to their position *vis-a-vis* the land are threats to their securities.

Practising agriculture is a matter of necessity for rural communities since there are hardly any job opportunities. The availability of land and its suitability is often a problem. While the issue of distribution of land was raised, there was no pointing out that effective land policies, legislation and clear division of competencies between national and provincial governments are necessary requirements.

Clear land policies that also recognise the need to practise sustainable agriculture are a challenge facing the Eastern Cape. The key for the future is sustainability of the land resource base. Measures to prevent further degradation of land and soil quality need to be undertaken if problems identified are to be rectified. Clear land policies are integral to the agrarian transformation in South Africa.

One participant referred to the environmental damage caused by commercial farming. South Africa's agriculture is still full of contradictions, mainly because of apartheid land policies and the way land is farmed. According to Cooper (1991:53) successful white commercial farming methods have been ecologically unsound, while on the other hand, in the former homelands of Transkei and Ciskei, there is environmental

crisis in agriculture. Frightening rates of soil erosion, widespread devastation caused by overgrazing and bush encroachment, hundreds of hectares of land wasted through overcropping and rivers that have run dry are the problems experienced. According to Caring for the Earth (1991), in many parts of the world current farming practices are not sustainable.

4.5.4 Soil erosion

Half of the interviewees perceived soil erosion to be a major problem, some linking it to a lack of environmental education and others to over-concentration of people in small areas. The causes of soil erosion have been identified as poor farming methods, including heavy overstocking, as well as the farming of marginal land unsuitable for cultivation. Blaikie (1985) argued that soil erosion is both an environmental process and an political-economic issue. In the case of the Eastern Cape, the land degradation and soil erosion may be linked to poor farming methods and homeland policies which concentrated people on unproductive land.

Durning (1992) argues that soil erosion in the former homelands like Transkei and Ciskei, is linked to poor land, politically enforced overcrowding, labour shortage and poverty. According to Wilson (1991) denying people agricultural skills added to the deterioration of the country's natural resources of soil and vegetation. In the former homeland of Ciskei, 46 per cent of the land is moderately or severely eroded and 39 per cent of the veld overgrazed (Cooper 1991).

There is a need to recognise that South African soils are susceptible to soil loss because of combined physical and human factors. Verster et al. (1992) assert that soil, one of

South Africa's most basic resources, is being lost to erosion at a frightening rate; this may well be the greatest environmental problem facing South Africa, yet the South African population appears to be most complacent about it.

Agenda 21 (1992), a programme of action emanating from the Rio Summit in 1992, emphasises the need to give priority to improving the capacity of potential agricultural lands to support the rural poor. For the Eastern Cape, which is poor and predominantly rural, part of the solution is to put agriculture on a viable ecologically sustainable footing. The challenge for new leaders is to develop agricultural policies that will promote sustainable agriculture and food security. Ensuring people participation and promoting human resource development for sustainable agriculture is going to be critical. A system of support in the form of education, technical services and credit need to be implemented.

4.5.5 Pollution

Air and water pollution were viewed as a major environmental problems. Five interviewees were concerned about water pollution. While some participants referred to general pollution caused by industry, four participants raised the problem of water pollution caused by sewage, pesticides and oil spillage from tankers. Water pollution was linked with inadequate sanitation and the negative health impacts on people and the environment.

The World Development Report (1992) points out that inadequate attention has been given to the environmental problems that damage the health and productivity of the largest number of people, especially the poor. Inadequate sanitation and urban sewage and industrial pollutants were viewed as contributing to water pollution. Emissions from industry and from domestic

energy consumption were seen as responsible for air pollution.

Lowe & Thompson (1992:197) describe pollution as the deliberate or accidental contamination of the environment with waste from human activities. It includes the release of substances which harm the quality of air, water and soil, which destroy or perturb biogeochemical cycles (linking people to animals and plants) and which damage the health of humans.

According to Coetzee and Cooper (1991) South African water is polluted by fertilizers, pesticides and municipal dumps. An inadequate water supply and sanitation infrastructure in most rural and urban informal settlement areas are a serious threat to human health. Though few participants referred to access to safe water, it remains a major concern in the Eastern Cape province. The health of many people, particularly children, is affected by diseases that can largely be conquered when adequate water supply and sewerage systems are installed.

According to Dewar (1991), air pollution is caused by insufficient control over industrial emissions. Lack of technical capacity for air pollution monitoring by local authorities is a problem. Pollution is further exacerbated by poor urban planning. In Port Elizabeth, for example, the Empilweni Tuberculosis hospital in New Brighton is down wind of the General Tyre, Everready and Novaboard factories.

The ANC-IDRC-COSATU-SACP-SANCO Report (1994) argues that South Africa's energy use patterns reflect the dualistic structure of her economy, society and polity. Inequities with respect to access to electricity are well documented in South Africa. Lack of access to electricity by many rural communities forces them to rely on wood, coal and paraffin. As a result indoor air pollution from burning endangers the health of many in both rural and urban Eastern Cape.

It might be important for political leaders and policymakers to realise that a number of factors have combined to contribute to environmental and health problems, especially in the former homelands of the Eastern Cape rural areas. The legacy of apartheid separatist policies and the limited carrying capacity of the natural environment all need to be recognised as new policies are formulated. Addressing the problems of health, pollution and the provision of infrastructure and services will require intersectoral approaches from both government and other role players. Emerging policies and strategies however do not point towards these necessary intersectoral approaches.

4.5.6 The coastline

The importance of the coastline was referred to by four participants. Three participants linked the coastline with the need to conserve marine resources. Two participants linked the coastline with ecotourism. Conserving the coastline and its marine resources is a challenge that needs to be recognised by all policy makers in the Eastern Cape. Any development along the coast will need to take into consideration the fragility of the pristine coastline, the rich biodiversity and marine resources, and the economic development of rural communities along the coast. It is also necessary to recognise the difficulties of managing the coastal zone, owing to the fact that different zones are managed by different departments and levels of government. Chapter 17 of Agenda 21 (1992) highlights the need for the integrated management and sustainable development of coastal areas and outlines objectives, management activities and means of implementation.

Linking the coastline with tourism, one MEC was cautious:

'Tourism...I think is untapped. But I am little bit concerned, eco-tourism is a buzzword and I think you

can have responsible and sustainable eco-tourism, but I am hoping it is not going to be another name for exploitation. But I do think with great sensitivity you can have responsible and sustainable eco-tourism which will support environment as well as people development which is terribly important.

While tourism for the Eastern Cape was viewed as having great economic potential, a few participants expressed concern about equity and access to the coast by all people. Wells (1995) cautions that tourism is claimed to be the world's largest industry and provider of jobs, although measurement is notoriously difficult and accurate statistics are scarce. While tourism can provide a major source of added revenue to conservation and economic and community development, its environmental impacts need to be taken into account. The building of highways and resort complexes in environmentally sensitive areas might have negative effects on the natural environment. The added generation of waste products might have an effect on the quality of water and the air. One MEC expressed his concern thus:

We need proper utilisation of resources, for example tourism, we will have to choose between the bright lights and ecotourism, otherwise we will mess up the coast :

To address the concern about equity, tourism needs to benefit the local communities economically, particularly those next to protected areas. Clear policies and strategies which encompass conservation, community development, distributional equity and environmental quality will be critical for sustainability to be realised in the Eastern Cape. There are, however, growing concerns that the choices between development and nature-based tourism will diminish as more and more developments along the sensitive coastal areas are mooted.

4.5.7 Water scarcity and lack of clean water

Four participants raised the issue of pressure on scarce water resources and the lack of a clean water supply to rural communities. One interviewee linked scarce water resources with the dry climate of the Eastern Cape province, a fact that needed to have been recognised by participants. Water is basic for survival and is essential for agricultural, industrial and social development. It is critical for political leaders in the Eastern Cape to be aware that South Africa is a water-scarce country, and that the management of water resources is a key policy issue underwriting future economic and social development (ANC-IDRC-COSATU-SACP-SANCO Report 1994).

Four participants referred to the lack of access to clean water by rural communities. The quality of water is a problem that needs to be recognised by political leaders. According to O'Keefe (1992) water quality is deteriorating in a number of ways as more pressure is put on the scarce supplies. Inequality in domestic water consumption is an issue that needs policy attention.

The majority of rural communities are faced with problems of access to domestic water. Consumption of water in white households, on the other hand, is between 250 and 300 litres of water per person per day, in comparison with the World Health Organisation standard of 50 litres per person per day. The growing demand for access to water by rural communities will have to be addressed. Industry and agriculture are also putting pressure on water supplies.

Failure to encourage water conservation and to introduce a realistic pricing structure will put increasing strains on water authorities' capacity to meet rising demands and to extend piped water to those inadequately served.

Education on the value of water and the need to conserve water is essential for everybody. A more integrated approach to management of water resources is needed, in which all the other activities which may affect the water supply are appropriately regulated.

4.5.8 Forestry

Two participants referred to the failure of forestry to meet social needs, while one linked deforestation to the absence of electricity. The ecological benefits of forestry were not pointed out, and it is important for policy makers to recognise the ecological, climate-control, social and economic values of forests, particularly in South Africa which is poorly endowed with natural forests. At the same time, the potential harm of commercial afforestation to the ecosystem needs to be prevented. Many plantations have been established in the water catchment areas of principal rivers in South Africa. This has had direct effects on downstream water users and river systems, particularly in drought-prone areas.

In many rural areas and some urban parts of the Eastern Cape, fuelwood remains the primary energy source for the majority of people. Elliot (1994) argues that inequalities in access to resources threatens the prospects for sustainable development in many ways. Large numbers of people are confined to poverty which often leaves them with no choice but to degrade and destroy the resource base on which their future livelihoods depend. 'Caring for the Earth' (1991) appeals for the need to view forests as a priceless natural resource to be sustained for the long-term benefit of humanity. Agenda 21 (1992) calls for policies which will enhance protection and sustainable management of forests while also attending to the needs of forest communities.

The ANC-IDRC-COSATU-SACP-SANCO Report (1994) urges the need to recognise that the forestry sector has several competing roles to fulfill, being required to meet ecological, social, cultural and economic needs. While the right to electricity is fundamental to improving the quality of life, the provision of electricity is fraught with a variety of local and global problems. South Africa's coal-burning power stations are not only polluting the air but are believed to be contributing to the subtle warming of the earth (Lewis 1991:127).

4.5.9 Population

Three respondents raised the issue of population. One participant linked it to the pressure it puts on water resources, whilst two others linked population with the over-concentration of people in small areas and the former homelands of Transkei and Ciskei. Because of the politics that used to surround population issues in South Africa, the issue has always been sensitive and little discussed. Simkins (1991) argues that pressure on the environment is increased by high birth rates among the poor of South Africa, but above all by the artificial movement and distribution of that population.

Lack of development, the dependent status of most women and the inaccessibility of family planning centres all contribute to population growth and consequent deterioration of the environment in the 1990s. Whilst apartheid policies have contributed to creating the problem of population, the challenge now is for political leaders and policy makers to acknowledge the problem. Strategies and policies will be needed which link population issues with development. Section five of Agenda 21 calls for population programmes that are part of broader policies that also deal with such factors as ecosystems, health, technology, human settlements, socio-economic structures and access to resources. Emerging

environmental education will need to be sensitive to gender issues, and to the historical, cultural and political nature of population issues in South Africa.

4.5.10 Litter

Two participants referred to litter as a problem. While litter might not be the major environmental problem, it is becoming an increasing concern in the Eastern Cape and a factor which needs to be acknowledged by political leaders as one aspect of the broader solid waste management strategy. The visibility and unsightly nature of litter need not be emphasised here.

Poor refuse collection systems, the lack of participation in local government decision-making processes in the past, failure to pay for municipal services, and, to some extent lack of environmental awareness, are some of the reasons for the litter problem in most urban and rural areas of the Eastern Cape. The World Development Report (1992) argues that poor neighbourhoods generate lower amounts of solid wastes per capita but typically receive the least service. The problem of refuse collection needs to be seen against the history of residential segregation with associated unequal service provision, which was followed by boycott of payment of services.

4.5.11 Conclusion

On the whole, the data and results show that key environmental issues in the Eastern Cape were identified, though most issues were not thoroughly explored or understood in-depth.

Participants managed to link environmental issues with economic, development and justice issues, though without extensive elaboration. The results indicated that there is a general awareness of environmental issues without deeper

understanding of the complexities of environmental issues and their implication for policies.

The challenge is to develop a deeper understanding of environmental issues capable of generating sound policies that recognise the intersectoral nature of the problems. Information on major environmental issues for decision making is going to be critical in the policy formulation process.

4.6 Political leaders' views on environmental factors that might affect public health

The question (Appendix 1 Question 3), 'What do you think are environmental factors that might affect public health?' was based on the premise that health, environment and development are intimately interconnected. The question was therefore asked specifically to explore with participants the link between health, development and environment. The question also sought to ascertain the political leaders' perception of how major environmental issues identified in question 2 (poverty, poor quality water, inadequate sanitation, air pollution, etc) are impacting on health. A survey of environmental health issues will be followed by presentation of the results in Table 4.3.

4.6 1 Major environmental factors that might affect public health - an exploration

A quality environment is often regarded as a fundamental prerequisite for good health. Chapter 6 of Agenda 21 (1992:42) states that health and development are intimately interconnected. Insufficient development often leads to poverty, while inappropriate development - resulting in overconsumption and environmental damage - can result in severe environmental health problems in both developing and developed nations.

Looking at the environmentally-related health priorities of developed and developing countries, Barwise (1994:12) asserts that the concerns of the West are largely to do with increasing levels of pollution from industrial, commercial and domestic activities. Developing countries, on the other hand, suffer from poverty as well as pollution.

The problems are often severe in the rapidly industrialising countries, where environmental regulations are less clearly defined. Overcrowding in many urban areas, inadequate sanitation in both urban and rural areas, air and water pollution, solid and hazardous waste, and land degradation, are all major contributors to poor health. Droughts and flooding in some countries have significant environmental effects with major impacts on human health.

In many developing countries, natural resources are frequently exploited without due regard for environmental protection, causing erosion of fertile lands, silting of rivers and contamination of land and water resources. The result all too frequently is a poor quality of life where large sections of the populations are susceptible to infectious diseases.

According to the World Development Report (1992), for many people in developing countries, a clean water supply and solid waste disposal are the most important environmental issues. The World Report (1992) further adds that the primary objective of improved sanitation is to raise the quality of life of people and to protect the environment. Wilson & Ramphela (1989) point out that one of the most unpleasant aspects of poor housing in South Africa relates to the absence of proper sewage disposal and garbage removal services, factors which cause disease.

Chapter 6 of Agenda 21 (1992) further argues that health and

the environment are intimately related, and that health ultimately depends on the ability to successfully manage one's physical, biological, economic and social environments. With problems in all these areas present to some extent in the Eastern Cape, political leaders are faced with environmental health challenges.

TABLE 4.3 Political leaders' perception of environmental factors that might affect public health

Categories	Frequency of occurrence
Pollution	
Air pollution	8
Water pollution	4
Waste Management	
Dumping of municipal waste	3
Medical waste	2
Toxic waste dumping	2
Development Issues	
Lack of access to clean water	4
Poor sanitation	4
Lack of electricity	3
Policy	
Devolution of environmental powers to provinces	3
Participation	
Environment is an inclusive process	3
Environmental Education	
Lack of environmental awareness	2
Lack of knowledge to deal with waste	2

4.6.2 Air and water pollution

Air pollution was viewed as a major factor that might affect public health. Four participants cited poor sanitation, lack of access to clean water and water pollution as factors that might affect public health. Air pollution was linked with emissions from industry and the use of fuelwood by the majority of participants. The emphasis on air pollution even in the Eastern Cape perhaps indicates the role of the media as

a source of environmental education for many people. The publicity that Soweto and the Eastern Transvaal had received as a result of their high levels of air pollution has helped to create a general awareness of the impact of air pollution on health.

The availability of air that is safe to breathe is as important as safe water. According to Terblanche & Sithole (1996), of all forms of pollution, air pollution seems to pose the greatest and most widespread health hazards and environmental problems. Unequal access to electricity in South Africa forces the majority of people to rely on the use of coal, wood and paraffin for fuel, which in turn is responsible for indoor air pollution. Referring to problems that might affect health, one political leader was brief:

Public health is affected mostly by our inability to cope with waste management for example sanitation.

One political leader was keen to expatiate on the problem:

Well public health... if you do not have access to clean water, public health will be affected because that alone causes all sorts of diseases. Toxic dumping is also a problem. Dumping of municipal waste next to residential area especially with industrial waste. In Soweto where large number of people use coal, a lot of problems are found like chest related problems and asthma. because of the polluted air in and around Johannesburg, control of car emission of carbon monoxide is necessary. The idea of talking about lead-free petrol is to ensure the control of pollution of air therefore encourage industries to be sensitive to environmentally-friendly related products.

Thus some environmental factors affecting public health were identified, though without much elaboration. Water pollution was not identified by many participants as a major environmental health issue in the Eastern Cape (Question 2 & 3); indeed worldwide the provision of clean water and sanitation is often omitted from the list of priority environmental challenges, yet it affects the health of many people in many countries. The World Development Report (1992)

points out that the health of hundreds of millions of people is still threatened by contaminated drinking water.

Diarrhoeal diseases that result from contaminated water still affect a number of children in the Eastern Cape. A study of seasonal patterns of disease undertaken by Nagle (1995) in Ndevana in the former Ciskei indicated that respiratory complaints among women and children were concentrated in the winter months of June and August. Enteritic complaints were more likely to occur in summer, as they are associated with contaminated water supplies and parasitic viral pathogens.

Hardoy *et al.* (1992) caution that failure by governments to adopt or implement pollution controls and to install and operate adequate systems for sanitation and solid waste collection will mean ever-increasing pollution loads in local water bodies.

4.6.3 Waste management

Pollution of water was associated with poor sanitation and poor waste management by more than half of the participants. Some interviewees cited poor waste management as the problem. The dumping of municipal, industrial and toxic waste was raised by three participants. Three participants referred to the dumping of municipal waste next to poorer communities. The lack of environmental awareness and the ability to deal with waste were raised by a few interviewees.

According to Dewar (1991:95) the dumping of waste by industry in rivers is a cause of extensive ecological damage, particularly in the former homelands of Transkei and Ciskei where the desire to attract industry led to lax controls. Some of the water courses of Umtata in Transkei, he claimed, are severely polluted.

4.6.4 Devolution of functions

Three participants pointed out the devolution of functions to provinces as important in regulating environmental health matters. One participant emphasised the matter thus:

The problems is that environmental powers are not known, what needs to be done. National needs to devolve functions to provinces.

While there was no elaboration on this issue by participants, it is important to note that the division of environmental protection functions between local, provincial and national governments is likely to cause confusion, duplication and failure to enforce the laws. Air pollution functions and waste management present typical examples of such fragmentation.

4.6.5 Participation in decision making and education

Three participants said that the participation of people in decision making processes related to environmental health was important, while four participants referred to environmental education as important in solving environmental health issues (see 5.6).

The new provincial government in the Eastern Cape and its policy-makers need to give urgent attention to environmental damage that harms human health. Priorities for sound environmental policies need to be set in an informed and cost-effective manner by policy-makers. The challenge is to ensure that planning and decision making on policy issues relating to the environment are done inter-departmentally. Strengthening institutional capacity, the collection of basic environmental data through research, and education, are critical in the process.

4.7 Possible solutions to environmental factors affecting public health

A quality environment is a fundamental prerequisite for good health. Environmental pollution and degradation together with poor social conditions can have a major impact on human health. The question (question 4 - Appendix 1), 'What do you think are possible solutions to the problems affecting health?', was asked so as to elicit from participants their ideas on what sorts of action can be taken to address public health problems associated with poor environments. An overview of solutions to environmental factors affecting public health will be followed by Table 4.4 presenting the results.

4.7.1 Solutions to environmental factors affecting public health - an overview

The Bill of Rights in the new Constitution of South Africa states that everybody has a right to an environment that is not harmful to their health or well-being. Chapter 6 of Agenda 21 (1992:42) addresses the impact on health of pollution and poverty. According to the recommendation of Agenda 21, by the year 2000, every country should incorporate environmental health considerations, including assessments of the impact of pollution, into its development policy. Political leaders and policy-makers need to set priorities for incorporating environmental health considerations into broader environmental policy.

Agenda 21 further recommends that all countries assess the environmental suitability of infrastructure, i.e. the adequacy of shelter, water supply, sanitation, drainage, solid waste management; and implement environmentally sound technology to ensure that the environment, human health and quality of life are protected. The World Health Organisation Commission, too, has asserted that health and environment are related and need

to be considered in the broad context of overall development (WHO 1995).

In the Eastern Cape, to build adequate shelter and to supply clean water and proper sanitation, are among the aims of the Reconstruction and Development Programme. The quality of housing is a significant factor affecting health. According to Ramphele (1991) housing quality extends beyond the availability of water or sanitation facilities. Overcrowding, dampness, inadequate insulation, pest infestation, noise, dust, inadequate drainage and insufficient ventilation all contribute to the health risk associated with substandard housing. Women and children, who spend more time in the house, are more exposed. According to the World Development Report (1992) investments in providing clean water and sanitation have some of the highest economic, social, and environmental returns anywhere.

The challenge of providing basic infrastructure to address environmental problems will be confronted by the type of policies and strategies emerging from the new government. The linkage of health with environmental and socio-economic improvements requires intersectoral efforts. One of the most urgent challenges is to provide for the basic needs of the poor and thereby alleviate health problems. In Western industrialised countries environmental reforms such as the introduction of clean water supplies, sewerage systems and better housing, were largely responsible for the decline in the major endemic infectious diseases (Haynes 1995:335).

Table 4.4 Political leaders' views on possible solutions to environmental factors that might affect public health

Categories	Frequency of occurrence
Development Issues	
Provision of clean water	3
Provision of sanitation	2
Building proper houses	2
Develop proper infrastructure	2
Provision of services	2
Programmes of the RDP to be integrated with attention to environmental problems.	2
Environmental Education	
Environmental Education programmes	7
Environmental Education or Health Education not the solution	4
Sensitise policy-makers	2
Conscientious communities	2
Political Issues	
Appropriate environmental laws	3
Distribution of land	2
Establishment of strong Environmental Advisory body	2
Strong local government policies	2
Environmental Management	
Control of medical waste disposal	2
Acceptable levels of pollution	2
Control of hazardous waste	2
Clean technology	1

4.7.2 Solutions to environmental factors affecting public health: discussion of results

Question 4 (see Appendix 1) dealing with solutions to environmental factors affecting public health elicited lively discussion, with participants keen to give solutions to the problems. Solutions ranged from the provision of clean water to environmental education and the need for effective legislation and proper environmental management.

Provision of water, sanitation, houses and proper solid waste management were cited as solutions to environmental problems affecting public health. One political leader explained:

'We need to provide proper houses and infra-structure for people. I think we have enough land, if we do it according to a policy that is not an apartheid policy. I think a lot depend on that policy'.

One respondent viewed lack of money as a hindrance to provision of services. Holmberg (1992) acknowledged that financing sustainable development during the 1990s will be constrained and new and innovative ways of financing development will need to be developed. No matter how great the will to provide infrastructure for the poor and meet their basic needs, financial realities are likely to be a constraint.

4.7.3 Environmental Education

Seven participants referred to environmental education as a solution to some of the problems, while four specifically referred to health education (see 5.2). There was general acceptance that environmental knowledge is lacking among both political leaders and the general public. Participants suggested education through campaigns to sensitise policy makers and conscientise communities as a means of promoting environmental education. One participant emphasised the inclusion of environmental education in the curriculum as a key factor (see Table 5.4).

According to UNESCO (1992) general education which promotes the development of an informed and committed citizenry is the foundation for sustainable development. Ignorance is a serious impediment to finding solutions to some of the environmental problems. Decisions by government in the absence of environmental information can have far-reaching negative

effects on the environment. Environmental education for everybody is essential for progress along the path to sustainable development. A rethinking of guidelines, principles and content is necessary to achieve a more balanced view of the need to protect the environment and take into consideration other health and development issues. For the Eastern Cape, a coordinated strategy may be a requirement to ensure the integration of appropriate elements, including health matters, in environmental education.

Two participants emphasized that environmental education alone cannot solve problems affecting public health. One interviewee explained:

'Environmental education by itself for me, it seems is a waste of time. Just to say we are going to promote EE is not enough. That's not to discourage you people who are in this things. I know there are a lot of people who produce a lot of pamphlets for us. I hardly have time to read them. I believe we need to reconstruct society. We need to improve quality of life and ensure that the subjects taught at school should touch on environment - biology, geography agriculture or science'.

Another interviewee added that 'We must also find substitutes for people if we say they must not chop trees'. Sterling (1993:69) cautioned against what he referred to as 'a simple equation of more environmental education leading to a more sustainable society'. While acknowledging the importance of environmental education, he argues for policy changes and general transformation (See 5.7).

4.7.4 Political and institutional arrangements

Appropriate laws for the protection of the environment were viewed by some participants as essential. One political leader responded:

'What is required is to have regulations. So what you really need as a starting point in any country is a regulatory framework legislation that creates an enabling environment so that at least you got some law enforcement, you have got monitoring mechanism and you set standards in terms of those laws. For example you have to determine what is the acceptable level of pollution of air, what is the acceptable pollution of

water. In other words the degree to which at least you minimise negative factor of human life or animal life or ecosystem in any particular area'.

The new national and provincial governments are faced with the challenge of creating environmental policy and legislation that is integrated and effective. The general view was that there must be diversification in policy formulation, that is, while all policies are to be determined nationally for the sake of uniformity in legislation, provincial input is necessary. Provinces need to focus on their specific environmental needs.

This view supports the recommendations made by the ANC-IDRC Mission Report on Environmental Policy (1994) that the new government needs to develop a coherent national policy framework, and should work in partnership with provincial governments and local authorities and civil society to implement policy.

Two participants referred to the re-distribution of land as a solution to public health problems. Overcrowding has been attributed to the unequal distribution of land. While the issues might not seem to be related, environment and health issues are closely related to land and development policies.

The establishment of an environmental advisory body was viewed as a way of enabling previously excluded groups and civil society in general to participate in matters relating to the environment. Participation by civil society in environmental matters is one of the principles of sustainability and the objectives of the Reconstruction and Development Programme.

Strong municipal policies were seen by a few respondents as critical to the environment. Most environmental services are delivered at local government level. Effective environmental

policies will have to involve local government. Finally the control and proper management of medical, industrial and municipal wastes were viewed as important.

4.7.5 Conclusion

Solutions were suggested for dealing with environmental problems that might affect public health. While many appropriate solutions were raised there was no thorough discussion on how to go about implementing the solutions. World Development Report (1992) points out that improved environmental management requires strong public institutions, policies for environmental protection and public participation. Among the major problems identified by the ANC-IDRC-COSATU-SACP-SANCO Report (1994) are the fragmentation of policy and ineffective enforcement. The ANC-IDRC-COSATU-SACP-SANCO Report (1994) recommends that the new government needs to develop a coherent national policy framework for environmental management and should work in partnership with provincial governments, local authorities, the private sector, the labour movement and civil society to implement well-developed policies.

4.8 Political leaders' perceptions of the term 'environmental quality'

Question 5 (Appendix 1) asked 'What do you understand by the term environmental quality?', in order to explore political leaders' views and perceptions on the concept 'environmental quality', and to show how major environmental issues and problems already identified could affect the quality of the environment, and how proposed solutions could enhance environmental quality. Theoretical exploration will be followed by presentation of the results in Table 4.5 and discussion.

4.8.1 'Environmental quality' - theoretical exploration

The new Constitution of South Africa states that environmental quality is one of the fundamental rights of citizens. Environmental quality is viewed generally as a broad subjective concept which means different things to different people. Spencer & Goodall (1992:293) argue that perception of environmental quality may vary according to social class and lifestyle. People may view the environment differently because of their different circumstances. Owens and Owens (1991) argue that although it is now recognised that environmental protection is as much a basic need as an aesthetic or spiritual one, much conflict, especially in developed economies, still revolves around the less tangible aspects of environmental quality - an unspoilt rural landscape versus development and jobs. A more holistic approach to the concept of environmental quality which recognises the interaction of both natural and human dimensions of the environment is likely to be useful.

Spencer & Goodall (1992:292) point out that it is debatable which of a multiplicity of factors should be taken into account when assessing environmental quality in an urban setting. Four broad areas are identified:

First, there is the question of housing. Second there is public health and safety concerned with the prevention of diseases, accidents and pollution. Third, there is the provision of an efficient environment which facilitates human activities and movement. Fourth is the creation of an environment which maximises people's comfort and enjoyment of living: here more intangible amenity variables, such as privacy, visual and aesthetic beauty are important.

In the Eastern Cape, which is characterised by poor urban and rural environments in some areas, environmental quality is likely to be associated with problems of poor housing, lack of basic services, lack of access to clean water, bare and degraded environments. The World Resources Institute (1996)

points out that the extent of natural resource degradation and depletion needs to be included in considerations of environmental quality because for many of the poorest segments of the population, environmental quality depends on the state of natural resources upon which their livelihood and day-to-day sustenance depend. Areas characterised by degraded lands, soil erosion, depletion of marine resources and polluted water and air cannot enhance the quality of the environment or the people.

Patrick Geddes (1854-1933), regarded as a founding father of environmental education, is associated with making links between the quality of education and the quality of the environment (Martin & Wheeler 1975; Palmer & Neal 1994), a connection which is often missing in the emerging South African environmental education debate. Both the quality of the school environment and the quality of the domestic environment from which the schoolchildren and teachers come, are likely to have an impact on education in one way or the other.

Table 4.5 Perceptions of the term 'environmental quality'

Categories	Examples of responses	Frequency of occurrences
Pollution	'pollution-free environment'	5
Environment preservation	'the degree to which environment is preserved and protected'	4
Environmental management	'level of efficient and effective environmental management'	4
Enhancing environment	'The kind of environment that make you feel refreshed and rejuvenated'	3
Development	'Transformation of conditions that face people because environment is not separated from problems confronting people today'	3
Aesthetics	'Environmental quality is also about the beauty of environment'	2
Participation	'People must participate in improving the quality of their environment'	2

4.8.2 'Environmental quality': discussion of results

The question on environmental quality generated pauses and some reflection, indicating the difficulty of explaining the concept. With further exploration, varying responses were generated. Five interviewees said environmental quality has to do with a pollution-free environment. Two respondents referred to the 'clean, uncontaminated air of the rural areas' as an example of environmental quality.

Four participants referred to preservation and protection of the environment as part of environmental quality. One participant elaborated:

Environmental quality refers to the degree to which your environment is preserved and protected to the highest possible standards.

One participant added:

Environment which is of quality is, the one where issues of land, agriculture, air, water are not negatively affected, but are preserved and conserved.

Environmental management was cited as a means of ensuring environmental quality. One participant was brief:

Environmental quality entails the level of effectiveness and efficiency in managing the environment.

Addressing basic needs was viewed by three participants as part of environmental quality. One participant made his point:

Transformation of conditions that face people. Environment is not separated from what is confronting people everyday. Environmental quality means improving economic conditions, providing clean water and sanitation and people participating in decision-making to change their conditions.

Different responses from participants reflected different perceptions of the concept environmental quality. Two participants referred to aesthetics as part of environmental quality. One participant explained passionately:

Aesthetics...it's part of environmental quality. I like to compare Port Elizabeth city with Grahamstown. As you drive out of P.E., you can smell and see pollution, the air is polluted. But as you approach Grahamstown, you can smell the clean air, the beauty. The air is white not grey, it's like something you can touch, especially in the mornings, when the sun is young, it's as if you can get out of your car and breathe the clean, uncontaminated air. The vegetation is also beautiful. In the rural areas the beauty is still uncontaminated.

The participation of people in decisions relating to the improvement of environmental quality was referred to by two participants. One participant emphasised:

People need to participate in the decision-making processes about improving their environment, that is important.

The complexity and difficulty of explaining the term was captured by one respondent:

It is an interesting one. I would say the ideal is a sort of pristine environment, where everything is perfect. But I think actually of sustainability and regeneration. You have to maintain the whole broad spectrum from economic viability to aesthetics. If I go to the beach, it should be clean for instance. Not that there shouldn't be buildings because that would be impossible, but I think it relates to sensitive interaction between people and nature and then I think very important it should be aesthetic and its regeneration, sustainability.

4.8.3 Conclusion

Overall, the results indicated a general understanding of environmental issues in the Eastern Cape. In-depth knowledge and understanding of environmental issues were however lacking in most instances, although participants could link the environment with issues of development, economy, equity and justice. Perceptions and understanding of environmental issues, problems and solutions seemed to have been influenced by a number of factors, historical, socio-political, cultural and economic. In some instances the political and rural experiences of participants, the media and recent work experiences had also apparently played a contributory role in shaping their perceptions of environmental issues in the Eastern Cape.

Poor sanitation, lack of access to clean water, water and air pollution, disregard for the fragile nature of the environment through greed or ignorance, were all viewed as key environmental issues. Issues of population and values were not emphasised whilst consumption patterns were hardly touched. Apartheid policies were seen as having played a major role in many of the environmental problems. Lack of environmental information was viewed as contributing to the existing environmental problems.

Political participation, provision of basic services, socio-economic development and environmental education were seen as aspects of the solution to environmental problems. The environmental issues identified by participants echo those emphasised in the Rio Declaration on Environment and Development (1992). According to Agenda 21 (1992), establishing sustainable livelihoods will mean addressing the problems of soil erosion, land degradation, depletion of natural resources, loss of fuelwood supplies, inadequate sanitation and lack of access to clean water.

There seems to have been a general appreciation of environmental matters with more emphasis on development and poverty issues than on ecological and conservation aspects. Appreciation of the intersectoral nature of the environment was evident and the implication of this policy was recognised. In view of the paucity of informed knowledge of environmental affairs shown in the results, the challenge is for political leaders to move beyond their immediate perceptions and experiences to a wider and better-informed understanding. Any environmental education or environmental information that will address this challenge need to be sensitive to the broader political, historical, development and justice issues which were emphasised by the participants.

Chapter Five

Results and Discussion of Data:

Environmental Education Issues.

The root cause of environmental problems is the way in which human societies organise themselves and their interactions with the natural world. Current forms of social organisation and development condemn many people to live in poverty in unhealthy environments. At the same time, they often make use of natural resources and services in ways which are not sustainable in the long term. If environmental education is to respond to this challenge, it should be cast in a socially critical framework. (Huckle 1990 in Sterling & Cooper 1992:76)

5.1 Introduction

This chapter deals with the results and discussion of responses concerning environmental education issues (see Appendix 1 questions 6-11). Globally, environmental education is increasingly being seen as an appropriate response to many of the environmental problems identified (see Table 4.2). According to Sterling (1993:69), 'the commonly stated aim of environmental education is to nurture a 'new ethic' which will underpin and guide societies towards environmental sustainability and equity'. Given this important role, political leaders' perceptions and understanding of the role of environmental education are important as environmental and development policies are being developed.

5.2 The role of Environmental education - theoretical overview

Literature on environmental education (Our Common Future 1987; Sterling 1993) acknowledges the role of environmental education in promoting ecological sustainability and socially just patterns of living. Sterling (1993:69), however, cautions

against oversimplifying the role of environmental education. A more critical conception of the role, nature and potential of environmental education as a transformative agent of personal, social and planetary change is required.

The Belgrade Charter (Tilbury 1994:6), coming out of a ten-day international Environmental Education Workshop in Belgrade after the Stockholm Conference (1987), places great emphasis on environmental concerns being inseparable from other major global issues like poverty and development. The charter called for the establishment of harmony between humanity and the environment, as well as the eradication of the basic causes of hunger, poverty, illiteracy, pollution and exploitation. These recommendations have implications for environmental education, particularly in the Eastern Cape where poverty, illiteracy and environmental degradation exist. Such considerations will necessitate the rethinking not only of the goals and content of environmental education but also of its pedagogy.

Within the context of the Eastern Cape, poverty and sustainable development need to be viewed as environmental education issues. Environmental education has a role to play in addressing world poverty, social justice and sustainable development. The World Commission on Environment and Development (1987:xiv) pointed out:

Those who are poor and hungry will often destroy their immediate environment in order to survive: they will cut down forests; their livestock will overgraze grasslands; they will overuse marginal land: and in growing numbers, they will crowd into congested cities.

The consensus reached at the United Nations Conference on Environment and Development (UNCED 1992) made it clear that just as there can be no future if the natural environment - the material base of life - is destroyed, so there can be no

future for humanity if it is diminished by poverty, illness, ignorance or tyranny (UNESCO 1992).

Addressing the issues of environmental education and development, Huckle (1993:34) argues:

Change will not come about primarily by changing people's beliefs and values, but by creating the material conditions which shape their outlook.

A multiple strategy for addressing environmental challenges is increasingly being recognised. Developing sound environmental education policies and appropriate strategies is vital in the search for environmental knowledge and sustainability in the Eastern Cape province. According to UNESCO (1993:3) this could be achieved through environmental education whose objective is to develop a world population that is aware of, and concerned about, the environment and development and associated problems, a population which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones.

5.3 Political leaders' views on the extent to which environmental education can solve environmental problems

The role that environmental education can play in solving some environmental problems is increasingly being realised, both globally and locally. Chapter 36 of Agenda 21 (UNESCO 1993:1) states that education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues. The inclusion of environmental education in the curriculum in South Africa points to the recognition of the role environmental education can play in the move towards sustainable development.

As a follow-up to the questions on major environmental issues and the solutions to some of the problems, the question 'To what extent do you think environmental education can solve some of these problems' (refer Appendix 1 question 6) is aimed at exploring political leaders' views on the role environmental education can play in solving some of the environmental problems experienced in the Eastern Cape. The results are shown in Table 5.1, followed by discussion and interpretation.

Table 5.1 Political leaders' views on the extent to which Environmental Education can solve environmental problems

Categories	Examples of responses	Frequency of occurrences
Environmental Education		
Agree	'Environmental Education can go a long way towards solving environmental problems'	7
Not sure	'EE alone cannot solve all environmental problems'	5
Method of teaching	'EE needs to teach the dialectics of environment'	2
Development		
Provision of services	'Not impressed with environmental education or health education. People know their problems, I don't think they need education they need decent services'	5
Political Issues		
Legal frameworks	'there is a need for environmental laws'	2

5.3.1 Discussion of results

Seven participants agreed that environmental education can solve some of the environmental problems. One political leader was optimistic:

Environmental education is step number one in addressing all these issues.

Half of the participants felt that environmental education alone is not enough. The need for provision of services was referred to by some of the participants. Two respondents felt environmental education should be undertaken within RDP programmes.

One political leader expressed her views as follows:

Environmental education should solve some of the problems. Our communities are ignorant. Environmental education should be included in the curriculum. Environmental education centres are needed. But deprivation have no alternatives, trees are seen as firewood, people use whatever they see. Education must go together with provision of basic needs.

Another participant was direct about his views:

Environmental education just by itself is a waste of time. We need provision of services first.

The results revealed that most political leaders acknowledged the role of environmental education in solving environmental problems. There was also a view among half the participants that environmental education alone cannot solve every problem. Development and the provision of basic services were also deemed necessary.

There is a need to guard against a one-solution approach to the myriad of environmental challenges facing the Eastern province. Discussion and documents coming out of the Rio Summit (1992) have indicated that solving environmental problems requires a variety of approaches. To address the region's problems, various strategies, including environmental education, will need to be employed.

Two participants referred to poor teaching methods which failed to show the relationship between nature and human beings. One participant reminisced about the poor ways in which nature study was taught. According to the Report from the ANC-IDRC International Mission on Environment Policy (1994), this situation has been compounded by a tendency, in the past, for environmental education to focus on the protection of animals and plants only.

Three participants echoed the need for environmental education to include development issues and recognise the political history of education in South Africa. One political leader

explained:

There is a need for a dialectical materialistic perspective on environmental education. An analytical, theoretical debate is necessary, there ought to be a continuous debate. But we must look at the provision of social services.

Ideologies associated with dialectical materialism question the political and economic structures of society. So, in a sense, does the red green ideology (see 1.4) within the environmental education debate in South Africa. Speaking of social change in an educational setting, Fien (1993a:34) argues:

Ecosocialists also want to replace the values of the Dominant Social Paradigm with those of the New Environmental Paradigm. However, they argue that the transformation of personal values must be accompanied by transformation of social and economic structures.

One participant suggested changes in environmental laws that will affect environmental education. Though there was no elaboration on the issue, it is acknowledged that political transformation in South Africa necessitates new environmental education policies and values.

5.4 Political leaders' understanding of the term 'environmental education'

As environmental education is seen as an agent of social change towards sustainability, it is important to explore political leaders' perceptions and understanding of the concept. Political leaders will have an important role to play in the reconstruction and renewal of environmental and educational policies. The question 'What do you understand by the term environmental education' (Appendix 1 question 7) was asked to explore participants' views and understanding of the term.

A theoretical overview of the concept 'environmental education' will be followed by presentation of the results and their interpretation and discussion.

5.4.1 The term 'environmental education': a theoretical overview

There are many definitions of environmental education and nearly all of them stress its breadth and complexity (Sterling & Cooper 1992). The political and economic dimensions of the concept make it particularly difficult to define. The Tbilisi Conference (1977), the first International Conference on Environmental Education, defined environmental education as follows:

Environmental education, properly understood, should constitute a comprehensive lifelong education, one responsive to changes in a rapidly changing world. It should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values. (Tilbury 1994:8)

Martin & Wheeler (1975:2) argue that 'the terms "environment" and "education" are difficult to define as there are almost as many opinions about their meaning as there are people to express themselves on the subject'. Palmer & Neal (1994:12) concede that despite the many attempts which have been made to define the term 'environmental education', particularly during the past twenty five years when many critical problems facing the planet have been acknowledged, the content of environmental education is still problematic. Acknowledging the interdisciplinary nature of environmental education, Buzzati-Traverso (1977:74) cautions:

The field under discussion is vast and multifaceted; it should be approached with a holistic attitude in that human beings and the innumerable components of

physical and cultural environment should be examined together in order to identify the complex and often hidden interactions which determine the pattern of human concerns.

The combination of the two complex and ideological concepts; 'environment' and 'education' has been discussed by Buzatti Traverso (1977:84). He argues that environmental issues are contested, and that the very educational processes by which environmental issues are studied are also subject to the influence and struggles of a range of interests. In South Africa, where both education and access to natural resources have been areas of bitter contestation, defining the concept 'environmental education' is likely to be even more difficult and complex. Greenall (1987) describes environmental education as political, both as an educational process and as a social force.

TABLE 5.2 Political leaders' understanding of the term 'environmental education'

Categories	Examples of responses	Frequency of occurrence
EE		
Awareness raising	'It is a process of making people aware'	5
Transmission of knowledge	'EE can be understood as providing useful information so that people can be in better control of their circumstances'	4
Subcategories of EE		
Who needs EE	'Schools, rural communities politicians, administrators and officials'	5
What is EE about	'about environmental problems' 'informing people of their rights' 'learning about cohabitation of different species'	4
How to teach EE	'EE to be taught as a science' 'EE to be looked at critically' 'Conscientise people'	4
Where to teach EE	'At community level' 'schools' 'NGOs' and in 'forums'	4
Participation people taking care of environment'	'EE is about participation of	3
Economic Development	'EE means people participating in economic development as well as general transformation'	2

5.4.2 Discussion and interpretation of results

The conceptual question did not prove to be easy. In most instances, it generated some reflection among participants, and various views on environmental education were elicited. Views expressed ranged from the recognition of environmental education as an awareness-raising process to opinions on how

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5.4.2 Discussion and interpretation of results

The conceptual question did not prove to be easy. In most instances, it generated some reflection among participants, and various views on environmental education were elicited. Views expressed ranged from the recognition of environmental education as an awareness-raising process to opinions on how

and where it should be taught. The difficulty participants expressed in defining environmental education was clear, as was the absence of any deep understanding of environmental education. The responses from the majority of participants, however, indicated an awareness of the complexity of the concept and the various dimensions of environmental education.

Half of the participants viewed environmental education as a process of raising awareness about environmental issues. Four participants viewed environmental education as transmitting knowledge on various issues like environmental problems, people's rights and the cohabitation of species. Some participants maintained that environmental education should occur not only at school level, but also at community level, within non-governmental organisations and in forums. Half of the participants acknowledged that different sectors of society need environmental education, including politicians and administrators. There was also reference to the participation of local communities in environmental care and economic development. Two participants referred to the different ways in which environmental education needs to be taught.

One Member of the Executive Council (MEC) presented his opinion thus:

I think environmental education can be understood at several levels. It can be understood as providing useful information so that people can be in better control of their circumstances. But I think it need to look at politicians and administrators. But if environmental education means to bring a crowd of people together and say there is a level of bacteria and so on, I don't think it will work, it needs to inform people about their rights too.

According to Greenall (1987), the fact that environmental education tries to bring together two distinct areas, environment and education, which are both ideological and

contested, poses certain conceptual difficulties . Most of the participants' answers focused on the aims of environmental education, as well as on questions of how and to whom to teach environmental education. Ramgoolam (1990) states that there is no precise and universally accepted definition of environmental education and in most instances environmental education is better understood by explaining its aims. A clear understanding of environmental education, he argues, can be obtained from the Recommendations of the Tbilisi Conference (1977).

The goals of environmental education as expounded by The Tbilisi Conference are:

- * to foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas.
- * to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment;
- * to create new patterns of behaviour of individuals, groups and society as a whole towards the environment (Palmer & Neal 1994:18)

While the awareness-raising goal of environmental education was mentioned by several interviewees, there was no elaboration on which issues environmental education needed to cover. The role of environmental education as provider of environmental information was referred to. The emphasis by five participants on the need for environmental education on the part of different groups indicates an acknowledgement of widespread ignorance as to what environmental education entails. Three participants pointed to the need for environmental education to be taught critically, to inform people about their rights and conscientise them.

Responses to the question 'What do you understand by the term

environmental education' did not correspond closely with participants' views on major environmental issues confronting the Eastern Cape (refer to Table 4.2). While major environmental issues in the Eastern Cape were seen as economic, political and developmental, these aspects were not linked with environmental education. The failure to see the connections between the problem-solving and action-oriented goals of environmental education and the emphasis on awareness and acquisition of knowledge has been pointed out by Greenall (1987). Stevenson (1987) adds that the socially critical and political action goals of environmental education conflict with the dominant practice in schools. Political leaders' perceptions and failure to see the interconnectedness between identified problems and environmental education may have been partly shaped by their schooling. There was general acknowledgement of the role of environmental education in solving some environmental problems (see Table 5.1).

Several environmental educationists (Di Chiro 1987; Hückle 1993; Fien 1993a) have advocated the adoption of the socially critical perspective of environmental education (see 1.5.2), to aid in the understanding and development of appropriate solutions to environmental problems.

5.5 Views on other aspects that environmental education can cover

Considering the broadness of the concept environmental education, the question 'What other aspects do you think environmental education can cover?' (Appendix 1 question 8) was asked so as to further explore with the political leaders the various dimensions and aspects that environmental education can encompass. Probes and cues like the following were used: 'Do you think environmental education should consider the environment in its totality? that is; natural, human, political and economic?'. Once again, because of the

difficulty of conceptualising environmental education, responses ranged from how environmental education ought to be taught to the view that environmental education is an economic, political and development issue. To generate further discussion, further probes were needed, such as: 'Do you think environmental education can encourage participatory, critical methods and acquisition of knowledge and skills?'.

Table 5.3 **Other aspects that environmental education can cover**

Categories	Examples	Frequency of occurrences
Environmental Education		
EE Methodology	'EE needs to tease ideas'	4
	'EE to adopt a dialectical materialistic perspective'	4
	'EE to be done in an inclusive participatory manner'	4
	'EE to teach observation skills'	3
Type of EE	'Thoughtful, non-judgemental EE can promote education'	4
	'informative, implementable, something relevant and useful to people'	
	'EE is still in a nascent stage'	
Economic issues	'Economic issues need to be included in EE'	4
Political issues	'EE is about politics, is about people organising themselves'	3
Development issues	'EE is about planning development that will not destroy the environment'	2
Cultural issues	'Cultural aspects important'	2

5.5.1 Discussion of results

The question of how environmental education should be taught occurred frequently in the results, and different views emerged. Di Chiro (1987) argues that environmental education must not only examine its content but also its process of education for a socially and environmentally just world, while Stevenson (1987) maintains that different ideologies associated with the environment have implications for teaching and learning strategies.

The concern about how environmental education should be taught, as reflected in the results, is perhaps an indication

of the general concern about teaching methods in South African schools. Deacon & Parker (1993:132) describe the teacher-learner relationships in South Africa as traditional. In this model the teacher is an authoritarian pedagogue, who transmits knowledge to passive recipients.

Two participants, responding to the cue whether environmental education can promote critical thinking and participatory methods, explained:

I don't believe that we should try to single out environmental education for the kind of teaching that brings everybody into action. I believe teaching should be dialogical. Education's aim should be to tease ideas as they are put forward by educators.

I wouldn't say environmental education contributes to those attributes, any education can, depending on methodology.

The uncritical role of schooling, particularly in South African schools, to some extent accounts for the repeated concerns raised about teaching methods in general. According to Stevenson (1987), historically schools were not intended to develop critical thinkers, social inquirers, problem solvers or active participants in environmental, political and educational decision-making. The intended function of schooling was not to promote social change or reconstruction. Given the political agenda informing the schooling system in South Africa in the past, little room was allowed for dialogue, participation and critical thinking.

The new emerging democracy in South Africa provides an opportunity to reconstruct new teaching approaches. Giroux (1983:120) argues that the social change goals of critical pedagogy are founded upon a view of schools as democratic public spheres in which students can learn how to be both 'critical thinkers and transformative actors.'

The political and economic nature of environmental education was referred to. The political nature of schooling in South

Africa has produced contradictions. Schooling, which was meant to reproduce a subservient labour force and enforce cultural difference, has had the contradictory effect of producing highly politicised students.

In respect of the emphasis which some participants placed on the politics of the past and poor education, Giroux (1983) cautions against overemphasis on domination, wherein history was made 'behind the backs of citizens'. Freire (1985) points out that social reality is made by people and can be changed by people. The role that educational institutions and students have played in transforming politics in South Africa can still play a role in ensuring that environmental education takes its rightful place in the move toward sustainable development.

5.6 Views on how environmental education principles can be included in formal education

One of the Tbilisi principles on environmental education acknowledges that to be effective, environmental education should be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and nonformal stages. The views of political leaders on how environmental education can be included in formal education ought to be useful, as South Africa begins to incorporate environmental education in the emerging new school curriculum.

The question 'How do you think these attributes of environmental education can be included in formal education?' (refer to Appendix 1 question 8) was meant to explore with participants how environmental education can be included in formal schooling.

Table 5.4 Political leaders' views on how Environmental Education principles can be included in formal education

Categories	Frequency of occurrences
Environmental Education	
Inclusion of EE in curriculum	7
EE to start at an early stage	4
EE should not only be classroom based	3
Inclusion of EE in RDP programmes	2
Good EE programmes	2
Dialectical approach to EE	2

5.6.1 Discussion of results

Most participants pointed out that the inclusion of environmental education in the curriculum was important to promote critical thinking, participatory methods and the development of skills. The need for environmental education to start from early childhood was emphasised by four participants. The view that environmental education should not be only classroom based was voiced by three participants. One participant elaborated:

First of all environmental education had to be introduced at school level and right up to higher level. But the question of making people understand the need for a healthy environment starts from childhood. Participation means children understanding from childhood that throwing papers in the street is wrong, that is part of environmental education. I don't see environment as a classroom kind of education. The very nature of environment is something participatory.

One MEC added:

There should be curriculum representation. People involved in environmental education should be part of the curriculum committees. Curriculum committee should be informed by the needs of society.

Some felt that environmental education ought to be included in the RDP, others that it should adopt a dialectical approach. Individual respondents referred to the need for children to understand and question issues relating to the environment. One respondent spoke of the need for environmental people to sit with educationists and plan environmental education for schools. This recommendation implicitly recognises the limitations of environmental understanding among policy-makers dealing with education.

There was a general understanding of how environmental education could be included in formal education; some even suggested contexts beyond formal education. Detailed accounts of how issues like content, methods, teaching materials and the capacity of teachers are going to be tackled if environmental education is incorporated into the curriculum were, however, lacking. There was limited discussion of some of the attributes of environmental education referred to in question 8.

One recommendation of Chapter 36 of Agenda 21 (1992) is that environmental and development education should be incorporated as an essential part of learning, within both formal and non-formal education sectors. Governments are urged to prepare strategies aimed at integrating environment and development as interdisciplinary issues into education at all levels (Palmer & Neal 1994:15).

With the Reconstruction and Development Programme (RDP) being a policy framework, it is imperative to include environmental education in the curriculum and develop other strategies for non-formal environmental education which will promote sustainable development. Bishop (1985) points out that policies and strategies for the national development of a country's resources and plans for its future economic

development will also influence the curriculum in schools.

The multidisciplinary nature of environmental education will require intersectoral collaboration within government ministries and school disciplines if it is to succeed. Emerging policies and strategies on environmental education are lacking in collaborative planning and critical approaches to education as expounded by Freire 1985, Huckle 1993 and Fien 1993. Freire's (1990) critical pedagogy defines education as one place where the individual and society are constructed, a social action which can either empower or domesticate.

5.7 Views on the role of environmental education in improving both education and the environment

Environmental education is increasingly being viewed as critical for promoting sustainable development and improving the capacity of people to address environment and development issues. The role that environmental education is expected to play in what Sterling (1993) calls the necessary transformation towards a sustainable society is putting a lot of pressure on environmental education to fulfill such aspirations (Sterling 1993).

The question, 'What role do you think environmental education can play in improving both education and the environment?' (Appendix 1 question 9) is meant to share and explore with political leaders the extent to which environmental education can fulfill this role. The need to improve the quality both of the environment and of education is widely recognised. The challenge posed by this task is made even more difficult by the political nature of both educational and environmental improvement.

Despite the lack of a profound theoretical understanding among the interviewees of environmental education and how it can improve the environment, the results indicated that the transformatory role of environmental education as well as its potential to enhance both the environment and education were recognised.

Buzzati-Traverso (1977:13) suggested that the core of environmental education, when properly developed, may well become the pivot around which future strategies of general education will turn. This statement, well ahead of its time, seems relevant to the South African educational situation during this period of educational transformation.

The role of environmental education in helping schools to shift from old paradigms and methods of teaching was referred to. When asked to elaborate, one participant explained:

We need critique of schooling. We were taught to be passive, even in relation to the environment, as if we are out there, yet we are part of the environment. We need to be critical of this view.

If 'environmental education means environmental solutions' (Connect 1993), South African apartheid education was not meant to help attain environmental goals or to enhance education. The intentions of South African education, particularly black education, were well articulated by Verwoerd's notorious comments as Minister of Native Affairs in 1954. In advocating separate schooling, Verwoerd urged that black children not be misled by being shown the greener pastures of European society in which they would not be allowed to graze (Christie & Collins 1982). This policy has given rise to schools which have failed to engage children in participatory and inquiry-based approaches to learning.

Within this context, the socially critical role of

environmental education (Stevenson 1987; Greenall 1987 ; Fien 1993) needs to be recognised. According to Fien (1993a:22) the socially critical orientation in education is founded upon a belief in the need for education to play a role, along with other social institutions in creating a just and democratic society. The socially critical orientation has therefore implications for methods of teaching, the content of the curriculum and the way knowledge and environmental problems are viewed (see chapter 1).

The socially critical orientation of environmental education is referred to as 'education for the environment', which Fien (1993a:43) describes as follows (see also 1.5.2):

Education for the environment represents an integration of a socially critical orientation in education and ecosocialist environment ideology. The objectives of critical education for the environment include the development of moral and political awareness as well as knowledge, commitment and skills to analyse issues and participate in an informed and democratic way in environmental decision making and problem solving.

Education for the environment and critical pedagogy have the same transformatory aim which is necessary in Eastern Cape education. Giroux (1983) has pointed out that the purpose of critical pedagogy is twofold, in that it not only empowers students by giving them knowledge and skills, but also enables them to function in the larger society as critical and transformative agents able to contribute to the building of a democratic society.

Given the challenges facing education in the Eastern Cape, socially critical and reconstructionist approaches to teaching need to be recognised in policy formulation processes. Sound and well-informed environmental education policy can contribute towards a more critical, problem-solving and

5.8 Political leaders' perception of obstacles in promoting environmental education in the Eastern Cape

Within the literature of environmental education there is a general acknowledgement of the existence of obstacles in the way of successful implementation of environmental education. The complexity and interdisciplinary nature of environmental education, the political, economic and ideological nature of the concept, poorly trained teachers, and the uncritical orientation of schooling, are all viewed to some extent as obstacles (Stevenson 1987; Huckle 1993; Sterling 1993).

Given the multiple problems facing the reconstruction of South African education and the environment, the question 'what do you think are the obstacles in promoting environmental education in the Eastern Cape?' (Appendix 1-Question 10) seemed useful in identifying the hindrances so that they could be addressed where possible.

TABLE 5.6 Perception of obstacles in promoting environmental education in the Eastern Cape

Categories	Examples	Frequency
Economic factors	'70% people unemployed and economic conditions of the Province'	8
Development issues	'Poverty, tension between poverty and the environment'	7
Political factors	'Authoritarian ways followed by the previous government' 'Denying people access to resources'	6
Environmental Education	'Lack of environmental education among government officials'	5
	'Wrong way in which Environmental education is presented'	5
	'No policy as yet on environmental education'	2

5.8.1 Discussion of results

Perceived obstacles to promoting environmental education varied from economic factors to the lack of policies on environmental education. Eight interviewees perceived economic factors as obstacles in promoting environmental education in the Eastern Cape. Many linked poverty and meeting basic needs with economic development. One MEC expressed his views as follows:

One of the obstacles in promoting environmental education is lack of resources and also economic positions of the province. Environment must not be looked in abstract. We need to relate it to conditions we are faced with. Capacity to address environmental needs and challenges moves equally with our own economic capacity to respond to broader challenges.

The tension between poverty and environmental education was expressed by some respondents. One participant explained:

Poverty is an obstacle, it creates its own culture, environmental education cannot be promoted when people are poor. Resources that we want to preserve are basic to human living.

Another leader added:

Obstacles are basic needs. You cannot educate when there are needs like access to water and electricity. Environment is a political and economic issue, people do not have alternatives.

Adding to the concern about poverty, Tolba (1993:12) writes:

Poverty is locking the people of the Third World into a dismal cycle of events; in their efforts merely to meet the needs of food, shelter and heat, they are being forced to destroy the very resources on which their future survival and the future prosperity depend.

The emphasis on economic factors and poverty as obstacles to environmental education indicates perhaps the type of history and environmentalism shaping participants' perceptions and understanding of environmental issues and environmental education. Environmental problems throughout were seen as symptoms of a larger problem in society, namely the largely economic factor of the unequal distribution of resources (see Table 4.2). Neo-Marxist beliefs indicated earlier on emerged more fully in the discussions. The emphasis on economic factors by participants is perhaps an indication of their receptiveness to red-green ideology (see chapter 1-1.4).

According to Fien (1993a:28), the red-green position sees the environment as socially constructed and as capable of sustaining natural systems, economic development and just human societies, provided the social conditions of production and consumption reflect socially useful goals and democratic processes. Pepper (1993:26) points out how Marxist, conflict-based ideologies provide different accounts of the causes of environmental problems, of how they can be solved, and of how changes in social institutions and environmental values can be brought about.

Poverty, environmental problems and environmental education need to be addressed simultaneously if the vision of sustainable development is to be achieved in the Eastern Cape. Chapters 3 and 36 of Agenda 21 (1992) emphasise both the need to combat poverty and to promote environmental education, asserting that the importance of one does not negate the necessity of the other. The Lack of environmental emphasis in earlier Reconstruction and Development policy documents points to the weakness of preferring one problem over another.

'Caring for the Earth: Strategy for Sustainable Living' (1991:52) recognises the need to address the environmental problems of different countries differently. In developing countries the provision of infrastructure - health care, social services, housing and other kinds of support - is critical in ensuring secure livelihoods. The problem in developed countries and among affluent groups is ignorance, lack of concern and wasteful consumption patterns. In both cases, environmental education has an important role to play in assisting movement towards sustainability. At the same time the limits to the extent to which environmental education can bring about change need to be recognised.

The politics of the past were cited by six participants as an obstacle in promoting environmental education. As one participant elaborated:

Ja for many people environmental education means that you have to tell people that it is wrong to take a Chokka, going into the forests and coming out, is something for which people should be arrested, and you know that has had an effect. It was very effective in the olden days when the white government of the past did it because they followed such approach by putting the police on the readiness so that if anybody is found, they are taken to prison.

Given such memories, effective environmental education in South Africa will need to take into consideration the social and political past. Huckle (1993) regards a 'sense of history'

as critical in achieving environmental citizenship. Khan (1989) takes the argument further in affirming that a the country's history is an integral part of the present day environmental response, and that the study of the past should form part of achieving environmental literacy.

While political and economic factors were cited as obstacles in promoting environmental education, more specific issues like the shortage of teaching resources, the content of syllabuses and the poor quality of teachers were not mentioned.

Lack of environmental education among government officials was cited as an obstacle in promoting environmental education in the Eastern Cape. One participant acknowledged the problem:

Ignorance is a problem. There is lack of leadership in the environment sector whether in the form of a non-governmental organisation or government. If government and non-governmental sector began to appreciate the essence of environment, management and education, we can then talk about allocation of resources and so on. RDP too says nothing of the the environment. There is no leadership.

There was a general recognition of the lack of in-depth understanding of what environmental education is about. The increasing international endorsement of environmental education as a critical agent towards sustainability and sustainable development, makes it more and more imperative for political leaders to have an understanding of environmental issues. The Brundtland Report (1987) states that 'the changes in human attitude that we call for depend on a vast campaign of education, debate and public participation'. The support of political leaders is important in this initiative.

Chapter 8 of Agenda 21 (1992) calls for the integration of environment and development at the policy, planning and

management levels. To develop sound environmental policies, political leaders and policy makers need to have sound environmental knowledge and appreciation of the intersectoral nature of environmental issues.

Poor teaching methods and the way environmental education was presented in schools were cited as obstacles by five participants. Lack of environmental education policy was cited by two participants. Within the context of apartheid education, the narrow view of environmental education policy and teaching were in line with the broader prevailing economic and political policies. Many of the aspirations of environmental education (as described in chapter 1) are in contradiction with the aims of apartheid education. The general nature of schooling does not allow for effective environmental education teaching methods. Robottom (1987:85) points to some of the contradictions:

Environmental education aspires to be interdisciplinary, but the conventional school curriculum is strongly disciplinary, it entails outdoor education, but school rules and regulations impose constraints on outdoor activities; it is a form of inquiry teaching, but structures and relationships in schools tend to reproduce more didactic forms of instruction; it is interested in inquiries that are critical, involving critiques of environmental situations, but schooling tends to be more interested in vocational and liberal education.

The political transformation in South Africa offers a challenge and an opportunity for the development of sound and appropriate environmental education policy. Given the multidisciplinary nature of environmental studies and the need to involve many interested and affected groups, this is not proving not to be easy. While progress is being achieved, the slow advance and contestations around national environment policy indicate the challenge of environmental policy

development. The absence of clear leadership and a coordinated strategy, and poor participation in the national environmental education policy initiative, do not bode well for environmental education in South Africa. The participation of all interested and affected parties is the key to successful environmental education policy.

The transformatory potential of education as advocated earlier in the form of 'people's education' (1987) is being replaced to some extent by a 'skills' paradigm in education policy documents, a feature which does not augur well for the kind of socially critical environmental education so necessary in South Africa (Randall 1994:163).

Agenda 21 (1992) emphasises the need for broadening the base of involvement in decision-making at all levels, to bring about the necessary changes to thinking, as well as action, on environmental matters.

5.9 Views on the role the Education Ministry should play in promoting environmental education in the Eastern Cape

The role of government in developing environmental and educational policies and legal frameworks consistent with sustainability is increasingly being emphasised. With environment and education being concurrent national and provincial functions in the new Constitution, the national government needs to develop coherent policies and strategies together with provincial and local governments and civil society. Adopting a participatory approach to the development of environmental education will not only depart from old approaches, but is likely to lead to its successful implementation.

The question 'What role do you think the Education Ministry should play in promoting environmental education in the

Eastern Cape' (Appendix 1 question 11) was intended to explore possible strategies for the Ministry to use to promote environmental education.

Most responses involved the recurrent themes: teaching methods, inclusion of environmental education in the curriculum, legislation and policy (refer to Table 5.7).

TABLE 5.7 The role Education Ministry should play in promoting environmental education

Categories	Examples of responses	Frequency
EE		
Teaching methods Biology and geography are not 'Project teaching is key'	'Ensure that subjects like dry but must have life'	6
Inclusion of EE in curriculum	'Environment need to be revitalised and included in the curriculum'	4
Political issues	'Government has to have legislation of framework within which environmental policies have have to be implemented'	5
Informal and public EE	'EE should not only be classroom based'	4
Policy issues	'Having policies which will include environmental education'	4
Development	'RDP programs to include EE'	4

5.9.1 Discussion of results

Six participants suggested that the Education ministry needs to look at changing teaching methods and include environmental education in the curriculum. Referring to teaching methods one interviewee expatiated thus:

The question is how environmental education is taught. Apart from introducing it in a formal sense in schools, environmental education needs to fit in with the RDP. RDP is creating a culture and education should fit in. Coming to teaching methods, teaching was very cold, geography and biology were badly taught, it was a missed opportunity, no knowledge of environment was shared. Schools needs to make environment meaningful to ordinary people. We must develop strategies and identify key environmental issues.

There was no elaboration on how teaching methods could be

changed and how the interviewees saw their role as political leaders in the process. If sustainable development and promotion of environmental education are priorities for the Eastern Cape, policy statements and documents need to reflect these aims. Bishop (1985) argues that there is an inextricable relationship between education and national ideals and objectives.

One of the principles of environmental education, coming out of the Tbilisi Conference (1977), is advocacy of the use of diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment, with an emphasis on practical activities and first-hand experience. Problem-solving, participation, social action and community orientation are all methods suggested for effective environmental education.

The emphasis on teaching methods needs to be seen within the context of past apartheid education, which promoted passive assimilation and reproduction of simplistic factual knowledge. Stevenson (1987) points out that the ideal of education for the environment conflicts with the dominant practice in schools, which fails to promote participation in the learning process. Given the educational situation in the Eastern Cape, among the challenges facing environmental education is not only that of addressing poverty and underdevelopment but also improving the quality of teachers. The teacher, as Bishop (1985) puts it, is the key to educational innovation, and a curriculum is only as good as the quality of its teachers.

Given the quality of training received by most teachers in the Eastern Cape, Freire's (1970) famous metaphor for traditional education, the 'banking' method, is still applicable to many schools, where creativity and critical thought is stifled. The textbook method still dominates most classrooms, where the

teacher is a narrator and the student a listening object who receives, memorises and repeats. Deacon & Parker (1993) pointed out that this traditional model still permeates the South African schooling system. Shor (1993:25) calls for critical teachers who pose critical problems to students, treat them as human beings and encourage curiosity and participation. Engaging students in problematic inquiry, participative learning and environmental action, as demanded by the goals of environmental education, is likely to be difficult for many teachers in the Eastern Cape.

Some interviewees suggested that the MEC for Education includes reference to environmental education in her speeches so that what she says can go into policy.

One MEC had a practical suggestion:

The ministry should maybe prepare a task force that's going to look into environmental education. For me that's a practical step, rather than just have people talk ideas. Prepare a task-force that is going to look at how present curricula are, and how they can be systematically worked in with environmental views and ideas and how these can be tied up with the kind of approach that will make education not to be a classroom education. Education should be based on the environment that we are trying to look at and change. The whole education is very much irrelevant. We have learnt much of classroom education. We need to change the whole thing to be able to prepare our children to be different citizens of South Africa.

Crucial to the promotion of environmental education in the Eastern Cape will be consultation with relevant departments, as well as different sectors of civil society that may have different and even competing interest in the environment. Broad consultation needs to be seen as a prerequisite for forging the necessary partnerships in developing an effective and relevant environmental education policy and curriculum.

5.10 Views on who needs environmental education most in the Eastern Cape

According to chapter 25 of Agenda 21 (1992), building environmental and economic security requires a social partnership involving women, youth, indigenous peoples, non-governmental organisations, local authorities, trade unions, business and industry, farmers, and the scientific and technological community. For the Eastern Cape to be able to address some of its environmental challenges, knowledge and understanding of environmental issues among all sectors of society is crucial.

The question 'Who do you think need environmental education the most in the Eastern Cape?' (Appendix 1 - 13) was asked to find out political leaders' views on environmental education priorities in the Eastern Cape. The results as sets out in Table 5.8 indicate the various groups identified.

TABLE 5.8 Elements on who need Environmental Education most in the Eastern Cape

Categories	Frequency of occurrence
Political leaders	
Political leaders	5
Government officials	7
Major Groups	
Everybody	6
Rural communities	5
Communities	3
Children	4
Schools	3
Farmers	2

5.10.1 Discussion of results

The majority of participants viewed government officials and political leaders as needing environmental education the most. Six participants felt that everybody needs environmental education. Rural communities, children, schools and farmers were seen as needing environmental education too.

Some interviewees suggested different approaches to environmental education for different groups. When asked to explain, one participant elaborated:

I think eh.. as I have said, all of us need environmental education. Nobody has ever had it. We need different approaches in imparting that education to different categories of people. There is this generation of people who are in the field now. They had a another experience, they have been socialised differently, socialised without this environmental consciousness. We need a more adult approach, an approach that places a responsibility on the adult to look at their environment critically, to look at the ills of their environment that we now see and to discover the methods for correcting it, and that's where we we should begin. ...With other grades, with the growing youths, we can start to bare things as they are and let the youth work

with them and let the youth show how much understanding they have. Let us have education that puts quizzes.

Ramgoolam (1990) has suggested various methods by which the aims of environmental education can be achieved, through community development, adult education and local grassroots organisations and religion. Different sectors of the society can be mobilised around environmental issues. In the Eastern Cape, where human development has long been at the bottom of the scale, environmental education will require different strategies, including integrating it into skills training programmes.

Sterling and Cooper (1992) argue that among the many target groups needing environmental education, a clear priority has to be ascribed to the decision-makers in political, economic and social life, as well as practising educators in their role as multipliers within the educational process. Faced with developing policies and making various economic, development and educational decisions, effective environmental education can assist political leaders in the Eastern Cape in making informed decisions.

5.11 Conclusion

The discussion of the results dealing with environmental education revealed the often cited statement that basic concepts of environmental education deal concretely with the quality of everyday life. Though lacking in deeper theoretical understanding of the environmental education discourse and sophisticated global environmental issues, most participants pointed to the general issues surrounding environmental education debate.

The political and economic nature of environmental education were pointed out. Poverty and lack of development were

generally viewed as obstacles to promoting environmental education. Pointing to the rote learning methods of apartheid education, effective new teaching methods were particularly singled out as critical to the effective implementation of environmental education.

The inclusion of environmental education in the curriculum was seen as critical, though no clear strategies to achieve that were given. There was a suggestion that the departments of Education and the Environment need to support the inclusion of environmental education in the curriculum. There was an emphasis on non-formal environmental education among all sectors of society, particularly among the adults who have missed out on proper education.

There was general acknowledgement of the lack of environmental knowledge among political leaders and government officials. A general emphasis fell upon the need for environmental education to be relevant and to address the broader political, economic, developmental, educational and environmental problems. The role of environmental education in improving skills, knowledge and values was acknowledged by some participants. The general view was that for environmental education to take off, it had to be supported by relevant ministries, be socially critical, relevant, and address problems affecting the daily lives of people.

The need for effective and sound environmental policies was proposed, with the emphasis on leadership, coordination and participation by all relevant sectors of society and government departments.

To conclude the chapter, the following quote from Sterling & Cooper (1992:8) is both useful and apposite:

Environmental education at all levels for all people is crucial: the more knowledge the public has about the environment, the better, the more rapid and the more effective decision-makers can be, and will be. Furthermore, environmental education is the cornerstone of long-term strategies for preventing environmental problems, solving those which arise or have occurred; and assuring environmentally sound, sustainable development.

Chapter Six

Conclusion

Humanity stands at a defining moment in 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 fulfilment 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 global partnership for sustainable development. Agenda 21 (1992:15)

6.1 Introduction

The research was shaped by an emancipatory intent of being educational and transformatory. Influenced by the political transformation in the country, the study had many and ambitious aims. The study not only aimed to find out the environmental perceptions of political leaders, but also sees itself as a modest attempt to start putting environmental issues on the agenda of political leaders' discussion and policy formation in various ministries of the Eastern Cape province. Being influenced by socially critical theory, the study also intended to explore different environmental and educational ideologies and their influence on perceptions and understanding of environmental issues.

Wals (1991) argues that research needs to focus on gaining a better understanding of people's own perceptions, ideas and theories in relation to their environment, environmental issues and nature, in order to adapt both environmental education and environmental policies to the social, physical and political context. The research approach intended both to

create a space for participants to express their views on environmental matters, and to conscientise them.

6.2 General results of the Study

The results of the study indicate that there is a general awareness of environmental issues, but largely unsupported by thorough knowledge and detailed information. The results also indicate that even though environmental issues are complex and broad, the environment is about people's interaction with their social, economic, physical and political surroundings. Political, historical and ideological influences on the participants' perceptions and understanding of the environment were evident. While there was a general acknowledgement of the importance of the environment, suggested strategies on how to ensure that consideration of the environment is integrated in all policies and projects were not satisfactory.

On the whole the study indicated that the Eastern Cape is faced with a variety of environmental, development and educational challenges, that need to be met by multifaceted approaches. Transition to a just, sustainable society which aims at promoting ecological sustainability, sustainable development and environmental awareness and knowledge, is likely to be a difficult and challenging process.

6.3 Evaluation of the study

The transformatory objectives of the study were not all achieved. Among the inhibiting limitations were the short time frame of the study and the interview process, the latter exacerbated by the busy schedules of participants. In some instances lack of in-depth understanding of environmental issues failed to generate the envisaged conscientising dialogue. There was however general awareness of environmental

issues. The lingering effects of apartheid policies on the environment and development were clearly articulated.

The environmental perceptions and understanding of the political leaders were, to some extent, uncovered. Ideological and political influences were evident in most discussions and in the results. There was a general emphasis on the political and economic nature of environment and environmental education. Development and justice issues came out often in the study. The natural and ecological dimensions of the environment were less emphasised.

The educative aspect of the study was not completely achieved, given the short time of the study and the broad nature of the concept 'environment'. Awareness of environmental issues was however enhanced, and the need for integration of environmental considerations in different emerging policies was recognised. Many participants expressed a desire for continuing dialogue in order to keep up-to-date on environmental matters.

6.4 Evaluation of the Research Methodology

Given the transformatory aim of the study, the socially critical approach that was adopted and the researchers' position as an ANC Environment Desk convenor and presently Chief Director for Environment in the province, participatory, action research (Carr & Kemmis 1986) might have been more appropriate. Action research, which is ongoing and engages political leaders in improving their theoretical understanding and practical skills in dealing with environmental issues, would have been ideal. Lack of environmental information and knowledge require ongoing engagement that will improve both practice and theoretical understanding.

In spite of the limitations, many of the interviews yielded constructive and useful dialogue. From the information generated by the interview process, it is apparent that there is a need for a planned and collaborative effort in the area of environmental education and environmental policy. Environmental education and information were seen as critical for informed decision making.

6.5 Environmental Education and Environmental Issues

The ideological and political nature of apartheid education was linked with the need for environmental education to address some of the problems created by apartheid education. A more participative, problem-solving approach to education was suggested, while the need to address the development backlog was in some instances seen as a priority - a perspective which might not be aware that education and sustainable development are part of the same process. Many viewed non-formal environmental education, particularly for political leaders and administrators, as essential, whilst the need for the inclusion of environmental education in the school curriculum was expressed by many participants.

In many instances the interview discussion indicated political leaders' ideological inclinations and the origin of their environmentalism, that is, as rooted in political 'struggle' and transformation. Neo-Marxist ideology could also be detected, particularly on issues related to environmental education. A shift to a more accommodating, managerialist 'Light green' (Pepper 1993) approach to environmental issues was evident. A general concern for integrating development with environmental considerations was expressed. Principle 4 of the Rio Declaration on Environment and Development states (1992:9):

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

6.6 Comments on literature overview

Though it was difficult to find previous research on environmental perceptions of political leaders, the two studies which were considered in the literature overview were useful. Political leaders and government policy-makers were involved in the two studies, and the results of the study 'Attitudes to environment' are nearly the same as those of the present study. Pollution, land issues, lack of development and its impact on health and the environment, were among the issues which emerged.

The recognition of the political and intersectoral nature of the environment and of the need for action that emerged from the research contrasts with some of the policies currently emanating from the Eastern Cape. Environmental issues seem to be in most instances an addition to the broader policies. This perhaps illustrates the criticism usually levelled at proponents of ecosocialism, that they fail to ground their theorising in practical and implementable strategies.

6.7 Recommendations

The emphasis on the political, social and economic aspects of the environment as indicated in the results, meant that there is a need for policies and legislation that redefine and expand the meaning of environment and set the environmental and development priorities of the province in context. As policy-makers, political leaders need to be involved in such policy formation processes as will contribute to a better understanding of the environmental and developmental

challenges facing their province.

The approach would be in line with the call made at the Rio Summit (1992), which urged countries to devise strategies and policies which would halt and reverse the negative impact of human behaviour on the physical environment and promote environmentally sustainable economic development.

The study indicated there is general awareness and concern about the environment, together with a lack of information on the detail. There is a need for environmental information and education which will assist political leaders in their decisions on matters relating to policy and the environment. Basic information in the form of a Provincial State of the Environment Report, data on the extent of water pollution in the province, or on the number and functions of protected areas in the province might be the first practical step towards improving environmental knowledge and understanding among political leaders. New and innovative environmental education strategies are needed so as to accommodate and involve political leaders.

Formal and informal environmental education were also suggested for everybody. Emphasis was placed on the contents of environmental education and how it is taught. In line with the recommendation of Agenda 21 (1992), a relevant, problem-solving environmental education for everybody is recommended. Knowledge, skills, values and attitudes which promote both sustainability and sustainable development are needed to help in effective participation in solving the environmental problems facing the Eastern Cape. Environmental education will have to be the responsibility of all government departments and all sectors of society. A well thought-out and co-ordinated strategy is needed. Collaborative efforts among government, academic institutions, labour, business, funders,

and different sectors in the community may contribute towards making environmental education a success.

6.8 Conclusion

The research process and its results indicated the need for a balanced and holistic approach in dealing with environmental issues. There is no one right solution or approach to the challenge. The poverty and development backlog needs to be addressed. At the same time, reconstruction and development, undertaken by any ministry, needs to take the environment into consideration, if sustainable development is to be achieved.

Participants acknowledged the need to strengthen environmental decision making and policy formation through improving knowledge and understanding of environmental issues. This applies to political leaders, administrators, citizens and educational institutions alike.

From the information generated by the research, it is apparent that transformation to a just and ecologically sustainable society will require not only a socially critical orientation to environmental issues and environmental education: a balanced and realistic approach to environmental issues is also required. There is a need for a planned and collaborative effort, among all stakeholders, in the areas of environmental education and environmental policy. Since the researcher has joined the Ministry of Economic Affairs, Environment and Tourism, the Eastern Cape has made substantial progress in initiating collaborative efforts in the area of environment. More sustainable projects and programmes will need to follow these environmental initiatives if an environmentally informed and knowledgeable citizenry, including political leaders, is to develop in the Eastern Cape.

To conclude, Greig, Pike & Selby (1989 in Fien 1993b:5) write:

From an holistic perspective, change must be both inner- and outer-directed; it must address the personal as well as the political. That (holistic) world-view requires of us that we see personal and political transformation as integrated, complementary parts of the change process. To concern oneself exclusively with personal change is a form of self-indulgence and self-deception; the psyche is massaged, but at the cost of failing to live within the meaning of the new (sustainable) world-view. To concern oneself exclusively with political change is an equally hollow affair in that any political success achieved is likely to founder as it encounters resistances and misunderstanding from the many who have not internalised what the change is all about.

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APPENDIX 1

INTERVIEW SCHEDULE

TOPIC A ENVIRONMENTAL ISSUES

QUESTION 1

What do you understand by the term 'environment'?

QUESTION 2

What do you think are the major environmental issues confronting the Eastern Cape?

Cues: The importance of:

Land	Protected areas
Water	Agriculture
Air	Fisheries
Energy	Tourism
Urban environment	

QUESTION 3

What do you think are environmental factors that might affect public health?

QUESTION 4

What do you think are possible solutions to these problems?

QUESTION 5

What do you understand by the term environmental quality?

TOPIC B ENVIRONMENTAL EDUCATION

QUESTION 6

To what extent do you think environmental education can solve environmental problems?

QUESTION 7

What do you understand by the term 'environmental education'?

QUESTION 8

What other aspects do you think environmental education can cover?

CUES: Do you think environmental education should consider environment in its totality: that is:

Natural and human environment
Political and economic issues
Social issues Technological issues
Cultural issues Aesthetic issues
Ethical issues

CUES: Do you think that environmental education can encourage the following:

Participatory methods of teaching
Critical thinking
Acquisition of knowledge
Development of skills to solve environmental problems
Positive action towards solving environmental problems.

QUESTION 9

How do you think these attributes of environmental education can be included in formal education?

QUESTION 10

What role do you think environmental education can play in improving both education and the environment?

QUESTION 11

What do you think are the obstacles in promoting environmental education in the Eastern Cape?

QUESTION 12

What role do you think the Education Ministry should play in promoting environmental education in the Eastern Cape?

QUESTION 13

Who do you think needs environmental education the most in the Eastern Cape?

TOPIC C POLICY ISSUES

QUESTION 14

How do you think 'environment' is linked to economy and development?

QUESTION 15

- (a) Are you familiar with the concept 'sustainable development'?
(b) What does it mean to you?

QUESTION 16

Do you see a link between environmental considerations and the Reconstruction and Development Programme (RDP)?

QUESTION 17

(a) Do you think there should be decentralisation of environmental management in terms of policy development, legislative and executive functions at national, provincial and local level?

(b) What do you think about environmental conservation being placed under the control of a semi-independent board (like Natal Parks Board) in the Eastern Cape?

QUESTION 18

Who do you think should be the main participants in environmental policy formulation?

CUE: at what level should various sectors participate?

QUESTION 19

What do you think are the problems related to environmental management in the Eastern Cape province?

CUES: policy issues Scarce human resources
 Lack of participation Poor monitoring
 Fragmented legislation Population density

QUESTION 20

How can some of these problems be solved?

QUESTION 21

At what level of government should the following issues be addressed?

Supply of clean water

Utilisation of marine resources

Control of and access to protected areas

Environmental education

QUESTION 22

Can you suggest possible ways of bringing environmental considerations into other Ministries related to environment?

QUESTION 23

(a) Do you think the present legislation is adequate for environmental protection?

(b) What do you think you can do about it?

Do you have any questions?