CHAPTER 1

ORIENTATION AND CONTEXTUALISATION OF THE RESEARCH PROBLEM

1.1 INTRODUCTION

This study seeks to address ways and means in which teachers' frustrations can be overcome in implementing Environmental Education as part of the curriculum. It also seeks to highlight the difficulties that teachers face, when they are expected to implement changes in the curriculum without any training.

1.2 RESEARCH INTEREST

The education system in South Africa has recently undergone major changes. There has been a paradigm shift from a teacher-centred teaching situation to a learner-centred approach described as the Outcomes-Based Education system (OBE). The target for a complete overhaul of the education system was initially set for 2005.

Curriculum 2005 has since been replaced by the Revised National Curriculum Statement (RNCS). The RNCS, building on the vision and values of the Constitution, tends to be a "step" backwards for Environmental Education as learning processes are integral to the curriculum, not added on, brought in, or infused from the outside. According to the RNCS, Environmental Education cannot be a separate learning area that deals specifically with environmental themes. In my view, EE has been demoted as it is no longer a phase organizer but is incorporated into the learning area of Natural Science and Technology in particular, as well as across the curriculum in all other learning areas. In My opinion, Environmental Education will continue to be relegated to the background.

My research interest, therefore, lies in investigating the frustrations of teachers when offering Environmental Education in schools. The findings could lead to recommendations for the Department of Education to ensure that teachers are equipped to effectively and efficiently influence Environmental teaching and learning in schools in the context of the RNCS.

1.3 BACKGROUND TO THE PROBLEM

Apparently Limpopo Province in general, and Nsami circuit in the Giyani area in particular, lag far behind some other provinces in effective and successful curriculum implementation, as there are no structures that deal with the process of provincializing the curriculum. In this regard, my personal observation as a teacher is that there is almost a total lack of, for example, Environmental Education workshops and seminars by Department of Education (DOE) Provincial and also a serious lack of NON Governmental Organizations (NGO) involvement in teacher capacity building.

Furthermore, teachers appear to resist their assigned roles in implementing new learning areas and in particular Environmental Education approach. There are no workshops to inform education of the process to promote collaboration and to develop ideas and resources. Informal personal observation reveals that many teachers are confused and feel that they are unprepared for the transformation they are expected to make. Consequently, there is an increased lack of confidence amongst teachers.

Because of the confusion, it seems as if many teachers still regard Environmental Education as a subject dealing with land, people and the general cleaning of the school surroundings and not correctly as education for a sustainable environment (compare Diagram 1.1 by Van Rooyen,)p.21. Teachers should be prepared at Teacher's Training Colleges to effectively be able to teach Environmental Education at both primary and secondary schools and as such "Environmental teachers should therefore know the meaning, content, methodologies and materials suitable for Environmental Education" (Stone, 1989:158).

Ironically, at a crucial time, when we should be training more teachers to adapt to the new OBE education system, the educational authorities deem it fit to close down almost all Teachers' Training Colleges. Is this not the biggest step in the wrong direction? It is unfair to expect teachers to make conceptual and practical leaps required for transformation without efficient training and support.

1.4 RATIONALE FOR RESEARCH

Tightness in Government spending has created a climate in which inadequate resources are being allocated to improve the human and infrastructural resources needed to transform South African education and provide a quality education for all (Ramadiro & Variava, 2003). Yet the absurdity of this fiscal discipline to education, health and welfare, becomes apparent when we consider the more than R60 billion spent on armaments. Despite the well-founded intentions of government and curriculum writers, Curriculum 2005 and its guiding principles, outcomes-based education, have met with criticism. McKernan (1993), for example indicates that OBE is not compatible with a liberal notion of education as an introduction into knowledge.

Van Rooyen, for one (1998:105) contends that no consideration has been given to factors such as South Africa's unique cultural diversity; its relatively economically undeveloped status; the enormous problem of inequality brought on by dedicates of apartheid policy; and the less favourable status with regard to educational facilities, teacher education and numbers of pupils per classroom, (in some rural classrooms in South Africa, a teacher/pupil ratio of 1:80 and higher is common). "Education is too important to be treated as a commodity in the market place. It's a vehicle to transmit knowledge, skills and values for the public good" (Ramadiro & Variava, 2003). Some critiques state that the agenda for Curriculum 2005 is political and a form of affirmative action to redress the educational wrongs of the past. It seems to be aimed at scoring political points for future general elections (Van Rooyen, 1998).

Teachers need assistance to develop learning materials on sustainability, water consumption, different types of pollution, soil erosion and biodiversity conservation, as well as some socio-

ecological topics amongst others. Environmental Education could help to incorporate these learning materials either directly or indirectly into lessons. Successful implementation of Environmental Education, however also depends to a large extent on learner interest, the motivation and enthusiasm displayed by teachers, school management and also support from the community. Environmental Education should not be regarded as a separate subject but should rather be effectively integrated across the curriculum so that it allows learners to "...become aware of the part they play" (Blignaut, 1993:44). This integration across Learning Area boundaries could contribute in building "..a successful society espousing values or principles of democratization and respect for human rights and natural resources" (Blignaut, 1993: 45).

The research question can be summarized as follows:

What are teachers' frustrations in implementing Environmental Education in South African schools, with special references to Nsami circuit, Giyani area, in Limpopo Province?

This will include the following sub-questions.

- What is the role of the Provincial DOE in terms of contributing to teachers' frustrations?
- What is the level of previous knowledge and experience teachers have of environmental issues?
- What form of support do teachers expect and get for implementing Environmental Education?
- What are possible solutions to the identified problems;

1.5 AIM OF THE RESEARCH

The aim of this study is

- to investigate the essence and intensity of frustrations teachers experience in offering Environmental Education in schools and

The objectives underlying the aim are:

- to identify the role of the provincial DOE in contributing to sustainable solutions to identified problems experienced by Environmental Education teachers;
- to recommend and investigate ways that will make Environmental Education teachers more efficient in the classrooms.

1.6 METHOD OF DATA COLLECTION AND ANALYSIS

An extensive literature study was undertaken which included a study of both local and international documents on Environmental Education, the Education and Training White Paper 1995, the documentation on Curriculum 2005 , the Revised National Curriculum Statement (2003), and the progress map still being developed for the senior and intermediate phases, as well as the further Education and Training Act, 1998. Articles and books on Environmental Education training were also used for the theoretical part of this research, as Henning, Van Rensburg and Smit (2004:70) explains that a researcher needs to have a comprehensive understanding and knowledge of recent related research. The NEEP GET project materials were also used for their relevancy to this study.

Merriam (2002: 3) explains that in order to understand qualitative research one has to understand the idea that meaning is socially constructed by individuals with their world. Qualitative studies usually aim for depth rather than “quality of understanding” (Merriam, 2002:3. This study follows a qualitative approach as I wanted to find out in-depth the frustrations experienced by teachers in implementing Environmental Education across the learning areas.

The design of a qualitative study focuses on interpretation and includes shaping a problem for this type of study, selecting a sample, collecting and analyzing data and writing up the findings (Merriam, 2002:11). Henning et al. (2004:70) suggest that the logic of the design indicates whether the researcher has conducted a literature review and can thus relate this to the methods and methodologies that will be employed in the study.

The difficulties experienced by the teachers of the Nsami Circuit were the main focus of this research and as such became the participants in this study, although they were randomly selected.

Data collection tools used in this research included interviews, observations and document analysis. Individual interviews were conducted with the participants and questions for the interview were structured in such a manner that one question led to another. Henning et al. (2004:52) explain that "the main aim of interview data .. is to bring to our attention what individuals think, feel and do". A voice-activated tape recorder was used while the interviews were conducted. The respondents were also allowed to note certain responses in writing, if they felt their verbal explanation was not sufficiently detailed, which did happen during some of the interviews. Their contributions were of great value as their responses enabled the researcher to make informed decisions. I believe that only teachers can best explain their own situations.

Observations allow for "a firsthand encounter" (Merriam, 1998:94) and help us make sense of our world. I was able to observe the participants during the interview sessions and although each person responded differently with different phrases, my observation of their body language led me to understand their feelings of anger in that no one seemed to share their frustration and plight.

Documents are social products and are an excellent source to determine the purposes, and the rationale and history of a phenomenon. In education, policy documents, teacher planning files, minutes of staff meetings and reports on programmes are typical documents targeted for research analysis. Document analysis consists of using skills and intuition to find and interpret data from the documents by thinking creatively about the problem and asking a variety of searching questions related to the research problem (Merriam, 1998:120-121). In this study, policy documents were analysed and proved particularly useful in understanding what is expected of the teachers in implementing Environmental Education in their teaching.

Data was broken up in order to classify it and codes (labels) were used for assigning meaning to information and attached to "chunks" of varying size-words, phrases and sentences. The

chunks were then clustered, which set the stage for drawing conclusions (Miles & Huberman, 1994:57).

Pattern coding, a way of grouping into smaller number of sets, themes or constructs led to the development of themes and provided "thick" (or information rich) descriptions (Merriam, 1998:29) for the findings of this study.

All research is concerned with producing valid and reliable knowledge in an ethical manner. Being able to trust results is especially important to professions in applied fields such as education in which practitioners intervene in people's lives. Research studies must be rigorously conducted; they need to present insights and conclusions that ring trust to readers, teachers and other researchers. The applied nature of educational inquiry thus makes it imperative that researchers and others have confidence in the conduct of the investigation and in the results of any particular study. Regardless of the type of research, validity and reliability are concerns that can be approached through carefully attention to a study's conceptualization and the way in which the data were collected, analysed and interpreted (Merriam, 1998:199).

1.7 MAIN THEORETICAL VIEWS

1.7.1 Historical background of Environmental Education in South African schools

The Environmental Education Policy Initiative (EEPI) and Environmental Education Curriculum Initiative (EECI) were the first initiatives to introduce Environmental Education into current school curricula in South Africa (Irwin & Lotz-Sisitka, 2005:52). The first attempt was to include Environmental Education into the curriculum through policy. Thereafter, work began on a policy for educational development to include Environmental Education in the curriculum at all levels.

In 1994, a partnership developed between the Department of Education and EEPI. After much deliberation an EECI was established, which then became part of the curriculum development process. The EECI has since been replaced by the National Environmental Education Project

of the National Department of Education (NEEP-GET) which focuses on the General Education and Training band. Another project which preceded the NEEP-GET was the Learning for Sustainability project which piloted Environmental Education with teachers focused on school- based Environmental Education curriculum development, innovations in Environmental Education, as well as appropriate professional development models.

Through the EEPI and EECI, The Environmental Education Association of South Africa (EEASA) was invited by the National Department of Education to become involved in policy formulation at a national level. At that stage, the Environmental Education Association of South Africa had been campaigning to include Environmental Education in formal Education for some years. It had also co-operated with the National Department of Environmental Affairs and Tourism to investigate possibilities of incorporating Environmental Education into formal education (Irwin & Lotz-Sisitka, 2005:53).

An important EEPI policy option that was tabled as part of the national curriculum policy includes elements of a model, similar to the Life-Science Project in Namibia. The NEEP-GET aimed to pilot Environmental Education as a cross-curricular, integrated, holistic approach within Curriculum 2005. The project aimed to develop, test, assess, recommend, advise and support teachers with particular regard to resource materials and professional development. The NEEP-GET also aims to assist teachers with the paradigm-shift to OBE. It will be important to introduce the concept of sustainability as essential for the new Curriculum. The NEEP-GET facilitates the transition teachers have to make from a content-based, teacher-centred approach to an outcomes-based, learner-centred approach through the medium of Environmental Education. This will allow empowered teachers and education officials to make informed decisions. The focus of the NEEP-GET function within national and provincial structures is to empower teachers through professional development and to ensure sustainability within the whole country. Environmental Education is viewed as the development of the ability to identify, analyze and to respond to environmental issues in context.

Blignaut (1993:16) states that Environmental Education according to EEASA "... is a fundamental necessity for a successful society, espousing principles and values such as democratization..." (EEASA, 1993:16). The Australian people envisage Environmental Education as a lifelong process where schools and teachers play a unique part. In its social-critical form, Australia can be conceptualized in the expression "education for the environment". According to Fien (1997:19), it cannot be subsumed into one subject. This is problematic, as there is too much content and as a result cannot be handled in a vigorous fashion. The Environmental Education Teacher Resources Handbook (1994:25) states that Environmental Education focuses on five clusters of values: natural heritage; public health and the environment; careers; sustainable development; and quality education.

I would therefore hypothesize that the NEEP-GET pilot project will impact positively on OBE and RNCS. This stems from the fact that teachers accept "environment" as one of the underlying principles in the RNCS senior phase, even though some of the teachers may not be convinced about the need and value of Environmental Education in this regard.

1.8 STRUCTURE OF THE MINI-DISSERTATION

In Chapter l the reader was introduced to Environmental Education and the fact that it is no longer a phase organizer in the South African school curriculum, but needs to be implemented, as one of the curriculum principles, across all the learning areas.

Chapter 2 defines Environmental Education and Environmental literacy and through a review of the literature, develop a theoretical framework for the study.

In Chapter Three, South Africa's present Curriculum RNCS for schools will be elaborated upon, together with brief discussions on overseas approaches to Environmental Education and its place in the school Curriculum. Teacher training in Environmental Education will also be briefly investigated in this chapter.

Chapter Four deals with the approach and design to the empirical part of the study including data collection procedures and thereafter, techniques of analysis are discussed.

Chapter Five focuses on the analysis process of the research and the results of this investigation.

Lastly, Chapter Six will conclude with an interpretation of the findings and possible recommendations and the implications of the study.

1.9 SUMMARY

In Chapter One, I outline the rationale for investigating teachers' frustrations, from a point of professional development (the lack of it). I have also given the historical background of the main theoretical views on Environmental Education in South Africa. In Chapter Two, an investigation into the position of Environmental Education in the school curriculum (both local and global) will be undertaken.

CHAPTER TWO
ENVIRONMENTAL EDUCATION: A LOCAL AND GLOBAL PERSPECTIVE

2.1 INTRODUCTION

This chapter provides an overview of education, environment, Environmental Education, the global historical development of Environmental Education, some principles of Environmental Education, environmental literacy and curriculum initiatives in South Africa.

2.2 DESCRIPTIONS OF CONCEPTS

2.2.1 Education

In order to define the concept "Environmental Education" one needs to focus on the meaning of the two concepts "environment" and "education".

The Oxford Dictionary (1998: 330) defines education as "systematic instruction, schooling or training". Educationalists such as Du Plooy, Griessel and Oberholzer (1982: 297) state that education has revealed "goals that are pushed, authority, requirements for propriety that set standards, character education educating for responsibility and thus for adulthood, values observed, educators and educands". Teaching on the other hand is viewed as a way of "educating which is purposefully planned and it includes tutorial matters, teaching methods, certain teacher-child relations, certain organization of learning situations into educative situations" (Du Plooy, et al. 1982:297).

Although education is a universal phenomenon with common characteristics, norms and methods are always individual and local matters differs from person to person, group to group, nation to nation and educator to educator. Environmentalists often view "education" as a "life-long process in which knowledge is important and correct skills, attitude and behaviour

developed" (Lotz, Tselane & Wagiet, 1998:11). Education embraces both teaching and learning, embracing all learners irrespective of the type of learner. The learning process should produce an output while the total of the individual is the focus of education.

2.2.2 Environment

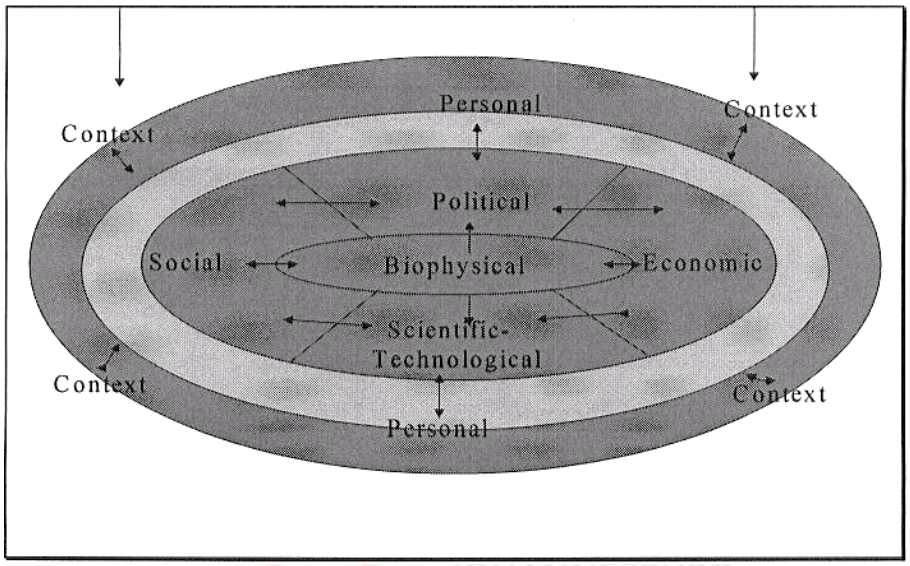

Table 2.1 (Van Rooyen, 2002)

The environment is everything around us. It also includes people themselves (Lotz, Tselane & Wagiet, 1998), their history, where they live, work play, relax and enjoy nature. Environmental resources are used to support life systems. These resources can be natural such as soil, water and air, or they can be man-made such as building bricks, building materials. The natural resources form the life support system and should thus be used wisely.

Van Rooyen (2002) views the environment as an interaction between the social, economical, political, technological, biophysical, personal and contextual dimensions. Other researchers such a O' Donoghue (1993: 93) refers to the environment as interacting social, economic dimensions, resting upon a base of biophysical and our social milieu. Rather, it should be understood as the conceptual interactions between our physical surroundings and the socio-political and economic forces that organize us in the context of these surroundings. It is in this sense that we can say that the concept "environment" is socially constructed.

Environmental concerns can unite South Africa, going beyond racial, political and economic barriers. In addition to the crisis in education, housing, employment and a host of other problems, the new democracy will be left with apartheid's environment legacy for some time to come (Mandela, 1993, in Whyte, 1995). Yeld (1997, *In caring for the earth South Africa: A guide to sustainable living)* refers to these South African issues by including land for example the degradation of the land, population and particularly, overpopulation, urbanization and the tempo of urbanization, energy and the over-usage of energy, and water and the degrading quality of water and finally, HIV/AIDS.

2.2.3 Environmental Education

Many references to Environmental Education acknowledge that the new constitution of South Africa enshrines the right of every citizen to a healthy environment, which is not detrimental to his or her health. This was also proposed in a discussion document of April 1998 on *"Enabling Environmental Education as a cross-curricular concern in Outcomes-Based Learning Programs"* (Lotz & Janse Van Rensburg, 1998c: 21) that states that prevention of environmental degradation, solution to environmental problems and development of sustainable living need to be addressed. When the constitution was adopted, it linked environmental issues to values underpinned by human rights and social responsibilities.

2.3 HISTORICAL DEVELOPMENT OF ENVIRONMENTAL EDUCATION

Hungerford and Peyton (1981:35) state that the historical development of Environmental Education is not known. However, its roots extend to when man first envisioned an inter-relationship between himself/herself and the biosphere. Since the late 1960's, Environmental Education has been regarded as education focused on the environment. The primary antecedents were "nature study", "out door study" and "conservation education".

More recently, the roots of Environmental Education have been traced back to the conservation movement. Its roots and strengths lie in conservation education, nature education, resource-use education, out-door education, geography education and science education.

Differences do, however, exist between conservationism and environmentalism. According to Roth (1992: 7) the focus of Environmental Education can be derived from:

- The inter relationships between natural and social systems.
- The unity of human kind with nature;
- Technology and making of choices;
- Development learning through out the human life cycle.

The development of explicit interconnection with human health, science and technology and the environmental, economical and social issues and problems of society have characterized Environmental Education since the 1970's.

Currently, Environmental Education focuses on five clusters of values. The five clusters are natural heritage, public health and the environment: careers, sustainable development and quality education. In this respect then, it is important to look at the Concept.

2.3.1 Environment literacy

Roth (1992: l-5) initiated the concept of "environmental literacy" in 1968, when it was found that there were many environmentally illiterate individuals who, mainly through ignorance damaged the environment. Nowadays, educators view environmental literacy in terms of the knowledge, skills and behaviours a student should be able to demonstrate when schooling is completed.

As a result, environmental literacy can be defined as:

- The ability to read and write;
- Well educated, having or showing extensive knowledge; and
- An understanding and a development of a culture

According to the Rio Declaration (Braus & Wood, 1993: 51) environmental literacy guidelines are based on the assumption that an environmentally literate persons should possess an awareness and sensitivity to the total environment; a variety of experiences in and a basic

understanding of environmental problems; a set of environmental values and a feeling of concern for the environment; as well as the motion and disposition to actively participate in environmental improvement and protection and skills for identifying, investigating and solving environmental problems.

2.3.2 Levels of environmental literacy

In addition to the above-mentioned description, environmental literacy can be defined as the ability to demonstrate observably what has been learned, i.e. knowledge of key concepts, acquired skills and disposition towards environmental issues.

These can be divided into three working levels, namely:

1. The nominal level indicates the "ability to recognize many of the basic terms in communicating about the environment and to provide rough if unsophisticated working definitions of their meanings".
2. The functional level indicates "a broader knowledge and understanding of the nature and interactions between human and social systems and other natural systems".
3. Operational levels are the "Progress beyond functions literacy in both the breadth and depth of understanding and skills" (Roth, 1992:24).

The development of levels has been further divide into strands in environmental literacy.

2.3.3 Strands in environmental literacy

Within the above three major levels are four major strands: namely

i. The knowledge strand;
ii. The affect strand;
iii. The skill strand; and
iv. The behaviour strand.

The knowledge strand refers to the familiarity and understanding of systems and nature. The affect strand refers to feelings, values, attitudes and appreciation of nature and society. The

skills strand refers to skills of identification and analysis, synthesis, application of suitable action, evaluation of actions implemented, risk taking, decision making, critical thinking. The behavioural strand refers to the actions implemented, either individually or collectively.

Environmental literacy draws upon scientific literacy. It therefore involves people in:

- Using critical and creative thinking;
- Seeking and organizing information;
- Being healthily sceptical;
- Thinking ahead and planning;

It has often been stated that environmental literacy draws upon six major areas namely:

i. Environmental sensitivity;
ii. Knowledge,
iii. Skills,
iv. Attitudes and values,
v. Personal investment and
vi. Responsibility and active involvement.

The inculcation and development of strands and levels of literacy supports the development of environmentally literate and active people.

2.3.4 Environmentally literate and active citizenship

Hungerford and Tomera (1977:22) propose the goal of Environmental Education to be the "development of literate citizenship that is both competent to take action on critical environmental issues and willing to take action". Clearly this includes dimensions of environmental literacy. In assessing the level of environmental literacy, one needs to assess the efficiency of programmes to develop and nurture the acquired literacy. In schools it is therefore essential to test what is being demonstrated or not and to take action to remediate deficiencies. According to Blignaut (1993: 40), assessment requires the use of ".... diverse

formative assessment methods in order to develop the understanding, values, attitudes, skills and self-confidence required of an environmentally literate person".

In conclusion, informed and active citizenship provides a philosophical framework for an individual and his/her social action. This is aimed at making the world a healthier and fairer place for all.

The foregoing discussion on historical development of EE, as well as the description of environmental literacy is important for this study.

2.4 THE PRINCIPLES OF ENVIRONMENTAL EDUCATION

2.4.1 Introduction

Internationally there has been a growing emphasis on Environmental Education as a response to the environmental crisis, and many guidelines have been produced on how people should understand and respond to this crisis. Three international meetings have been particularly significant in generating principles for Environmental Educating, namely: the Tbilisi Principles for Environmental Education in 1977 and the "principles of Environmental Education for equitable and sustainable societies" and the 1992 United Nations Conference on the Environment and Development (UNCED), commonly known as the world summit or Rio conference.

The message emerging from these international meetings was clear: The world should focus on the need for a sound economic development policy that recognized the centrality of environmental and social priorities. It was showed that if economies are weak and people are poor, the environment would suffer. It was this understanding that underlined the importance of a balance between development and conservation.

World Watch President, Flavin says: “Ten years after the Rio summit, we are still far from ending the economical and environmental marginalisation that affects billions of people. Pressures on the world’s natural system, from global warming to the depletion and degradation of resources such as fisheries and fresh water, have further destabilized societies”.

It is now a matter of public record that despite all these efforts, Agenda 21 failed to translate into anything more than a paper commitment. Acknowledging the weakness in Agenda 21, more than 140 heads of states and 191 countries adopted the Millennium Declaration, which set out specific targets for development and poverty alleviation. The leaders agreed that by 2015, the world ought to have reduced by half the number of people living in extreme poverty. The Declaration also committed the international community to reduce by half the number to people without access to clean water, sanitation and food.

The 2002 Johannesburg World Summit on Sustainable Development was expected to bring out a programme of action that would set concrete targets, clear time frames, commitments to fund the sustainability programmes, and monitoring mechanisms to police implementation thereof. There are no indications that the objectives of the summit are being met as most countries, particularly from the developing world lacks the necessary finances.

2.4.2 Fien’s rationale and methodology for Environmental teaching.

According to Fien's (1977: 27) rationale and methodology of environmental teaching, an inter-disciplinary approach is proposed which could be seen as principles for environmental teaching and learning. It focuses on education “about”, “through” and “for” the environment, and can be described as:

- Education **“about”** the environment is the most common form of EE. The objectives emphasize knowledge about the natural systems and processes and the ecological, economic and political factors that influences people's decision making.

- Education **“through”** the environment makes use of learner experiences. It aims to add reality, relevance and practical experience to learning and to provide learners with an appreciation of the environment through direct contact.
- Education **“for”** the environment focuses on the values of education in social change. It aims to engage learners in the exploration and resolution of environmental issues in order to promote life styles that are compatible with the sustainable and equitable use of resources.

Fien’s approach builds on education ‘about’ and ‘through’ the environment, a sensitive environmental ethic, and the skills for participating in protecting and improving the environment.

2.5 APPROACHES TO ENVIRONMENTAL EDUCATION

Environmental goals around the world are similar namely to ".... maintain and improve quality of the environment and to prevent future environmental problems". According to Braus and Wood (1993: 49) it involves information, education, and increasing knowledge about the environment. It is also viewed as increasing awareness about issues and an understanding of personal values by focusing on attitudes and values and by evaluating one's feelings regarding environmental issues.

Generally, overseas curricula propose that Environmental Education could be incorporated into education in one of four ways:

1. The infusion method where Environmental Education content and processes are incorporated into established courses throughout the curriculum.
2. The block method with specific categories or units focusing on environmental sciences, issues action and topics, that are included in the curriculum.
3. The formation of environmental clubs,
4. The observance of “special days”.

There are a variety of approaches to Environmental Education across the United States of America (USA). According to the UNESCO-UNEP documents (International Environmental Education Programme, 1994: 77) the characteristics of these approaches:

- They are based on real problems;
- They clarify values;
- They make use of both ecological and interdisciplinary skills and concepts;
- They are socially critical;
- They are action orientated;
- They encourage the development of a sustainable environment;
- They involve students working together in groups.

A whole-school approach policy encourages Environmental Education development throughout the students' schooling years. Schools need to develop and put into action an Environmental Education policy for all students, staff and parents. In this approach, the informal and formal curricula are integrated harmoniously except for curricula implications. An entire school approach should involve management of the school site. These include:

- Energy and water conservation: schools should demonstrate to students how resources could be used wisely.
- Waste minimization: students could learn how to limit the quantity of waste produced, to reduce usage and recycle waste.
- Site development: school grounds, camps and forests could be developed, to provide a stimulating environment

Any construction of new schools or renovations should follow environmentally acceptable procedures. (UNESCO-UNEP documents, International Environmental Education Programme, 1994: 87)

The new Victorian Certificate of Education (VCE) in Australia (1997: 75) contains a study design developed by the Victorian curriculum and Assessment Board, called environmental studies. There are four units of study in the design:

Unit 1: The study of environments

Unit 2: Environmental impact and conservation in Victoria.

Unit 3: Conservation and development

Unit 4: A sustainable earth.

I think we should use some of the ideas in training local teachers since the Australian approach to Environmental Education is regarded by many to be exemplary.

Broadly speaking there are two approaches to EE, namely the North-American/European approach and the Australian approach. The latter is a socially-critical approach to EE, where social issues feature prominently in EE. In this approach, the trend of criticism lies mainly in the interaction or tension in social structures and ecosystems (Clacherty, 1993:19). The Australians are somewhat critical in their approach on social issues, whereas the North-American/European approach is more balanced and holistic (Gough, 1992: 94).

We are going to look at the Australian approach because it is regarded as exemplary. South Africa is a third world country, and this calls for a comparison with another developing country, which is Botswana.

2.5.1 The Australian Approach

Some Environmental Education authors consider the Australian policies as role models, in that they have replaced earlier behaviourist and social engineering approaches. The Australians emphasize that the prevention and solving of environmental problems need methodology based on critical thinking. This implies that teaching will be characterized by cooperation, critical enquiry and interdisciplinary lessons. The classroom will represent a learner-environment focus, using social and cognitive theories. The curriculum development is participatory, enquiry-based and critical to encourage dialogue, which leads to re-conceptualisation and renewal. Clacherty (1993: 61) quotes Gough (1993: 44) when stating that Australian literature has moved towards socially critical Environmental Education. The curriculum is issued-based and integrated with the rest of the general school curriculum. This approach to Environmental Education is critical and open-minded and involves problem solving.

2.5.2 The South African Approach

In a similar manner to Australia, South Africa bases its Environmental Education on the investigation of local environmental issues. In the formal school situation, eight learning areas have been adopted by the South African Qualification Authority (SAQA, 1996: 1). In the new curriculum, EE, has been incorporated into Human Social Sciences (HSS),and other learning areas as well. since it is ".. the study of relationships between people and their environment" (DoE, 1997: 45). In Queensland, Australia, four of the eight curriculum areas have been identified as essential to be incorporated into EE. In South Africa environmental studies is recommended at the Foundation Phase, Life Science education for sustainable living in the Senior Phase and Environmental Studies for FET. According to Policy Option 3 of the EECI, Environmental Education is best suited to FET and Adult Basic Education and Training (ABET) as a separate subject (DoE, 1997: 50). However, in the recently adopted NCS for Grades 10-12, Environmental Education only needs to be integrated into a learning area.

This approach is unveiled by the RNCS being implemented by South Africa. This is an Outcome-based RCNS, underlined by a shift from the behaviourist approach. The emphasis is on the achievement of learning outcomes. In the behaviourist approach, the emphasis was on transmission of knowledge to the learners. Also, the previous, pre-1994 curriculum was objective- driven.

In South Africa, the Environmental Education Policy Initiative (EEPI; 1995; 2) paved the way for the Environmental Education Curriculum Initiative (EECI) to develop a curriculum in comparison to the environmental and school initiatives. The ENS1 project (1993; 9) is an international project in Environmental Education co-coordinated by the Organization for Economic Co-operation and Developmental Centre for Educational Research and Innovation. The RNCS curriculum with an outcomes-based approach is comparable to Australian ENSI schools where Environmental Education refers to investigation of relevant issues rather than knowledge, is based on investigating and is subsequently socially constructed.

2.5.3 Differences between the Australian and South African Approaches to Environmental Education

Policies are compared regarding curricula; approaches for incorporating Environmental Education into the curriculum; teacher education development; teaching and learning strategies; assessment and evaluation; resource materials development and institution-based environmental policy options in EEP1 and in more recent documents, are similar to the policies of Victoria, Queensland and the ENSI schools.

In South Africa, the EECI states that Environmental Education could be used to form a component of subjects. In Australian it could also be a theme in any subject area. In Australia, a single subject approach is not common within the compulsory ten years of schooling. Environmental studies merely encourage school participation in environmental projects where practical experience is vital for acquiring knowledge.

Another approach adopted by Australia is the so-called faculty approach, where a faculty or year level adopts an environmental emphasis throughout the teaching of its subjects. In theory, the South African and Australian policies are similar as Environmental Education forms part of pre-service teacher education in certain University teacher training programmes. In-service education also includes action research in the development of lessons and resources. An action-based approach is common to both approaches. Time-table organization inhibits Environmental Education implementation in South Africa (Gough, 1992: 20) whereas policy in Victoria, Australia on the other hand recommends flexibility (Ministry of Education, 1990: 19). Both policies emphasize evaluation. Thus, assessment is continuous, skills-based contextualised and based on Environmental Education principles. The emphasis is on formative and qualitative assessment and focuses specifically on performance. Evaluation is holistic, interdisciplinary and builds an awareness of local and global significance. The Environmental Education Policy Initiative (EEPI: 1995:9) recommends that all institutions adopt an environment policy (such as a green-school approach) which is a common practice in

Victoria and Queensland (Ministry of Education, 1990: 9-17; Department of Education, 1993: 18).

The Environmental Education Policy Initiative (EEPI, 1995:14) has developed a school environmental policy resource pack for South African schools. The policy development process encourages schools to audit existing activities and to formulate, evaluate and review Environment Education goals and actions for key curriculum and extra-mural activities. Schools are advised to use the resource pack, develop and implement an environmental policy through audit of the curriculum and key elements of the school programme. This can contribute to an enriching, happy, healthy and more sustainable environment.

2.5.4 A view on environmental education in the Botswana context

The literature study indicates that both South Africa and Botswana are third World Countries and that comparisons can therefore easily be drawn. In South Africa, Environment Studies was the only subject-component that dealt with the environment but was very limited to tackle and address environmental issues and also empower learners to promote sustainable development. This might have contributed to communities being ignorant on ways to tackle environmental problems, as in Environmental Studies the focus is more on education 'about' the environment and not education 'for' the environment. In 1991, the Government of Botswana accepted the recommendation of the Department of Teacher Training and Development (DTT&D), in-service and pre-service divisions have been busy working towards making teachers aware of the importance of incorporating environmental issues in the classroom and equipping them for the task.

The Ministry of Education then decided to infuse Environmental Education across the curricular, train teachers on EE, run and organise Environmental Education for schools and liaise with other organizations to implement Environmental Education policy. With this in mind the Department of Education in Botswana identified in-service and pre-service training to implement Environmental Education. Appropriate environmental teaching techniques to be adopted by teachers in order to impart knowledge to their pupils, were devised.

The new dispensation developed the idea to integrate Environmental Education into the school curriculum in South Africa. Donor countries, particularly the Danish government has funded a number of projects, like the Learning for Sustainability projects, in some Provinces of South Africa. Limpopo Province sadly, has been neglected in this regard and is not capacitated to start. Many schools in the Limpopo Province do not have a programme on using environment teaching resource. Most teachers do not recognize parts of their curriculum that have a significant environmental content and therefore holds the potential for effective environmental teaching and learning.

The Botswana Department of Teacher Training and Development, conducted in-service training to empower teachers on the job. Subject officers in all regions were trained to handle Environmental Education related issues, through national and regional workshops and international conferences. It is envisaged that at the end of the training course, the trained teachers would continue with training other teachers as needs arise at school level. Pupils were assisted to develop practices, investigative and problem-solving skills, based on immediate environmental needs.

In South Africa, through the implementation of the RNCS, transformation in education requires teachers to change their thinking about teaching and learning. It further requires the development of a deeper understanding of their role in the teaching and learning process, what they teach, the way they teach, and the way in which learners are assessed. As it is, many teachers still do not understand OBE and the RNCS. Some believe that those who have been fortunate to attend such workshops, are not adequately trained and are thus not in a position to help other teachers or learners in class, the professional development of competencies for teachers to effect necessary changes in their practice.

The next section will look at the structure of the NQF, the old syllabus, and the differences between the approaches. The Environmental Education Initiatives in South Africa, the Environmental Education Curriculum Initiatives (EECI) in South Africa and lastly the Environmental Education Projects in South Africa will also be discussed.

2.6 THE SOUTH AFRICAN SCHOOL CURRICULUM AND ITS CHANGES

According to the Revised National Curriculum Statement (2003), learners, teachers and education authorities could plan curricula. The curriculum is planned by educators to support learners. Activities in the curriculum could also include debates, visits to places of interest and extra-mural activities. The curriculum may vary from province to province within regions and even within a specific district, depending on the resources, problems and desires of a specific community.

The successful implementation of Environmental Education curricula in schools requires the competence of teachers, which will require some retraining. In this chapter I shall give information on the old South African syllabus, and the differences between the old syllabus and the RNCS.

2.6.1 The old South African curriculum

The South African curriculum used to be academic in nature, and learners were taught subject according to a rigid syllabus and was divided into three phases, namely: the Junior Primary, the Senior Primary and the Senior Phase. The Junior Primary and the Senior Primary phases were completed at a primary school and the Secondary Phases at a high school.

The syllabi in the Senior Primary and Secondary School phases did not include Environmental Education as a separate module or part of any subject. Prior to 1998, environmental studies were regarded as separate subjects and were intended for Junior Primary learners. These were learners in the current foundation phase, i.e. Grades l-3. In the Senior Primary, Junior Secondary and Senior Secondary phases Environmental Education was not taught. All the subjects were career orientated and had a prescribed syllabus, which needed to be followed and completed for a particular standard in a given year.

2.6.2 Curriculum 2005 and the RNCS

The Department of Education embarked on a review of the current curriculum in August 1995. Key stakeholders formed part of the process and Curriculum 2005, which followed an OBE approach, came into existence in 1998. Initially, it was intended to be introduced in all grades and through the entire schooling of a child by 2005. Its goal was to phase in this new curriculum from 1998. This curriculum was based on the idea of lifelong learning for all South Africans. The Minister of Education indicated in February 1997 that "... implementing the new curriculum will require considerable commitment from all participants in the knowledge, competent future citizens".

Outcomes-Based Education is based on three basic premises, namely that: all students can learn and succeed; success breeds success; and schools control the conditions for success.

Three different kind of OBE were identified. The first one, Traditional OBE uses the current curriculum rather than outcomes, its aim being academic competency. Learners should be able to demonstrate what is acquired in terms of context or subject matters. This approach is limited to segments of the curriculum. Its content dominates, but is not related to real life demands, and no attention is given to context, role performance and development of the total person. The traditional OBE approach does not challenge the nature of schooling and does not attempt to eliminate constraints.

The second one, Transitional OBE defines outcomes as being significant. It aims for higher order competencies and exit outcomes, implying that students' capability culminates in graduation. The emphasis is on attitudes, the affective domain, motivational and relational qualities, and critical and complex problem solving.

The third form of Transformational OBE, questions the existence of schools, and emphasizes the life conditions that will be encountered in the future and world wide economic competition and interdependence. The focus of transformational OBE is career-related performance. The aim is to equip students with knowledge, competence and orientations needed for success after

leaving school. It envisages competent, empowered citizens with the necessary skills for entering the job market or employment. The emphasis is on the collaborative, flexible trans-disciplinary, open education system. Transformational education is an open system that equips students to transfer education to life in a complex, challenging, high-tech world. The disadvantages are that there are few examples of successful mature OBE designs on which to model such efforts. Radical change and paradigm shifts are therefore required from South Africans. The reasons for instituting a new syllabus are outlined in Table 2.2. I feel it is of utmost importance to give the differences that exists between the old and the new syllabus, as well as any similarities, if any.

Table 2.1: Difference between old and new syllabus [Adapted from "Curriculum 2005" - a booklet issued by the National Department Education (1997:3)]

OLD SYLLABUS	**NEW SYLLABUS**
Passive learners	Active learners
Exam-driven	Learners are assessed continuously
Rote learning	Critical thinking, reasoning, reflection and action.
Syllabus is content based and broken down into subjects.	An integration of knowledge; relevant learning, linked to real- life situations.
Text book, worksheet-bound and teacher-centred	Learner-centred; teacher is facilitator, uses group work and team work to consolidate new approach
A rigid and non - negotiable syllabus	Learning programmes viewed as guides that allow teachers to be innovative and creative in designing programmes
Teachers responsible for learning; motivation dependent on the personality of teacher	Learners take responsibility for their learning; learners motivated by constant feed back and affirmation of their worth
Emphasis on what the teacher hopes to achieve	Emphasis on outcomes- what the learner becomes and understands
Content placed into rigid time-frames	Flexible time- frames allow learners to work at their own pace.
Curriculum development process not open to public comment	Comment and input from the wider community is encouraged

The above differences between the old syllabus and the new curriculum, highlights what the new curriculum envisages to achieve. The curriculum plans to integrate education and training. It should incorporate a view of learning, which rejects a rigid division between academic and applied knowledge and skills. The intention is that the new curriculum will foster learning, and encompass a culture of human rights, multilingualism and multiculturalism. It should also be sensitive to the values of reconciliation and nation building.

The Revised National Curriculum Statement, introduced after revision of Curriculum 2005, recognizes the importance of Environmental learning by making environment part of one of the underlying principle in the RNCS. The RNCS suggests an approach that can help educators bring their own contexts into the teaching and learning process, and contribute to developing learners as critical and active citizens of a democratic South Africa. According to the RNCS, learners explore and take action in their local environment. It further suggests using ideas and suggestions adapted to suit your own particular context and your own particular learners who will become active, creative, critical thinkers, living productive, fulfilling lives. This new approach is referred to as learner-centred. It provides expectations of action among learners.

However, many educators were trained in the old methodologies and will therefore require some training to be effective in implementing RNCS. Educators, not fully conversant with Environmental Education, may not even recognize Environmental themes in their respective learning areas. I think for all this to happen successfully, the Department of Education should provide adequate funding, so that the necessary learner support material is available to all schools. Teachers should also be trained on how to involve learners in lesson planning, and what and how to assess their learners.

2.6.3 The different phases of the National Qualifications Framework (NQF)

Education is now divided into three bands:

(i) the General Education Training band (GET) which includes Grade R to Grade 9;

(ii) The Higher Education and Training band (HET) which incorporates the Universities, Technikons, Colleges and Professional Institutions;

(iii) The Further Education and Training band (FET) which includes Technical, Community Police, Nursing, and Private Colleges.

On completion of the GET band, learners will receive a General Education and Training certificate, which is awarded as evidence of being competent in the stated critical and specific outcomes. Adults or out-of-school learners involved in general training, will be involved in Adult Basic Education and Training (ABET).

The next education level is the FET level which comprises Grades 10, 11 and 12. These grades will be completed in the normal academic schooling system or in vocational centres, where learners are prepared for higher education or for careers.

2.6.4 The eight learning areas of Curriculum 2005

The old syllabus was comprised of more than 33 subjects that learners could study. The new outcomes-based curriculum comprises eight learning areas, which should create a balanced curriculum. Learners will have exposure to all fields and will acquire knowledge and develop skills, attitudes, and values. All learners will be given the opportunity to learn and succeed.

The eight learning areas are:

i. Languages.
ii. Mathematics
iii. Social sciences
iv. Natural sciences
v. Arts and culture
vi. Economics and management science
vii. Life orientation

viii. Technology

In the human and social sciences, responsible citizens are trained who will be able to operate in a culturally diverse, democratic society. People will interact with each other and with their environment. According to the National Policy Document (Department of Education, 1997: 3) there were five compulsory phase organisers for this phase:

i Communication
ii Environment
iii Personal development
iv Economy and development and
v Culture and society

Environmental Education would actually take place in the phase organiser "environment". In practice the following was an example present in the foundation phases:

- Learning programme: Literacy
- Phase organizer: Environment
- Programme organizer: Conservation

The environment could therefore be contextualized and integrated into the new RNCS but, this integration depends to a large extent on the teachers understanding of environment, as well as the principles and recommended methodology of EE.

The intention of the Curriculum 2005 was to bring about more environmental awareness and responsible action taking place. Learners were only made aware of environmental days like Arbour Day and Water Week in the previous curriculum. Even the commemoration of these days was limited to an afternoon or a few hours in the day's programme.

2.7 ENVIRONMENTAL EDUCATION CURRICULUM DEVELOPMENT

2.7.1 Introduction

The Environmental Education curriculum comprises all experiences relevant to knowledge, attitudes, and skills, human behaviour and the development of an environmentally accepted life style.

Environmental Education curriculum developers should prepare curricula that "stimulate learning of concepts, provides for the attainment of problem solving skills, allows for the modification of benefits and values, and provides for training in and opportunities to apply appropriate citizenship behaviours which will result in a population life style that balances the quality of life with the quality of the environment" (Clacherty, 1993: 6). Environmental Education curriculum developers should strive for optimal insight and skills for transfer in selecting methods, formats and styles, and to present lessons with an Environmental Education focus.

The UNEP Documents (International Environmental Education Programme no.22; 39) proposed some useful guideline for curriculum developers outlining the transfer of knowledge and skills occurs when:

- Students experience a diversity of problems such as exposure to a wide range of problems that helps to develop the expectancy that each problem should be solved in a different way;
- Students learn to apply principles in situations with distracting and irrelevant elements which is necessary if relevant and irrelevant feature so that the principle involved can be identified and opportunities are provided for the students to learn and use the knowledge in various contexts.

An effective Environmental Education programme should include curricular components according to Tbilisi conference and should include the guiding principles (UNESCO-UNEP, 1978) of :

- Consider the environment in its totality - the natural and built technological and social (economic, political, cultural- historical, moral and aesthetic) environment;
- Regard learning as a continuous life long process, beginning at the pre-school level and continually through all the formal and non-formal stages;
- Are interdisciplinary in their approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- Focus on current and potential environmental situations and international co-operation in the prevention and solution of environmental problems;
- Explicitly consider educational aspects in plans for development and growth;
- Relate environmental sensitivity, knowledge, problem solving skills and values clarification to every age, with special emphasis on environmental sensitivity to the learner's own community in early years;
- Help learners discover the symptoms and causes of environmental problems;
- Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem solving;
- Utilize diverse learning environments and a broad array of educational approaches to teaching, learning about and from the environment with due emphasis on practical activities and first hand experience.

The Tbilisi conference (UNESCO-UNEP document No 22; 1994; 59) established the following goals for Environmental Education:

- To foster a clear awareness of, and concern about economic, social, political and ecological intermediate in urban and rural areas;
- To provide every person with opportunity to acquire the knowledge and values to protect and improve the environment; and
- To create new patterns of behaviour for individuals, groups and society as a whole, towards the environment.

2.7.2 Agenda 21 and sustainability

Agenda 21 (UNCED, 1992; 26) describes sustainable development as meeting the needs of the present without compromising the ability of future generations. It investigates the relationships between social development and economic opportunity on the one hand and the requirements of the environment on the other. The aim is to improve quality of life for all, especially the poor and deprived. Sustainability implies a dynamic balance among many factors, including the social, cultural and economic requirements of human kind and the imperative need to safeguard the natural environment. Man is an indispensable part of the natural environment.

In 1987, the World Commission on the environment and the development (1987; 8) recognised the need to adopt an approach that does not endanger the future and yet will satisfy the need of the population. Thus, sustainable development becomes the theme of the commission's United Nations conference on the environment and the development (the earth summit) which was held in 1992.

Tolba, the Director-General of the UNEP, gives us a clue to what we should also consider when he writes: "Poverty is locking the people of the third world into a dismal cycle of events - in their efforts to meet needs of food, shelter and heat, they are being forced to destroy the very resources on which their future survival and the future prosperity of all" (Tolba, 1987).

Attempts have been made by the Department of Environmental Affairs (1989:33) to include Environmental Education in educating curricula, but aspects of Environmental Education have only been included on an ad hoc basis. The emphasis was solely on content, passive rote learning and testing through examinations.

2.8 ENVIRONMENTAL EDUCATION INITIATIVES IN SOUTH AFRICA SINCE 1994.

Designed to set out an implementation framework for the Outcomes-Based Education system advocated in the White paper on Educational and Training, the RNCS is currently a new, simplified streamlined curriculum.

The Reconstruction and Development Programme (ANC: 1994) advocates "programmes to rekindle our people's love of the land, to increase environmental consciousness amongst our youth, to co ordinate Environmental Education policy at all levels, and to empower communities to act on environmental issues and to promote environmental ethic".

2.8.1 Environmental Education (EE) projects in South Africa.

In South Africa's Environmental Education community, many people are working together to find solutions towards more sustainable living patterns. A project called NEEP-GET (National Environmental Education programme) is funded by Danish Co-operation for Environment Development (DANCED) – this is learning for sustainability pilot project, operated in the Departments of Education in Gauteng and Mpumalanga provinces from 2001. The main focus of the project was the establishment and testing for models for professional and curriculum development for teachers in the senior phase. One of the major outcomes of the project was the development of the cluster-based spiral model for professional development in Environmental Education.

The Ministry and Department of Education officially launched the National Environmental Education Programme (NEEP) in January 2001, and, in so doing, made a commitment to develop a strong emphasis on Environmental Education for South Africa. The NEEP vision is to provide an integrated educational framework for environmental enhancement, and sustainable development through cooperative governance. The aim is to show power and relevance of environmental education in the South African Context, as one of the means of achieving our Tirisano "call to action" launched in January 2000.

The NEEP aims to demonstrate that Environmental Education has the potential to contribute to the building of a South African Education and training system in its broadest sense for the 21st century. The development objective of the project is to develop the capacity in all teachers in South Africa, to enable them to implement environmental learning at compulsory school level, integrated in the OBE curriculum. The project is based on four components, which represent the various elements of the South African curriculum implementation cycle, namely:

- influencing the curriculum policy process;
- materials resource development;
- professional development; and
- school based implementation.

Through the NEEP, environmental education has now been integrated in the general education and training band.

2.9 CONCLUSION

In the above sections the focus was on the development of Environmental Education in some foreign countries, as well as in South Africa. Principles for Environmental Education were discussed and comparisons made between the contextual situation of Environmental Education in South Africa relative to some other countries.

In South Africa, a positive stage has been set for the implementation of Environmental Education in the new curriculum by significant and invaluable efforts of NGO's, the Department of Environmental Affairs and Tourism, the Environmental Education Curriculum Initiative and the government. The Republic of South Africa Bill of Rights (1996) has placed Environmental Education in a prime position which will ensure that it becomes part of every citizen's education in South Africa.

I now deal specifically with the methods used to collect data for this study. This will be followed by a description of procedures for analysing of data and their interpretation.

CHAPTER THREE:
THE FIELD RESEARCH DESIGN

3.1 INTRODUCTION

This study aimed to investigate the essence and intensity of frustrations teachers' experience in offering Environmental Education in schools and in trying to engage their learners in meaningful and effective learning experiences in Environmental Education.

3.2 A QUALITATIVE APPROACH

As I wanted to investigate the teachers' experience, a qualitative approach to the study is followed. Merriam (2002: 3) explains that in order to understand qualitative research one has to understand the idea that meaning is socially constructed by individuals with their world. Qualitative studies usually aim for depth rather than "quality of understanding" (Merriam, 2002:3)

The design of a qualitative study focuses on interpretation and includes shaping a problem for this type of study, selecting a sample, collecting and analyzing data and writing up the findings (Merriam, 2002:11). Henning, et al. (2004:70) suggest that the logic of the design indicates whether the researcher has conducted a literature review and can thus relate this to the methods and methodologies that will be employed in the study.

Le Roux (2005:180) quotes Leedy (1993:141) who provides the following features of a qualitative study:

- Qualitative studies tend to be field-focused;
- Qualitative research considers the researcher him/herself as an instrument that engages in the situation and makes sense of it; it is a matter of perceiving the presence of behaviour and interpreting its significance;

- A qualitative study has an interpretive character: enquirers try to account for what they have given an account of, and search for the meaning events have for those who experience them;
- Qualitative studies display the use of expressive language and the presence of personal expression of either the researcher or the researched in the text;
- In qualitative research the focus is on particulars;
- Specific criteria for judging the success of qualitative studies can be identified; and
- Qualitative research becomes credible because of its coherence, insight and instrumental utility.

The qualitative research methods to be used in this research include interviews, observation and document analysis.

3.3 DATA COLLECTION METHODS

3.3.1 Interviewing

Interviews are described as "structured conversations" with a definite interactional format (Hammersley & Atkinson, 1983:67). An interview is a method or group of techniques specific to social and human sciences, which also includes education (Cohen & Manion, 1980:241), defined the research interview as a two-person conversation initiated by the interviewer for the specific purpose of obtaining specified research objectives of systematic description, prediction or explanation.

Van Dalen (1962: 305) believes that people are more willing to communicate orally than in writing and will therefore provide data more rapidly and detailed in an interview than a questionnaire. According to Van Dalen (1962: 306), several advantages, which accrue from friendly interaction, can be cited:

- The investigator is able to encourage interviewees and help them probe deep into an emotionally laden problem;

- Through the respondent's incidental comments, facial and bodily expressions and tone of voice, an interviewer acquires information that would not be conveyed in written replies;
- Auditing and visual cues also helps the private conversation, in order to elicit personal and confidential information and gain knowledge about motivations, feelings, attitudes, and beliefs;
- Oral presentation of questions is a particularly appropriate means for gathering information from children and illiterates.

Borg (1963: 436) endorses the above, by stating that the well-trained interviewer can make use of the responses of the interviewee to alter the context of the interview. In contrast with the questionnaire feed back, the interview permits the researcher to follow up leads and thus obtain additional data and greater clarity.

Through careful motivation of the subject and maintenance of rapport, the skilful interviewer can obtain information that the interviewee would probably not have revealed under normal circumstances. Respondents are not likely to reveal this type of information about themselves in a questionnaire and will only do so in an interview if they have been made comfortable by a skillful interviewer.

Three types of interviews are identified by Selinger and Shohang (1989:167):

i The open interview,

ii The semi-open interview, and

iii The structured interview.

Open interviews provide the interviewee with broad freedom of expression and elaboration, and often resemble informal talks. They allow for greater depth, and one question often leads to another without a pre-planned agenda of what will be asked. The interview usually provides a topic, but by allowing the respondent maximum freedom of expression, ample and often unexpected information emerges.

Verma and Beard (1981:114) refer to the unstructured interview as being conducted through conversation, which can be continuous and informal. In this type of interview, much depends on the rapport the interviewer is able to establish, his/her sensitivity to the interviewee's feelings and the ability to avoid remarks likely to arouse anxiety or to embarrass the interviewee. Van Dalen (1962:308) expresses the same sentiments about the so-called non-directive depth interview, which can be described as an unguided interview.

In the semi-open interview, specific core questions are determined in advance, from which the interviewer branches off to explore in-depth information, and probes according to the way the interview proceeds, allowing for limited elaboration.

The structured interview consists of questions defined from the start and presented to the interviewee. No elaboration in either question or answers is allowed. According to Verma and Beard (1981:114), this type of interview is suitable for collecting factual information. Van Dalen (1962:308) terms this type of interview the focused interview, which is less diffused than an in-depth interview.

Most interviews are conducted in a private setting with one person at a time so that the subject feels free to express himself/herself fully and truthfully. In some instances, however, group interviews produce useful data. Varied viewpoints are obtained when qualified individuals with common or divergent backgrounds are brought together to explore a problem or to evaluate the merits of a proposition. The respondents may not only present a wide range of information, but may also help one another to recall, verify or rectify information (Van Dalen, 1962:306).

It is emphasized by Hamersley and Atkinson (1983:121) that group interviews have the advantage of the situation being much "less strange" for the respondents if they are not required to face the interviewer on their own and their peers can intervene, should they hesitate or be reluctant to comment.

A critical disadvantage is that interviewing requires the interviewer or researcher to be a good listener. He/she should be able to analyse the ongoing conversation and assess how what is being said related to the focus of the research.

Twelve aspects of the interview context are outlined by Van Dalen (1962:374):

i. Centred on the interviewee's life world;
ii. Seeking to understand the meaning of phenomena in his life-world;
iii. Qualitative;
iv. Descriptive;
v. Specific;
vi. Presuppositionless;
vii. Focused on certain themes;
viii. Open for ambiguities;
ix. Open for changes;
x. Depends on the sensitivity of the interviewer;
xi. Takes place in an interpersonal interaction, and
xii. May be a positive experience.

In view of the above, the use of interviews needs to be defended as they provide a way for researchers to examine the many dimensions of the educational enterprise that are lurking below the surface of the day-to-day operations.

I feel that interviews were essential because of geographical context of the study. There was no focused group as there are only a few or no EE educators.

3.3.2 Field notes on observation

Observations allow for "a firsthand encounter" (Merriam, 1998:94) and help us make sense of our world and the basic function of field notes is to provide first hand information "hands-on" way. The notes act as aide memoir and also present an on-going flow of recording for data analysis, provided the researcher is in possession of two sets of field notes (Walker, 1985:54).

When making use of field notes the researcher should be careful not to interpret. Two sets of field notes are preferred by most researchers – one set containing the observer's personal experience of the field and the other, information. The researcher should attempt to keep the information in the field notes as bland as possible, to restrict feelings and opinions of personal experience, and to separate them from the more distanced notes about observation. The researcher should be careful not to let the data become personal and subjective. This can happen easily because "working in the field" often results in familiarity with the environment and respondents. As a result a certain degree of distancing should be established to maintain authenticity and validity (Walker, 1985:50) and a participant observer should thus retain observer status.

In some cases, the notes also constitute a preliminary analysis of accumulated data (Hammersley & Atkinson, 1983: 65), because the note-taker inevitably consolidates the data. The process of consolidation is analytic by nature. Field notes are therefore different from transcribed interviews and documents. The field notes should therefore include personal as well as research notes (Steyl , 1993:101) but need to be sufficiently complete for the observer to reconstruct the events that occurred and discuss them with one or more respondents. However, they do not need to be as detailed as structured coding or specimen records (Anderson, 1990:142).

The major weakness of field notes is related to their major strength. Only the observer will most likely be able to make sense of the notes that were taken, and to reconstruct meaning of the events from the respondent's point of view. The validity of the evidence gathered by using ethnographic or naturalistic approaches to observation depends almost entirely on the "expertise and interpersonal sensitivity" of the observer (Anderson, 1990:144). Field notes were essential to me, as it allowed me to observe, interact and take down notes that I to understand their respondents of anger in that no one seemed to share their frustration and plight.

3.3.3 Document Analysis

Document analysis is undertaken in order to gather information from written facts (Walker, 1985:64). It refers to a process of "... systematically coding messages, or information into categories, thus allowing quantitative (as well as qualitative) analysis" (Chadwick, Bahr and Albreeht, 1984:23). Documents are social products (Hammersley and Atkinson, 1983: 367) and are an excellent source to determine the purposes, and the rationale and history of a phenomenon. Documents analysis is particularly useful at the beginning of an evaluation when the evaluator is attempting to understand why the programme is progressing in a specific way.

Information obtained from documents is often more credible than information via observation and interviewing. Documents are also convenient to use, and are often available free or at little cost. They are non-reactive. It is unusual to find masking or sensitivity because the producer knows she/he is being studied by some social scientist. Programme documents provide the evaluator with information about issues that cannot be observed as they have taken place before the evaluation and could include private interchanges that the evaluator cannot access directly (Walker, 1985: 64). Records save time and money required by original data collection.

In education, policy documents, teacher planning files, minutes of staff meetings and reports on programmes are typical documents targeted for research analysis. Document analysis consists of using skills and intuition to find and interpret data from the documents by thinking creatively about the problem and asking a variety of searching questions related to the research problem (Merriam, 1998:120-121). In this study, policy documents were analysed and proved particularly useful in understanding what is expected of the teachers in implementing Environmental Education in their teaching and I felt that written facts were necessary to compare my observation and findings.

Recording reviews is a commonly used procedure in qualitative research, involves collecting data from documents and other materials; and reviewing and analysing the

content by means of a process known as content analysis. Examples of such documents are records of meetings, report cards, letters, notebooks, tests, papers, assignment and teacher's comments.

3.3.4 0pen observation

Observations are used in qualitative research, where the researcher observes a number of behaviours taking place simultaneously, often without determining the particular aspects that will be observed in advance.

The observation is performed either by a participant observer, who becomes an integral participant in the observed context and acts as one of the respondents without the other respondents being aware of the fact, or by a non-participant observer who records in detail all behaviours that take place as an outsider (Selinger & Shohang, 1989:161)

Observations can also vary in their degree of explicitness. A high degree of explicitness indicates “structured” observations, where the researcher determines what to observe in a specific context in advance. A low degree of explicitness indicates “unstructured” or “open” observations, where the recorded data would be broad and general. The researcher observes what takes place in the classroom with the aid of an instrument that standardizes both his/her data collection procedure and the focus of the observation (Selinger & Shohang, 1989:163).

According to Anderson (1990:135) "... there is not a more obvious approach to research on teaching than direct observation of teachers while they teach and learners while they learn”. Guba and Lincon (1987:149, in Anderson 1990:136) contend that such approaches to observation constrain enquiry “ …to those element recognized by the investigator as important, and may introduce biases (believing is seeing). In all events theory is more powerful when it arises from the data rather than being imposed on them”.

Proponents of these approaches contend that such systems are needed in order to “... carry the researcher beyond the initial, impressionistic level of observation into formal, systematic, quantitative, replicable measurement that characterizes developed sciences” (Anderson, 1990:136).

There are four advantages to observing as a primary source of evidence:

1. Observing permits researchers to study the process of education as it unfolds in the classroom. Evidence is gathered as the events are taking place, not before or after they have occurred. Observation is more likely than other sources of evidence to provide linkages between interviewees and respondents, teaching and learning, or instruction and achievement;

2. Observing provides more detailed and precise evidence than any other source;

3. Morgan (1988 : 16) endorses this view when he states that the major advantage of the naturalistic observation is an ability to collect data on a larger range of behaviours and a greater variety of interactions than focus group interviews;

4. Observing can be useful to stimulate change and to verify whether the desired change has occurred. (Anderson, 1990:141);

Three general weaknesses are associated with observation as a source of evidence:

1. Observation is labour intensive and thus expensive in terms of both time and money;

2. It is costly to place qualified, trained observers into large classrooms for any length of time;

3. Evidence collected by using observation is susceptible to a variety of errors.

Observers could interject their biases into their records or unintentionally misinterpret events that were observed. In either case, the records could reflect what observers thought had occurred rather than what actually did occur (Anderson, 1990:143). According to Lofland (1997:89) the universal, generalized and principled conclusions one would aspire to arrive at, are those that pertain to the reciprocal relations between people and their environments, rather than people's cognitive processes only or only the environment, as if these were isolated. Observation enabled me to watch other teachers doing their work without interfering.

3.4 ANALYSING QUALITATIVE RESEARCH DATA

Before one begins with an analysis, data is transcribed, which simply means that texts from interviews, observational notes are typed into word processing document. To analyse literally means to take apart words, sentences, and paragraphs, which is an important act in the research project, so as to make sense of interpret and theorise the data.

In qualitative research, observations, open interviews, examining records and other documents, usually in the form of words in oral or written modes. I strongly believe that a qualitative research study can be done with the purpose of bringing about change towards a better quality of life and can lead to recommendations for action.

Various authors have described these analysis processes:

Tesch (1990), Dey (1993), Miles and Huberman (1994), and Silverman (1997:2000), and Tesch (1990:95) has identified some principles appropriate for most types of qualitative research analysis which have guided my project:

Qualitative analysis takes place throughout the data collection process. As such the researcher will reflect continuously on impressions, relationships and connections while collecting the data;

- The search for similarities, differences, categories, themes, concepts and ideas forms part of the continuous process;
- An analysis commences with reading all the data and then dividing it into smaller more meaningful units;
- Data segments or units are organised into a system that is predominantly derived from the data, which implies that the analysis is inductive;
- The researcher use comparisons to build and refine categories, to define conceptual similarities, and to discover patterns;

- Categories are flexible and may be modified during the analysis;
- Importantly, the analysts should truly reflect the respondents' perceptions;
- The result of an analysis is a kind of higher-order synthesis in the form of a descriptive picture, patterns or themes, or emerging or substantive theory.

Mouton (1996:168) adds another focus to qualitative analysis, emphasizing the understanding rather than the explaining of social action and events within particular settings and contexts. Qualitative research is a useful approach whenever an investigator is concerned with discovering or describing second language acquisition in its natural states or context, and where there are no assumptions about what that activity consists of or what role it plays in acquisition.

3.5 ANALYSING DESCRIPTIVE DATA

Description forms the basis for the analysis, and the analysis forms the basis for further description. Data is broken up in order to classify it. Concepts are created in classifying the data; the connections are made between the concepts, which in turn provide the basis for a fresh description to describe, to set forth in words, to recite the characteristics of a person, object or event.

The primary steps in the qualitative analysis are the so-called “thick” (or information rich) descriptions (Merriam, 1998:29), which includes information about the context of an act - the intentions and meanings that organise action.

Respondents/participants perceive and define situations - including the researcher's intentions - according to their understanding of their own motivations and of the context in which they act. Neither motivations nor contexts are self-evident, and allowance has to be made for the usual mix of ignorance and self-deception, delusions, fantasies and even lies. In addition, social forces such as obedience towards power, pressures for

conformity, and fears of embarrassment and conflict can also distort behaviour and motivations.

Different types of statistics are: frequencies, central tendencies, and variables. Correlations could also be considered as descriptive statistical procedures and could be used in descriptive research studies. Frequencies are used to indicate how often a phenomenon occurs and are based on counting the number of occurrences. Central tendencies provide information on the average behaviour of the respondents in certain tasks and variability provides information on the spread of behaviours or the phenomena among the respondents.

Once the data was classified, regularities, variations and peculiarities were identified. Dey (1993:227) defines this as the process of identifying substantive connections by associating categories or linking data.

In other words, the different parts of the puzzle can be fitted together. Dey (1993:94) writes that although people usually think in generalities, they live in detail. As such, words are employed by people to convey ideas, but when the ideas are grasped they forget the words.

3.5.1 Coding

"Coding is analysis. To review a set of field notes, transcribed or synthesized, and to dissect them meaningfully, while keeping the relations between the parts intact, is the stuff of analysis. This part of analysis involves how you differentiate and combine the data you have retrieved and the reflections you make about this information" (Miles & Huberman, 1994:56).

According to Coffey, Holbrook and Atkinson (1996), coding should not be overemphasised considering that a large part of the qualitative research consists of interpretation and hermeneutic analysis. Codes are labels used for assigning meaning to information compiled during a research study.

They are usually attached to “chunks” of varying size-words, phrases, sentences, or whole paragraphs connected or unconnected to a specific setting. Codes are used to retrieve and organise the “chunks”. The organising part will entail some system for categorising the various “chunks”. This enables the researcher to promptly find, extract and cluster the segments relating to a particular research question, hypothesis, construct or theme. “Clustering, then sets the stage for drawing conclusions” (Miles & Huberman, 1994:57).

Lofland's (1971) scheme suggests that in any study codes could with the following types of phenomena, ranging from micro to macro level:

- Acts: action in a situation that is temporally brief, consuming only a few seconds, minutes, or hours;
- Activities: actions in a setting of more major duration-days, weeks, months-constituting significant elements of people's involvement;
- Meanings: The verbal productions of participants that define and direct action;
- Participation: people's holistic involvement in or adaptation to a situation or setting being studied;
- Relationships: interrelationships among several people, considered simultaneously;
- Settings: the entire setting being studied conceived as the unit of analysis.

When the process of revision takes place, “… three sources of knowledge are being weighed. Firstly, researchers are refining or recasting parts of the conceptual structure they brought to the study. Secondly, the field has a life of its own that becomes more meaningful and decipherable as you spend time there, sharing daily routines with actors in a setting. Thirdly, the field site emits a continues stream of leads, mysteries, themes, contradictions that need to be pursued and that will never fit perfectly into a preceded conceptual framework” (Miles & Huberman, 1994 : 62).

Pattern coding

Data is compared and similar incidents are grouped together and given the same conceptual meanings. It is the central process by which theories are built from data. Pattern coding is a way of grouping into smaller number of sets, themes or constructs.

Pattern coding has four important functions:

i. It reduces large amounts of data into a smaller number of analytic units;

ii. It involves the researcher in analysing during data collection, so that fieldwork could be more focused;

iii. It helps the researcher to elaborate a cognitive map, an evolving, more integrated schema for understanding local incidents and interactions;

iv. In multi-case studies, it lays the groundwork for cross -case analysis by surfacing common themes and directional processes (Miles and Huberman, 1994:69).

3.6 VALIDITY, RELIABILITY AND TRIANGULATION

Validity and reliability are concerns that can be approached through careful attention to a study's conceptualization and the way in which the data were collected, analyzed and interpreted. Validity is the way in which the data were collected, analyzed and interpreted (Merriam, 2002:25). I think there was consistency in the way I handled the above, the data was collected over a period of time, and as the researcher, I was able to reflect critically and come to a better understanding of the phenomenon (Merriam, 2002:26). Another researcher in another context could arrive at other conclusions, as circumstances differ from area to area. I interviewed my participants on common issues affecting their work in the field of Environmental Education. In my study, the issue of validity was addressed as I decided on the format and the number of questions to be used, the place, time and the number of people to interview providing "rich, thick description" (Merriam, 2002:29).

Reliability is when the findings are consistent and someone from another study could also draw the same conclusions (Merriam, 2002:27). In my study I selected the relevant people who are involved with teaching and who experiences difficulties in their execution of their duties. They gave insights and conclusions that ring true to readers, educators and other researchers. I selected teachers from different schools and although they gave different answers their frustrations with the lack of Environmental Education workshops were unmistakable.

Triangulation deals with data collected through different tools using "a combination" (Merriam, 2002:25) of interviews, observations and document analysis. In my study I was able to conduct in-depth interviews with all the teachers, conducted document analysis of policy documents and observed the teachers in their classes. I was also able to observe their anger, frustrations and in some a feeling of hopelessness.

ETHICAL CONSIDERATIONS

All research is concerned with producing valid and reliable knowledge in an ethical manner. Being able to trust results is especially important to professionals in applied fields, such as education, in which practitioners intervene in people's lives.

Seven teachers (three males and four females) were randomly selected for the study. However, they were all Environmental Education teachers or who were familiar with Environmental Education. All respondents were expected to give their opinions during the interviews and agree to be observed during their lesson. Written permission was requested from the District office and permission was also requested from principals of the concerned schools. The purpose of research was thoroughly explained to the teachers and all the teachers interviewed understood what was expected of them. The teachers also agreed to be recorded on the audio tape but those answers not clearly audible were requested to write their down their responses. I only dealt with consenting adults who are well capacitated but fictitious names were used for both teachers and schools. I also

assured everyone involved that I would only use pseudonyms when writing up the research.

3.8 CONCLUSION

It is very important to elicit information that could assist teachers overcome their own frustration in implementing quality Environmental Education in South African schools.

The next chapter presents the data collected during the field study. The description of the route the raw data followed from the collection phase to the analysis and statement of finding phase is elaborated upon. I also feel that it is necessary to compare South Africa and other third world countries that have successfully reversed the trend. Botswana also started from scratch in introducing Environmental Education in schools and I feel there are lessons to be learnt from their experience.

CHAPTER FOUR

THE COLLECTION, PROCESSING AND CONSOLIDATION OF THE DATA OF THIS INVESTIGATION

4.1 INTRODUCTION

I was personally involved in the whole process of collecting data making appointments in advance. Many school principals were very co-operative and allowed me access to their schools. In the process, I realised that senior administrators were not keen to discuss anything that is sensitive to the department - in this case, the support given to teachers responsible for Environmental Education. Some promised to come back to me when they had time, but never did.

4.2 PLANNING AND IMPLEMENTING THE COLLECTION OF DATA.

4.2.1 The site

The seven teachers that participated in this research project originated from Nsami circuit. Their involvement in this project was purely voluntary and for professional development.

4.2.2 Data collection

The field research programme consisted of observation, and non-directive in-depth interviews. I spent over seven months visiting all schools under Nsami circuit. I was allowed to interview seven teachers in all schools. I was also allowed to observe the buildings and their surroundings and to interact with both learners and teachers. I was also allowed into the classrooms during lessons, and also had access to the resource materials available at all schools. I wanted to see how teachers were teaching EE in class.

4.2.3 Data collection strategies

The seven teachers participated in a non-directive in-depth interview. Their responses to the questions were subsequently taped. A voice-activated tape recorder was used while the

interviews were conducted. In order to ensure continuity and consistency, the interview was conducted according to the sequence of questions. Questions for the interview were structured in such a manner that one question led to another. The respondent was allowed to note certain responses in writing, if they felt that their verbal explanation was not sufficiently detailed.

4.3 INTERVIEWS, OPEN-ENDED QUESTIONS AND MOTIVATIONS

DESCRIPTION AND MOTIVATION OF QUESTIONS	
Question 1	***What is your understanding of the concept Environment?***
Motivation	It is important for teachers to have insight regarding the meaning of the concept Environment. It will help to indicate whether they (teachers) know what this basic concept in both Environmental studies and Environmental Education entails. A good understanding of the meaning of the concept is indicative of the fact that the person is dealing with someone who understand what Environmental Education is all about . A detailed knowledge of the concept by teachers could support the introduction of Environmental Education in schools.
Question 2	***Should Environmental studies remain as a subject on its own in the school curriculum?***
Motivation	Testing (interviewee) view in this regard, will indicate if they are in favour of Environmental Education being a separate learning area or not. According to current educational trends, interdisciplinary, cross-curricular approaches are advocated. Environmental Studies are more teaching 'about' the environment, not 'for' the environment. This limits its scope. It cannot therefore, be equated with Environmental Education (Leketi, 1992: 4). It is not a socio-ecological phenomenon of many dimensions, and can therefore not stand on its own.
Question 3	***Are teachers receiving managerial support when implementing EE?***
Motivation	It is important to know the attitude of each school principal with regard to the implementation of Environmental Education at their own site, where they are in charge.

Question 4	***Do teachers have the necessary skills to successfully implement Environmental Education in schools?***
Motivation	This will test if the teachers feel that there is a need for them to be trained to implement new learning areas, particularly EE. Low levels of trained personnel will impact negatively on the quality of EE in their schools.
Question 5	***Is the government providing adequate resources for the implementation of EE?***
Motivation	This question will test the interviewee's knowledge of how the availability of resources impact on service delivery. Poor access to resource materials for teaching and learning will hamper the efficient implementation of EE.
Question 6	***How does Environmental studies as currently taught at some schools, impact on learner's value systems, attitudes, skills and abilities to solve environmentally related problems?***
Motivation	If Environmental Studies does not promote Environmental Education outcomes such as developing awareness, understanding, knowledge, skills and attitudes, it falls short.
Question 7	***Can you use school funds to finance Environmental Education projects in school?***
Motivation	Many parents are no longer paying school fees for their children, mainly because they have no source of income. Working parents are reluctant to pay as they feel that they are being forced to subsidize for unemployed parents. Poverty is widespread throughout the region, and has a marked effect on both the environment and EE.
Question 8	***In the absence of school funds, what should be the alternatives?***
Motivation	Fees are needed to run the schools; especially those that had experienced Government subsidy cuts. The Government should commit itself to paying school fees of exempted parents.
Question 9	***What do you think should be the role of the Department of Education?***
Motivation	Recent departmental research shows that teachers particularly those from previously disadvantaged communities, are in dire need of continuing

	training and support.
Question 10	***Is a cross curricular approach suitable for EE?***
Motivation	A proper and systematic introduction of this issue, will lay a good foundation, especially at teacher educational level.
Question 11	***Why are all Environmental Education projects donor supported?***
Motivation	Inadequate financial resources, Environmental Education processes are often donor supported and therefore a donor agenda has to be followed and not necessarily a national agenda.
Question 12	***Are teachers receiving sufficient workshops, seminars and in -service training?***
Motivation	It is unfair to expect teachers to successfully implement any new learning area, let alone EE, without formal training or workshops.
Question 13	***What is a good way for Environmental Education educators to involve themselves in social or political issues?***
Motivation	Pressing environmental issues facing Giyani area is littering, increasing waste generation, development of natural areas for residential purposes, diminishing of natural resources through deforestation and veldfires. The municipality simply does not have adequate funds to enforce some bylaws and I think some irresponsible behaviour is due to lack of knowledge.
Question 14	***How much power do workers have to change the environmental impact of industry?***
Motivation	The safety bill act stipulates that all sectorial industries should strictly adhere to safety rules for workers. EE is best placed to champion for safety while working with electrical appliances or other objects regarding safety in class, thus highlighting learners' safety as a priority.
Question 15	***How do we involve the community in local solving problem mechanisms?***
Motivation	Unless the community and individuals within it understand what suitable sustainable development means as well as how it relates to National and International objectives.
Question 16	***Who do you think should conduct Environmental Education workshops for***

	teachers?
Motivation	Only a qualified Environmental Education coordinator and not just an uninterested fellow from the circuit deployed there from a closed down teachers college - like it is at the moment.
Question 17	***What are the attitudes of learners towards EE?***
Motivation	Environmental Education only come into reckoning on a particular date, like the Arbor day, and even then the true significance of Environmental Education and the importance of such important days were confined to tree planting and will be relegated until the next year.
Question 18	***What are the attitudes of teachers towards EE?***
Motivation	Only concerned teachers are interested, those teaching other learning areas tend to associate Environmental Education with general cleaning of the school, thus ignoring the broader picture.
Question 19	***Nsami circuit is not very far from the Kruger National Park. Did you ever try to get some assistance from them?***
Motivation	The Kruger National Park has a limited budget and don't have the capacity to distribute resources to every school that visit their shores They have relevant materials that they use to visiting schools - but these cannot be taken outside the park for use.
Question 20	***What in your opinion is the way forward?***
Motivation	Respondents have to give their own views on what they think should be done to improve the conditions.

4.4 CODING AND CLUSTERING OF DATA

METHODS	CODE	CATEGORY
1. Interview	EEC	EE Centres
	VT	Vendetta against teachers
	EW	EE workshops
	ES	EE seminars

	DP	Deliberate ploy
	SG	Scapegoat
	OA	Over Ambitious
	RTC	Ready to change Jobs
	VR	Voluntary Retirement
	RS	Retrenchment strategies

2. Observation	DM	Demotivated
	FM	Frustration mood
	Ul	Uninterested
	ID	Indifference
	LTM	Low teachers morale
	SO	Stressed out

4.4.1 Matrix table to summarise observation and interview data

Categories	**Lack of resources**	**Lack of support**	**In-Service training**	**Lack of funds**	**Inequity on facilities**	**Over-crowding**
Method of data collection						
1. Observation	Some schools have bought Environmental Education LSM while others have no money	Lack of workshops to help teachers understand how to prepare and teach Environmental Education in Class	Retraining teachers already in the system on the new methods	The government lacks money to re-train all teachers and to conduct workshops	Some schools have better facilities while others have none	In one classroom two pupils shared a chair, while others squatted on the

						floor
2. Interviews	"EE is not even in the priority list when it comes to funds allocation".	"I still don't know how and what to do in EE"	"I still use old methods of teaching in the absence of seminars and workshops".	"Why are there no activities in EE"?	"We have to leave the staff-room every time the principal has visitors for privacy"	"I just cannot control the noise level, they get irritated and become rowdy, especially if its hot".

4.4.2 Analysis of the matrix table

Question 1

The seven teachers differed slightly on their description of the concept environment. They all agreed though that the environment is a resource to be managed and shared and that environmental problems can also include socio-environmental issues.

Question 2

Six agreed that Environmental Studies were limited as it fails to deal with the problems affecting the environment. One was not that certain if the two differed. They pointed out the fact that EE, on the other hand requires the development of skills for critical investigation of all environmental problems.

Question 3

All teachers interviewed agreed unanimously that, although they were doing all they could, the onus lies with the Department of Education, who in their views was excluding them. One even asked if this was not a ploy to render them redundant, since they lack the basic skills required to teach Environmental Education

Question 4

Four interviewees indicated that OBE and Curriculum 2005 in particular, was causing a lot of strain and tension in their working areas as most teachers were not adequately prepared to deal with the transition. They pointed out the fact that many school principals were still in a learning curve and not ready to be in a position to assist their subordinates in the implementation of EE, as they also lacked training. Two teachers claimed to know of principals who got so frustrated about the lack of direction on the part of the Department of Education that they applied for early retirement. All respondents were willing to learn as they were aware of their own limitations. They all conceded that workshops by the Department would simply fill that void and create confidence. They were all surprised to see the Department expecting so much in terms of implementation from them as teachers, while they are not enabling them through intensive and extensive training in EE. One respondent even questioned the wisdom of closing all provincial teacher-training colleges while in reality at least two should still be preparing new students who would leave with all the relevant training in terms of all the new learning areas.

Question 5

The respondents agreed that the government was simply not doing enough when it came to providing resources. One of the teachers told me that the learner support material (LSM) for their school was delivered six weeks after re-opening for the new year when it was supposed to have been delivered during the December holidays. I later learnt that this was not an isolated incident as nine other schools in the Giyani area received their exercise books late. I also discovered that a number of schools do not have adequate text books and that there were instances where only one text book borrowed for the teacher was available. I volunteered to go and verify this and found it to be true. They have been placing orders every year but somehow failed to get something for their effort. I spoke to one of the persons in charge of requisition at the district office, to find out how this could happen. She was not keen to give any answers at all. When I eventually twisted her arm, she blamed the people at the top. I also learnt that no one was to blame for the fiasco as everyone simply passes the blame to some other party.

Question 6

Four respondents maintained that Environmental Studies was failing or had failed to inculcate in learners the correct attitudes and the ability to deal with the pressing environmental problems besetting local communities. They indicated that the fundamental breach between human beings and nature needs to be bridged.

Question 7

All interviewees indicated that Environmental Education was not even regarded as worth being given any allocation from school funds. Two teachers put it clearly to me they did not have sufficient funds to buy basics like detergent, toilet paper, and polish for their respective schools. Four of the participants revealed that the number of parents paying school fees is dwindling at an alarming rate every year. Two teachers told me that it was worse at their respective schools as they have run out of funds to buy basics for their school, let alone Environmental Education materials. Only one teacher did not complain about this as her school is a Section 21 school, meaning they are entitled to some government funding. She was, however, quick to point out that Environmental Education was not catered for at her school.

Question 8

Reasons advanced for the empty school coffers ranged from factors such as retrenchment, poverty and reluctance to continue paying, as the Government is cautious to take action against non-exempted parents. One of the teachers asked if it was not possible, given the fact that, at present, school fees was no longer a reliable way of boosting school coffers, that the government seriously considered funding all schools without exceptions being made. All schools falling under Nsami circuit are situated in some impoverished communities or villages, on either sides of the Nsami River. The main town of Giyani which is on the Western part of the Kruger National Park, is not industrialized. Giyani was once a “capital city”, albeit of the Bantustan of Gazankulu. It boosted its own resident bureaucrats, but these offices and services as well as the people themselves, have now transferred to Pietersburg (now Polokwane) following South Africa's first

democratic elections. The town quickly found itself having to negotiate the slippery slope of diminished resources and increased unemployment. School fees have for years been the main source of income to run the schools. All the participants pointed out the fact that donations from the private sector were hard to get these days.

Question 9

Two respondents were adamant that, for the efficient and effectiveness of teaching and learning, all teachers should be retrained as most, if not all, were brought to the system before the introduction of OBE, and are therefore ignorant regarding the requirements for OBE and the RNCS. Five respondents, however, felt that seminars, workshops, and in-service training, could still help, without disrupting the whole education system. They pointed out the fact that schooling would come to a virtual halt, as teachers scrambled for retraining. The problem, they contended, remained the department's reluctance to put in place mechanisms that would ensure that teachers knew how and what to do in class.

Question 10

Two of the interviewees were of the view that EE should be a learning area on its own, with a place on the general class time table. They felt that Environmental Education has been ignored for far too long and all it needed now was become a separate subject in its own right. Five respondents felt that, since Environmental Education would not be allocated a specific place in the notional time, a cross curricular approach seemed the most acceptable.

Question 11

Participants' reactions to donor support were mixed and one teacher asked how the new government could fail to consider the likely cost of the transition and not commit funds at the same time to ensure that both theory and practice are compatible. They (the Government) only talked of the need for change, but were found wanting when it had to make finances available. Two teachers indicated that they felt that the Government, by

virtue of having included Environmental Education into the curriculum, was ready for any eventuality. Another two participants felt that the Government was moving at a snail's pace and continued sending confusing but demoralizing signals, particularly to teachers who had to deal with change on the ground. One respondent angrily charged that they (the Government) had the audacity to play down the issue of retraining and providing support services for new learning areas, particularly EE, but felt justified in spending more money on defence at a time when there are no known enemies. One respondent believed South Africa lacked quality teachers. He said about 80 000 teachers were under-qualified to teach the new Outcomes-Based Education RNCS.

Question 12

The respondents all agreed that, unless teachers were thoroughly prepared to deliver quality and effective teaching in class, most of the Government's good intentions on education would go to waste. They argued, that Environmental Education is a new learning area that needed special attention and that included the use of any capacity building programme to enhance teachers' training. One teacher revealed to me that there is one such project for Mathematics, Science and English called "Mahlahle", Tsonga for bright morning star. They said that Mahlahle is doing an excellent job in helping teachers, even though most of the schools in the Nsami circuit were excluded from this pilot project. They hoped NEEP-GET would involve all schools. One lady teacher told me that she was about to give up the profession to which she has dedicated 21 years of her life. She has been a teacher for two decades and still teaches at a Nsami circuit, Giyani school. But faced with classrooms bursting at the seams, she feels she cannot deliver on the Government's promise to provide "quality education". She is one of many teachers threatening to quit if things do not improve soon. She is responsible for 133 pupils in Technology, Grade 7, but says there are only 8 borrowed text books for the entire group. In one classroom, two pupils shared a chair, while others squatted on the floor.

Question 13

Five of the respondents agreed that Environmental Education would serve as a catalyst for social change. They gave a few different examples to emphasise their points, like saying that some of the antisocial behaviours we are witnessing now are due to lack of education for sustainability. They even considered the scourge of littering, land degradation, informal hawkers mushrooming in all corners of the CBD selling an assortments of stuffs without regulations from the municipality, as an indictment to their claim that the decades' long neglect of introducing Environmental Education in schools is being felt now. They believed that the earlier introduction of Environmental Education would have somehow altered the trend. They all agreed that Environmental Education is critically important because it teaches every South African the knowledge to legislate, protect and develop his or her country into a fertile land which can support and sustain each person.

Question 14

Three respondents acknowledged that a good Constitution did not really mean guaranteed rights. They said that it only informed workers who would demand the right to a safe environment as stipulated by the Safety Bill. They even went further to say that a school is the best placed to raise their awareness from an early age.

Question 15

One respondent argued for the inclusion of communities around the Nsami River, in an effort to curb illegal hunting, veldfires, littering and over fishing. He proposed that the community be made to own such initiatives by involving them in policy and programme designs.

Question 16

Four of the respondents felt that the Department should not just send every person they have at their disposal to co-ordinate Environmental Education activities. The general norm was to use former College Lecturers deployed to Districts across the Province, without looking at their expertise. The result had been that the uninterested colleagues

from the circuit or district would cling to his/her job by just coming to meet the already despondent teachers without providing vital guidance on how to carry out the tasks efficiently as required. One respondent told me of one such colleague, who told him to his face, that he did not know what he was to do, he had just been redeployed and that Environmental Education was actually, not his field. The feeling was that the Department should employ only qualified personnel to workshop teachers. In other words, people who were interested in Environmental Education are far more likely to succeed in motivating teachers, than one whose presence is purely to protect his or her job which is on the line. One respondent thought that even those from outside Environmental Education could do an excellent job, provided they were trained before being deployed. Another asked me if Schoemansdal Environmental Centre was not well suited to assist in this regard.

Question 17

Learners were always amenable and enjoyed the fact that the lessons were now learner-centred and that they were given more prominent roles by featuring in participatory activities and not treated as empty 'vessels' to be filled. Now they had more to contribute. Teachers, however, had to be fully prepared by way of in-service training for the task at hand. Learners could interact, communicate and make choices. The learners learnt informally and assessed what they were learning. Learners learned to work effectively with others in a group.

Question 18

Three respondents remarked that, the lack of direction from the Department of Education, it was impacting negatively on the attitudes of some fellow teachers who continued to regard EE as a subject dealing with land, people and the general cleaning of the school surroundings, tree planting and not as education for sustainable living. Teachers outside agriculture, science and human social science rarely used the environment as a resource.

Question 19

Although some of the teachers felt that NGOs could play a pivotal role, they were nevertheless convinced that the Government had to take the initiative. One even indicated that they had a limited budget, since they also depended on sponsorship and would simply fold if they exerted their budget beyond their scope or area of responsibilities.

Question 20

All the respondents agreed that the training of teachers is the prerogative of the Department of Education and should ensure regular representation. They envisaged a comparison with some other third world countries who successfully implemented Environmental Education in their schools, despite limited financial resources.

4.5 CONCLUSION

My interactions with some senior administrators made me realise that teachers were on their own as there was no one to account for most of the problems experienced at the workplace like overcrowding, lack of leaner support materials, lack of workshops, lack of subject advisors, district officials who often fail to give direction on when seminars and workshops should be held. It is obvious to me that they also need training.

In the final chapter, consolidated data will be interpreted against the background of existing theoretical framework and this will be followed by some recommendations.

CHAPTER FIVE
THE INTERPRETATION, CONCLUSION AND IMPLICATION OF THE STUDY

5.1 INTRODUCTION

In this final chapter of the study, which looked at investigating the essence and intensity of frustration teachers experience in offering Environmental Education in South African schools, consolidated data is interpreted against the background of the existing theoretical framework.

5.2 THE PROCESS OF INTERPRETATION

The findings of this study are interpreted with the view of establishing their credibility from the researched point of view. They are also interpreted to incorporate relevant theory, both from the existing theoretical framework and from literature, which was consulted as a result of the findings.

5.3 INTERPRETATION OF FINDINGS

The respondents felt that they would develop professionally if they were assisted through in-service training, seminars and workshops. Teachers stated that their involvement in the NEEP-GET project would help them to do the following:

- Encourage themselves and fellow teachers to take part in transforming education in their schools;
- Provide fellow teachers with the necessary confidence to effect change in their classrooms;
- Assist their colleagues and provide them with the authority to do so;

- Present workshops on different topics in keeping with the “new” OBE curriculum. Teachers interviewed are unanimous that the new curriculum, although widely publicized have not brought about the expected results in terms of providing workshops for them to equip them for their responsibility of offering good quality Environmental Education. One educator has these to say, “So they think we are just some empty drums that can just be filled with anything”.

Another educator said, “I am definitely not going to deliver on the Government promises to provide quality education despite 24 years of teaching, as there’s a complete lack of support”. “All talk and no action” was how another educator described lack of professional support. “I am taking a voluntary severance package as I find the new changes stressful” was how a 58 year old Head of Department explained her frustrations.

5.4 RECOMMENDATIONS EMANATING FROM THE STUDY

From the findings, recommendations will now be made to address the problems where possible.

5.4.1 Professional development

If teachers are to fulfil the roles expected of them and acquire the competencies necessary to fulfil such roles, they would need to become pro-active partners in their own learning and development processes, and take on responsibility for ensuring that they develop accordingly. While teachers are responsible for their own professional development, they would, however, need support in transforming their roles and teaching practices.

An important question then is: “How best can teachers be supported in their crucial role in the transformation of South Africa's education and training system?” Squazzin (1999:56) proposes that a professional development model should encompass the following:

- It should focus on building skills, competencies and attitude, not only on information;
- It should take the principles of the new policy for education and training into account;
- It should be guided by the policy and by teachers self-determined professional developmental goals;
- It should provide opportunity and space for teachers to grow according to their own needs and at their own pace;
- It should build on prior learning experience;
- It should take into account the contextual realities within which teachers and learners live and work;
- It should enable teachers to build increasingly sophisticated understandings of their work and context.

I think that teachers' frustrations mainly stem from lack of professional development. Teachers' confidence will be greatly enhanced, if they receive the necessary professional guidance. Teachers were grappling to understand Curriculum 2005 when it was subsequently revised and the RNCS was introduced, and it is this introduction of new curricula with little or no training that leads to teachers' frustrations.

5.4.2 Providing resources

The Department of Education should provide for the necessary teacher/learner support materials. Poor access to resources materials for teaching and learning only add to teachers' difficulties in executing their functions efficiently. The fiscal discipline to education, health and framework is worrying as it impacts negatively on resources allocation. Its absurdity becomes apparent when we consider the more than R60 billion spent on armaments.

5.4.3 Funding

The Department should, where necessary, retrain teachers to equip them with the necessary knowledge and skills. Many parents are failing to pay school fees for their children, due to a number of factors. Fees are needed to run the schools, especially those that have experienced Government subsidy cute. The Government should commit itself to paying school fees of exempted parents. Education is too important to be treated as a commodity in the market effecting both the environment and EE. According to the auditor general of South Africa, Shauket Fakie, over R932 million in funds earmarked for education was not spent last year (2002). This comes at the time when we are experiencing extreme want and poverty which impacts on youth and school children. The impoverishment of learners is complex and extends beyond the need of basic school infrastructure such as toilets, classrooms and laboratory as well as basic needs such as school feeding schemes, school fees, and the cost of uniforms, transport and food.

While the right to education is thwarted by a "misapplication of laws by administrators" as the Education Department asserts, or a lack of communication/promotion of the rights as well as under-resourcing of particularly rural school, under-spending is a blow to getting quality at all levels of the education system. Many believe that while the problem lies with the old apartheid systems that were wasteful and inefficient, our systems are governed by values of equity, redress and democratic participation and they face severe challenges. These unspent funds are then returned to Treasury. They cannot be rolled over to the next financial year. They, in effect, are rolled back making the tasks of asking for greater budgets to tackle apartheid backlogs difficult.

There are presently no workshops being run for teachers in our province due to lack of funds. Donor funds last year ran out around June. The challenge to introduce RNCS and NCS is under jeopardy, unless enough funds are allocated specifically for workshops to train teachers. How can there be unspent money, when teachers feel so frustrated because there is no money for their training?

5.4.4 Providing support services for Environmental Education teachers

In order to encourage teachers to be effective, some form of support services are essential. This could range from formal to non-formal. The Citizen newspaper, Wednesday 5 March 2003, under the heading: *Teachers get valuable training and support*, report that scores of teachers from Alexandra schools are under-going training as part of teacher education programme aimed at enhancing teaching and learning processes in schools.

The teacher-education programme run by Multi-choice Africa Foundation in partnership with the Department of Education, came in the wake of departmental research showing that teachers, particularly from previously disadvantaged communities, were in dire need of continuing training and support.

The Sowetan, 11 April 2003, reports that TOYOTA has donated a R130 000 grant to the University of South Africa's Science outreach programme to help upgrade teacher's qualifications. Project leader, Professor Callie Loubser, is quoted as saying that the aim of the programme is to empower teachers so that they can address effectively in their teaching of recent developments in the Natural Sciences, Mathematics, Technology and Environmental Education. Such partnerships should be extended to include EE, particularly for poverty prone areas of the Limpopo Province, like Nsami circuit.

5.4.5 Pre-service training for Environmental Education teachers

It is unfair to expect teachers to take the plunge without any support. Environmental Education is a new learning focus and the low levels of trained personnel experienced in Environmental Education methodologies is well known, Environmental Education teachers should first undergo pre-service training. This will help them with appropriate Environmental Education teaching techniques necessary to impart knowledge to their pupils. These teachers will, upon completion of their training, be deployed at their schools to help train other teachers with environmental issues. Teachers should be fully

enabled, in order to be effective in the classroom. Materials for teaching are co-developed at these workshops and seminars.

5.4.6 Provision of support services to district officials

District officials need to be given some form of support to make working with teachers effective. In-service training should also be extended to coordinators, since some were only drafted or seconded there from teacher's colleges that have been closed down. Coordinators, inspectors and even school principals should be forced to attend workshops on Environmental Education as a way of searching for common grounds. It will help principals understand that EE, like any other learning area, is equally important and deserve special allocation from the school funds. Only qualified coordinators should be used to work with teachers to facilitate workshops, seminars, in Environmental Education.

5.4.7 Establishment of Environmental Centres

At least one environmental centre per region should be established. Some of the closed-down teachers' colleges could be used. The environmental centre should not only be used by teachers alone, but various communities throughout the region should have access to it. The re-opening of Schoenmansdal Environmental Centre, near Louis Trichardt (now Makhado) should also be strongly considered. Schoenmansdal's Environmental Centre was the only place in the Limpopo province with expertise to train teachers and community driven environmental projects. I think such environmental centres should be jointly owned by the Department of Education in the province, the department of Environmental Affairs and the Department of Labour, which access Company Skills Taxes. These centres should be manned by people who will interact with the various stakeholders in dealing with pressing environmental problems. Environmental Education coordinators and other district officials will liaise with such centres in training teachers. The emphasis on such centres will be to influence and support the curriculum to deal with local problem-solving strategies. Such centres should also be empowered to raise

environmental awareness through competitions like drama, debates and cleaning campaigns of neighbourhoods, schools, streets, CBD's, polluted streams and rivers. The Giyani area will no doubt benefit immensely from an environmental centre, to help the locals in dealing with environmental problems. Regular school visits could be undertaken to follow up on training and to assist with school based projects about the local environment. This could lead to an increase in volunteer work done by youth in the area.

5.4.8 Assistance to schools to formulate environmental policies

To ensure sustainability of project activities, it is recommended that schools develop a school environmental policy. The policy should be a statement of intentions and principles for improving a school's environmental performance. The policy development process encourages schools to audit existing activities and to formulate, evaluate and review Environmental Education goals and actions for key curriculum and extra-mural activities. The policy devised by EEP1 (1995:7), advises schools to use resource packs to develop and implement an environmental policy through an audit of the curriculum and key elements of the school programme. A school environment policy developmental and auditing process could contribute to an enriching, happy, healthy and sustainable environment. The educational process to develop a school policy is as important as the end product itself. According to EEPI documents, the process involves firstly, all the role players in the school community, namely:

- Academic staff
- School management
- Parent body
- Learners
- Pupil leadership
- Special interest groups
- Local authorities

Secondly, the process should be consultative and interactive, prepared by the people for the people. Teachers involved in the project could focus on the skills needed for taking action through EE.

An understanding of the relationships between social, economic, political and ecological systems needs to be highlighted to learners. Skills could be developed, local issues could be researched and action taken. In our teaching we also need to focus on the future - how to manage our resources so that future generations will be accounted for. When taking responsibility for their own actions, people are empowered to make decisions for a better environment.

Awareness needs to be raised through using interesting material such as videos or posters. The material should be South African in content.

5.4.9 Using the spiral model to workshop Environmental Education teachers

The spiral model (Sguazzin, 2000 p.93) is a process and cluster-based model which provides teachers with the opportunity to develop professionally over extended time periods as opposed to in 'once-off' courses or workshops. A spiral moves outwards in ever broadening circles, representing progress over time. Its circular nature also means that it is recursive - it returns to the same point on its radius again and again. The professional development journey starts at the centre of the model and moves outwards in broadening circles. The spiral itself represents cluster meetings. It is here that professional development is mediated. The time between cluster meetings offers opportunities for practical experimentation on aspects of professional development.

Sguazzin (2000:20-22) states that professional development should take into account the social, educational and environmental contexts within which it occurs. In the spiral model, teachers use and refer to issues and objects that originate from their own socio-political, biophysical and educational context. The professional development curriculum is developed locally, unlike more "traditional" forms of professional development.

5.4.10 Environmental Education as a separate subject

Teachers need in-service education and training, a sharpening of their teaching skills and better understanding of the responsibility to prepare learners for their community and the outside world, and to protect the environment. We should strive for technological education which will empower each learner to become actively involved in solving problems in his/her immediate environment by making him/her aware and be appreciative of all available resources.

EE has a lot to offer learners and sensitize them to the fact that resources are finite, hence their wise use, so that future generations can also have access to them. Global warming, the effect of green house gases, overpopulation, over consumption, sustainable development are critical issues that needs to come clear to every learner of Environmental Education in class.

Environmental Education is best placed to articulate the needs and aspirations of the environment without any limitations. We have simply waited for far too long to relent in our endeavour to make Environmental Education rightfully occupies the place it deserves. Effort should still be made to ensure that Environmental Education remain a separate subject.

5.4.11 Community involvement

Although we can teach our learners important issues, like air pollution, littering, over fishing in the Nsami River, steps need to be taken to incorporate parents as well. I think schools should liaise with community based structures or even the municipality to educate the whole community on the need for sustainable development. Community involvement will be important for policy and programme designers who need to engage people in charge unless the community and individuals within it understand what sustainable development means as well as how it relates to National and International objectives.

Given the magnitude of the pressing environmental issues affecting communities along the Nsami River, it is becoming increasingly clear that whatever solutions are envisaged should include all communities. Tribal chiefs should also be engaged to fulfil their side of the bargain. It is important that the community itself should be in a better position to articulate its needs and priorities and in this way, influence decision-makers.

The natural environment could be saved if citizens are involved in decision-making compelling them to respect policies. Barton and Bruder (1995: 213) argue that the successful accomplishment of policies and programmes regarding sustainability could only be achieved through individual as well as community actions. Teaching will become easier if the communities take an active role in environmental issues and work jointly with schools. The culture of sustainable development should be practiced by schools, communities and governmental structures at all levels.

5.4.12 Learners becoming researchers

Learners should be encouraged to learn more about the environment and sustainable living on their own, as there are so many things to be researched. Environmental programmes on television like *50/50* on SABC 2, *Nature on Track* on SABC 3, *Discovery Channel* and *National Geographic Channel* on DSTV, books on Environmental Education and surfing the internet and web-sites for more information are all helpful. Learners should be motivated to look at all environmental problems as challenges that can be overcome. It requires the development of skills for critical investigation into the realities of our milieu and for the enlightened diagnosis of problems.

Knowledge about environmental issues strives to make learners realise that environmental problems are often socio-environmental issues and that they are invited to solve real problems and to make plans for preventive actions. As it stands with the RNCS, only Environmental Education teachers can add value to learning by incorporating environmental lessons or issues to their learning areas. They are the only

ones who can encourage learners to research more on the problems that our environment faces. If EE was getting more prominence in our classrooms more learners would be keen to search for solutions. It was common to see wild animals around the villages surrounding Nsami River, today some village kids have to be shown pictures of most animals as they have become extinct due to over-hunting.

5.4.13 Training more teachers

The Sowetan (29 August 2003) reports that South Africa needs to produce 30 000 teachers a year over the next 10 to 15 years to meet the demand of increasing pupil figures, according to a survey by the South African Institute of Race Relations.

HIV-AIDS is also having a huge impact on the number of teachers in the country. The SA Democratic Teachers Union estimates that there is a shortage of 35 000 teachers in South Africa because of AIDS. I think the current redeployment process that has seen teachers being offloaded to some other Government departments is a case in point. It also appears that many youngsters are no longer interested in following teaching as a career because of uncertainty. I think South Africa will be forced to import teachers from the rest of the world. The restructuring process of Government that leaves some people jobless is seen in some quarters as a vote of no confidence in the education system. Teachers in the field feel burdened by more work and expect assistance, but the reality is that no help is coming their way.

5.5 IMPLICATIONS OF THE STUDY

Knowledge and learning have important implications for in-service professional development. Teachers can no longer simply be provided with information, be expected to have developed professionally and to pass this information on to their learners and fellow teachers. In order for teachers to fulfil their new roles, they need to be given space and opportunity for discussion. They also need to develop more complex understanding and practical skills in the classroom and to reflect on their own learning and teaching.

Any new model for professional development needs to take such requirements into consideration.

Learners can no longer be viewed as “empty vessels” that need to be filled. The RNCS advocates an outcomes-based education system, based on a socially constructive view of knowledge and learning. Teachers remain agents of change to any education system that the politician creates, but can only do so if effectively trained on the new methodologies. Teachers are the people who should affect change on the grounds, hence the need to keep them abreast of all development and to help them accordingly. The successful implementation of OBE and RNCS hinges on training teachers to understand how to effect change in attitudes and values in a class.

5.6 CONCLUSIONS

Education in developing countries is at a critical juncture: a potential crisis in the teaching profession threatens the ability of national governments to reach internationally agreed targets to expand and improve education. One of the results is that the teaching force is demoralized and fractured.
Teachers, especially in rural areas, like Nsami circuit, are worst off, their educational and training needs are neglected, and they are mired in bureaucracies that support neither their effective performance nor their career progression in their jobs.

Teachers, previously benefiting from considerable public respect and reasonable financial reward, feel that their status is in decline. As a result, the teaching profession today is characterised by high attrition rates, constant turnover, and lack of confidence and varying levels of professional commitment. Teachers very often feel powerless, either to create positive learning experiences and outcomes for their pupils, or to improve their own situations. Despite the pivotal nature of teacher’s contribution to education, there is a tendency on the part of national and international policy-makers to bypass teachers in decision making, and to neglect their needs when considering new policy directions. Teachers are rarely regarded as having agencies within education planning and reform,

and are frequently treated as passive implementers of decisions, or even as technical inputs.

Lastly, academic and policy debates focus on teacher's deficiencies, and seldom take into account the difficulties under which they live and work. The fundamental importance of the teacher's role in ensuring effectiveness of education must be recognised, understood and taken into account if these international efforts are to be successful. In the study it is clear that teachers are not against change, but feel alienated at the way changes are being made. Teachers are crying out for assistance on how best to implement RNCS.

Many teachers feel that they are not ready to fulfil the Government's promise to deliver quality education in the absence of proper professional assistance. Some are known to have resigned due to frustrations. The Government should provide adequate funding for teacher training workshops. The government should also consider making replacements for teachers who dies and those seeking greener pastures elsewhere to lessen the burden of being forced to take extra learning areas.

BIBLIOGRAPHY

African National Congress (1994) *Reconstruction and Development Programme. A policy Framework*. Johannesburg: Umanyano.

Anderson, G. (1990). *Fundamentals of Educators Research*. London: Falmer Press.

Blignaut, J. (1993). *The Implementation of the Process of Environmental Education in. Formal education. A working document*

Braus, J A. & Wood, D. (1993). *Environmental Education in Schools Creating a Program that works.* New York: Nancy Miller Publishers.

Clacherty, A. (1993) . *The Environmental Education Policy Initiatives*: Reflections on the process. South African Journal of Environmental Education, 13:3-6

Cohen, L & Manion, L (1980). *Research methods in education*. London: Croom Helm

Coffey, A., Holbrook, B & Atkinson (1996). *Qualitative data analysis*. Sociological research. Sage:Thousand Oaks.

Department of Education, (1997). *Curriculum 2005*. Lifelong Learning for the 21st Century. Cape Town: CTP books.

Department of Education, (1993) .p-12 *Environmental Education Curriculum Guide*. Brisbane: Department of Education.

Dey, I. (1993) *Qualitative data analysis*. Guide for social scientist. London and New York: Routledge

Desinger, J.F. (1983). "*Environmental Education's definitional problem' Information Bulletin* No.2. Columbus,

Di Chiro, G. (1987). In Fien, J. (1993). *Education for the Environment critical curriculum Theorising and Environmental Education*.

Du Plooy, Y.L., Grissel, G.A.J & Oberholzer, M.0. (1982). F*undamental pedagogics for advanced students.* Pretoria: HAUM.

EEASA. (1993). *Discussion document on Formal Education.* Grahamstown: EEASA.

EEASA. (1994) *document of Formal Education. Environmental Education Curriculum. Discussion Initiative*

EECI (1996). *Enabling Environmental education in the outcomes Based curriculum Framework. An initial Guidelines document*. Johannesburg: EECI Environmental Education Curriculum Initiative.

EECI. (1997). *Environmental Education (Curriculum options*) Johannesburg: EEPI Environmental Education Policy Initiative.

EEPI. (1995) *A source Document for Curriculum Development in Environmental Education*. practical guide for K-12 Johannesburg.

EEPI. (1994). *EE Teacher Resources Handbook. A Environmental Education*. California: Corwin Press.

Fein, J. (1988). *Education for the Australian Environment*, Bulletin 6, and Bicentennial Australian studies school project Canberra: Curriculum Development Centre

Fein, J. (1993). *Environmental and School Init*iatives (ENSI). Canberra: Curriculum Development Centre

Fein, J. (1993). *Education for the Environment*: Critical Curriculum Theorizing and Environmental Education Curriculum in 2005 and the Environmental Education. Curriculum Initiatives. Australian Journal of Environmental Education, 14:101-11

Fein, J. (1997). *Towards School-level Curriculum inquiry in Environmental Education*. Australian Journal of Environmental Education, 7:17-29.

Gough, N. (1992). *Blueprints for Greening schools*. Principles, policies and practical for Environmental Education in Australian Secondary Schools Prahran; Gould League of Victoria

Greenall Gough, A. (1993 p.30). Foundations of Environmental Education. *South African Journal of Environmental Education,* 12: l-l4. Effective Evaluation

Guba, E, G & Lincoln, YS.S. (1981) Improving the usefulness of evaluation results through responsive and naturalistic approaches, In ANDERSON, G. 1990. Fundamentals of educational research. London: Farmer Press

Hammersley, M. & Atkinson, P. (1983) *Ethnography Principles and practice*. New York: Tavistock Publications.

Henning, E. van Rensburg, W. & Smit, B. (2004) *Finding your way in qualitative research* Pretoria: Van Schaik .

Hungerford, H.R, & Tomera, A.N. (1977). *Science in the elementary school campaign*, IL: Stipes Publishing Company.

Irwin, P. & Lotz-Sisitka, H. (2005) *A history of Environmental Education in South Africa*. CP (ed).

Irwin, P & Lotz-Sistika, H. (2005). *Environmental Education : Some South African Perspectives.* Pretoria : Van Schaik Publishers.

Le Roux, (2005) *Curriculum 2005 Environmental Education Research* in Loubser CP (Ed) 2005. Environmental Education: some South African perspective. Pretoria:Van Schaik

Lofland, J. (1997 p.55). *Analyzing Social Settings*. NEW YORK: Wadswork.

Lotz, H. (1999). *Supporting Curriculum 2005*. Developing learning programme with environment as a phase organiser. Pretoria: DEAT.

Lotz, H, & Janse Van Rensburg, E. (1998) a *Learning for sustainability*: Formative evaluation report. Unpublished

Lotz, H. & Janse Van Rensburg, E. (1998 b *Learning for sustainability*: Formative evaluation report Unpublished.

Lotz, H. & Janse Van Rensburg, E. (1998). *Enabling Environmental Education As a cross-curricular concern in outcomes- based education* learning programmes. Discussion Document: GRAHAMSTOWN: Rhodes University.

Merriam, S.B. (1998). *Qualitative research and case study* . San Francisco: Jossey Bass.

Merriam, S.B. (2002). *Qualitative Research in practice*. San Francisco: Jossey_Bass.

Michael, S. & O'Conner, M.C. (1990). *Literacy as reasoning within multiple discourses*: *Implications for policy and educational reform,* in Roth, C.E. 1992. Environmental literacy: Its roots, evolution and directions in the 1990's. Massachusetts: Education Development Centre.

Miles, M.B & Huberman, A.M. (1994). *Qualitative data analysis*: A source book of new methods. Beverly Hills: Sage.

Mischel, P. 1989, in Salomon, G. (1992). *New challenges for educational research: Studying the individual within me learning environment.* Scandinavian Journal of Educational research. 36(3): 162-182

Morgan, D.L (1988). *Focus group as qualitative research*. Sage University Paper Series on qualitative research methods.

Mouton, J. (1996). *Understanding social research*. Pretoria: Van Schaik.

O Donoghue, R. (1993). *Environment and Development Education*: From "Hand facts, heads and hearts to co-constructed agendas within reflexive social processes ". Howick: Share-Net Republic of South Africa, 1995. *White paper on Education and Training*. Pretoria: Government Press. Republic of South Africa: Pretoria Government Press

Oxford English Dictionary. (1998 p.20). Oxford University Press

Schulze, S. (1998). *Theoretical frameworks in Environmental* Education: Some Australian and South African views. *South African Journal of Education*. 18 (t) : pp. 60-63

Selinger, H.W. & Shohang, E. (1989). *Second Language Research Methods*. Oxford University Press:Oxford.

Sguazzin. T. & Du-Toit. D. (2000). *The spiral model: new options for supporting the professional development of implementers of outcomes-based education*. Learning for sustainability Project. Johannesburg.

Van Rooyen, H.G.V. (1998). The Emerging Face of Environmental Education in South Africa Formal Education: Curriculum 2005 and the Environmental Education Curriculum Initiative. *Australian Journal* Vol.14.

WWF Stellenbosch: South Africa.

Yeld, J. (1997). *Caring for the Earth : South Africa : A Guide to Sustainable Living.*