

Contextualizing the NCS through the use of school gardens in
the Butterworth area

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AN ENVIRONMENTAL EDUCATION RESEARCH PORTFOLIO



CONTEXTUALIZING THE NCS THROUGH THE USE OF SCHOOL GARDENS IN THE BUTTERWORTH AREA

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**RESEARCH PORTFOLIO SUBMITTED FOR THE PARTIAL FULFILLMENT OF THE
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ABSTRACT

The research is focuses on how teachers can use school gardens sponsored by South African National Biodiversity Institute as resource materials for teaching and learning. The study also focused on how teachers can integrate local knowledge into the school curriculum. The setting of the research is Zizamele Senior Primary School situated in Zizamele community in Butterworth in the Eastern Cape.

The study is designed in portfolio format. It consists of three separate studies: a contextual profile; a stakeholder analysis; and a small-scale action research project, which build on each other. By developing a contextual profile of the research site, and the school community and school gardens project, I was able to collect information that informed the stakeholder analysis and the action research study. Data for the contextual profile was gathered by using a variety of data gathering techniques like questionnaires and interviews. The findings were that: the study area is characterized by socio-economic issues like poverty, unemployment, drug abuse and crime. This requires that the people of the area take responsibility in addressing some of the problems by being involved and knowing where to report issues.

The second study, which is the stakeholder analysis, was done to mobilize stakeholders' contributions to the gardens project in Zizamele School, sponsored by the South African National Biodiversity Institute. Data was collected at meetings and workshops in the schools through interviews. Findings indicated that different stakeholders had various contributions to make and that they were prepared to work with the school and with each other to develop the school garden and the learning potential of the school garden. This paved the way for the small scale action research case study that would follow.

The last study, the small scale action research, was undertaken in the same school, Zizamele School, and focused on investigating ways of integrating local

knowledge into the curriculum and how teachers use the gardens as resource for teaching and learning, with reference to Life Orientation Learning Area. Data was collected by interviews, questionnaires and worksheets. The study involved two teachers who worked with me on the action research and Grade 5 and 6 learners, as well as some of the community stakeholders. The main finding of the action researched showed the potential for involving community members in the process of integrating local knowledge as a way of implementing aspects of the Life Orientation curriculum requirements.

The three studies link with each other, and show that to start with an action research project, one needs to understand the context, and the roles of different stakeholders, and how they might contribute to the programmes in the school. Findings showed that teachers could use gardens as resource materials for teaching and learning, and that they could bring in local knowledge to the school curriculum.

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CONTENTS

Acknowledgements	1
Contents	2

SECTION 1: INTRODUCTION TO THE PORTFOLIO

1. Overview of the portfolio	10
2. Introducing myself as researcher	10
3. Setting of the research	11
4. Introducing the Greening of the Nation programme and SANBI's mandate	12
5. The research portfolio	13
5.1 Contextual profile	13
5.2 Stakeholder analysis	14
5.3 Action research project	14
5.4 Reflections on the portfolio	15
5.5 A note on referencing	15

SECTION 2: CONTEXTUAL PROFILE

1. Introduction	16
1.1 Introducing Zizamele Senior Primary School	16
1.2 Introducing the study	17
2. Methodology and methods	18
2.1 Methodology	18
2.2 Methods	18
2.2.1 Interviews	18
2.2.2 Questionnaires	19
2.2.3 Document analysis	20
2.3 Data analysis	21
2.4 Ethics and trustworthiness	22

3. Contextual profile of the Mnquma Municipality, Butterworth District and Zizamele School

3.1	Introduction	23
3.2	Contextual profile of the Mnquma Municipality	24
3.2.1	Population	24
3.2.2	Monthly household profile	25
3.2.3	Health	26
3.2.4	Environment and development	27
3.2.4.1	<i>Environment policy</i>	27
3.2.4.2	<i>Agriculture</i>	27
3.2.4.3	<i>Forestry</i>	28
3.2.4.5	<i>Marine resources and aqua culture</i>	31
3.2.4.6	<i>Tourism</i>	32
3.2.4.7	<i>Water and sanitation</i>	34
3.2.4.8	<i>Household access to refuse removal</i>	34
3.3.	Contextual profile of the district department of education (policies and structures)	36
3.3.1	District structures and support	36
3.3.2	History of the curriculum	37
3.4	Contextual profile of Zizamele School	42
3.4.1	General conditions	42
3.4.2	School partnership programmes	43
3.4.2.1	<i>4H programme</i>	43
3.4.2.2	<i>Eco-Schools</i>	44
3.4.2.3	<i>SANBI Greening the Nation Programme</i>	45
3.4.3	Teachers' professional background	46
3.4.4	Materials available in the school	47
3.4.4.1	<i>National Curriculum Statement (R-9)</i>	47
3.4.4.2	<i>The Greening Booklet</i>	47
3.4.4.3	<i>The SANBI Greening Pack</i>	47

3.4.4.5	Teacher's resource book 'Exploring the RNCS in the Intermediate Phase'	48
3.4.4.6	National Policy on Assessment and National Assessment Guidelines	48
3.4.5	School community relationships	48
4.	Conclusion	48

SECTION 3: STAKEHOLDER ANALYSIS

1.	Introduction	54
2.	Purpose of conducting a stakeholder analysis	55
3.	Research question	55
4.	Literature review	56
5.	Methodology	59
5.1	An interpretive approach	59
5.2	Research methods	60
5.2.1	Semi-structured interviews	60
5.2.2	Focus group interviews	61
5.2.3	Participant observations in meetings	61
5.2.4	Workshop	62
5.3	Data analysis	63
5.4	Validity, reliability and ethical issues	64
6.	Analysis of the findings	65
6.1	Introduction	65
6.2	The school principal	66
6.2.1	Principal's role	66
6.2.2	Principal's interests in the SANBI project	66
6.2.3	Working with other stakeholders	66
6.3	The teachers	67
6.3.1	Teachers' roles	67
6.3.2	Teachers' interests in the SANBI project	67
6.3.3	Working with other stakeholders	68

6.4	Department of Agriculture	69
6.4.1	DoA role	69
6.4.2	DoA interest in the SANBI project	69
6.4.3	Working with other stakeholders	69
6.5	Community members	70
6.5.1	Community members' roles	70
6.5.2	Community members' interests	70
6.5.3	Community members' willingness to work with other stakeholders	70
6.6	SANBI	71
6.6.1	SANBI's role	71
6.6.2	SANBI's interest in the project	71
6.6.3	Willingness to work with other stakeholders	72
6.7	Youth	72
6.7.1	Youth roles	72
6.7.2	Youth interests	72
6.7.3	Willingness to work with others	72
7.	Discussion	73
7.1	Analytical statement 1	73
7.2	Analytical statement 2	74
7.3	Analytical statement 3	76
7.4	Analytical statement 4	77
7.5	Analytical statement 5	77
8.	Conclusion and reflections on the small-scale study	78
 SECTION 4: ACTION RESEARCH CASE STUDY		
1.	Introduction	87
2.	Research question and goals	87
3.	Context of the action research	88
4.	Literature review	89
4.1	Curriculum goals and policy	89
4.2	Environmental learning in the curriculum	91

4.3 Curriculum contextualization	93
4.4 Situated learning and the contextualized curriculum	95
4.5 Community involvement: Local knowledge and contextualized curriculum	97
4.6 Background to lesson planning	98
4.7 The Life Orientation Learning Area and its expectations	100
5. Research process and methodology	102
5.1 Methodology	102
5.2 Methods of data collection	104
5.3 Data analysis	106
5.4 Ethics and trustworthiness	107
6. The action research process	107
6.1 Introduction	107
6.2 Cycle 1/ Lesson 1 (Grade 4)	108
6.2.1. Planning the lesson	108
6.2.2 Action: teaching the activity	109
6.2.3 Reflections	112
6.3 Cycle 2/ Lesson 2 (Grade 5)	115
6.3.1 Planning the lesson	115
6.3.2 Action: teaching the Grade 5 lesson	115
6.3.3 Reflections	118
6.4 Cycle 3/ Lesson 3 (Grade 6)	119
6.4.1 Planning the lesson	119
6.4.2 Action: teaching the lesson	120
6.4.3 Reflection	122
7. Main findings	123
7.1 Introduction	123
7.2 Analytical statement 1	123
7.3 Analytical statement 2	124
7.4 Analytical statement 3	126
7.5 Analytical statement 4	127
8. Conclusion	129

SECTION 5: REFLECTIONS ON THE PORTFOLIO	149
1. CHALLENGES OF CONDUCTING RESEARCH	149
1.1 Methodological difficulties	149
1.2 Unit time and access	149
1.3 Gender stereotypes and culture	149
1.4 Language	150
2. HOW THIS RESEARCH CAN INFORM THE GREENING THE NATION PROGRAMME	150
3. CURRICULUM CONTEXTUALISATION	151
4. WHAT I HAVE LEARNED ABOUT THE CONTEXT I WORK IN	152
5. RECOMMENDATIONS	153
REFERENCES	155

LIST OF FIGURES

SECTION 2: CONTEXTUAL PROFILE

Figure 1: Interview with four community members	19
Figure 2: Picture showing the physical condition of the school	42
Figure 3: Our school receives its Eco-Schools flag in 2004	45

SECTION 4: ACTION RESEARCH CASE STUDY

Figure 1: Teachers planning together, with the Principal assisting	108
Figure 2: Learners identifying <i>imifino</i> with the help of a knowledgeable parent	111
Figure 3: Teacher observing learners (mostly girls) identifying <i>Imifino</i> plants	112
Figure 4: Boys withdrawing themselves from the collecting <i>Imifino</i> collecting activity	113
Figure 5: Example of a wheel garden	117
Figure 6: Dlamini showing the learners uses of medicinal plants	121

LIST OF TABLES

SECTION 2: CONTEXTUAL PROFILE

Table 1: Motto, vision and mission of the school	17
Table 2: Population and age distribution for Mnquma Municipality	24
Table 3: Vegetable and maize products	29
Table 4: Agricultural initiatives in MM	29
Table 5: Budget allocation	31
Table 6: Tourism related initiatives	33
Table 7: Educator roles as described in the Norms and Standards for Educator policy	39

SECTION 3: STAKEHOLDER ANALYSIS

Table 1: Stakeholders and their involvement in the data generation process	65
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SECTION 4: ACTION RESEARCH

Table 1: Learning Outcomes showing expectations for critical, practical and contextual engagements	94
Table 2: Dimensions to lesson planning (for environmental learning in the NCS)	99
Table 3: Data collection during the planning phase	105
Table 4: Data collection during the action phase	110
Table 5: Data collection during the reflection phase	106
Table 6: Final reflective analysis of the Lesson Plan	114

LIST OF APPENDICES

SECTION 2: CONTEXTUAL PROFILE

Appendix 1: Interview schedule for community interviews	50
Appendix 2: Interview schedule for teacher interviews	51
Appendix 3: Questionnaire given to Mrs Mphalwa, the school principal	52
Appendix 4: Questionnaire given to the municipal officer	53

SECTION 3: STAKEHOLDER ANALYSIS

Appendix A: Teacher interview schedule	80
Appendix B: Principal interview schedule	81
Appendix C: Community members' interview schedule	82
Appendix D: Agricultural officer interview schedule	83
Appendix E: Interview schedule for focus group with youth	84
Appendix F: Workshop report backs	85

SECTION 4: ACTION RESEARCH

Appendix 1: Record of meeting with principal and SGB	131
Appendix 2: Interview schedule for interview with principal	132
Appendix 3a: Lesson plan for Life Orientation Grade 4	133
Appendix 3b: Lesson plan for Life Orientation Grade 5	134
Appendix 3c: Lesson plan for Life Orientation Grade 6	135
Appendix 4: Interview with educators on lesson planning	136
Appendix 5: Observation sheet (tool)	137
Appendix 6a: Food posters: Cultural Menus	139
Appendix 6a: Food posters: Food for Africa	140
Appendix 7 (a-d): Learners work	141
Appendix 8: Interview schedule for parent interview	145
Appendix 9: Questionnaires (learners' work)	146
Appendix 10: Reflective interviews	147
Appendix 11: Letter requesting permission for conducting the research	148

SECTION 1

INTRODUCING THE PORTFOLIO

1. OVERVIEW OF THE PORTFOLIO

This portfolio is designed to include three related small-scale studies:

- A contextual profile,
- A stake-holder analysis, and
- A small-scale action research project which is the main research project in the portfolio.

All three of the studies address a central concern, namely, how the National Curriculum Statement, its Learning Outcomes and Assessment Standards can be contextualized through use of school gardens in my school.

Our school has recently been 'greened' i.e. given a school garden by the South African National Biodiversity Institute (SANBI) Greening the Nation Programme. School gardens provide a potentially valuable resource for learning and provide teachers with a means to contextualize the Learning Outcomes and Assessment Standards as required by the NCS (DoE, 2002a, 2002b). The process of curriculum contextualization is a new area for research in South Africa, and to date only a few studies have been conducted with this focus (e.g. Asafo-Adjei, 2004; Mvula Jamela, 2007; Ncula, 2007), especially curriculum links with school gardens. This research portfolio aims to contribute to this growing body of research.

2. INTRODUCING MYSELF AS RESEARCHER

My name is Nandi Rasi, I am an educator at Zizamele Senior Primary School. I teach Natural Sciences, Arts and Culture and Life Orientation in the Intermediate Phase. I am a middle aged woman happy and content to work with 12-15 year olds. The time spent at school, my relationship with learners, colleagues and community, and achievements in the classroom are important to me.

My other duties at school are to co-ordinate environmental programmes, represent the school at regional level workshops on the National Curriculum Statement, and to co-

ordinate environmental learning activities for the school. I also help conduct workshops in the district for its teacher development programme, as a lead teacher.

In the school, I was elected as a member of the school management team (SMT) which co-ordinates activities pertaining to staff management and ensures that all educators are trained on the procedures associated with the Integrated Quality Management System (IQMS) of the Department of Education (DoE, 2004).

I also train groups of young girls and boys in traditional music in school as my background is a deep rural area that is rich in Xhosa culture.

Being involved with environmental education in my previous studies led me to explore environmental issues in more depth. I felt that there was a need to further my studies. I did the Gold Fields participatory course in environmental education through Rhodes University in 1995, took environmental education as an elective in my B. ED. Degree in 1999, and am still furthering my studies through doing this Masters degree by coursework and research portfolio in environmental education.

3. SETTING OF THE RESEARCH

All of the research in this research portfolio was conducted in the Zizamele Senior Primary School and its community, situated in a semi-urban area in Butterworth town. Butterworth is a town in the Mquma Municipality in the coastal areas of the Eastern Cape Province in South Africa. The Mquma Local Municipality is composed of three districts, Butterworth, Centane and Nqamakwe; it serves under the Amatole Regional Municipality based in East London.

The area is characterized by many social and environment issues that range from high population growth, high unemployment rates, drug and domestic abuse, Tuberculosis, HIV and AIDS, and poor waste management. Most of the parents in the area are illiterate which makes it difficult for them to support investigations that are conducted with them by learners (see Section 2).

In this area there were many industries established under the former homeland systems border industry programme. These have since moved to big cities due to

political and labour related unrest with people demanding a living wage, in the process damaging business and properties

People that migrate from the rural areas, retrenched from big cities and those coming from farms with the hope of getting jobs in the industrial area were left destitute with no accommodation. That is how the informal settlement developed in this area. A more comprehensive contextual profile of the area is provided in section 2 of this research portfolio.

4. INTRODUCING THE GREENING OF THE NATION PROGRAMME AND SANBI'S MANDATE

In this section I introduce the Greening of the Nation Outreach Programme implemented by the South African National Biodiversity (SANBI), as this influenced the focus of the research conducted for this portfolio. I was supported by SANBI to conduct this research, and use the research to make recommendations to inform the SANBI Greening of the Nation Outreach Programme, especially relating to its work in rural and semi-urban schools (See Section 5).

Greening of the Nation Outreach Programme for schools has been introduced to 15 schools that form a cluster in Butterworth. Zizamele Senior Primary School is one of the beneficiaries of the programme. SANBI, through the district office of the Department of Education, identified schools for Greening activities. Through their programme, SANBI promotes restoration of indigenous plants in school grounds, establishes food gardens, orchards and conducts workshops for professional development of teachers to develop knowledge of biodiversity and its importance.

SANBI's mandate and mission is to "... promote the sustainable conversation, appreciation and enjoyment of exceptionally rich plant life of South Africa, for the benefit of its entire people" (SANBI, 2005: 1). SANBI's environmental education mission is to use gardens as resources for learning, and to encourage people to take responsibility for the environment and protect biodiversity (SANBI, 2005).

The educational aspect of the Greening the Nation programme seeks to strengthen environment education in the curriculum, in order to ensure sustainability of the Greening activities, and to ensure that the gardens in schools are used. The Greening

the Nation programme is greening open spaces in communities and schools as well as establishing community nurseries. It also makes indigenous gardens accessible for enjoyment and education, and is aiming at restoring nature and developing environmental knowledge in communities. The programme is planting indigenous trees and plants and developing nurseries for plants of medicinal value. The programme is also developing various skills amongst unemployed South Africans as it is a poverty relief programme affiliated to the Department of Environmental Affairs and Tourism (SANBI, 2005).

Our school is fortunate to be involved in this programme as we thought it could address some of the issues in the area like lessening unemployment, providing fresh nutrition produce for HIV / AIDS victims, and to help supply a soup kitchen in the school for learners as they come from poverty stricken areas.

The Greening of the Nation Programme forms part of the Government's Expanded Public Works Programme (EPWP) which seeks to draw significant numbers of unemployed South African citizens into the productive section of the economy gaining skills while they work and increasing their capacity to earn income. Also built into the programme is an internship programme which aims to equip a pool of South Africans with horticultural, landscaping and environmental skills as an attempt to increase champions in the field of outreach greening and public awareness (SANBI 2005).

5. THE RESEARCH PORTFOLIO

As mentioned above, this research portfolio contains three small-scale research projects, introduced briefly below:

5.1 CONTEXTUAL PROFILE

By engaging in the contextual profile research, I wanted to find out more about the background of the area where the research took place. I wanted to know the socio-cultural factors that may impact either positively or negatively on curriculum implementation. This is supported by Lotz-Sisitka and Janse Van Rensburg (2000) when they describe that a contextual profile is a periodic overview or scan of external factors that may impact on a project's activities.

In compiling the contextual profile I used the following data collection techniques:

- Questionnaires,
- Interviews, and
- Document analysis

These techniques helped me to collect information on the different contextual issues relevant to the study. The contextual profile identifies issues like unemployment, population growth, and domestic violence as issues which may affect curriculum implementation. The contextual profile of the school provides further details on educational factors that may influence curriculum contextualization (see Section for more detail).

5.2 STAKEHOLDER ANALYSIS

While the contextual profile research provided useful insights into those issues potentially influencing curriculum contextualization, it did not provide any insight into stakeholders' interest in curriculum contextualization using school gardens. I therefore conducted a stakeholder analysis to probe this issue further. The purpose of the stakeholder analysis was to review stakeholders' interest and participation in the sustainable use of an indigenous garden and in developing one in Zizamele Senior Primary School as a greening project. To find out more about the interest, roles and responsibilities of stakeholders, I used the following research techniques:

- Workshops,
- Meetings, and
- Interviews.

More detail on the stakeholder's interest is provided in Section 3 of this portfolio.

5.3 ACTION RESEARCH PROJECT

While the contextual profile and stakeholder analysis provided much needed background and information necessary for curriculum contextualization, the two studies did not provide insight into the actual curriculum contextualization process. To take the two studies further, I therefore conducted a small-scale action research project. The study was conducted in Zizamele Senior Primary School with two teachers in an attempt to improve teaching practice, use of the school gardens, and

integration of local knowledge into curriculum activities. Some of the data generation techniques that were used in the study were interviews, lesson observations and reflective interviews after the lessons to see if the outcome was achieved. The main research technique used in the action research process was observation and it involved observation of three lessons. Through careful and systematic analysis of the data and triangulation, I was able to identify key themes in the data, which informed a set of analytical statements constituting the main findings of the study. More details of the action research process are included in Section 4 of this portfolio.

5.4 REFLECTIONS ON THE PORTFOLIO

To conclude the research portfolio, I provide a set of reflections on the challenges of conducting the research, and what I learned about curriculum contextualization and the context of my work. I also consider how the research can inform the SANBI Greening the Nation Programme, and I make two sets of recommendations, to SANBI and to teachers involved in greening activities that have an interest in integrating local knowledge into curriculum activities, and curriculum contextualization.

5.5 A NOTE ON REFERENCING

As many of the references in the different sections of the portfolio were similar, I decided to produce one reference list for the whole portfolio. Each section of the portfolio is therefore not referenced separately. References for all the small-scale studies are contained in one reference list at the end of the portfolio.

SECTION 2

CONTEXTUAL PROFILE

1. INTRODUCTION

1.1 INTRODUCING ZIZAMELE SENIOR PRIMARY SCHOOL

Zizamele Senior Primary School is situated in Butterworth, a small district in the coastal area of the Eastern Cape Province of South Africa. According to the principal, the school was established in 1995. The school has a roll of 520 learners, twelve educators, one head of department and a principal. The school is located in a peri-urban area 8 kilometers from town.

According to Mrs. Mphahlwa, the principal of the school, she started the school with 30 young learners in a local civic hall in response to a parental request to the Education Department for a school. The reason for establishing the school was that learners were young and the nearest alternative school was 5 kilometers away. There were many accidents reported as learners travelled long distances and approval for the proposal was granted in 1995. Ever since then the school has continued to grow, and parents are satisfied with the proceedings in the school.

The school has crafted vision and mission statements which provide the school with clear direction and motivation. These are displayed for all to see in the principal's office (see Table 1 below).

Table 1: Motto, vision and mission of the school

MOTTO:

Let's work and pray

MISSION:

Commitment and working together as all stakeholders in the school and education system, to achieve our vision.

VISION:

To educate learners so that they must be

- Independent and responsible adults/ citizens marketed worldwide
- Able to receive a well balanced, sound type of education.
- Able to promote sustainability of the natural world including living and non living things.

1.2 INTRODUCING THE STUDY

This contextual profile provides background information relating to the Mnquma Municipality in which the Butterworth and Zizamele community are situated. The study also concentrates on providing background to the area where the research is taking place, namely Zizamele Senior Primary School and its immediate surroundings. The school is situated in an area characterized by a variety of issues and risks that are socially, politically and economically constructed, and which affect the biophysical surroundings. The above mentioned statement is supported by John Fien (1993) where he describes how environmental issues are socially constructed. O'Donoghue (2001) builds on this by describing environment as interacting patterns of social and economic factors within the biological and physical world.

One of the goals of this study was to find information about the area of the school and the immediate community and to think of mechanisms that can be engaged (responses) to address the state of affairs. Other goals were to examine the background history and external factors that may influence curriculum implementation processes in my school. The study draws on the work of Lotz-Sisitka and Janse van Rensburg (2000) who describe a contextual profile as a periodic overview or scan of external factors that may impact on project activities. They explain that such external factors might be historical, political, economic, social or biophysical, and that such factors are often inter-linked and complex. They developed a contextual profile of the *Learning for*

Sustainability pilot project sites, and showed how curriculum history, social history, political and economic histories and biophysical factors all influenced the curriculum development work of teachers in the project.

2. METHODOLOGY AND METHODS

2.1 METHODOLOGY

The research was conducted within an interpretive orientation. According to Cohen, Manion and Morrison (2000:36) the central endeavour in the context of the interpretive paradigm is to understand the subjective world of human experience. Interpretive researchers begin with individuals and set out to understand their interpretations of the world around them (Cohen et al., 2000). To develop the contextual profile I used a number of research methods. Methods that were used in the study were semi-structured interviews, questionnaires, and document analysis.

2.2 METHODS

2.2.1 Interviews

Koul (1984, cited in Cohen et al., 2000) describes interviews as a tool for gathering data through conversations between myself and the respondents. Fontana (1991, cited in Euvrard, 2005) states that the most common form of interviews involves individuals in face to face administered questionnaires and telephone interviews.

I used semi-structured interviews as one of my data collection tools. Cohen et al. (2000: 237) explain semi-structured interviews as having greater flexibility, but caution that these have to be carefully planned by the interviewer and that they should provide a framework of reference for respondents' answers. Advantages of semi-structured interviews are that they are flexible, they allow the interviewer to probe further, modify questions while encouraging respondents' co-operation and report and they can also yield unexpected or unanticipated answers (ibid: 268, 275). I interviewed a group of community people, four women and three men, keeping the interviews as informal as possible within a semi structured framework. I also interviewed individuals in the community. A group of educators were interviewed as a focus group.



Figure 1. Interview with four community members

The focus of the interview framework was to gain an understanding of the following aspects:

- History and geographic setting,
- The social and economic life of the area,
- Issues and risk in the area,
- Policies informing the school and classroom practices (for the educators interviews).

To get data on poverty and other factors like population growth I interviewed community people and school based teachers, but found that I had to supplement this information with documented data. For generating the interview data I developed a semi-structured interview schedule (see appendix 1 and 2), and conducted individual interviews with teachers, and a group interview with the community members. To complement the interviews I used questionnaires, which I discuss below.

2.2.2 Questionnaires

Questionnaires were also used to develop this contextual profile. The questionnaires were constructed using open-ended questions (See Appendix 3 and 4). Cohen et al. (2000: 248) state that open-ended questions enable the respondents to write free

responses in their own terms explaining and qualifying their responses and expressing a broader range of ideas.

The purpose of using questionnaires was to obtain information from the principal, as she started the school. I asked her to fill in a questionnaire as I thought it would be more convenient for her, given her busy schedule. She furnished me with details of when the school was started and the challenges and problems of starting a new school. I also sent a questionnaire to the municipal officer to find out how they take care of the waste in Butterworth, which according to the community people is poorly managed by the Municipality. He said that people were not paying municipal services and that it is difficult to get hold of trucks to collect waste. I found I had to supplement the questionnaire data with documented data, which formed a key strategy for compiling this contextual profile.

2.2.3 Document analysis

Document analysis was one of the main strategies used in this contextual profile, as a lot of the regional data was contained in the municipal documents, and information related to the changes in school policies are contained in Department of Education documents. Many projects also produce documents on their activities. To get a clear understanding of how policies and practices used by educational support groups inform the school and classroom practice, I collected various national and school policies from the principal's office. I wanted to get information regarding the smooth running of the school and what informs the activities and processes of the school. To get up to date information on the district, I undertook a content analysis (Patton, 2000) of the Integrated Development Plan (IDP) document which I collected from the local municipal offices. I supplemented this with information from the internet which provided some additional statistical information. Besides the IDP document mentioned above, the other main documents analysed to provide relevant contextual information were:

- Documents prepared by the principal giving the history of the school (notes prepared in 1995), telling about the members of staff when the school started, the reason for starting the school and the subsequent growth of the school.

- The Department of Education's National Curriculum Statement Document (DoE, 2002a and 2002b): I used this document because I wanted to understand what it says about learners and teachers, the curriculum principles, especially the concepts relating to a healthy environment, human rights, social justice and inclusivity, the Learning Outcomes and Assessment Standards, as this helped to explain the educational changes that we were dealing with in the school.
- The *Eco-Schools Toolkit* (Share Net, 2005), as it explains this project, and it has templates of lessons plans and guidelines on how to develop Lesson Plans. I wanted to understand and to be able to look at how this was / might influence teachers' work and what support the Eco-Schools framework provides to schools, as our school was a recognised Eco-School, and it has relevance to the focus of this research portfolio. The Eco-Schools' toolkit also describes different opportunities that teachers can use for conducting environmental activities in the school, with reference to school gardens and permaculture practices.
- The *School Greening Toolkit* developed for the Greening the Nation Project (ShareNet, n.d.): As explained in Section 1, our school has recently been greened, and this toolkit is helpful to teachers because Greening is a new concept. It guides the teachers on how to take care of seeds, how to propagate, plant, take care, transplant, value plants and how all of this can be used for Lesson Planning.

When I collected the documents from her office, Mrs Mphahlwa indicated that these documents are important because they assist the principal to manage the school (Mphahlwa Pers. comm., 2006), and they can assist with the school greening activities and curriculum improvement. She also referred me to '*The Teacher*', a newsletter produced regularly by the South African Democratic Teachers Union (SADTU, 2006). The newsletter enables the teachers to follow key policy changes, and to know about opportunities in the field of education. It also provides useful examples of practice that teachers can draw on in their teaching.

2.3 DATA ANALYSIS

According to Patton (1990) data interpretation and analysis involve making sense of what had been said, looking for patterns, putting together what is said in one place and integrating what different people have said. Analysing data gives a researcher the

chance to read through the data carefully before drawing conclusions from the data. As indicated above, I undertook a content analysis of the documents, which means I read and re-read them to identify factors that were significant to the context of the community and school. In dealing with the data, I used a strategy of coding. According to Kerfoot(1997: 83) coding is a systematic way of developing and refining interpretations of data. The coding process involves bringing together and analysing all the data. He states that, what were initially vague ideas are defined, expanded, discarded or fully developed during the stage of analysis.

I developed the following categories, which capture the main dimensions of the context that I wanted to study, and coded and organized the data from the interviews, documents and questionnaires accordingly:

- Mnquma Municipality and Butterworth Municipality (section 3.2)
- Department of Education (structures and policies) (section 3.3)
- Zizamele school context (section 3.4)

I then developed subcategories within each of these categories, which form the subsections of each of the sections referred to above in this report.

To ensure that the findings would be valid findings, I triangulated the data as far as possible. Cohen and Manion(1994) describe triangulation as the use of two or more methods of data collection in a study of aspects of human behaviour. They further explain that triangulation techniques in the social senses help to map out, or explain fully the richness of a situation, in order to provide perspectives derived from more than one standpoint. I tried to do this by making use of questionnaires, interviews and documents. In the research I also used photographs as evidence by taking photos of the school buildings, showing a dilapidating physical structure. Triangulation was not so easy however, as it was difficult to find sources of data on the municipal issues other than the IDP document, but I did try to see if some of the issues reported in the IDP document were similar to those reported by community members for example.

2.4 ETHICS AND TRUSTWORTHINESS

To start the research, I gained permission from the school principal, and I asked permission from the teachers to interview them. I told them what the purpose of the

research was and how I would be using the data. I similarly asked permission from the community members, and explained to them that I was trying to understand the context of the school and its community better to come up with Lesson Plans for the school that could educate the learners to address issues in the community. I tried to implement what Bassey (1999) refers to as respect for persons. To ensure trustworthiness, I tried to reference all the data sources carefully, and to give an accurate description of what the interviewees said during the interviews, and through this I tried to attend to Bassey's(1999) point on respect for truth.

3 CONTEXTUAL PROFILE OF THE MNQUMA MUNICIPALITY, BUTTERWORTH DISTRICT AND ZIZAMELE SCHOOL

3.1 INTRODUCTION

As mentioned above, Zizamele School, where I teach, is located in a peri-urban area outside of Butterworth, an urban area in the former Ciskei area. Butterworth is a small municipal district which falls under the Mquma Municipality in the Eastern Cape Province of South Africa. Mquma Municipality is a category B Municipality established in terms of provincial proclamation 80 of September 2000. It is an amalgamation of the former towns of Butterworth, Ngamakwe, Centane and their surrounding rural areas. The rural areas or magisterial districts were previously administered differently (MM, 2006/2007) Mquma Municipality is situated adjacent to the coastal zone of a section of the Eastern Cape Province of South Africa. It has scattered rural communities, where people depend on subsistence farming and livestock for survival. The first subsection of the contextual profile concentrates on the environment and development related concerns of the Mquma Municipality as they give a sense of the broader context in which the school is located. The second subsection of the contextual profile concentrates on the Department of Education in the Butterworth District, with specific reference to the structures and policies that are influencing educational practice in this district, as this influences the Zizamele school and our practice as teachers. The third subsection of the contextual profile focuses on the Zizamele school and community more directly, and considers the issues and resources that are specific to the school and its teaching practices, with specific reference to environmental learning processes.

3.2 CONTEXTUAL PROFILE OF THE MNQUMA MUNICIPALITY

3.2.1 Population

As very little other information was available on the issues at the Mngquma Municipal level due to the recent establishment of these municipal districts, I drew heavily on the IDP document to compile this section of the contextual profile. This section can therefore be seen to be summarizing some of the key issues reported on and discussed in much more detail in the IDP document (MM, 2006/2007). As this is a relatively recent document, it carries the most up-to-date information available on the district, and I thought therefore that it was a useful document for this compilation of the contextual profile. Facts and figures in this section can therefore be traced back mainly to this document, unless referenced differently. Based on census data in 2001, the population size in this municipality is estimated to be 287 770 people (see Table 2).

Table 2: Population and age distribution for Mngquma Local Municipality.

Persons	%	2001	%	1996
0 to 4	10%	28752	12%	35996
5 to 14	30%	85926	31%	88877
15 to 35	31%	88782	31%	88202
35 to 65	22%	63088	19%	56302
Over 65	7%	21222	7%	19550
Total	100%	287770	100%	288927

Source (MM 2006/ 2007)

It is reported that the gender distribution in Mngquma is 55% female and 45% males. The municipality believes its processes must ensure optimal participation of women in decision making structures and in the local economy, if it is to be a truly democratic institution that presents the views and concerns of the majority of people in the district (MM, 2006 / 2007).

Though the Municipality has population statistics for the area, population issues are more complex as explained by a member of the Zizamele community who explained that the influx of people from rural areas to town seeking jobs has resulted in high population growth. He explained that due to land degradation and soil erosion the land in the rural areas has failed to produce good crop yields and a decline of stocks to

support people has led to people migrating from rural areas to the urban areas (Nogqala, pers. comm., 2006).

With lifting of racial restrictions on where people may live and work, following the lifting of Group Areas Act and the advent of democracy in 1994, many unemployed people in the former homelands and elsewhere migrated to major South African cities in search of work, bringing their families with them, as is the case in this municipal area. A shortage of accommodation in cities forced them to build and live in shacks or informal settlements on open land (ENVIRO FACTS, 1999). In Butterworth the situation is the same, in every open space around the city, there are informal settlements.

Due to the rate of urbanization resulting from growth, there is high rate of population growth; there is a high rate of unemployment and Butterworth is a small town. To make ends meet, people have developed spaza shops, they collect wood for fuel and commercial purposes and engage in various small scale trading activities as there are few jobs available (Nogqala, pers. comm., 2006).

According to Lotz-Sisitka and Janse van Rensburg (2000), most South Africans experience a justifiable need to improve their quality of life, many live below the bread line and rapid population and urbanization are increasing pressure on resources because of the need to use them to sustain livelihoods, and there are few alternative means. Consequently, people now appeal to the government to provide them with jobs and better houses (Kave, pers. comm., 2006).

3.2.2 Monthly household profile

Analysis of income distribution among the Mnquma households shows that the majority - 76% of households - are indigent with access to either no income or incomes of less than R800 per month. Another 12% of households may be headed by pensioners with income ranging from R800 to R1600 per month. These are groups of households that need subsidy arrangements to be put in place to facilitate their access to services. At the moment an indigent policy of the municipality provides for subsidization of consumption of all households registered with incomes of below R1400 per month (MM, 2006/2007).

According to the IDP of MM (2006/7) only 12% of the entire household population can be expected to pay for services, and it is unlikely that Mquma Municipality will be able to implement service delivery strategies that rely on residential cross subsidisation. In order for the majority of local households to access basic services, the Municipality has to subsidise their consumption. This unfortunately has the effect of prolonging efforts to reduce existing backlogs and influences service delivery (MM, 2006/7).

3.2.3 Health

Health services in the municipal area are a combination of both the district and the Province. Amathole District Municipality is responsible for municipal health while the Provincial Department of Health is responsible for primary and secondary health care services. The Municipality, however, provides some of the primary health care services on behalf of the Province. The Department of Health is currently implementing the following health care service programmes in the Mquma Municipality:

- HIV and Aids management,
- Maternal and child health,
- Expanded programme of immunization,
- T.B. Management,
- Dental health care,
- Health promotion services, and
- Nutrition Services (MM, 2006/7).

Like elsewhere in South Africa HIV and Aids is a public health concern that requires pro-active management and prevention programmes. The Municipality therefore has a responsibility to help, monitor and pro-actively contribute to the reduction of the impact and the spread of HIV and Aids among its community. The Municipality has established a Mquma HIV and Aids Council and there are other related programmes that are being implemented by the Mquma Municipality (MM, 2006/7).

While the local municipality and the province have programmes to address health issues, these don't appear to be adequate as shown by the continued existence of health issues in our school community. According to the teachers in Zizamele Senior

Primary School, HIV and Aids is infecting and affecting many people. The school reports that there are HIV and Aids orphans in most classes. According to the principal of the school, the school has the task of liaising with the Department of Social Development and parents to access foster grants for orphans and child grants for the poor and unemployed (Nkwateni, pers. comm., Mphahlwa, pers. Comm., 2006).

As indicated by this additional responsibility for schools, HIV and Aids has a significant impact at all levels of society, and is placing enormous pressure on health care and other social systems, such as schools. Based on my experience and knowledge of the area, there are no health care centers near our school, and people use a hospital which is far from where they live. This indicates that health care services are not always accessible, which exacerbates the problem even further.

3.2.4 Environment and development

3.2.4.1 *Environment policy*

The South African Constitution (RSA, 1996) states that everyone has the right to live in an environment that is not harmful to their health and well-being, and that natural resources should be sustainably used and protected for the benefit of present and future generations.

According to the MM (2006) the Department of Economic Affairs, Environment and Tourism is the lead agent for environmental issues provincially. They are primarily responsible for the implementation of environmental management plans and the materialization of the Environmental Management Act (NEMA, RSA, 1998). However, the Municipal Systems Act (RSA, 2002) requires the municipality to ensure that its Environmental Management plans are integrated with those of the province, and the NEMA. The South African government has adopted an environmental management approach and because of this, the Mquma Municipality, in response to poverty issues, has considered environmental issues within the integrated development plans of the MM (2006/7).

The Municipality has concerns with regard to nature conservation in the area that includes rural and coastal areas. In particular, they are concerned with overgrazing and over utilization of coastal zone and inter-tidal resources (MM, 2006/2007).

The Municipality also manages a number of open spaces, and they have identified the following as potential gains from open space systems:

- They may act as conservation or other recreational facilities,
- They can be used as areas for accommodation of engineering services e.g. dams, canals and reservoirs, and
- They form buffers between adjacent Land Use Zones, therefore improving the aesthetics of the area (MM, 2206).

3.2.4.2 Agriculture

In their integrated development planning the MM therefore consider both: how to manage the environment and how the environment relates to development opportunities. In the MM, the IDP has identified the following 5 key areas that require environment management and sustainable development:

- Agriculture,
- Forestry,
- Marine resources, aqua culture and tourism,
- Water and sanitation, and
- Waste management.

Various studies conducted by the Department of Agriculture indicate that the soil and climatic conditions of the municipality allow for production of the following crops that are currently not widely known in this area:

- Sunflower,
- Soya beans,
- Grain (mainly maize and wheat),
- Citrus and subtropical fruits (in particular along the coast e.g. banana, mango and naartjie), and
- Vegetables.

The Department of Agriculture is currently involved with a programme called '*Massive Food Production*'. This Programme mainly focuses on the production of maize and vegetables throughout the municipality. In 2004/5 the programme spent about R1,5m

on 900 hectares of land involving 646 participants who implement the vegetable and maize production project (MM, 2006/7) as indicated in Table 3 below:

Table 3: Vegetable & Maize products

Project name	Hectare	Cost R	No. of Participants
Toleni (Butterworth)	100	163 000,00	60
Mgomanzi	50	34 000,00	50
Mtintsilana	100	75 000,00	75
Zingqayi	100	16 300,00	60
Banjwaludaka	100	163 000,00	
Tandanani	100	-	
Mtenjeni (Centane)	50	81 000,00	53
Teko B	100	163 000,00	75
Nkondwane	100	16 000,00	73
Tutura	100	447 000,00	130
	900	1 452 000,00	646

Source (MM, 2006/7)

The Department of Agriculture has identified banana and wheat production as key areas for agricultural development within the Municipality. There are currently experiments to grow banana in Centane and 5 hectares have been planted in Nqamakwe. As these programmes succeed, there are plans to increase the size. In 2005/6 agriculture intervention initiatives benefited 3485 families, as indicated in Table 4 below

Table 4: Agricultural initiatives in MM.

Name of initiative	Description	Amount of investment R	Beneficiaries (no. of families)
Food security programme	Supply of agricultural inputs for food production.	R300 000 by MLM (R98 000 spent)	Emerging farmers, homestead gardens, Communal gardens, small irrigation schemes, 4H Clubs (School gardens and nutrition programme)
Bogithole irrigation scheme	Fencing of maize fields to produce vegetables	R20 000 by ADM (spent)	Bongithole Community 15 Households

Teko Wool production scheme	Supply of livestock remedies, shearing equipment, and sheep rams.	R100 000 by ADM	80 households at Teko fihla and kona
Tandanani community maize Scheme	Supply of Agricultural inputs, purchasing of tractor & equipment, and fuel for tractor	R500 000 from DPLG (spent)	Tanga community (200 hectares)
Cebe Banana Veg and livestock project	Promotion of banana crop livestock production	By dept of Agriculture and ADM	Gqela Community Households
Kei Bridge Agriculture and Tourism project	Piggery, poultry, goats and vegetable production. Tourism rondavals	ADM	69 project members from Manqulo, kobodi, Dlepu & Zangwa
Amagwelane Trust	Promotion of crop and vegetable production. Construction of tomato tunnels. Construction of project offices and storage facility	R800 00 grant R600 00 loan by DBSA	Teko Springs Community +- 120 house households

Source (MM, 2006/7)

The projects are operational, but internal budget constraints of R300 000 per project limited the projects. More potential beneficiaries are expected to join the project. To ensure the involvement of communities, farmers have been grouped into commodity groups. This approach, according to MM (2006/7), makes it easy to deal with people who share the same interests and allows for the development of training and development programmes for the interest groups.

Citizens in the Municipality also have considerable numbers of livestock. These mainly include sheep, cattle and goats. Based on the land suitability and climate conditions, Nqamakwe is mainly suitable for sheep farming and Centane is suitable for sheep and cattle whereas Butterworth is suitable for goats. The IDP indicates that, with improved and proper husbandry methods, the quality of livestock can be improved. It also indicates that a market driven strategy is needed if stock farmers are to realize the value of their livestock. The municipality argues that, with intensive and better farming and animal husbandry, possibilities for processing wool and leather are great. Butterworth already has a history of the processing of these products in the

industrial area (MM 2006/7). This indicates that agricultural education is needed in the MM.

There are also a number of poverty relief programmes running in the municipality to address food security issues (see Table 5 below) The IDP states that R55 000, 00 will be provided to fund part of a food security programme and other activities like stipends. The programme currently benefits 418 infected and 99 affected orphans, providing a measure of food security for these children (MM, 2006/7).

From the discussion above, agriculture is therefore a potentially important contributor to poverty relief and food security in the area, although it is not fully developed as a sector. This has implications for education of the population in the area, which would benefit from a better understanding of agricultural practices and development possibilities in the area. Educating children in the MM to participate in gardening and food production activities can possibly help to develop much needed capacity for this sector in future.

Table 5: Budget allocation

TOWN	PROJECT NAME	LOCATION	ALLOCATION
BUTTERWORTH	Vukani poultry	Bawa	R30 000
	Piggery	Mission	R70 000
	Masihlume small irrigation	Qora	R40 000
	Maweleni Vegetable	Bika	R15 000
CENTANE	Msento citrus	Msento	R25 000
	Gcaleka micro	Holela	R50 000
	Mthi poultry	Tutura	R20 857
	Ngunduzi dairy	Ngunduzi	R30 000
	Mzamo piggery	Teko	R50 000
	Noluthando	Jojweni	R80 000
NQAMAKWE	Qima maize	Mpeta	R100 00
	Nomvano wheat	Sokapase	R 80 000
	Zazela vegetable (Nosandla)	Nqileni	R20 000
TOTAL			R550 000

3.2.4.3 Forestry

The Municipality indicates that the area currently has about 3,500 hectares of forestry plantation under the Department of Water Affairs and Forestry management. These forests are mainly referred to as category B forests and the main species is gum. Years

of neglect have resulted in an increase in the number of unplanted areas. This has resulted in only about 10% of these forests being viable for commercial forestry, and estimates in the IDP indicate that it will take about five years for the forest to be fully rehabilitated (MM 2006/7).

There are also currently about 350 hectares of community forests spread in about 22 woodlots mainly in the Nqamakwe area. A possibility exists for a further 250 hectares to be developed as new forestry development. Currently the Eastern Cape Development Corporation (ECDC) has founded a project in Nqamakwe where 100 hectares have been planted.

The challenge for the Municipality is therefore to utilize the existing resources in an efficient manner and identify and develop niche markets such as pole manufacturing (MM, 2006/7). While the Municipality has information on commercial forestry, it does not have any information on conservation of indigenous forests. I could not get information of how indigenous forests are conserved in this area.

3.2.4.5 Marine resources and aqua culture

The Municipality also indicates that the coastal area of Centane has the potential for fishing which could be used to benefit the local communities. To ensure sustainable use of this fishery, the Municipality has to develop a closer working relationship with the department of Environmental Affairs and Tourism since it has the authority to issue licenses and quotes (MM, 2006/7).

Possibilities also exist for inland fishing and other aqua culture activities that could be used to boost local tourism and increase the number of recreational facilities. From the above discussions, sustainable development of the areas natural resources provides many opportunities for improving the quality of life of the local people. Tourism discussed next, is also based on the value of the natural resources in the area.

3.2.4.6 Tourism

The MM falls within the world's famous Wild Coast area, and attracts a number of visitors annually. The coastal life in Centane, based on its beauty and holiday facility, offers many possibilities for tourism. The local culture, heritage sites like Palo's grave,

Bushman paintings and Bawa falls can be developed and packaged to offer tourism experiences, which could be jointly marketed with the Amathole District. The Municipality currently has a number of tourism related initiatives (see Table 6).

Table 6: Tourism related initiatives (MM, 2006/7)

Name of Initiative	Description	Amount of Investment R	Beneficiaries
Local Tourism Organization	Provision of appropriate institution to support tourism development	R 1000,000	Tourism product owners
Magiqweni Art and Craft Centre	Development of Art and Craft Centre	R 172, 000	Centane art and craft community
Urban Renewal programme	Landscaping and beautification of town square	R800, 000	Tourism industry in general
Gcuwa Dam	Provision of braai facilities, parking and ablution facilities at Gcuwa dam	R 655,00	Tourism and entertainment sectors
Bawa Falls	3 Rondavals, installation of water, hiking trail, fencing at Ngcayichibi's house	R 34, 000 by DEAT	Community
Rev. Tiyo Soga's grave	Monument and fencing	ADM	Community
Visitor Information centre (VIC)	Establishment of VIC'S in Centane and Ngamakwe	Funded by DEAT	Tourists and visitors
SMME Development	Youth training in Uganda	ADM facilitated funding	4 youths
	Establishment of Mquma local Business Support Centre	Old Mutual and Dept of Economic Affairs	Mquma Farmer's Cooperative
Tanda Bakery	Bread and Biscuit baking	R 3,7 Million by ECDC	Mquma farmer's Co-operative
Tanda Milling	Maize and sunflower processing	R 11 million by Dept of Economic Affairs	Mquma Farmer's Co-operative

Other important environment related sustainable development priorities are related to service delivery.

3.2.4.7 Water and sanitation

Mnquma local Municipality provides services to its urban areas where the following projects were completed during 2004/5 financial years:

- Bhungeni and Siyanda Water Reticulation
- Tyinira water supply (still underway (MM 2006/7)

According to terms of the 2001 census data access to sanitation was low, with only 22% of households having access to acceptable levels of sanitation services. Since then, there has been an improvement to 37% access to sanitation services as a result of a sanitation project that benefited 10,000 households in a 10 km radius in Ndabakazi (MM 2006/7). Sanitation services are inconsistent, as shown by data from the community which indicated that in the Zizamele area, there are two sections, one with low cost housing structures with water taps and pit toilets. The other is informal settlement structure with no toilets (Kave, pers. comm., 2006).

The town infrastructure development in the low cost housing section is still underway, engineers and labourers are still busy building in piping that will enable the flushing of toilets. According to people in the informal settlement, people deposit their waste in the dongas and in every available space. When heavy rains come, the human waste is washed down to the river and they throw dead animals in the catchment area that may result in polluted water. The result is evident in regular occurrences of diseases such as, diarrhoea, cholera and bilharzia (Kave, pers. comm., 2006).

3.2.4.8 Household access to refuse removal

According to the Municipality (MM, 2006/7), refuse removal is a responsibility of the Municipality. Since the establishment of Mnquma Municipality in 2000, this service has generally been provided to the urban areas of Butterworth, Centane and Nqamakwe only. Rural areas generally use a range of temporary mechanisms such as own dump sites within the yard, illegal dump sites and mobile tankers.

Key challenges facing the Municipality with regards to waste Management and provision of refuse services include:

- Non payment amongst the residents for the collection of refuse,
- Street corner dumping sites that are a health hazard to those that live close by,
- Large volumes of waste are placed in informal waste sites, and that increases the cost of collection and disposal of waste, and
- Indiscriminate dumping of household and garden refuse on pavements and in open spaces within residential areas (MM, 2006/7; own observation).

There has been an improvement with regard to cleaning and this has been as a result of assistance received from Amathole District Municipality (ADM) where 100 casuals have been appointed to assist in this a cleaning up campaign that focuses mainly on the township area (MM, 2006/7). Though there has been an improvement in waste management through the cleaning activities, findings from interviews in Zizamele community show that there are illegal dumping sites where businesses like Spargs Supermarket and George Fruit and Veg are throwing their rubbish. This presents a health risk to children who play near the dump as they may contract diseases from searching for items in the dumps, (Kave, pers. comm., 2006).

It is said that the local municipality does not collect waste in this part of the town which is why people dump their litter anywhere. The municipal officer, Mr. Zonke said that people were not paying rates (Zonke, pers. comm., 2006) he also highlighted that there was a routine plan that alternates rendering of services for different locations. He said that the management desk addresses all matters relating to environmental issues.

From the above discussion on the environment and development issues in MM, it is clear that environmental education ought to be a significant aspect of children's education. The education system in South Africa is organised according to provinces and districts. I now consider the education district and how it is structured to get a better understanding of educational issues and processes in the Mquma Municipality.

3.3 CONTEXTUAL PROFILE OF THE DISTRICT DEPARTMENT OF EDUCATION (POLICIES AND STRUCTURES)

3.3.1 District structures and support

A key structure at district level of relevance to the interest of this study (curriculum development), is the Curriculum sub-directorate in the district. The purpose of this structure is to manage the delivery of all educational functions in institutions within the district. Some of the functions include:

- The co-ordination and implementation of curriculum and development support services,
- The co-ordination and facilitation of specialized education services,
- The co-ordination and facilitation of professional support through INSET and rendering of library and tele-collaborative learning services,
- The establishment of sound communication and liaison with community based structures within the district,
- The co-ordination and implementation of education management and governance, and
- The managing of human resources administration and development (DoE, 2006).

Significant to this contextual profile is the personnel that staff the district office. The district is run by the District Manager and three Assistant Directors. It is divided into sub-directorates for example:

- Curriculum Management Support,
- Institutional Management and Governance.
- Education Support Services,
- Human Resource Development,
- Labour Relations and
- Human Resource Management

Source: (DoE, 2006).

Of further relevance to this research is the curriculum management support system. As indicated above one of the functions of the curriculum management support sub directorate is to facilitate and co-ordinate professional support through INSET

and rendering of library services. The directorate is responsible for facilitation and advising on:

- School Phases,
- Learning Area curriculum delivery and implementation,
- The implementation of ABET and ECD learning programmes,
- The management of education INSET for educators,
- Act as resource centre for educators,
- Monitoring the implementation of policy and measuring policy efficacy within schools in the district (DoE, 2006).

This research is focused on curriculum delivery and implementation, and teachers like myself, should receive the necessary curriculum support from this directorate. The curriculum management support has three co-ordinators, one co-ordinator for each phase (foundation, intermediate and senior phase). The section has a curriculum facilitation unit that help the teachers in school to understand the curriculum (Gaga pers com, 2006) however, their task is not easy given the complex curriculum history of South Africa, which I discuss next to provide further perspective into the context of the departmental activities and the research.

3.3.2 History of the curriculum

The South African curriculum during the apartheid era was racially offensive, top down and teacher-centred. Education introduced by the apartheid government in the 1950's had the intention of subjecting black African children of school-going age to an education system that only trained them to be unskilled and service laborers. The majority of black children were exposed only to an inferior education that was not equivalent in quality to that provided for white or coloured children. Apartheid regulations also made it difficult for mission and private schools for black South Africans to exist.

A racial hierarchy of schooling emerged, with whites the recipients of the best education South Africa could offer, equivalent to first world standards, followed by Indians, coloured people and black Africans last, at less than even third world standards. Each group had their education administered separately. Teachers were trained at their respective racially organized colleges and universities, financed by the

discriminatory apartheid formula of providing the best for those who already had, and worst for those who had little (Christie, 1985). In 1994, the pre-democratic government was still spending R5, 403 per white learner compared for example to R1, 053 for every black African learner in the Transkei. The so-called homeland areas were most heavily affected by the discriminatory education policies as the least amount of funding was allocated to education in these areas (Christie, 1985). Butterworth is in the former Transkei and black schools (such as Zizamele) were affected by these policies in the past. The cumulated consequence of this unequal system was a desperately under educated black African population (Imbewu, no date), and a continued legacy of inequality, despite the post-apartheid government's attempt to equalize and transform the education system.

After 1994, education transformation was focused on curriculum change that concentrated on changing teacher-centered education to a learner-centered approach (DoE, 2000). This introduced a change in the teacher's role, causing some uncertainty amongst teachers who were trained differently. According to my own experience curriculum changes that have happened since 1994, have affected the teachers, and have created many new challenges for teachers to deal with for which they were not trained, particularly in the former black education system and teachers colleges.

The immense challenge facing teachers is discussed by Jansen and Christie (1999), who describe how teachers had to move from a curriculum which was racist, sexist, authoritarian, unchanging and discriminatory to a curriculum which is Outcomes-Based which had an intention to redress the imbalances of the past curriculum. These transformations have been introduced with good intent, but with little support. For example, the curriculum sub-directorate mentioned above in our district is under staffed, and we have had little substantive support from the DoE to bring about the many changes required by the new education system, particularly the Outcomes-Based education curriculum.

The first version of the Outcomes-Based education curriculum was introduced in 1997, and was named Curriculum 2005. According to Christie (1999), this was an important step away from the content laden, often ideologically distorted, examination orientated curriculum. She notes that Curriculum 2005 emphasized learning by doing, problem solving, and allowed greater space for teacher contributions to curriculum. Despite good intentions, however, the implementation of this curriculum had

numerous problems, which were so acute that the former minister of education called for a review of the curriculum in 2000 (Curriculum Review Committee, 2000). According to Lotz-Sisitka and Raven (2001:8) who draw on the findings of the curriculum review (Curriculum Review Committee, 2000) a decision was made to revise the curriculum and a Ministerial Project Committee was appointed to revise the curriculum. This led to the streamlining and strengthening of Curriculum 2005 and the development of a revised National Curriculum Statement (NCS). Implementation of the revised NCS was started in 2003 with the Foundation Phase and has since then been introduced into all phases. All teachers in schools are now teaching (or meant to be teaching) to the NCS.

This curriculum was designed by the present government to redress the imbalances of the past. It is based on a constitutional mandate and it seeks to strengthen education processes that are participatory and emancipatory and that encourage learners to investigate and address social and environmental issues in relation to principles of the National Curriculum (NCS) (DoE, 2002c).

The South African curriculum positions educators and education to be a significant agent of change transforming the nation. It envisages teachers who are qualified, competent, dedicated and caring, who will be able to fulfill the various roles outlined in the Norms and Standards for Educators (see Table 7 below)

Table 7: Educator roles as described in the Norms and Standards for Educators' policy

Learning mediator

The educator will mediate learning in a manner which is sensitive to the diverse needs of learners, including those with barriers to learning; construct learning environments that are appropriately contextualized and inspirational; communicate effectively showing recognition of and respect for the difference of others. In addition an educator will demonstrate sound knowledge of subject content and various principles, strategies and resources appropriate to teaching in South African context.

Interpreter and designer of learner programme and materials

The educator will understand and interpret provided learning programmes, design original learning programmes, identify the requirements for a specific context of learning and select and prepare suitable textual and visual for learning. The educator will also select sequence and place the learning in a manner sensitive to the differing needs of the subject/learning area and learners.

Leader, administrator and manager

The educator will make decisions appropriate to the level, manage learning in the classroom, carry out classroom administration duties effectively and participate in school decision-making structures. These competences will be performed in ways, which are democratic, which support learners and colleagues, and demonstrate responsiveness to changing circumstances and needs.

Scholar, researcher and lifelong learner

The educator will achieve ongoing personal, academic, occupational and professional growth through pursuing reflective study and research in their learning area, in broader professional and educational matters, and in other related fields.

Community, citizenship and pastoral role

The educator will practice and promote a critical, committed and ethical attitude towards developing a sense of respect and responsibility towards other. The educator will uphold the school the constitution and promote democratic values and practices in school and society. Within the school, the educator will demonstrate an ability to develop a supportive and empowering environment for the learner and respond to the educational and other needs of learners and fellow educators.

Furthermore, the educator will develop supportive relations with parents and other key persons and organizations based on a critical understanding of community and environmental development issues. One critical dimension of role is HIV/ AIDS education.

Assessor

The educator will understand that assessment is an essential feature of the teaching and learning process and know how to integrate it into the process. The educator will have an understanding of purposes, methods and efforts of assessment and be able to provide helpful feedback to ways that are appropriate to the level and purpose of the learning and meet the requirements of accrediting bodies. The educator will keep detailed and diagnostic records of assessment. The educator will understand how to interpret and use assessment results into processes for the improvement of learning programmes.

Learning area/ subject/discipline/phase specialist

The educator will be well grounded in the knowledge, skills, values, principles, methods, and procedures relevant to the discipline, subject, learning area, phase of study, or professional or occupational practice. The educator will know about different approaches to teaching and learning (and, where appropriate, research and management), and how these may be used in understanding of the knowledge appropriate to the specialism. (DoE, 2000: 13)

The seventh role of a learning area/phase specialist is the over-arching role into which the other roles are integrated, and in which applied competence is ultimately assessed. One of the roles associated with teachers' competency, of particular relevance to this research, is the role of 'Interpreter and designer of learning programmes and materials'. Practical competences associated with this role, expect the teacher to demonstrate the following:

- Designing of original learning programmes so that they meet the desired outcomes and are appropriate for the context in which they occur.
- Designing, adapting and / or selecting learning resources that are appropriate for, and cognisant of barriers to learning.
- Evaluating and adapting learning programmes and resources, using learner assessment and feedback (DoE, 2000: 16)

The educator is also expected to demonstrate foundational competence like:

- Knowing about sound practice in curriculum, learning programme and learning materials design including how learners learn from text and resources, and how language cultural differences impact on learning (DoE, 2000: 17).

The educator is also expected to demonstrate reflexive competence and should be able to:

- Reflect on changing circumstances and conditions and existing programmes and materials accordingly, critically evaluating programmes and materials in real contexts (DoE, 2000: 17).

As indicated above the educational history involving a significant curriculum change after 1994 and new educational structures is likely to influence activities in schools. As mentioned above, it also poses significant challenges for the curriculum support system, which is currently heavily overloaded and understaffed (NEEP-GET, 2005). Teachers implementing the new curriculum have mostly only been exposed to one or two weeks of in-service training which is inadequate for the challenge of the new curriculum (NEEP-GET, 2005). Consequently there are many projects operating in schools to try to assist teachers to implement the curriculum, and many development interventions such as the SANBI project, although they don't reach all schools equally, and support is sporadic, and often focused on the agenda of the group providing the support, rather than on the agenda of the teachers, which is to successfully teach the new NCS (NEEP-GET, 2005). This is the case in our school, and as teachers we are challenged to ensure that the projects developed in the school have effective curriculum outcomes and are used effectively to teach the curriculum. This is why I have taken up this research project.

Not only does the broader governance, geographical, socio-historical, structural, and policy context influence schools and learning, but the actual school context also

influences educational practices and possibilities. It is in this light that I now discuss the context of my own school.

3.4 CONTEXTUAL PROFILE OF ZIZAMELE SCHOOL

3.4.1 General conditions

Zizamele Senior Primary School has a three classroom structure accommodating Foundation Phase learners only. All Intermediate Phase classes are accommodated in a civic hall not very far from school. The school context also influences educational practices and possibilities. It is in this light that I discuss the context of my own school.

The classrooms are so overcrowded that teachers are unable to arrange them for a conducive teaching and learning environment (Kondlo pers. comm., 2006). According to school statistics the school has 520 learners which is a large number for a school with an inadequate physical structure. According to the principal, the school has inadequate funds because most learners do not pay school fees as they come from poor backgrounds (Mpahlwa, pers. comm., 2006)



Figure 2: Picture showing the physical condition of the school.

For the last 3 years, the Principal and the Governing Body have been visiting the district Department of Physical Planning, and have asked for additional classrooms to be built for the Intermediate Phase. According to the Principal the response had been negative. She has also tried other sources like asking for help from Anglo America in Johannesburg and the local municipality to build classrooms for the school. There is no library in the school where learners can get information about their projects and other activities. The school has no infrastructure for water and sanitation. It uses pit toilets; there is work underway to provide pipes for flush toilets in the school.

The government supplies the school with text books and stationery at the beginning of each year which helps the learners very much. Our learners come from a poor background, most of the parents are unemployed and that makes it difficult to pay fees and pay for other materials like school uniforms, pens and pencils.

3.4.2 School partnership programmes

In order to improve the resources for teaching, the school has formed partnerships with environmental education partners, and is involved in a number of programmes which include the 4H club that is run by the special programmes unit (SPU) of the Department of Agriculture (DOA), the Eco Schools programme of the Wild Life and Environment Society of South Africa (WESSA) and the Greening of Schools outreach programme run by the South African National Biodiversity Institute (SANBI). I now discuss each of these in more detail.

3.4.2.1 4H Programme

The Department of Agriculture (DOA) has a special programme for schools called the 4H club programme. 4H is a four leafed clover with an H on each leaf, one H stands for Heart, meaning giving commitment to whatever one does, one H stands for Head to mean clearer thinking, one H stands for Hands, meaning working hard and the last H means Health for healthy living, (Mjambana, pers. comm., 2006). The programme helps the school to develop gardens, train learners in home industries that include baking, yoghurt and juice making and animal handling which is aimed at developing young farmers, (own experience).

Agricultural officers come to school twice a month to impart skills of preparing seedbeds and share knowledge of how to maintain food gardens. This helps the

teachers to incorporate the food garden programme into Learning Areas such as Natural Sciences, Languages, Life Orientation, Technology and Mathematics. According to my observation, the garden is used as a teaching and learning resource. Learners gain hands-on experience and this helps them to select careers and extend skills to home gardens (own experience). From my own observation, working in the school as a Learning Area teacher and coordinator of environmental education activities, I would suggest that all schools develop their own indigenous and food gardens as they enhance teaching and learning while also providing good resources.

3.4.2.2 *Eco-Schools*

In South Africa, the Eco-Schools programme has a strong curriculum focus and participating schools develop a policy and associated Lesson Plans that enhance active learning as anticipated by the NCS (R-9). The Eco-Schools project has operated for a five year period in South Africa with the intention of supporting schools to strengthen environmental learning in the curriculum (Lotz-Sisitka et al., 2005).

Our school registered for the Eco-Schools programme in 2004. The school developed the following concepts

- School grounds and fieldwork
- Cultural activities and community involvement.

In the context of the Eco-Schools programme, teachers, community members and learners are all involved in permaculture practices, and planting and caring for indigenous plants and food gardens, that are used as resource material for teaching and learning.



Figure 3: *Our school receives its Eco-Schools flag in 2004.*

Through its commitment the school has been awarded an Eco-Schools flag and certificate to motivate it for the good work. The flag flies for a year and the process goes on every year.

When the school registers for Eco-Schools it gets a toolkit with guidelines on how to develop Lesson Plans that help the teachers in their work. The parents are involved in the programme of Eco-Schools. Involvement of parents and the wider school community is important in curriculum management as school and communities need to work together to set priorities for learning actions (DoE, 2005).

Gough (1997) states that education must engage society and social structures immediately, not merely prepare students for later participation. School Environmental Policy and management plans have the potential to initiate contextualized lesson planning, which can also contribute to better school management and school improvement plans (Lotz-Sisitka et al., 2005).

3.4.2.3 SANBI Greening of the Nation Programme

The Greening of the Nation outreach programme of the South African National Biodiversity Institute is characterized by providing schools with gardens, indigenous gardening and workshops to help the teachers integrate greening activities into the Learning Areas (SANBI, 2005). It also encourages partnerships with community out of school youth, traditional healers, and AIDS support groups.

SANBI has supplied the schools with a greening pack and has conducted a few workshops on how to use the tools in the pack. They also supplied a Greening manual on how to care for, propagate and plant in the school. SANBI also conducted a one week long workshop. The programme has benefits of capacitating some teachers in the district (own observation) as three teachers from the cluster in Butterworth have been sent by SANBI to the Rhodes Environmental Education participatory course and I am studying an MEd degree at Rhodes university through SANBI, therefore, teachers in this district are the beneficiaries of the programme.

Teachers have a cluster and meet twice a month to share ideas on how to use gardens for classroom practice within the Learning Areas. The programme encourages partnerships with community interest groups like out-of- school youth, traditional healers and Aids support groups. Five of the school youth in the district have been sent to study horticulture in Durban by SANBI and are now proud because they have passed the course and can utilize their skills in schools.

3.4.3 Teachers' professional background

The school has 13 teachers; four of these teachers work in the Foundation Phase, and five work in the Intermediate Phase doing Learning Area teaching. The last three teach in Grade 5 (senior phase). Most teachers were trained in Butterworth College and the much older ones were trained in Clarkebury and Shawbury Institutions. Most teachers are qualified with diplomas or B. Degrees in Education.

Environmental Education to them is a new concept that they do not understand clearly as it is a new curriculum area, and they indicate that they need more workshops (Kondlo, pers com. 2006). Mrs Kondlo went on to say there is not much background in terms of exposure and training in environmental education programmes for teachers. The Department of Agriculture conducts very limited workshops in terms of teacher development. The Eco-School programme provides packs for schools after they have requested them. The activities are according to concepts or focus areas that are chosen by the school. The Eco- School co-ordinator conducts workshops for teacher development.

3.4.4 Materials that are available in school

Teacher professional background influences possibilities for environmental education in the school but available materials also influence the teaching and learning processes. As part of the contextual profiling, I identified available materials in our school and examined how they might support environmental education activities. I found a number of materials that might be useful to teachers in this task, each is briefly discussed below.

3.4.4.1 *National Curriculum Statement (NCS) (R-9)*

This document provides teachers with a teaching and learning framework which guides the way teachers ought to be teaching using Learning Outcomes and Assessment Standards. The document sets the standards for learning, and provides insight into what needs to be covered in a particular phase and grade. It also enables teachers to consider how the curriculum can be contextualised according to their environment. From an environmental education perspective, the document provides insight into how environment can be dealt with in the different Learning Areas. Planning is done first in clusters and in phases. Sanbi has provided a pack that also serve as a guide for teachers on how to use the garden as a resource, The language barrier is a problem in the teaching but teachers use code switching which makes things easier at times said the teachers when answering interviews.

3.4.4.2 *The Greening Booklet*

This is a resource produced by an NGO called Food and Trees for Africa. It guides teachers on permaculture practices, how to develop compost and advises on pests that destroy crops. Teachers can use this booklet when developing curriculum for their Learning Areas, particularly when they are planning gardening activities for the curriculum.

3.4.4.3 *The SANBI Greening Pack*

This is a resource produced by the South African National Biodiversity Institute. It provides examples of Lesson Plans and other resource materials for integrating plant-based activities and biodiversity activities into the curriculum. There are many good

ideas contained in this pack, and it shows that these activities can be developed across the different Learning Areas.

3.4.4.5 Teacher's resources book 'Exploring the RNCS in the Intermediate Phase'

This resource book was developed by the Department of Education, and helps the teachers to plan lessons using Lesson Planning templates. It also gives guidance on Learning Area weighting for time tabling and other guidance on how to implement the curriculum. The book is aligned with the NCS, which makes it better to plan Learning Programmes, Work Schedules and Lesson Plans.

3.4.4.6 National Policy on Assessment and National Assessment Guidelines

These are official policy documents produced by the Department of Education. They guide teachers in the assessment of learners' work for purposes of recording , progression and feedback to learners.

3.4.5 School community relationships

School community relationships also influence environmental education processes in school. According to the principal of the school (Mpahlwa, pers com. 2006) parents are called once in two months to talk about the problems and successes of the school. She indicated that the parents are not very supportive as most of them do not attend the meetings with no apologies forwarded. The principal explains that some parents do help with school programmes like:

- Gardening
- Sport
- Music
- Traditional dancing and other activities (Mpahlwa, pers. comm., 2006)

Parents are, however, an important stakeholder in the education process. In the meeting that was called by the principal they talked about fencing that was needed and decided to approach the municipality for help. Their role in the school gardening

process will be examined in more detail in the next section of this portfolio in the stakeholder's analysis.

4. CONCLUSION

Data for this contextual profile was gathered by using a variety of data gathering techniques. The research took place in a peri-urban area which has environmental issues that are socially and economically constructed, and which have biophysical effects.

The contextual profile revealed that the environment in the Mnquma Municipality is an important dynamic in the development planning of the area. If communities could be more educated about environmental issues and environmental management approaches, sustainable development of the area can become more possible. The profile also revealed that there is a new curriculum in place which allows children to learn about the environment from a sustainable development perspective.

The history and background of Mnquma Municipality and the school and its immediate surroundings indicate that the area is affected by poverty, urbanization issues and inadequate infrastructure. The contextual profile also indicated that the Department of Education structures are inadequately staffed, but important for providing teachers with support for their new roles, and for implementing the new National Curriculum Statement, which has included an environmental education focus.

The contextual profile also indicated that the Zizamele school has an inadequate infrastructure for the numbers of learners it serves, but that it is linked to some environmental education projects, and has access to a number of key resources to assist with curriculum implementation and environmental learning.

Findings that emerged from the contextual profile research made me consider what other resources might be available in the school community for strengthening environmental learning in the context of the School Greening activities, which led to a stakeholder analysis reported in the next section.

Appendix 1: INTERVIEW SCHEDULE FOR COMMUNITY INTERVIEWS

- When did you reach the area, and what made you to come here?
- How was the place when you came?
- What do you think made it overcrowded now?
- Who allowed you to build shacks?
- How do people survive, are they all working?
- How is the Infrastructure?

Appendix 2: INTERVIEW SCHEDULE FOR TEACHER INTERVIEWS

- What is your role as a teacher in the school?
- Who is responsible in the school for finding additional resources for learning programmes?
- Do you engage in trips, excursions or visits?
- Where do you take your learners, do you travel by transport maybe?
- How do you prepare for an excursion?
- Is the department supplying any workshop on the development of curriculum?
- Are there any greening workshops conducted in the district?
- Do you understand the concept environment?
- Do you see the implementation of the EE processes viable in the school?
- Do you see the greening programme being different to other programmes in the school?
- How are lessons planned - phase, cluster, grade?
- Is there framework or support material from Greening that guides teachers on how to use the garden as a resource?
- Does the language difference create any difficulty in the children's learning?
- Do they find it easy working with EE social partners?

Appendix 3: QUESTIONNAIRE GIVEN TO MRS MPAHLWA, THE SCHOOL PRINCIPAL

- When did you establish the school?

- How did you manage to have a school in this area?

- Why is the school having only three classrooms eleven years down the line?

- How do you accommodate 530 learners and 13 teachers?

- How many outreach programmes do you have, are they of any help in the school?

- How do you work with the communities?

- Are there any problems you get from the communities?

- What do you do to help these people?

Appendix 4: QUESTIONNAIRE GIVEN TO THE MUNICIPAL OFFICER

- Why is dumping of waste still takes place in the township?

- If residents do pay rates, would the refuse be removed more often?

- Through which channels are issues like the above mentioned being brought to attention of local, regional, provincial and national government?

- What is being done about areas being designated as a sanctuary for animals' - example: birds?



SECTION 3

STAKEHOLDER ANALYSIS

1. INTRODUCTION

The previous study (see Section 2) was a contextual profile of the Zizamele community, and school, which falls under Mquma local Municipality, made up of three districts, Centane, Butterworth and Nqamakwe. In the contextual profile, I looked at physical resources like agriculture, water and sanitation, population growth, the biophysical context, environment and conditions and programmes offered at our school for environmental education.

The contextual profile revealed that Mquma Local Municipality is rich in agricultural activities due to its favourable climate, which makes the soil fertile enough for agriculture even though most of agricultural developments take place far from Zizamele. The contextual profile indicated that in this community it is still relevant for the school to embark on agricultural activities. This can assist children locally through food provisioning and learning. Learners can assist their communities with skills and knowledge gained from participation in the SANBI project. As mentioned in the contextual profile there was not much information on indigenous forests and on how they are conserved in the area. The Greening the Nation Outreach programme, however, contributes to the development of awareness of plants. This programme also draws attention to the issues of sustainable use, appreciation and ways of conserving these plants.

As mentioned in the contextual profile, SANBI is greening our school and we have support from the Department of Agriculture for food gardening. The contextual profile also identifies a lack of parental involvement. However, it is my contention that if one can better understand what contributions local communities are prepared to make to the development of the school and the learners' curriculum experiences, the picture might be different. This led to the need for a stakeholder analysis which involved a variety of stakeholders in a consultative meeting and a workshop. I also interviewed and used a questionnaire to generate more information on their roles. The process helped to assess and focus on what direction SANBI greening and our food garden

project should take, and what methodology could be suitable for conducting this project in our school community.

2. PURPOSE OF CONDUCTING A STAKEHOLDER ANALYSIS

Stakeholders are groups and individuals who are directly affected by the objective and implementation of an effort. They could include implementers, recipients of benefits, advisors and managers (Sisitka, 2006). A stakeholder is somebody that has a stake or interest and should benefit from an event, venture or process; it could be a person or group (ibid).

The purpose of conducting a stakeholder analysis was to identify the stakeholders associated with the SANBI school greening project in our school, and to investigate ways of mobilizing these stakeholders' contributions in appropriate ways in the context of the greening project sponsored by the South African National Biodiversity Institute (SANBI) in Zizamele Senior Primary School. A second purpose for this study was to investigate different roles in whole school development and improvement processes associated with greening and school improvement. Whole school development, according to Imbewu (no date) is about growth and development that requires nurturing and time as well as commitment, planning and diverse inputs to ensure its success. The Imbewu project (a school development project in the Eastern Cape Department of Education) states that it is the intention of the Department of Education to collaborate with stakeholders who are contributing to educational developments at all levels of the education system, and nurture the progress in schools to ensure strength and sustainability (Imbewu, no date). However, the Imbewu project does not talk about how these stakeholders are identified at school level, or what kinds of contributions they can make to whole school development and educational development more broadly. This was the interest of this research, to examine this at a school level, in relation to a particular school development project. To do this, I set up three research questions to guide the small-scale investigation.

3. RESEARCH QUESTION

- Who are the stake holders associated with the Greening the Nation programme at Zizamele School?
- What knowledge do they have of indigenous plants?

- How do teachers plan to integrate stakeholder knowledge on greening with the curriculum?

4. LITERATURE REVIEW

The Imbewu project (no date) states that most people do not think much about the relationship of the school with its community (Imbewu, no date). They argue that an important task of school leadership is to actively encourage and build relationships between school and community. This was also argued in the Nelson Mandela Foundation (2005) research into rural schools, where it was also identified that there are poor links between schools and communities in South African rural schools. In an article on this issue in the *Southern African Journal of Environmental Education*, Chikunda (2007: 168) argues that this problem is a deep-seated problem in the schooling system in Zimbabwe. He states that:

... teachers are ... assumed to have the right knowledge to be imparted to youngsters. Learners are considered as containers to be filled with knowledge, and reality is regarded as static, changeless and predictable ... a process which Freire described as 'banking education'. Communities themselves appear to have become alienated from the educational system through this process, as they apparently do not see how they can contribute to learning in schools, and instead project their hopes for poverty relief in the external, longer term outcomes of education, which they link to urbanization and modernist forms of development. This brings little relief to communities, and appears to do little to address the issue of relevance in education in the context of increased poverty, environmental degradation, economic hardship and other sustainable development issues ...

He ends his paper by arguing for a paradigm shift that takes greater account of local knowledge, contexts, needs and priorities, so that education can help to develop the knowledge and skills for citizens to "jointly identify their problems and act on them in a sustainable manner" which will require both a change in educational philosophy, and the forging of closer relationships between schools and communities. He does not, however, give an indication of *how* this should be done.

In research in South Africa's outcomes-based education system, teacher researchers such as Masuku (1999); Asafo Adjei (2004) and Mvula Jamele (2007) have found that environmental education processes have the potential to strengthen school-community links, and especially to allow parents to contribute knowledge to the learning process,

as well as expertise to the whole school development process. In the light of what has been said in relation to the brief review of some research on this topic above, the contribution of Greening the Nation project has been considered as a potential source for fostering participation and support to the school which, according to Cornbleth (1990), does not work in a vacuum. Her research emphasises the importance of taking account of the socio-cultural context of curriculum, as well as the structural aspects of the schooling system.

The South African Department of Education, in its new education policy framework, encourages the involvement of parents and the wider community in curriculum management and indicate that it is important for schools and communities to work together to set priorities for learning action (DOE, 2005). Based on my knowledge of the socio- cultural and contextual issues in our school, it is my view that the school needs to embark on projects that can be of benefit to both the school and community, as argued by Chikunda (2007). For the school to transform itself, it should develop strategies for working together with the communities and other stakeholders. Imbewu (no date) argues that to work wisely with the community, the school needs to understand community hopes and interests and use those as opportunities to change things (Imbewu, no date).

There are many ways of involving the community in school activities, for example, parents and community members can get involved in gardening projects and in other school improvement projects. Some of previous researchers support community involvement in transformation of the school curriculum. Semali (1996, cited in Masuku, 1999) notes that indigenous knowledge in education has the potential to stimulate and facilitate the transformation of school curricular, and education more broadly. Masuku (1999) goes on to say that transformation of curricular can bring about a contextualized relevance to exploring and dealing with local environment, and ensure stronger relationships between school and community.

Masuku (1999), researching in the context of education in South Africa at the time of early curriculum transformation processes following the advent of democracy, promotes the recognition and strengthening of the role of indigenous people and their communities in promoting education, public awareness and training for environment and sustainable development. She and other researchers such as Asafo-Adjei (2004), and Shava (1999) all argue that communities and parents in South Africa have been

marginalized by the schools for a very long time. In the past (own view), people were afraid to visit the schools for fear of learned people. Chikunda's (2007) research reports a similar problem. Researchers working on the issues of school community links to curriculum such as Masuku (1999), Asafo-Adjei (2004) argue that local indigenous knowledge is important to promote sustainability in schools, and that it is a valuable knowledge resource that can be mobilized in some curriculum contexts (e.g. learning about plants and their uses).

People need to be aware that schools need them and their inputs, as Cornbleth (1999) puts it, schools are not closed systems to outside influences. Masuku (1999) promotes the recognition and strengthening of the role of indigenous people and their communities in promoting sustainable development. She also promotes the inclusion of indigenous knowledge in education and curriculum practices. After Ngwane (1999) conducted a study into factors that had contributed to the decrease of plant species in a village in the Eastern Cape, her research recommended that environmental teaching must be situated within the contextual realities of learners' lives and experiences. I fully agree with her recommendation that teachers need to recontextualise the curriculum and teach what learners are used to first, so that they may find solutions together. For example, if the teacher teaches about deforestation that is caused by veld fires, illegal harvesting and wood for commercial purposes learners are likely to have prior knowledge relevant to the topic, because of its relevance to their livelihoods in the area. They can then together with the teacher, who is able to introduce new, less familiar knowledge, embark on problem solving and investigation activities that can help to resolve the issues. Masuku (1999) argues for the "need to bridge the gaps and provide space in schools for adults to interact with learners about indigenous environmental knowledge learnt at home". Asafo-Adjei's research showed that this requires teachers to interact with community members so that they understand what communities have to offer in terms of knowledge, and to make judgements as to whether this is useful in the context of wider curriculum requirements that they are working with.

Shava recommended that, "Educational approaches should be contextual and should encourage the learners to bring in and share that experience in the learning situation and be given an opportunity to enhance their self-esteem, for example by taking excursions into the veld where they can participate by pointing out these wild plants" (Shava, 2000: 45). Shava in his recommendations promotes educational processes in

which teachers make efforts to recognize prior knowledge which in my understanding of the learning processes advocated by constructivism, provides the basic starting points for teaching and learning processes. This is supported by Piaget's theory that the child is not an empty vessel, he comes to school with knowledge, and by Vygotskian social constructivism (Daniels, 2004) that indicates the significance of language and culture in learning. Masuku (1999) argued for the need to bridge gaps and provide space in schools for adults to interact with learners about indigenous environmental knowledge learnt at home. Understanding stakeholder roles and contributions therefore is linked to the learning process in schools.

5. METHODOLOGY

5.1 An interpretive approach

This small-scale study used an interpretive orientation and an inductive approach to the analysis of this case. The case focused on here is the Zizamele School, and the SANBI school greening initiative as it relates to Zizamele School. Stakeholders involved in this study were defined by the boundaries of this case (Cohen et al., 2000). Carr and Kemmis (1986, cited in Connole, 1993) state that interpretive perspectives have come to be regarded as an alternative basis for the human sciences and therefore are characterized by descriptions of human actions and meaning making processes using reflection. Carr and Kemmis (1986, cited in Connole, 1993) agree that meaning is generated and shared through language and other forms of symbolism.

An inductive analysis approach requires the researcher to read and re-read the data to identify patterns and trends in the data (Cohen, Manion & Morrison, 2000). Through coding of these patterns and trends, the researcher can identify what meaning is revealed from the data. In this study I read and re-read the data and identified three main categories of information on the stakeholders. These were:

- interests of the stakeholders,
- stakeholders roles, and
- how stakeholders were prepared to work with others.

5.2 Research methods

In this study, I used focus group interviews, semi-structured interviews and workshops as research methods to gather data from identified stakeholders and interest groups. The study included assessing interests, roles and analyzing capabilities in the groups. I used a variety of techniques in the study as Marshall and Rossman (1989, cited in Lupele 2004), state that each type and source of data has strengths and weaknesses. Using them in combination increases validity and strengths of one approach and compensates for the weakness of another approach.

5.2.1 Semi – structured interviews

Semi-structured interviews seem to be comfortable if you interview local people. Cohen et al. (2000) note that semi-structured interviews allow for interviews to be open-ended, while gaining specific information, giving the researcher greater flexibility and freedom. As Kerlinger (1990, cited in Cohen et al., 2000) notes that although the research purpose governs the questions asked their content, sequence and wording are partially in the hands of interviewees. Open-ended questions were used, as they have a number of advantages of being flexible, and they allow the interviewer to probe so that she may go into more depth if she chooses, (Cohen et al., 2000). Cohen et al. (2000) state that open-ended questions test the limit of the respondent's knowledge and encourage rapport, they allow the interviewer to make a true assessment of what the respondent really believes. The semi-structured interviews were conducted amongst teachers. I interviewed four teachers from the intermediate phase: Mr. Ngam, Mrs. Kondlo, Mrs. Malindi and Miss Maninjwa (Appendix A). I also interviewed the principal (Appendix B) and four local community members: Mr. Nogqela, Mr Dlamini Mrs. Kave and Mr. Samka (Appendix C). I conducted semi-structured interviews with Mr.Mjambana from the Department of Agriculture and Mr. Ganjana from the Local Municipality (Appendix D). I also interviewed learners.

With teachers I wanted to find out how they had planned the lessons, how they were going to use the garden as a resource and how they were going to work with social partners (See Appendix A). From the Principal I wanted to know how she saw the role of the school management, and the school's interests (Appendix B). From learners I wanted to find out what they thought they could contribute to the school greening project and what roles they could play in the project. From community members I

wanted to find out how they might be involved in the project, how much they know about indigenous plants and if they are willing to work with teachers in the school to transform the education system (see Appendix C). From other departments I wanted to know if they are able to share their resources to help develop the project and what sort of resources there were that they might be willing to share (see Appendix D). I interviewed a group of out of school youth in a focus group.

5.2.2 Focus group interview

I decided to conduct focus group interviews with a group of out-of- school youth. The focus group interview was also semi-structured (See Appendix E). It was not easy to get them on a one-to-one basis, and this is why I conducted a focus group with them. Morgan (1988, cited in Cohen et al., 2000) states that focus groups are a form of group interview, though not in the sense of backwards and forwards between interviews and group, the reliance is on the interviews within the group who discuss a topic supplied by the researcher. He goes on to state that focus group might be useful to triangulate with more traditional forms of interviewing, questionnaire and observation. I visited the shop where youth groups like to hang out so as to conduct focus group interviews with them. My interest was to find out if the youth would be interested in involving themselves in the school greening project and if they would do that voluntarily without looking for incentives, and if they would be interested in sharing their expertise with the learners by visiting the group. I shared the view of Shava (2002) when he states that it was arduous task to meet youth individually, he resorted to taking advantage of the fact that most of the youth usually hang around with their friends for most of the time.

5.2.3 Participant observation in meetings

In the study I was a participant observer as I am working in the same organization which is also the setting for the research. According to Patton (1990, cited in Cohen et al., 2000) observation affords the researcher an opportunity to understand the context of the programme and discover things not mentioned in the interviews and questionnaires. Morris (1993, cited in Cohen et al., 2000) shares the same view as Patton when stating that observation enables the researcher to gather data on the physical environment and its organization. A key activity where I use participant observation was during meetings held to discuss the school greening project. In these

meetings I was able to capture information on the interests and roles of a number of stakeholders including SANBI who are running the project, the service providers who are implementing the project on behalf of SANBI, and the principal and teachers of the school. Community members were also present at the meeting, where I was able to capture further information on their roles. This was done in the form of field notes. I was also a participant in the meeting, which meant that I was a participant observer. According to Jorgenson (1989, cited in Cohen et al., 2000), participating like this with people under ordinary conditions of their existence serves to build common experiences and rapport. Participating like this with educators and other stakeholders, helped me to ask what they feel about the greening project that could be developed in the school, and if they were interested and if they think it could succeed. In the meetings that we had with community members, I observed how interest groups like traditional healers and other people contributed to questions asked.

5.2.4 Workshop

In addition to the more regular and informal meetings that I participated in and observed, as described above, I also organized a workshop to explore stakeholder roles and contributions in more depth. The workshop focused on the development of a Greening Project on nutritional foods and indigenous plants in Zizamele Senior Primary School. The target group of the workshop was to identify common interests of the groups who should be beneficiaries in the project.

The discussions in the workshop were based on the following aspects:

- How can we come up with a garden for nutritious food?
- What is the value of the project?
- How groups can help in the project?
- Who can contribute to an indigenous plants project?
- What can groups bring to the venture regarding medicinal plants and plants of cultural significance?

The groups were divided into 4 commissions:

- The youth group (involving learners and youth),
- Traditional healers,
- Teachers, and
- Local community members.

They discussed and listed their findings (see Appendix G). The findings from these commissions were listed and discussed for a way forward, and helped me to establish what the roles and interests of the different stakeholders were.

5.3 Data analysis

After the data had been collected using different types of techniques, it needed to be analyzed so as to get a full understanding of the different roles and interests of the stakeholders. In the analysis process I found that I had collected a lot of data, much of which was not necessary to the purpose of the stakeholder analysis, in which I really only wanted information on the roles, interests and possible contributions of each of the stakeholders. I therefore had to discard a lot of the information that I had collected, and I had to 'sift' through the data carefully to get to the essence of the information that I needed. The inductive approach using the categories of roles, interests and willingness to work with others (as described above) helped me to focus my interpretations of the data. Analysing data gives one a chance of reading interviews carefully to make sure that further topics are drawn out from the text. Asafo-Adjei (2003) states that one of the principle tasks of data analysis is organizing and making sense of data, and as mentioned above, in my case this meant sifting the data to identify necessary and unnecessary information in relation to the main interest of this study.

I started the process by reading all the interviews, and my field notes, and the report backs from the workshop (see Appendix F). I then coded it according to each stakeholder, and their roles, interests and willingness to work with others. This helped me to get to the essence of the data, so that I could provide a succinct report on the stakeholders for this small-scale study. If the study was larger in scope I could have provided much more in-depth, detailed information on each of the stakeholders. I used these categories to structure the section of this report that shares the findings.

Following this I used a set of analytical statements (Bassey, 1999) to guide discussion of the findings. This helped me to provide a more in-depth analysis of the data, and to relate it to some of the perspectives presented in the literature review.

5.4 Validity, reliability and ethical issues

In order to ensure validity, triangulation was used, that is using more than one technique to examine a phenomena. Asafo-Adjei (2004) writes that he did not rely on a single source of evidence to draw conclusions. I built on what he said and used a variety of methods to gather information (see Table 1 below). The insights that I gained into the roles, interests and different contributions of the stakeholders was therefore based on analysis of the interview data, the workshop data, and meeting data.

In considering ethical issues in the research I had to consider ethics of working with people and development of trust by negotiating access and getting permission from the main participants. I needed to obtain their co-operation and consent. To do this, I sent letters to participating organizations explaining the process of research that would take place and I made appointments for interviews. Cohen et al., (2000) explain that the purpose of the letter is to indicate the aim of the research, to convey to respondents its importance, and encourage them to respond and reply to the request for participation.

In dealing with ethical issues, I drew on the following guidelines as suggested by Cohen et al (2000)

- Develop clear channels of communication by formally requesting permission to carry out investigations. To do this I sent letters, and made appointments for the interviews as described above.
- Meet the participants involved in the study and present the project outline. At the start of the process I met with participants in the study and explained what I was hoping to achieve.
- Discuss and negotiate anonymity, confidentiality and assure the participants that withdrawal and continuity of participation in the project would be accepted without prejudice. I did this with all participants concerned.
- Show respect and trust to the participant explaining reasons for carrying out investigations and outlining potential benefits of the research to the participants. At all times I was transparent about the research objectives and what I was trying to find out and why.

Participants were assured of confidentiality. Jorgenson (1989, cited in Cohen et al., 2000) elaborated issues like peoples' right to privacy, confidentiality, and freedom from exploitation. He also noted that research ethics centre on the value of human life and rights of the individual. As such I explained to all the participants that the decision whether to become involved and when to withdraw from the research was entirely theirs. None of the participants objected to being involved in the research, and all agreed that I could use the data to inform the school project and its future.

6. ANALYSIS OF THE FINDINGS

6.1 Introduction

The previous section described the methodology used to collect data on the interests, roles and possible contributions of the stakeholders and interest groups in the greening project at Zizamele Senior Primary School. In this section, findings will be explained as they were found in the meetings, the workshop, and the interviews. Table 1 below summarises how different stakeholders were able to contribute to the various data generation processes in the study. It also shows the sources of data that I used to compile the relatively succinct analysis of their roles, interests and willingness to co-operate with others, which follows Table 1.

Table1: Stakeholders and their involvement in the data generation process

Stakeholders	Involvement in data generation processes
Principal	Meeting Interviews
SANBI and service provider	Meeting Workshop
Community members	Meeting Interview Workshop
Teachers	Meeting Interviews Workshop
Agricultural	Meeting Interviews
Municipal officers	Meeting
Youth	Focus group interview Workshop

I now provide an analysis of the roles, interests and willingness to co-operate with others, as identified in the data from these events, for each stakeholder.

6.2 The School Principal

6.2.1. Principal's role

The Principal promised to take overall responsibility for the project together with the School Governing Body (SGB) and hoped that the project would also assist the school to become a Section 21 school as they had already applied for that to the Department of Education. Section 21 schools are allocated funds to develop their schools. From this it is clear that the Principal has a management oversight role in relation to the project, which she shares with the SGB, and she has responsibility for the schools' development, together with the Department of Education.

6.2.2 Principal's interests in the SANBI project

The principal of the school, Mrs. Mpahlwa said that she was happy that SANBI has awarded an opportunity to develop a greening project in her school. She said that this would give her and the school a chance of working on their relationship with the community. She also said that she would ensure that the community took ownership in the project so that they would protect the school from being vandalized. From this it seems that the principal is interested in the project for its potential value in involving the community, and in encouraging pride and participation in the school.

6.2.3 Working with other stakeholders

Mrs. Mpahlwa promised to release the teachers and learners who are serving in the working group for workshops as there would be training workshops involved. She supported the development of a nursery and she said that there were people in the area who were not working and they could get fresh vegetables from the school. She also said that she would support SANBI's programme of job creation and would support SANBI with the process of identifying unemployed people who might benefit from the jobs that would be provided by the service providers who would be greening the school (Mpahlwa pers. comm., 2006). From this it is clear that the principal was

willing to use her role to facilitate and support teachers' and community member benefits from the greening project.

6.3 The teachers

6.3.1 Teachers' roles

Teachers indicated in the interviews that they plan their lessons according to phases, they do planning in clusters, working with neighbouring schools. The Learning Programme and Work Schedule is done by phase teachers and Lesson Planning is done by grade teachers. Teachers also facilitate the process of teaching and learning, and assist learners in the process of learning through various scaffolding strategies (e.g. using learning support materials, code switching, giving additional activities, explaining concepts etc.). They also help to find additional resources, information, and arrange site visits and trips and guide learners in planting and watering in the Eco Schools permaculture garden. Teachers therefore had an important pedagogical role in relation to the school greening project, as they could include possible learning opportunities in the school gardens into their planning and into the teaching and learning processes in the school.

6.3.2 Teachers interests in the SANBI project

Teachers said that they would like to use gardens as resources in terms of greening processes. They noted that in the curriculum document, the National Curriculum Statements, it is not explicit how to include greening activities in the curriculum, but they mentioned that they get reference books from partners like EduPlant on permaculture practices, which can be used in Learning Areas such as Life Orientation and Natural Sciences.

Teachers said that they respect prior knowledge because it provides the basis for teaching and learning, and they thought that working in the school garden could help to mobilise learners' prior knowledge as some learners and their families were involved in growing food. They also talked about the problems associated with teaching in the school, as it had few resources, and no physical infrastructure, as some of the classes had to use the civil hall for accommodation. They mentioned that classrooms were small and overcrowded. They saw that the gardens would provide

another resource for learning, and that learners could be involved in outdoor learning in the gardens. The teachers noted that the greening outreach programme is different from other programmes in the school because they deal with food gardens only. Teachers were therefore interested in the greening project for its potential resource value for teaching, and for its value in enhancing the learning environment with additional resources and learning opportunities.

6.3.3 Working with other stakeholders

When planning the learning programme the teachers said that they not only use the Learning Area statement but they also add information from materials from partners like the SANBI greening manual, the Eco-Schools material, and booklets from the EduPlant project. Teachers also indicated that they could use indigenous knowledge drawn from knowledgeable local people by encouraging learners to be involved in local investigations which can be guided by prepared worksheets which teachers would need to prepare.

Mr. Ngam indicated more specifically how the greening project could be used for teaching and learning when he explained how his learners in Grade 6 have used booklets to locate lists of wild fruit plants, medicinal plants, and the uses and importance of plants. Teachers also said that in their teaching they were trying to bring back an appreciation for, and knowledge of the importance of indigenous plants, especially edible leafy plants that are nutritious and good to eat, because of the poverty circumstances around the school. Teachers reflected however, that sometimes the use of wild food plants is considered primitive and backward and associated with low standards of living which give them a certain stigma in communities. This prevents learners from using this nutritious source of food. Teachers explained that learners could be involved in learning processes in the gardens that would develop knowledge, skills and values, and that learners could perform educational activities like designing plots, and they could engage in investigations, research activities and they collect data from the community e.g. collecting information through take home tasks. From this it is clear that teachers interests in the gardens are knowledge and pedagogy oriented, and that they are willing to draw on local knowledge resources (other people in the school community) in the teaching and learning process for specific purposes of enhancing learners well-being, and the learners' knowledge, skills and values.

6.4 Department of Agriculture (DoA)

6.4.1 DoA Role

Mr. Mjambana from the DoA stated that they have a programme running from their special unit that includes schools. This is the 4H programme which has been running for 5 years. The programme supplies schools with vegetables seedlings, trees and other plants to beautify the school, fencing and gardening implements. He explained that the programme was targeted mainly at previously disadvantaged schools and was intended to assist learners to gain knowledge of how to produce food through agricultural activities. The DoA therefore has a support role, and a role in which they provide seedlings, trees and equipment to schools to facilitate the planting process.

6.4.2 DoA interest in the SANBI project

Mr Mjambana advised that the DoA would be supportive of the Greening the Nation food gardening project, and that the school could always contact the DoA for support with the nursery development as they have officers that are supporting such ventures in the 4H programme. He indicated that there were no policies that specifically guided how the DoA should interact with schools in the branch office, but that he could try to find information on such policies from their headquarters. From this it would seem that the DoA has an interest in supporting schools, but that this might not be formally stated in policies guiding their department. A search of the DoA policies on the internet also did not reveal any specific commitments from the DoA to assist schools to develop garden projects. It seems therefore that their interest was more project-based than policy-based.

6.4.3 Working with other stakeholders

The DoA indicated that they were willing to work with other groups such as the Department of Education, as they were already doing this in the 4H programme. Mr Mjambana also said that there were many projects in the DoA that required co-ordination and management, and it was therefore difficult for them to simply help with every single project at every level. He suggested that a good strategy for working with

the DoA would be one where people showed interest by starting some initiatives, whereafter they could then approach the department for help. From this it would seem that the DoA were willing to support initiatives that were already showing some results, as this apparently assisted them to make judgements as to which of many efforts would be better to support.

6.5 Community members

6.5.1 Community members' roles

Community members indicated that they are there to help educators and learners in the project. They indicated that they can actively participate by being involved in the project activities such as planting different types of indigenous plants and sharing knowledge of their uses as well as where they come from and what conditions the plants favour when growing. Parents also indicated their willingness to assist with taking care of the garden and school grounds during weekends and holidays. From this it was clear that community members had both a practical role in terms of garden management, and an educative role in terms of sharing knowledge and experience with learners and teachers.

6.5.2 Community members' interests

Community members were happy that the school was amongst those that were selected for the greening programme, and they indicated that they were prepared to support the process of greening. It was evident particularly from the traditional healers who participated in the workshop that local people know a lot about indigenous plants in the area, they know about habits, use and conditions under which the plants grow. Community members were also interested in the job creation aspect of the Greening the Nation programme, although it was made clear that it was not the school who would be the employer. From this it is clear that the community interests were both educational and employment orientated.

6.5.3 Community members' willingness to work with other stakeholders

Local people said they could help teachers and learners wherever their expertise was needed, they could come to school and demonstrate lessons to the teachers and

learners e.g. traditional healers, coming to interpret medicinal plants and other traditional plants and local women would come to interpret leafy vegetables (*imifino*). From this it was clear that community members could potentially form a useful knowledge resource for the teaching and learning processes associated with the programme.

6.6 SANBI

6.6.1 SANBI's role

SANBI has provided a service provider to green the school grounds with indigenous plants and establish a food garden. SANBI's role in the project is therefore to provide the plants and to plant up the gardens in consultation with the school and others stakeholders. They are also supporting teacher professional development so that teachers know how to use the gardens for teaching and learning.

6.6.2 SANBI's interest in the project

As part of a working strategy of the NEMA Act N. 107 OF 1988 (RSA, 1998), SANBI was established under the Biodiversity Act of 2004 (RSA, 2004) to ensure sustainable use, conservation, appreciation and enjoyment of the rich biodiversity of South Africa for the benefit of all. One of the directorates of SANBI is the Environment Education Director, whose mission is to use the garden and resources to encourage people to take responsibility for the environment (SANBI, 2003). SANBI therefore has a biodiversity conservation mandate as well as an environmental education mandate. Their role in the project was to extend their mandate into the South African education system, which they have been doing through a programme that is greening schools and communities in previously disadvantaged areas of South Africa through the Greening the Nation Programme (see also Section 1). Their interest in the project is therefore to expand their mandate into educational activities and programmes in schools, to strengthen and extend knowledge of biodiversity. As the Greening the Nation Programme is also a poverty relief project under the governments expanded public works programme, it also has an interest in contributing to the well being of communities in poverty, hence they are providing food gardens, as well as fruit trees and indigenous plants to our school.

6.6.3 Willingness to working with other stakeholders

The researcher will therefore work with the relevant stake-holders including the service provider in designing and landscaping the school grounds. The objective, he said was to plant indigenous plants for learning processes. He also said there will be training workshops, consistent meetings with stakeholders and support for professional development of lead educators by SANBI, (Zolani, pers comm., 2005).

6.7 Youth

6.7.1 Youth roles

The youth indicated their willingness to participate in the project during the weekends. They felt that they could learn more about how to grow food, and how to use plants in their communities. From this it seems that the role of the youth was both practical, in the sense that they could help with the gardening processes, and also educational, in the sense that they could benefit from the learning processes associated with the gardens.

6.7.2 Youth interests

The youth group was interested in the relationship between plants, nutritious food and the way that nutritious food could boost the immune system. The group indicated that it was faced with a challenge of HIV/AIDS, and it felt that nutritious foods could help those already infected and improve their health. Those that are not infected also need these nutritious foods. The group was also interested in indigenous plants, as some could be used as medicines for both rich and poor. From this it seems that the youth were primarily interested in the health-related aspects of the gardening project. However, they also had an economic interest in the gardening project, as some indicated that they would like to get incentives from the assisting with the project.

6.7.3 Willingness to work with others

The youth group indicated that it would be willing to assist with the gardening activities, which meant that it was willing to work with the school. The group also

wanted to gain further knowledge of the health related aspects of the garden products, and wanted to hear from others who knew more about this, particularly community members, teachers and the traditional healers. Members of the group were also willing to work together (i.e. as a group of peers) on the activity and with the learners in the school.

7. DISCUSSION

In this section I provide a more detailed analysis and discussion of stakeholder participation, and potential for stakeholder participation in the case of the Zizamele School Greening Project. This analysis is more complex than the stakeholder role, interest and participation analysis presented above, because it begins to identify the issues and possibilities that arise when stakeholder interaction begins to take place. To structure this analysis, I use a series of analytical statements, as they help to clarify some of the dynamics of stakeholders interactions in a school-community process.

7.1 Analytical Statement 1: When different stakeholders begin working together different issues emerge

During the discussions in the meetings it was discovered that schools that are not fenced could not be greened. For this, the School Governing Body appealed to the Municipality. They were told that it was not easy for the Municipality to provide fencing for the school, unless the school wrote a letter to a certain department in the municipality, who would in turn, forward the letter to the Amathole District municipality, which is the head of all municipalities in the Eastern Cape (Zonke pers. comm., 2006). This indicated that, even if certain stakeholders are willing to assist, it is not always possible or easy to do so due to line functions and bureaucratic procedures that need to be followed.

Though the SANBI project was mainly focusing on indigenous plants (i.e. biodiversity), community members made it clear that they were more interested in the establishment of a food garden and nursery for vegetable seedlings. This was because the area is poverty stricken (see Section 2) and the community's interest was to have a project that was more concerned with uplifting their livelihoods and so would improve poverty levels, and help to relieve poverty. Resulting from this difference in interest amongst two of the key stakeholders, SANBI agreed to plant not only indigenous plants in the

schools, but also food and fruit gardens. This is supported by Mavimbela (2007) when she states that comparatively the community puts a higher value on the vegetable garden because of its hunger relief ability than ornamental gardens which have no edible plants. In our school the teachers recognised that the ornamental garden would also have value, not as a food source, but as an educational resource that could be used to support learning and to broaden knowledge of plants.

Another issue that emerged was that of employment of labourers to work in the school greening project. SANBI was the provider of the funds for the job creation since it was a poverty relief programme. The municipality wanted to head the employment of labourers, as it would then be seen to be creating jobs, while the school felt that it should facilitate the employment because it would choose from parents that support the children in school, people that attend meetings and people that engage themselves in school activities. In this case we see three very different interests at play. SANBI who has an accountability interest to make sure that the funds are spent well on the required job creation programme, the municipality who wanted to have political visibility because of the job creation opportunities associated with the greening activities, and the school, who wanted to make the most of the job creation to encourage and strengthen parental involvement in the school.

Another issue that arose was that the service provider who was working for SANBI did not include community members in their meetings. SANBI brought trees before discussing with the community whether they were suitable or not, and the result was that some trees were planted that were not known or wanted by the community members. As a school we were not able to change this, and so the plants brought by the service provider were planted in the school. This revealed the importance of stakeholder consultation in projects of this kind.

7.2 Analytic Statement 2: Stakeholders have knowledge, experience and skills that can enhance greening project and integration of environmental learning in the school garden

From the data reported above, it is clear that different stakeholders have different knowledge, skills and experience that can be mobilized to enhance the greening project. To make this more explicit, I summarise the data reported in Section 6 above in Table 2 below:

Stakeholder	Knowledge	Skills	Expertise
Principal and SGB	Management knowledge Knowledge of the school and its community and learners needs	Management skills	Management and governance
SANBI and service providers	Knowledge of biodiversity, different types of plants, planting procedures	Planting and landscaping skills	Biodiversity and plant-based greening expertise
Teachers	Knowledge of the curriculum and its requirements Content knowledge relevant to learners	Curriculum design, design of learning activities	Educational expertise
Community members	Knowledge of indigenous plants, food plants and medicinal plants	Gardening skills	Local plant knowledge and gardening expertise
DoA and municipality	Knowledge of agricultural practices and systems, appropriate planting techniques, seedlings etc.	Fencing, seedling provision, agricultural extension support	Agricultural expertise
Youth	Knowledge of own needs relating to health and nutrition and plant use	Gardening skills	Local needs

As can be seen from the above table, different stakeholders have different forms of knowledge and expertise which can be brought together to shape and inform a school gardening project which aims to strengthen environmental learning. The knowledge of indigenous plants is mostly known by community members. They noted that they know a lot about indigenous plants, starting from edible, medicinal and trees of cultural value, as well as where plants grow and when it is best to plant them. The research indicated that they can actively participate by being involved in project activities and that they would be willing to monitor the process even on holidays. As mentioned in the literature review above, the DoE has indicated that schools that encourage parents' active involvement are more effective than those that do not (Imbewu, no date). From the above table, it is clear that if all of the available expertise could be mobilized effectively, the school greening project would be richer, more

sustainable and would provide learners with new and interesting learning opportunities.

What remains unclear from the analysis above, however, is *how* the school should co-ordinate this diverse expertise to benefit the school. It is possible for teachers to access indigenous local knowledge by drawing the community into lessons. As indicated by teachers, they can also give learners take-home tasks to investigate plant related issues in the community, and to draw knowledge from the community in this way. They can sometimes invite people from the area to come and share information with teachers and learners. This, however, only addresses the learning dimension of the school greening project as advocated by Masuku (1999) and Shava (2000). As shown in the issues discussed above, there are other aspects of community involvement that would need to be managed by the school principal and the SGB, for example, what plants are planted, how the school garden is landscaped by the service provider and so forth.

7.3 Analytical Statement 3: Stakeholders have different roles and responsibilities and combining these can benefit the greening project and the school

From the interviews, meetings and workshops it became clear who the stakeholders were and what their roles and interests were, and how they could work together. Of interest was the fact that all stakeholders wanted the project to take place for the benefit of the school and its community. Examples of how these roles could complement each other came to the fore. For example, community members could take responsibility for the project during holidays because the teachers reside in other areas. They could also help in activities such as maintaining the gardens which would free the school staff to concentrate on the learning aspects. Their local knowledge could also complement teacher's broader knowledge, and teachers' knowledge of what learners needed to learn based on the curriculum requirements. Other stakeholders could ensure ongoing sustainability of the initiative through for example, providing seedlings to the school on an ongoing basis, a role which the DoA seemed to be able to take on. Learners could both benefit from the gardening project as they could learn more about plants, and they could also contribute to the garden through helping with the design and maintenance of plots, and through working with plants, and while doing this they would be developing knowledge, skills and values. As indicated above, maximising these complementary roles would require careful

management, and ongoing consultation with the different stakeholders if the kinds of issues reported above were to be timeously identified and responded to.

7.4 Analytical Statement 4: Stakeholders appear to be willing to work together in the interest of benefiting the school

From the data reported above, it seems that all of the stakeholders appear to be willing to work together in the interest of benefitting the school and the learners in the schools. An analysis of these relationships indicates that it would seem best if the school management, SANBI, the DoA, the Municipality and other infrastructural partners could work together to ensure that the school garden is planned into the management and maintenance of the school. It also seems that teachers and community members can work together to broaden the knowledge of plants so as to create a variety of learning opportunities for the learners. In particular, parents could work together with teachers in the efforts to help learners to acquire indigenous knowledge of plants like medicinal plants, wild leafy vegetable plants, and plants of cultural value to the community. Community members, youth groups, learners, teachers and the school management could also work together to ensure ongoing maintenance of the school garden during terms, weekends and holiday periods. The service provider, community representatives, teachers and learners can work together in training, where the service provider could provide leadership and workshops on how to design, landscape and how to plant, propagate and take care of indigenous trees and plants.

7.5 Analytical Statement 5: Understanding stakeholders' roles, interests and willingness to work with other groups can improve school community relationships

As indicated in the literature review above, education has evolved in such a way that it has tended to marginalize and exclude parents and community members from the educational enterprise (Chikunda, 2007). In the case of our school, the school has for a very long time worked on its own marginalizing community members and has not taken into consideration other stakeholders potential contributions. This has made it difficult for teachers, because we have had to do everything ourselves, even if we did not understand it properly. This stakeholder analysis has shown that in certain circumstances, for example in the context of school greening activities, there is much

potential for involving stakeholders in the educational process, and for building stronger school-community links. As explained by DoE policies (Imbewu, no date) there is a (renewed) interest in examining how stronger school-community relationships can be established to strengthen the teaching and learning process. As shown in this analysis, this is possible, if teachers and the school management can develop a better understanding of the different contributions that can be made to specific processes in the school, and if these can be managed and co-ordinated in such a way that they do not detract from, but contribute to the quality of teaching and learning. As indicated by Cornbleth (1990), schools do not work in a vacuum, and the socio-cultural context of curriculum work is a key dynamic of curriculum implementation. In a South African context, with its history of marginalization, not only of people but of knowledge systems, Masuku (1999), Asafo-Adjei (2004), Shava (2000) and others have also argued that stronger school-community links are also a central matter for redress and accessing learners prior (indigenous) knowledge. Shava (2000) and Asafo-Adjei (2004) have both argued that plant-based knowledge presents a valuable learning opportunity that helps to mobilise local and indigenous knowledge in school-community contexts. At a broader level, Masuku (1999) promotes the recognition of the role of indigenous people and their communities in promoting sustainable development.

The process of stakeholder analysis that this small-scale study represents has indicated that such processes have potential to strengthen school-community relationships, but the identification of the issues in section 7.1 above also shows that such relationships need to be carefully managed and co-ordinated.

8. CONCLUSION AND REFLECTIONS ON THE SMALL-SCALE STUDY

As indicated above, the process of conducting this stakeholder review involved a number of data generation processes. As can be seen from the questions asked in the interviews (see Appendix A-F) I generated a lot of unnecessary data for the stakeholder review, by asking too many questions that were not focused on the topic of the study. While this information gave me good insight into the various stakeholders there was too much information for the purposes of a small-scale study of this nature. I therefore had to sift out that which was relevant to the research question in order to keep the study focused. If I were to do the study again, I would make more use of focus group interviews, and less use of individual semi-structured interviews, as the data that came

from the individual interviews with teachers and community members did not differ very much. The methods that I used were more suited to a more in-depth analysis of stakeholder roles and interests.

Despite this, this study has helped to identify the stakeholders and their interests and roles in relation to the SANBI initiative to green our school. Finding out about their roles and interests has helped to find ways and strategies that could be mobilized toward developing a greening project in school. As shown in the discussion above, this has provided insight into a) what roles, interests and contributions different stakeholders can make; b) some issues associated with the processes of stakeholder involvement; c) possible benefits of stakeholder participation in the context of the greening project; and d) the need for management and co-ordination of these different contributions and careful conceptualization as to how each stakeholder can participate meaningfully in the process, as well as how different stakeholders can work together most effectively.

This small-scale study provided evidence that teachers can draw on the indigenous knowledge of parents, and parents, if invited, could be co-educators. It is this question that I take further in the next small-scale study in this portfolio, i.e. how one could integrate local indigenous knowledge of plants in curriculum activities within the Outcomes-Based curriculum framework.

APPENDIX A: TEACHER INTERVIEW SCHEDULE

- How are the lessons planned?
- Is the curriculum Statement addressing the concept of greening?
- Are you going to use the garden as research?
- Does the greening programme have the learning and teaching support material?
- What about capacity building - are there any training workshops are they enough?
- Do teachers use indigenous knowledge in the learning programme?
- Do they value the learner's prior knowledge?
- Are the teachers able to look at environmental issues in the area and take note of items when planning learning? (Socio-Cultural Factors)
- What about the resources in the school, are there any?
- Do you find it easy working with EE social partners?
- Does the language difference make it more difficult for the children's learning?
- Do you think learners helped by educators do small projects as the end product of the learning programme?
- Do you see the implementations of E.E process reliable in the school?
- Do you see the Greening Out- reach Programme being different to other programmes in the school?
- What is your role as teacher in the school?
- Who is responsible in the school for finding additional resources for learning programmes?
- Do you include outreach programme materials to strengthen the curriculum when planning?

APPENDIX B: PRINCIPAL INTERVIEW SCHEDULE

- The school is awarded an opportunity to develop a greening project, are you happy about that?
- Will you be able to link with the community to ensure that they take ownership in the project so that they will not vandalize it?
- Learners and educators who are in the programme's working group will be needed to attend the workshops, will you be able to release them?
- Amongst the project there is the possibility of a nursery being developed; do you support this venture looking at the area where the school is situated?
- What type of nursery do you think is of value, which can be supported in the form of buying products so as to raise funds?
- Apart from the nursery, what type of project would you like the Greening Outreach Programme to do in the school grounds - sport facilities, vegetable garden?
- The Outreach Programme runs for two years, do you promise that you will look at measures of how to sustain the project, when the time is over?

APPENDIX C: COMMUNITY MEMBERS INTERVIEW SCHEDULE

1. Will you be able to help the learner and teachers in the project activities like:
 - practical work
 - indigenous plants
 - taking care of the gardens during holidays and weekends
 - conditions that plants favour when growing
2. What would be the role of traditional healers in the project?
3. What would be the role of local women in the project?
4. Are you happy that there is going to be job creation in the developing of the project?
5. What would you like to be included in the project? Indigenous plants only or do you think that vegetables are also important in this community?

APPENDIX D: AGRICULTURAL OFFICER INTERVIEW SCHEDULE

1. Do you have programmes that you can do in this school?
2. Can you support the school with research like?
 - Seedling (vegetables)
 - Trees (Indigenous)
 - fencing
3. How often would you visit the school?
4. What practices are you doing in the school so as to develop schools and learners?
5. Do you concentrate on learners and teachers only? And what about community members helping in the school
6. What advice can you render the school in as far as preparing to develop a nursery?
7. Are there any legal frameworks, document policies and circulars that can help me to have more information on how to develop a nursery greening project?
8. In your programmes for property alleviation, are there any that can benefit the people of Zizamele?

APPENDIX E: INTERVIEW SCHEDULE FOR FOCUS GROUP WITH YOUTH

1. Will you be able to help the school in the proposed project
2. Can you share expertise with both the learners and teachers in the school activities?
3. Will you be able to do voluntary work in the school?
4. The school also needs help in marketing the produce. Will you be able to do that?

APPENDIX F: WORKSHOP REPORT BACKS

Youth group and learners

- The group discovered how nutritious food is of great importance to human health and mostly boosting the immune system.
- The youth is faced with a challenge of HIV/AIDS; nutritious foods can help those already infected and improve their health. Those that are not infected also need these nutritious foods.
- Indigenous plants are also important; some can be used as medicines for both rich and poor.
- The youth also pledged to help in the project during the weekends. Some members indicated that they would like to get incentives from the project.

Teachers

- Teachers can prepare lesson plans using gardens related to Natural Science, Social Sciences and Life Orientation learning outcomes.
- They will use the gardens as a resource for teaching and learning in different learning areas as mentioned above.
- Learners will be aware of food types to be included in a balanced diet.
- They will know different nutrients our bodies need.

Local community members

- Working in the project will enable the local community people to value and own the project, therefore protecting it from vandalism.
- They will share information with learners on plants of cultural significance and indigenous knowledge.

Traditional healers

- As traditional healers know the types and uses of medicinal plants, they will therefore share this knowledge with learners, teachers, and community members in the school.

- Some people do not have the means to go to medical centers; the knowledge of using medicinal plants would help them when they get sick.
- Knowing the value of indigenous knowledge will assist in taking care of and sustaining the plants, instead of harvesting to destroy.

SECTION 4

ACTION RESEARCH

1. INTRODUCTION

This section of the portfolio consists of an action research study that is informed by the findings from the Contextual Profile (Section 2) and the Stakeholder Analysis (Section 3). The aim of the study is to investigate ways of integrating local knowledge into the curriculum, and how teachers use gardens as resources for learning, with reference to the Life Orientation Learning Area, as shown by the research question and goals. A literature review is provided which discusses curriculum goals and policy, environmental learning in the curriculum, curriculum praxis and situated learning in a contextualized curriculum. The section also discusses Eco-Schools as a project that helps to focus on local knowledge, and community involvement in providing local knowledge in the curriculum. It also provides a background to Lesson Planning, with emphasis on the Life Orientation Learning Area. It discusses the research methodology used in the study, and describes three lessons that were implemented, which are reported as action research cycles. The section ends with findings, challenges and recommendations.

2. RESEARCH QUESTION AND GOALS

To guide the study, I developed a **research question** and **goals**:

The **research question** is: How do teachers use the gardens as a resource for contextualizing teaching and learning and how do they integrate local knowledge into the Life Orientation Learning Area?

The **research goals** are:

- investigate how use of the gardens contribute to curriculum
- investigate strategies and methods used by teachers to integrate local knowledge into the curriculum

My concern is curriculum development because the South African education system is undergoing a process of transformation from apartheid education and is introducing a

new National Curriculum Statement (See Section 2). The aim of engaging in this action research project is to create a meaningful learning space and information sharing session between teachers, learners and the local community members.

3. CONTEXT OF THE ACTION RESEARCH

As with the Contextual Profile research (Section 2) and the Stakeholder Analysis (Section 3), this research was located in the school-community context of Zizamele Senior Primary School. As mentioned earlier in Section 2, Zizamele Senior Primary School caters for learners from Grade R to Grade 7. The learners are mainly Xhosa speaking. The School has 520 learners with 12 educators, 2 male and 10 female educators. The School has school grounds that have recently been developed by the South African National Biodiversity Institute (SANBI) through the Greening the Nation Programme. The greening project has been running in the school for two years with support from SANBI, and it will soon be handed over to the Department of Education for further caretaking and maintenance. As mentioned in the Contextual Profile (Section 2), there are other programmes implemented by environmental education social partners. They help in improving teaching and learning support material.

The Contextual Profile (see Section 2) reports that most people currently living in the Zizamele area settled there because they were seeking jobs in the nearby industrial areas during the time when industrial development was at its height, before industries were closed and moved. Other community members have settled there after being removed from farms following the introduction of the Labour Relations Act and increased mechanization on farms. Others moved into the area from rural areas, due to the inability of the rural economy to support growing families. This is part of a broader pattern of rural-urban migration in post-apartheid South Africa as many people move to the cities in search of work and more productive livelihoods. As a result of this migration the area is affected by a high rate of unemployment and poverty, as people's hopes for finding jobs were not fulfilled. Another factor affecting the area nowadays is HIV/AIDS (see section 2, Contextual Profile) which particularly affects poor people who need nutritious food and other support services. This affects the learners in the school too, hence my interest in engaging teachers, learners and community members in learning programmes linked to the school garden.

As indicated in the Stakeholder Analysis (Section 3), a number of stakeholders have an interest in supporting the greening activities and school gardens project. My findings from the stakeholder analysis indicate that the community can actively participate by being involved in project activities such as planting, and identification of indigenous plants and plant uses that are beneficial to the community. Out of these findings, the action research project sought to involve community members in sharing local knowledge relevant to the Learning Outcomes of the Life Orientation Learning Area, and the school garden project.

This action research project involved grade 4, 5 and 6 teachers and learners in the Life Orientation Learning Area. Learners range from 11-15 years of age. Two teachers were involved in the action research project with me, the main researcher. Two parents from the local community were also involved in the action research project.

4. LITERATURE REVIEW

To provide a broader context for the action research project, I undertook a literature review to provide background information on the curriculum change process (building on what is contained in Section 2), the curriculum goals and policy, environmental learning in the curriculum, curriculum praxis and situated learning in a contextualized curriculum. The literature review also provides further insight into the Eco-Schools project (see Section 2 for an introduction to the Eco-Schools project) which has helped us to focus on local knowledge, and community involvement in providing local knowledge in the curriculum. The literature review also provides a background to Lesson Planning, with emphasis on the Life Orientation Learning Area and its expectations.

4.1 CURRICULUM GOALS AND POLICY

In Section 2, I provided a history of the curriculum which explained why a change in the curriculum was needed. I also explained how the first version of the new curriculum (C2005) was introduced and subsequently reviewed. I also pointed to a new policy that guides the practice of educators (the Norms and Standards for Educators policy). I did not discuss the curriculum goals, the nature of the Learning Outcomes or the specific expectations that are contained in the curriculum. Thus, I

will now focus more on these aspects of the curriculum change process in South Africa, as they are more directly related to the action research project.

In the National Curriculum Statement, the DoE provides orientation to the kind of learner that it envisaged and they see such learners as being inspired by the values of the Constitution, and who will act in the interest of society based on respect for democracy equality, human dignity, life and social justice. The curriculum seeks to create "... a lifelong learner who is skilled, compassionate, with respect for the environment and an ability to participate in society as a critical and active citizen" (DoE, 2002a:8). However, these aspirations for the learner, need to be supported by new aspirations for teachers.

The National Curriculum Statement (NCS) envisions teachers who are qualified, competent, dedicated and caring (DoE, 2002a). These qualities are linked to the roles described in the *Norms and Standards for Educators* policy (DoE, 2000) which sees teachers as being mediators of learning, interpreters and designers of learning programmes and materials, leaders, administrators and managers, life-long learners, amongst others (see Section 2).

In this study, I particularly focus on two of these roles that are relevant to the action research process. These are:

- **Learning mediator**

The educator will mediate learning in a manner which is sensitive to the diverse needs of learners, including those with barriers to learning, construct learning environments that **are appropriately contextualized** and inspirational, communicate effectively showing recognition of and respect for the differences of others. In addition an educator will demonstrate sound knowledge and **resources appropriate to teaching in a South African context**. (My emphasis)

- **Interpreter and designer of learning programmes and materials**

The educator will understand and interpret provided learning programmes, **design suitable original learning programmes, identify the requirements for a specific context of learning and select and prepare resources for learning**. The educator will sequence and pace the learning in a manner sensitive to the differing needs of the subject/ learning area and learners (My emphasis) (DoE, 2000:13).

4.2 ENVIRONMENTAL LEARNING IN THE CURRICULUM

As indicated in Section 2, there are a number of organizations that are supporting environmental learning in the curriculum, such as SANBI, Eco-Schools and others. This is because the Department of Education (DoE) in South Africa has recognized environmental education as a key response to the environmental crisis, and has included environment into all of the Learning Areas.

Environmental education in formal education policy was first mentioned in 1995 in one of the early post-apartheid education policy documents, The White Paper on Education and Training (RSA, 1995:18). In one of its principles, this White Paper articulated the need for

... environmental education processes involving an interdisciplinary, integrated and active approach to learning as a vital element of all levels and programmes of the education and training system in order to create environmentally literate and active citizens and to ensure that all South African's, present and future, enjoy a decent quality of life through the sustainable use of resources (ibid.).

This principle was included into education policy as a result of national stakeholder inputs led by an Environmental Education Policy Initiative. Following this, national stakeholders involved in environmental education continued to work to ensure that environmental education was included in curriculum policy through the Environmental Education Curriculum Initiative (which I also participated in between 1994 – 1996 in the Butterworth District). Out of these efforts environment was first included in Curriculum 2005 as a phase organizer (which means it was to be integrated into all Learning Areas). After the streamlining and strengthening of the curriculum (see Section 2), environment was included as a focus in all Learning Areas, including the Life Orientation Learning Area which emphasises a healthy environment.

To strengthen the implementation of the environmental focus in the curriculum, the former Minister of Education (Kader Asmal), established a National Environmental Education Programme, which operated at both a national and provincial level. I participated in one of the provincial and district clusters. The NEEP-GET focused on Grades R-9, and was aimed at supporting subject advisors and teachers to integrate environmental education into their Learning Areas. The project ran for four years, and made a substantial contribution to the education system.

One of the focus areas of NEEP GET was active learning processes. In its final report, the NEEP-GET (2005) notes that for active learning to take place, learners should be encouraged to interact in social and cultural contexts through the process of dialogue (talking), encounter (doing things), and reflection(thinking) about what has been done. O'Donoghue (2001) explains that environmental learning is often spontaneous (because it is often linked to local contextual issues), but is best when *mediated with learners* in a local environment, as this helps learners to learn more about the issues concerned. When teachers mediate with learners in a local environment they are involved in scaffolding learning and building on what learners bring from the local context (Daniels, 2001), which helps learners to construct new knowledge (Vygotsky, 1987, cited in Daniels, 2001). Learning processes that take account of learners' prior knowledge requires teachers to recognize and work with learners own culture and be aware of the social factors that influence the lives of the learners (UNEP, 2006). For environmental education to be effective and appropriate to context, a range of educational opportunities and activities can be developed by educators. In using these in the context of identified issues, educators can support learners to understand the issues, and to live together in their surroundings so that they can engage with and resolve environmental issues (Lotz-Sisitka and Janse Van Rensburg 2000).

O'Donoghue, Lotz-Sisitka, Asafo-Adje, Kota & Hanisi (2007: 435)

explain the links between approaches to environmental education and environmental issues when they say that:

learning arises in diverse socio-cultural contexts of meaning-making interaction. As such, learning can strengthen social relationships across school and community and has the potential to develop as reflexive praxis in response to environment and health risks in a local context.

These perspectives on environmental education highlight the mediating role of educator. They encourage teachers when planning to take account of the local context in which learners find themselves. This requires a different view of curriculum, which I discuss next.

4.3 CURRICULUM CONTEXTUALISATION

The discussion on the roles of educators and the expectations of educators in new curriculum policy indicates that in order for the teachers to fulfill their roles adequately they need to engage in planning lessons based on the National Curriculum Statement (NCS) (DoE, 2002c). This curriculum is structured according to Learning Areas each with a set of Learning Outcomes and Assessment Standards for each grade. Teachers' Lesson Plans therefore need to address these Learning Outcomes and Assessments at the appropriate grade level, so as to assist learners to achieve the Learning Outcomes, while taking learners needs and the context into account.

According to Grundy (1987) curriculum as praxis is a social process that develops through dynamic interaction and reflection. That is, the curriculum is not simply a set of plans to be implemented but rather is constituted through an active process in which planning, acting and evaluating are all reciprocally related and integrated within an ongoing process (Grundy, 1987). This draws attention to the need for considering context in curriculum processes.

Grundy (1987) also states that the curriculum is constructed in *actual* learning situations with *actual* students, and that *learning is a social process*, and *curriculum knowledge is socially constructed* and subject to critique and reconstruction. These are all important concepts in thinking about curriculum, and Lesson Planning. As teachers involved in the daily practice of curriculum planning, where we plan lessons, we consider the learning situation in our school, the actual learners that we will be teaching, and what we want to teach or what we want learners to learn. We are guided by an examination of the Learning Outcomes and Assessment Standards. After considering all of this, we then develop Lesson Plans and then implement them, reflect on how the teaching and learning process worked, and we then plan again. This reflects the dynamic process that Grundy (1987) refers to.

According to Gough (1997) environmental education is a process of developing skills, knowledge and attitudes that will assist students to understand the relationship between people and their surroundings. This, she argues, is developed during learners' participation in environment oriented lessons. Gough (1997) therefore argues for learners being able to, as individuals, or as groups contribute towards solving environmental problems.

Further supporting the contextualization of curriculum, Motsa (2004) states that praxis contributes towards change from behaviorist thinking in environmental education to more critically oriented educational processes. Through process-based approaches learners and parents can encourage learners to build on what they already know so as to understand their context, and extend their knowledge.

Outcomes-Based Education, as reflected in the revised NCS document supports a process oriented approach to learning similar to that reflected by Grundy, Gough and Motsa. The Critical and Developmental Outcomes require learners to engage in problem- solving and collaborative learning processes. The Learning Outcomes and Assessment Standards encourage learner-centredness and activity- based approaches to education where learners are seen and heard (DoE, 2002c). For example, the Learning Outcomes in the NCS, as illustrated below, expect learners to engage critically, and practically with issues in context:

Table 1: Learning Outcomes showing expectations for critical, practical and contextual engagements

Learning Outcome	Expectations
Learning Outcome 3: Technology <i>The learner will be able to demonstrate an understanding between the interrelationships between science, technology, society and the environment</i>	Because technology expects learners to plan, design, make and evaluate, learners are practically and critically engaged in the learning process. To achieve this outcome, learners need to be involved in practical project work, and in investigating and evaluating particular aspects of project work in relevant context.
Learning Outcome 3: Social Sciences (Geography)	This outcome requires learners to identify issues in a particular context, to analyse the factors that lead to the issue, and evaluate actions that lead to, and can resolve the issues.
Learning Outcome 1: Life Orientation <i>The learner will be able to make informed decisions regarding personal, community and environmental health</i>	This outcome requires learners to make decisions in relation to a range of personal, community and environmental health issues. To make decisions, learners need to be actively involved in investigating the issues, and what the alternatives could be. It emphasises learners involvement in investigating, exploring issues, being part of problem solving processes etc.

As shown above, the National Curriculum Statement (DoE, 2002b) allows for various opportunities for the kind of learning and curriculum explained by Grundy, Gough and Motsa. Such approaches are also advocated by UNEP (2006) who argue that transformative learning means involving students in more activities that respond to the challenges of our time. This requires teachers to reconsider what they teach and why they teach it. It goes on to say, co-engagement and deliberation (debate and negotiations) is likely to be good strategy for involving learners and community members in a particular context.

Cornbleth (1990) in her review of Grundy's (1987) view on curriculum, however, indicates that Grundy does not adequately pursue contextual processes that influence the curriculum. Cornbleth (1990) views curriculum as a contextualized social process, and states that context shapes the curriculum. She identifies cultural and structural factors that influence curriculum processes. In doing this, she argue that when teachers engage in curriculum contextualization processes (such as those described by Grundy, Gough and Motsa above), teachers need to take account of *structural influences* like poverty, unemployment, high crime rate and other factors that shape curriculum, as well as *socio-cultural factors* such as language and social relationships in the community. Cornbleth (1990) explored a critical perspective for curriculum construction and change efforts. She discusses curriculum as being conceived of, as that what *actually occurs in the classroom*, and as an ongoing social process comprised of interactions of students, teachers and society influenced by structural and socio-cultural factors. As argued here, these are important considerations in curriculum processes, and in learning, which I discuss next.

4.4 SITUATED LEARNING AND THE CONTEXTUALISED CURRICULUM

In mediating learning (as expected by the Norms and Standards for Educators policy), educators need to look at teaching strategies that can help learners to transfer their knowledge from school to their homes and let them bring what they know from home to school. Cornbleth (1990) states that learning is embedded in culture and language, and involves engaging with resources (human or otherwise) that support learning. UNEP (2006) similar to Cornbleth (1990) argues that meaning is made through interactions within a social environment and meaning is accommodated in the learner's mind in relation to his or her experience in a socio-cultural context. This

indicates that there is a place for bringing community knowledge into the classroom in relation to other forms of knowledge that are privileged in school. Cornbleth (1990) states that schools and classrooms are not closed systems, inaccessible to the outside influences but are social organizations embedded in classroom systems, society and history. Within this theoretical framing of the education process, teachers, when planning their curriculum work, should take note of what is taking place around them and look to develop activities that would have an impact in the area and help learners to make informed decisions when they grow up.

Supporting socio-cultural perspectives on learning and curriculum, Lave and Wenger (1991) propose that, rather than looking to learning as the acquisition of certain forms of knowledge, learning should be placed in social relationship in situations of operation. They argue that learners inevitably participate in communities of practice and the mastery of knowledge and skill requires newcomers to move toward full participation in the socio cultural practices of a community. A person's intentions to learn are engaged and the process of learning is configured through the process of becoming a full participant in socio- cultural practice (Lave &Wenger, 1991; Daniels, 2001). In the case of the greening project this would mean that learners would learn gardening practices and knowledge from more experienced people (e.g. their parents and others in the community) about socio-cultural approaches to gardening practices and use of plants. In this way, learners become participants in the community of practice concerned with gardening and use of plants in their area.

Learning about environment issues in a community of practice can be complex because such issues are often different in different contexts, and not everyone may agree on how things should be practiced. For example socio-cultural gardening practices in Butterworth may not be the same as in Cape Town due to settlement patterns, history, culture of people, access to manure in the local environment, available local knowledge, capacity, available resources and other factors. Even in a local context or a local community of practice such as those that exist in the Butterworth district, different people might have different ideas of how to undertake gardening practices, due to different experiences that they bring from farms or rural areas and their cultural histories etc. For example, in the rural areas, people tend to emphasise the growing of mielies, while people in urban areas concentrate on vegetables. As teachers interested in bringing local knowledge into the curriculum, we would need to understand and negotiate these different points of view in the

communities of practice in relation to the expectations of the Learning Outcomes and Assessment Standards and the learners' needs.

4.5 COMMUNITY INVOLVEMENT: LOCAL KNOWLEDGE AND CONTEXTUALISED CURRICULUM

As mentioned in Section 2, our school is an Eco-School. This has given us some experience of bringing local knowledge into the school, as the Eco-Schools Programme has a strong curriculum focus that encourages active learning as anticipated by NCS. It also encourages involvement of parents and the community in school improvement activities. The DoE (2005) states that involvement of parents and the wider school community is important in curriculum management as school and communities need to work together to set priorities for learning actions. This would enhance contextualizing the curriculum. Research in the Eco-Schools programme is showing that school environmental policies and management plans are helping teachers to contextualize their Lesson Plans (Lotz-Sisitka et al., 2004; Mvula Jamela, 2007). In Mvula Jamela's (2007) study, she demonstrated how school improvement and curriculum activities could be strengthened by community involvement in the context of an Eco-School environmental policy and management plan. In the case of our school, we have a School Environmental Policy, and we have included using the school garden to extend curriculum activities as one of the objectives of our School Environmental Policy. This has resulted in many of the teachers using the gardens as part of the lessons. While we are engaging in such curriculum contextualizing activities, we have, as yet, not looked into involving community member's knowledge in the curriculum contextualization process, hence this study.

The (DoE) advocates that schools that encourage parent's active involvement are more effective than those who do not (Imbewu, no date). Involving parents also has the potential to enable community members and parents to learn valuable skills which can be used in homes and the community (See Section 3). There are different ways of involving the community in school activities. For example, parents and community members can get involved in gardening projects and in other schools improvement projects, while traditional healers could be invited to teach learners cultural and medicinal values of plants and how to protect plants for future use. Mvula-Jamela's (2007) study shows that involvement of parents can strengthen contextual interpretations of the NCS (R-9), as it helps to bridge the gap between content and

context. Mvula-Jamela's (2007) study, while arguing for greater involvement of parents, also argued that for this to be an effective learning experience for learners, teachers need to have a sound knowledge of the curriculum, and of the Lesson Planning process, to ensure that the learners are covering the curriculum adequately.

4.6 BACKGROUND TO LESSON PLANNING

In the past, teachers under the apartheid and homeland system, worked to very structured, prescriptive syllabi which they simply had to implement. With the introduction of the OBE, the NCS, and the new roles for educators as described in the Norms and Standards, teachers have to take greater responsibility for planning the content and process of learning, using the Learning Outcomes and Assessment Standards to guide them. The Department of Education is placing a lot of emphasis on planning, and it argues that good planning will help ensure that by the end of Grade 9 learners have achieved a certain level of understanding as required by Learning Outcomes and related Assessment Standards (DoE, 2002b) in the GET band. To support planning, the DoE have developed *Teachers Guides for the Development of Learning Programmes* (DoE, 2003) for each Learning Area. In these guides, it suggests three levels of planning. These are:

- A **Learning Programme** is a *phase long plan* that provides a framework for planning, organizing and managing classroom practice for each phase. It specifies the scope for teaching, learning and assessment for the phase and is "a structured and systematic arrangement of activities that promote the attainment of Learning Outcomes and Assessment Standards for the Phase" (DoE, 2002a:15 in DoE, 2003). A learning Programme is a tool for ensuring that the Learning Outcomes for each Learning Area are effectively and comprehensively attended to in a sequential and balanced way across the phase. ... It plans for how different contexts and local realities, like the needs of the community, school and learners, will be considered.
- A **Work Schedule** is a *year long programme* that shows how teaching, learning and assessment will be sequenced and paced in a particular grade. It is a delivery tool, a means of working towards the achievement of the Learning Outcomes specified in the Learning Programme, and incorporates the Assessment Standards that will be achieved in that grade.
- A **Lesson Plan** is the next level of planning, and is drawn directly from the Work Schedule. It describes concretely and in detail, teaching, learning and assessment activities that are to be implemented in any given period of time (DoE, 2002c). A Lesson Plan could range in duration from a single activity to a term's teaching, learning and assessment and, in terms of actual time, may last from a day to a week or a month. It includes HOW (i.e. teaching style,

approach and methodology), teaching, learning and assessment activities are to be managed in the classroom. (DoE, 2003: 2-3).

However, there is little actual guidance on lesson planning for the environmental learning focus in the NCS provided by the DoE. However, the NEEP GET (2004), based on a three year process of developing Lesson Plans with teachers, developed a range of Lesson Plans exemplars, which were developed with teachers involved in integrating environmental learning in the curriculum. Through these examples, they identified different dimensions of lesson planning, summarized in the table below

Table 2: Dimensions to lesson planning (for environmental learning in the NCS), adapted from NEEP-GET (2004:36 -59)

Aspects of lesson planning	Reason why this is significant
Integrating Learning Outcomes and Assessment Standards	Ensuring links between Learning Outcomes and Assessment Standard help teachers to interpret what is required for the Learning Outcomes at each of the different phases and grades. It also provides some 'content' guidance, but it does not limit the teacher.
Interpreting the environmental focus in the different Learning Areas	In the NCS, Environment is integral to each Learning Area. This means that there is an environmental focus embedded within each of the Learning Areas. Each of the Learning Areas has a contribution to make towards enabling learners to understand the relationship between human rights, social justice, a healthy environment and inclusivity.
Integrating the curriculum principles into lesson planning	South Africa has a history that is marked by human rights abuses, social injustices, exclusion and environmental degradation and risks. This environmental degradation and risk often affects those that were disadvantaged, or those that are most at risk. Through integrating the curriculum principles in lesson planning, learners can explore issues, but they can also explore solutions.
Ensuring meaningful integration	Integration of Learning Areas can create opportunities for active learning. Meaningful integration can also strengthen the Learning Outcomes in a particular Learning Programme. Meaningful integration can also ensure greater relevance and application of learning, and provides learners with more holistic learning experience. Meaningful integration also helps to situate 'classroom learning' in real-life experience and context, and helps learners to understand these better. Meaningful integration is central to environmental learning, as environmental issues and risks require integrated solutions.
Thinking about assessment when planning	Assessment should not be an afterthought, but an integral part of the learning process. Assessment tools and activities should be planned alongside learning activities, for assessment to be continuous and developmental. Assessment enhances individual growth and development, helps to monitor the

	progress of learners and to facilitate their learning
Considering context in environmental learning	Environmental issues and risks are often context specific, and are different in different contexts. This means that teachers, when dealing with environmental issues and risks, need to consider context.
Mobilizing indigenous knowledge in an African social context	Mobilizing indigenous knowledge allows learners to encounter more than one way of knowing, and more than one knowledge system. Through mobilizing indigenous knowledge learners are able to explore indigenous knowledge in local cultural context.
Using different teaching methods	This is done to allow for different teaching styles and adds variety which helps to keep interest. It also provides for different opportunities to construct knowledge.

Using learning and teaching support materials	Learning support material may assist learners to construct new knowledge. They provide new information that can inform investigations and action planning to solve or address problems.
Contributing to school improvement	Many schools in South Africa are in desperate need of improvements, to make the environment healthier, and conducive for learning.
Making school community links	Environmental issues and risks are often context specific. They affect learners in school, as well as community members. Often it is difficult for learners to resolve environmental issues in their communities, and they may need the help of key members of the community. Involving community members in some of the Lesson Plan activities is one way of fostering better school-community links. Asking learners to present their work to community members is another strategy for fostering better community links.

As indicated in sub-section 2 above, this action research project is focused on Lesson Planning in the Life Orientation Learning Area. To provide further background to this process, I review the expectations of this Learning Area in the next section.

4.7 THE LIFE ORIENTATION LEARNING AREA AND ITS EXPECTATIONS

The **purpose** of Life Orientation is to "... empower learners to use their talents to achieve their full physical, intellectual, personal, emotional and social potential" (DoE, 2002b: 4). The Learning Area aims to assist learners to "... develop skills to relate positively and make a contribution to family, community and society, while practicing the values embedded in the Constitution" (ibid). The Learning Area also aims to enable learners to "... make informed, morally responsible and accountable decisions about their health and the environment" (ibid). The Learning Area emphasises health promotion (including environmental health promotion) (Learning Outcome 1), social development (Learning Outcome 2), personal development (Learning Outcome 3),

physical development (Learning Outcome 4) and a positive orientation to study and work (Learning Outcome 5).

In this study the following two Learning Outcomes from the Life Orientation Learning Area provided the focus for Lesson Planning:

- **Learning Outcome 1 - HEALTH PROMOTION:** The learner will be able to make informed decisions regarding personal, community and environmental health.
- **Learning Outcome 3 – PERSONAL DEVELOPMENT:** The learner will be able to use acquired life skills to achieve and extend personal potential to respond effectively to challenges in his /her world.

Each of these Learning Outcomes has a set of Assessment Standards, defined for each grade. For example, for LO 1: HEALTH PROMOTION, learners in Grade 4 are expected to show evidence of being able to “investigate menus from various cultures and suggest plans for healthy meals” (AS1), and to “explore and report on links between a healthy environment and personal health (AS2)” (DoE, 2002b: 28) while learners in Grade 5 are expected to “explore and report on ways to protect the quality of food and water in various contexts” (AS1), and to “investigate a local environmental health problem using different data sources, and plan a strategy to address the problem” (AS2) (DoE, 2002b:29). In Grade 6, learners are expected to “interpret food labels and critically discusses health effects of listed ingredients” (AS1), and to “participate in a problem solving activity to address an environmental health issue to formulate environmentally sound choices and/or actions” (AS2) (DoE, 2002b: 29). This shows that in each grade, the expectations of learners are different, and that learning progresses from grade to grade.

This also shows that teachers need to plan carefully what to teach, and how it should be taught, using the Assessment Standards and the Learning Outcomes. For example, a teacher planning lessons for Grade 6 using AS 2 would need to assist learners to identify environmental health issues, and then help them to plan and participate in a problem solving activity. She would then have to assess if the learners can formulate environmentally sound choices (i.e. she would have to guide learners as what exactly an ‘environmentally sound choice’ would be), and she would have to assess if they can think of appropriate actions to take. For this, she would need to know the context well, and would have to be able to identify environmental health issues herself.

As we can see from the statements above, to achieve the Learning Outcomes and Assessment Standards, planning is very important, and using documents to guide you as a teacher is helpful, this is from my own experience. We come from a curriculum that forced teachers to read textbooks and let the learners memorize facts. Now planning gives teachers opportunities to think more critically about the curriculum and what they teach, allowing teachers to take up a stronger professional role in defining the learning process. It also allows teachers to think about how context can influence the curriculum, and how local knowledge and resources can be used in the curriculum, which is the focus of this study. Having provided the broader context of this study through this literature review, I now describe the research process and methodology.

5. RESEARCH PROCESS AND METHODOLOGY

5.1 METHODOLOGY

As indicated in the two previous studies in this portfolio, the contextual profile (Section 2) and stakeholder analysis (Section 3), the school has a food garden as well as indigenous gardens that have been developed by SANBI as projects for the school. While the gardens are there and some teachers have started using them, many teachers are still not sure how to use them in relation to the Learning Outcomes and Assessment Standards, and how to draw on local expertise to bring in local indigenous knowledge, and to contextualise the curriculum.

To explore this problem further, I decided to focus on Life Orientation in the Intermediate Phase. I worked with two teachers Mrs Malindi and Miss Maninjwa, in my school. Firstly I wanted to research my own practice with the hope of improving it, but thought it would be better to observe the practice of other teachers so as to collect more data. Both teachers were involved in lesson planning, and I observed how they went about their planning. Lessons were planned for all three grades with Mrs Malindi (she is the Intermediate Phase co-ordinator, and leads Learning Programme planning for the phase). I then observed three lessons, two were taught by Mrs Malindi, and one taught by Miss Maninjwa. After each lesson we reflected on the Lesson Plan, as well as the teaching and learning process. As such this was constituted as an action research case study, because it involved cycles of planning (of lessons), acting

(teaching lessons and observing them) and reflection (with the teachers) in an ongoing developmental process.

Action research involves a spiral of self reflective enquiry that requires:

- Planning a change;
- Acting and observing the process and consequences of change;
- Reflecting on these processes and then replanning, acting and observing, (Koshy, 2005).

Koshy (ibid) states further that he finds the spiral model appealing because it offers the opportunity to visit a phenomenon at a higher level each time, and so progress towards overall understanding. In this study, I hoped to understand the process of integrating local knowledge in the Life Orientation Learning Area in more depth after each lesson, and I hoped that this would help us improve practice in the school. Koshy (ibid) further argues that by carrying out action research using this model, one can understand particular issues within an educational context, which was my interest.

Cohen et al. (2000:226) describe action research as a powerful tool for change and improvement at the local level. They further argue that "...action research can be used for continuing professional development of teachers to improve teaching skills, develop new methods of learning, increase powers of analysis, and heighten self awareness" (ibid). Elliot (1992) similarly defines action research as the study of a social situation with a view to improve the quality of action within it. Tripp (1990), in referring to different types of action research, argues that participatory action research is the most effective form of critical research because it offers the opportunity to combine intellectual discourse with practical action. This research can be considered to be participatory because the teachers involved in the study (Mrs Malindi and Mrs Maninjwa) both participated in the planning of the lessons as well as in the reflection processes, together with me. All three of us were present in all three of the lessons that were taught.

According to Kemmis and Wilkinson (1990) participatory action research is a social process. It is participatory, practical and collaborative, emancipatory, critical and recursive. In this study, teachers collaborated together on the practical task of Lesson Planning and teaching. The study can be considered to be emancipatory because we all learned to critically evaluate and understand the curriculum better, and to consider

contextual issues in our curriculum work which we had not done before. It was recursive because we conducted more than one lesson, and built knowledge from lesson to lesson.

As such, the study can be described as an action research case study because it focuses on the case Life Orientation teaching in my school. It is interpretive in the sense that I interpreted the data to gain an in-depth insight into the question (after the reflections with the teachers), and it is critical because it entails commitment to society (Atiti, 2003). Koshy (2005) argues that a critical orientation is grounded in a vision of social change and democratic values as it seeks to empower practical outcomes and also about creating new forms of understanding, as theory without understanding is meaningless.

5.2 METHODS OF DATA COLLECTION

Different techniques were used to generate data in this study, for triangulation purposes. I used more than one technique to gather data, a strategy used by other researchers undertaking case studies and action research studies. Asafo-Adjei (2004) states that he did not rely on a single source of evidence to draw conclusions, while Lupele (2004) observed that different methods for data collection complement each other and strengthens the validity and reliability of the information.

To collect data, a number of different techniques were used such as meetings, interviews, observations, document analysis of Lesson Plans and learners work, and reflective interviews (see table below).

Table 3: Data collection during the planning phase.

DATA COLLECTION PROCESS	DATA SOURCES
<p>Start-up meeting The first meeting was between the researcher and the principal. SGB, Mrs Malindi (educator) and Miss Maninjwa (educator). The meeting was held to introduce the research and dates of planning.</p> <p>Method:</p> <ul style="list-style-type: none"> Recording of meeting using field notes 	<p>Appendix 1: Record of meeting Appendix 2: Principal's interview schedule</p>
<p>Lesson planning meeting and documents The purpose of the meeting was to analyze the curriculum statements and to plan the lessons. Before each lesson, teachers refined their lesson plans.</p> <p>Method:</p> <ul style="list-style-type: none"> Recording of meeting using field notes Document analysis (of documents produced) 	<p>Appendix 3 (1) Lesson Plan (2) Lesson Plan (3) Lesson Plan</p>
<p>Pre-lesson interviews Interviews with educators teaching Life Orientation, Mrs Malindi and Mrs Maninjwa.</p> <p>Method:</p> <ul style="list-style-type: none"> Focus group interview (semi-structured), recorded in writing 	<p>Appendix 4 Interview schedule for the educators after planning, before the lessons were taught</p>

Table 4. Data collection during the action phase

DATA COLLECTION PROCESS	DATA SOURCES
<p>Lesson observations Observation was the main technique underpinning the process of research. I observed the teaching process, which included deliberating and interacting with learners, materials, the garden activities and community members.</p> <p>Method:</p> <ul style="list-style-type: none"> Use of observation schedule 	<p>Appendix 5 Observation tool</p>
<p>Documenting lesson processes: Learners worked with food poster and brainstorming discussing worksheets given. They went to investigate plants in the presence of parents one woman and one man in the garden. Parents were the main source of indigenous knowledge on edible wild plants and medicinal plants. Learners were given questionnaires to go and survey from the community if there were vegetable gardens at home where people could obtain fresh nutritious food.</p> <p>Method:</p> <ul style="list-style-type: none"> Collecting learners work Photographs Interviews with 2 parents 	<p>Appendix 6 Food posters Appendix 7 Worksheets Appendix 8 Interview with parents Appendix 9 Questionnaires</p>

Table 5: Data collection during the reflection phase

DATA COLLECTION PROCESS	DATA SOURCE
Reflective interviews After every lesson reflective interviews were conducted with the teachers. I used semi-structured interviews because they allow for flexibility, but also help you to cover the key issues. Through this strategy I was able to ask questions from the teacher for clarifying concepts. Method: <ul style="list-style-type: none"> • Semi-structured interviews 	Appendix 10 Reflective interview

5.3 DATA ANALYSIS

After each lesson, I synthesized what happened in the lesson using the action research framework of planning, action and reflection. I documented and described everything that was relevant to the planning phase of the lesson, and everything relevant to the action phase (teaching of the lesson), and then what teachers had to say after the lessons. I did this for each lesson. This is presented in sub section 6.2.1. below

After that, I conducted another analysis to outline what had been achieved in each lesson, in relation to the intentions of the lesson. This was captured in table form, for each lesson and is reported in sub-section 6.2.3. below.

To conduct this analysis, I had to compare and work with multiple data sources, as described in table 4 and 5 above. For example, to explain what happened in the planning for each lesson, I had to compare what was said in the planning meeting, with what was in the Lesson Plan, and with what teachers said in the interview. This is a process of triangulation as described by Lather (1986).

After describing each of the lessons in detail using the analysis work as described above, I then undertook a further analysis to synthesise what was learned about the three lessons together, so as to answer my research question. This analysis involved using analytical statements, as explained by Bassey (1999). The analytical statements used in this study are:

- **Analytical Statement 1:** Gardens can be used as a teaching and learning resource in ways that relate to social context
- **Analytical Statement 2:** Engagement with a variety of learning activities in the garden develops contextual knowledge, skills and values

- **Analytical Statement 3:** Teacher and learners' knowledge can be extended by drawing on local people to contribute to learning activities
- **Analytical Statement 4:** Cultural values influence learner responses to the inclusion of indigenous knowledge in the curriculum

In writing the analytical statements, I assessed what evidence there was in the study for the claim, and also discussed it, drawing on literature in the literature review.

5.4 ETHICS and TRUSTWORTHINESS

As indicated at the start of the portfolio (Section 1), I undertook all three of these studies in my school, and I obtained permission from the Principal and School Governing Body to conduct the research (**Appendix 11**). To ensure that I obtained permission for this specific study, which involved the two teachers, I organized a meeting where we discussed the research, and I explained what the intentions were. Both teachers agreed to participate in the study, and I explained that they could withdraw at any time if they wanted to. They were also involved in the whole process, so were part of the planning and analysis work throughout. The two teachers also indicated that they did not mind me using their names in the study. We also have a collegial relationship as I have been working with them for many years, so we already had an established relationship of trust. To ensure trustworthiness, I triangulated data, and I consulted with my colleagues in the data interpretations. I also used thick descriptions to share the detail of what happened in the lessons, and included evidence of the entire process in the appendices to show that the research actually took place, as reported here.

6. THE ACTION RESEARCH PROCESS

6.1 INTRODUCTION

In this section, I describe the process of how teachers used indigenous and food gardens as resource material for teaching and learning, and how teachers interacted with learners. The study is designed in three cycles, each cycle following the action research process of planning, acting and reflecting on what was achieved in order to plan again.

As indicated above, I conducted the planning with the teachers, and interviewed them to facilitate reflections. I also observed the teaching of lessons and used learners' work to assist with reflection.

6.2 CYCLE 1 / LESSON 1 (Grade 4)

6.2.1 Planning the lesson

Both teachers that is, Mrs Malindi and Miss Maninjwa teach in the Intermediate Phase. During the planning session, teachers brought copies of the National Curriculum Statements and resource books that they use in Life Orientation (reference books) for teaching of Grades 4 and 5. As indicated in Section 2, the teachers were guided by the planning framework of the NCS, presented in the Eco-Schools pack. They brought the phase Learning Programme, their Work Schedules for the year and drawing on these, they were going to develop a Lesson Plan. Mrs Malindi reflected that as a school, they have adapted a Lesson Plan template from the Eco-Schools programme, which is a programme running in the school (Section 2). When she justified the use of this template, she said the template was simple and was more informative than templates from the Department of Education.



Figure 1: Teachers planning together, with the Principal assisting

During the planning session, a Lesson Plan was prepared for Grade 4 (See Appendix 3a). The focus of the Lesson Plan was school grounds with specific reference to food gardens. The topic of the lesson was “Cultural menus and healthy meals” (see

Appendix 3a and 6). The topic was related to the Assessment Standard, and was drawn from a reference book that the teacher used for Life Orientation.

Teachers looked carefully at the Learning Outcomes that they were going to deal with. They looked at the first outcome of Life Orientation which is HEALTH PROMOTION. Teachers planned for learners to investigate what food is eaten at home, and to add new information on nutritious food to promote good health. They planned a number of activities to achieve the Learning Outcomes (see Appendix 3a).

The teachers also looked at integration within and across the Learning Areas, and also at resources that they were going to use. Learner's activities were designed in such a way that learners would be doing things practically, and that the Lesson would link to action projects in the school (see Appendix 3a) The teacher planned for the lesson to address Critical Outcome Work effectively with others as members of a team, group or company. This led to the lesson having a focus on social interactions. Groups and individual contributions to activities were planned for. The Lesson Plan provided time for peer to peer assessment and learner educator interactions.

6.2.2 Action: Teaching the activity

As shown in the Lesson Plan, learners were given four activities:

- **Activity 1:** Learners brainstorm food posters
- **Activity 2:** Take home task: Learners investigate indigenous edible plants used at home and in the community (Xhosa food)
- **Activity 3:** Learners report back with deliberations from the teacher
- **Activity 4:** Visit to the garden to identify wild vegetables and vegetables

I now report on what happened in each of these activities.

Activity 1: The teacher collected Life Orientation reference books used at school. The book had a food poster at the back. She also collected pictures of healthy food from magazines. She used learner's prior knowledge to check their understanding of the topic. She put the posters and the pictures on the board. To brainstorm and establish what learners knew, the teacher started the lesson by asking questions on what the learners ate at home the previous day, what they usually eat on different days and times, what parents buy from the shop and what they get at home from food gardens,

and what learners eat as traditional and Western foods. The teacher sometimes intervened to add to what learners were saying, and in doing this extended learners knowledge. For example the teacher told the learners that it is good to eat traditional foods but it must be eaten together with Western foods. She mentioned that it might be difficult for all learners to get traditional foods because of Westernization nowadays. To finish this activity, learners were given a worksheet to design a menu. The worksheet was taken from the Life Orientation textbook used by the teacher. The instructions were as follows:

Study the example of a Western menu and then complete the tasks given at the bottom of the page

- 1. Draw up your own Western menu*
- 2. Draw up memos that would be typical of the foods enjoyed by people from another cultural group.*
- 3. Determine whether these menus are balanced or not.*
- 4. If not, make suggestions about how they could be improved.*

To start this activity, learners were asked to find out from home what a traditional Xhosa menu was. The learners brought lists of Xhosa foods to class, and the teacher extended this by talking about menus that are used today, using the reference book. Learners answered the worksheet and the work was marked (see appendix 7a). Appendix 7a shows that the learners were able to complete the task, but they only focused on the Western Menu (point 1 of the task). Questions 3 and 4 were not written, but were discussed. It was not easy to get information on other cultures, so learners just guessed that Indians eat curry etc. Question 3 was not attended to because they had already covered the issue of balanced diets.

Activity 2 and 3: Learners were given a take home task to go and find out about names and uses of edible traditional leafy foods, and where they are found. To guide them, the teacher gave them this example:

<i>Names of plant</i>	<i>Uses</i>	<i>Where found</i>
<i>Unomdlomboyi Ihlaba</i>	<i>edible edible/medicinal</i>	<i>Gardens, rivers, open veld. gardens, rivers, open veld</i>

The task was written in Xhosa to enable the parents to give answers. Appendix 7b shows that the learners were able to complete the task. They completed the answers to the task in their books. Appendix 7b shows that the learners identified the names of

the plants, and the uses of plants. For example, a learner identified 5 plants for eating; 5 plants for medicinal uses, and 5 plants for cultural uses (see Appendix 7b). During the feedback the teacher was surprised to find out about some of the uses of plants because she herself did not know them all beforehand, which shows the rich cultural knowledge of the learners. While the plan was for the teacher to guide the deliberation, there was actually more deliberation amongst the learner groups. They did not all agree on what others were saying for example they were saying “in our place ... the plant is not used for this, but for that”, showing that local cultural knowledge is often different in different places.

Activity 4: The teacher and learners went out to the garden to identify different kinds of wild leafy plants. The teacher situated learning by using the garden as a resource, (see Section 2.5), and by building on the previous activity which explored learners’ cultural knowledge of plants. To assist learners with plant identification, the teacher invited a parent to the school.



Figure 2. *Learners identifying imifino with the help of a knowledgeable parent.*

The learners were asked to identify plants according to names of plants that they got from parents in the previous activity, and they were helped by the invited parent (a woman who was known for her knowledge of indigenous plants). The parent was very helpful to the learners, and she for example, highlighted that *imifino* (wild leafy vegetables) are not only found in gardens, but that they can also be found in the forest or veld because it is not planted, it just grows naturally (Mbamba, pers. comm., 2007). The Department of Education advocates that schools should encourage parental involvement in schooling (see Section 2.7). During the lesson the teacher was not

very active, as she was not as familiar with the *imifino* plants as the parents, so she too was learning from the activity.



Figure 3. Teacher observing learners (mostly girls) identifying *imifino* plants

While the lesson was enjoyable and learners were learning a lot, the boys did not involve themselves in the activity, they seemed to be lagging behind (own observation), so much so that the teachers had to have a word with them. The girls, however, were very active, and they collected many different species of *imifino*. They seemed to enjoy the activity (own observation).

6.2.3 Reflections

In the reflection interview with the teacher I asked if she was satisfied with the performance of the learners, if they achieved the Learning Outcomes and Assessment Standards. How did the teacher perceive the learners during the lesson, were they active, did they all bring back the home tasks? The teacher was satisfied with the learners' performance, and she reported that learners behaved well except for an incident where the boys wanted to do another activity. They were not interested in participating in *imifino* identification because of cultural norms. She reflected that the boys did not show any interest, and that they, in fact removed themselves from the activity (as shown in Figure 4 below). The teacher indicated that after her discussions with the boys they told her that they were not interested because the activity was for

girls and their mothers, not for them. We reflected that in traditional cultural practices collecting *imifino* was the task of women in the community.



Figure 4: Boys withdrawing themselves from the collecting *imifino* activity

We also reflected on teaching methods that were used by the teachers, on teaching and learning support material used and how effective they were. Mrs Malindi said that, “you plan for one or two methods and end up with many methods which is a strength in itself”. When justifying that, she said that “... if you use more than one method you cater for many types of students”. The teachers also said that the garden was a good resource for teaching and learning. We also reflected on the responses shown by students to the different activities. Our views of the boy’s incident were that they should not be forced and as teachers we should design another activity for them in place of *imifino* collection. We reflected that this could enrich the scope of plants being investigated.

In our reflection I also asked Mrs Malindi if she thought that the NCS provided her with enough guidelines for the planning of a successful lesson. Her response showed reflective practice, because she said that “... if she would be given another chance of doing another exercise, she would ask learners to develop their own posters to show different kinds of edible plants and wild vegetables (*imifino*) because working in the garden opened up other opportunities”.

During the interview I had with a learner (a girl) she said that she had never picked *imifino* before, but that her mother had prepared it for them to eat. She reflected that it was good to be part of the practice.

To reflect on what was achieved in the lesson, I drew up a table to help with an analysis of whether the intention of the Lesson Plan (i.e. the Learning Outcomes and Assessment Standards) had been met, as well as how the research question of contextualization and inclusion of local knowledge had been addressed (see table below):

Table 6: Final reflective analysis of the Lesson Plan

Intentions:	Learning Outcomes 1: HEALTH PROMOTION: Assessment Standard 1: Investigate menus from various cultures and suggest plans for healthy meals
Opportunity	Opportunity of talking about other cultures, how they live, what they eat; investigate and identify traditional food plants used in own community
Knowledge	Activity 1: identifying healthy food; different cultures eating different kinds of food Activity 2 &3: variety of indigenous food plants used in own culture and community, as well as other uses of plants Activity 4: identification of <i>imifino</i> (nutritious wild leafy vegetables) plants
Skills	Designing and preparing memos, community research, writing and talking skills, investigation and plant identification skills.
Values	Respect each other's cultures and different cultural norms in own culture, and tolerance of each other when sharing ideas.
Assessment	Assess learners' ability to identify healthy food eaten in different cultural contexts (own and others). Continuous assessment was used to assess while learners are learning, but also learners work was marked to see if they completed all tasks.
Contextualisation strategies	Use of garden, community research, invited parent

A final reflection on this lesson is that the combination of activities provided enough substance and opportunity for learners to achieve the Assessment Standard. However, next time it would be advisable to invite someone from another culture (e.g. Chinese people or Indian people living and working in Butterworth) to come and share what they eat with the learners. This would strengthen the response to the textbook activity, which was only partially completed. It helped to use the Assessment Standard and the school garden as a resource, to guide the Lesson Planning, as this gave focus to the lesson, and the community research activity, the invited parent and the school garden helped with contextualizing and bringing local knowledge into the curriculum.

6.3 CYCLE 2 / LESSON 2 (Grade 5)

6.3.1 Planning the lesson

After Cycle 1, we sat down, myself and two teachers, to plan the second cycle. This time we decided to focus on Grade 5. In the Grade 4 lesson we learned that the school garden, parental involvement and local research were three ways of contextualizing the Learning Outcomes and Assessment Standards, so we thought we would use some of these strategies again. Teachers also reflected that after the Grade 4 lesson it was clear that the garden provided a source of nutritious food that could be extended to the community. We also learned that using the Assessment Standard gave us a good focus for Lesson Planning, so we decided to look into what was expected of the Grade 5 Assessment Standard, and to develop a Lesson Plan that would involve a local survey of food gardens. The Learning Outcomes chosen was Learning Outcome 1: HEALTH PROMOTION: “The learner will be able to make informed decisions regarding personal, community and environmental health”, and Assessment Standard 2 which requires learners to be able to “... investigate a local environmental health problem using different data source and plans, a strategy to address the problem”. A Lesson Plan was drawn up, using the Eco-School template as in the previous lesson, and the NCS statements (see Appendix 3b). While resource books were brought to the planning session, these were not used in the lesson. The reason for this was that the activity was to be an investigation activity. However, other resources were brought into the lesson, in the form of the tyre garden for demonstrating to learners what strategies could be used to develop food gardens in communities. Through this, we were planning to give the learners some guidance for problem solving related to a lack of food gardens in the community because of little space. This was to help the learners meet the Assessment Standards.

6.3.2 Action: Teaching the Grade 6 lesson

Like in the previous lesson, the learners were involved in a set of activities. These included:

- **Activity 1:** Learners investigate (do a survey) in the local community to see if there were vegetable gardens in homes.

- **Activity 2:** Learners report their findings to class. The teachers help learners to come up with solutions to the problem of lack of enough space for vegetable gardens (which is a problem in the local community).
- **Activity 3:** The teacher demonstrates how to make wheel gardens using old tyres to learners.

I now describe what happened in each of the activities.

Activity 1: Learners were given a task to investigate (undertake local surveys) in the local community to identify whether homesteads had food gardens or if they were using small plots to plant a few crops to provide nutritious food for the family. Learners were divided into groups of five. Each group of five learners were tasked with surveying 10 homesteads. The teacher asked the learners what they thought was expected of them, and what they would do when they went to the homesteads. From this discussion she worked with the learners to prepare small worksheets on what to look for in the investigation (see **Appendix 7c**). The worksheet contained questions to guide the learners' investigation. The learners were given a week to complete the task.

Activity 2: After a week the learners came with the findings to report to class. Learners' work showed that learners were able to complete the task (**Appendix 7d**), and that they had conducted the survey successfully. The teacher allowed the groups to meet and prepare presentations, based on their surveys. Learners struggled to report their findings in English, and the teacher then allowed them to report in Xhosa. As indicated in the contextual profile (Section 1), learners in this area are all Xhosa speakers, English is used as second language, and learners come from disadvantaged homes with few written materials, and few televisions and radios. The teacher used code switching from time to time when explaining concepts. When the teacher allowed the learners to report in their mother tongue, I could see happy faces. All of the 6 groups reported and the teacher sometimes drafted some notes on the board, and sometimes asked leading questions to guide the report backs.

The learners reported that they visited the homesteads and found out that many of the homes have vegetable gardens though they were very small. They said that one of the problems is that there was no space as the homes had small yards. Some of the homes have no gardens at all. One parent talked about having no money to develop a garden.

Activity 3: In this third activity, the teacher explained that she would like to involve the class in practical projects to solve the problems they had identified in the survey (i.e. small spaces in the homes for gardens, and no money for garden development). The teacher explained to the learners that there was a simple solution to these problems, and that was to make wheel gardens. She demonstrated how to make a wheel garden using old tyres, soil and seedlings from school. She explained that plants need care and that learners should water their plants and make sure that they get good soil, water and sunlight to enable growth.

The teacher told the learners that this was one way of saving space if there is lack of space at home. Parents could also develop nice decorative gardens like the ones in the school, and could plant vegetables for nutritious food.



Figure 5: Example of a wheel garden

The teacher then divided groups into the same groups of 5 (as in the previous activity), and each group was to make their own wheel garden. Before the lesson, she asked learners to bring old tyres to school, and she asked the male teachers to help cut the wheels in half. The learners could then fill the wheels with soil and plant vegetable seedlings and indigenous plants in separate wheels. Each group was given two wheels or containers to plant and to take care of the seedlings, till they were ready for transplanting. The teacher wrote instructions on the board and underlined new vocabulary for emphases for example: transplanting, wheel gardens, indigenous.

6.3.3 Reflections

The teacher explained that she was happy with the way that the lesson went because learners were actively involved and because they were able to do the tasks successfully. As in the previous lesson, the teacher used different teaching methods, which included group work, show and tell demonstration. What was striking was the active participation of the learners, and learners enjoyed the survey activity, and the demonstration.

To reflect more fully on the lesson, I again drew up a table to help with an analysis of whether the intention of the Lesson Plan (i.e. the Learning Outcomes and Assessment Standards) had been met, as well as how the research question of contextualization and inclusion of local knowledge had been addressed (see table below):

Intention	<i>Learning Outcomes:</i> LO 1: HEALTH PROMOTION <i>Assessment Standards (AS2):</i> Investigate a local environmental health problem using different data source and plans, a strategy to address the problem
Opportunity	Opportunity of doing local survey, getting used to investigative skills, and solving environmental health problem (nutritious food in the community)
Knowledge	<i>Activity 1 & 2:</i> status of vegetable gardening in community; gardening and nutrition <i>Activity 3:</i> a problem solving strategy (wheel gardening)
Skills	Research skills; problem solving skills, technical gardening skills
Values	Tolerance as they work in groups, respect, sharing ideas with others in the group. Care for plants
Assessment	When reporting the findings the teacher assessed the quality of the survey research and whether all learners had completed the task successfully, and whether all learners were contributing in the discussion.
Contextualization strategies	Worksheet to guide local research in community Use of locally available materials for growing food (e.g. tyres)

From this it is clear that learners were able to investigate a local environmental health problem (availability of fresh food in homes from gardens), and were exposed to a strategy to address the problem. This indicates that the Assessment Standard was met as expected. Because of a lack of availability of other sources of data on community food gardens (see Contextual Profile, Section 2), we were not able to find other sources of data on this question that were locally relevant, even though the Assessment Standard expects learners to use *different* sources of data and plans. The strategy of learners engaging in local research is a good strategy for mobilizing local

knowledge of issues, and the strategy of focusing on local problem-solving solutions also helped to contextualise the Learning Outcomes. The emphasis on locally available materials, also enabled learners to collect the tyres easily, which helped with the problem-solving process.

6.4 CYCLE 3 / LESSON 3 (Grade 6)

6.4.1 Planning the lesson

In Lesson 3, decisions were informed by what happened in Lesson 1 and 2. The teacher wanted to improve nutrition in the communities so as to get healthy food that would improve people's health, and to sustain the activities that were done in the previous lesson. Mrs Maninjwa, reflecting on what had been done before, said that "learners should embark on projects that are linked to their homes" (pers. com, 2007). We reflected that the school garden had a section on medicinal plants, and that a lesson could be developed to make better use of this resource, and that it could be combined with local investigation research by learners (as in the previous lesson). However, as this was a Grade 6 lesson, we had to make sure that the activities would address the Grade 6 Learning Outcomes and Assessment Standards, so we then consulted the NCS documents to guide the planning further.

Teachers selected Learning Outcome 1: HEALTH PROMOTION (as in the previous two lessons) but this time Assessment Standard 3 was chosen to guide the Lesson Plan. It states that learners should be able to "Explains causes of communicable diseases (including HIV/AIDS) and available cures, and evaluates prevention strategies in relation to community norms and personal values". As in the previous two lessons, a Lesson Plan was developed (see Appendix 3c) using the Eco-School lesson planning framework. We also planned to use the contextualization strategy of inviting a knowledgeable parent to share his knowledge of medicinal plants in the school garden, and plants of cultural value. This was built on our previous experience of doing this in the *imifino* activity.

6.4.2 Action: Teaching the Grade 6 lesson

In the Grade 6 Lesson, the learners were involved in three activities. These were:

- **Activity 1-** Learners identify communicable diseases- TB, HIV/AIDS etc. Learners identify causes of the above mentioned diseases and suggest cures for certain diseases.
- **Activity 2-** Introduce indigenous plants to learners: Establish their knowledge of these plants. Take learners to go and identify some of these plants.
- **Activity 3-** Learners to go home and find out from their parents about medicinal value of indigenous plants at least four examples.
- **Activity 4-** Invite a local parent to come to the class and teach learners about medicinal value of plants (see Appendix 3c).

Activity 1: The learners were asked to do investigations by interviewing parents in the community. Working with the teacher, they decided to ask the parents these questions:

- *What are diseases that people are suffering from in the area?*
- *What prevention measures are in place?*

The learners found out that parents were reluctant to talk to them about diseases but a few did mention diseases like tuberculosis (TB), HIV and AIDS, scabies and diarrhoea. Learners worksheets showed that learners were able to identify that many people in the area had Tuberculosis (TB) and children suffered from undernourishment and scurvy. Other people had HIV/AIDS. As discussed in the contextual profile (see Section 2), people in this area suffer from infectious diseases and they are exacerbated by socio- economic factors like unemployment, poverty and population growth.

Learners work showed that when asked about prevention measures, parents said that they visit clinics and nurses educate them to grow vegetables and eat fruit and fresh food. The learners work also highlighted inadequate water and sanitation. They also indicated that some people use traditional medicines for coughs because they don't have means to go to the doctor.

Activity 2, 3 and 4: These activities in the Lesson Plan were combined into one activity involving Dlamini, who is a community member employed by SANBI in the school grounds. His task is to look after the indigenous plants, plants of cultural significance and medicinal plants. The teacher decided not to send learners into the community again for further research, but rather to encourage them to ask Dlamini questions. Dlamini addressed the learners, and pointed out the different medicinal plants in the school garden, told the learners their names and uses and where one can get them. The learners were taking notes on those plants that were new to them, and asked questions like “can one use this plant without going to the traditional healers?”, and “how do we distinguish between different aloe plants and how we should use them?”. The teacher was not contributing much, but was interested in the new knowledge that everyone was gaining from Dlamini. Being the researcher, I did not get involved in the activity as such, although I was familiar with the different uses of the different plants. Through my observations, I could however, identify that Dlamini had much to teach the learners and that when one is not sure of the information (as was the case with the teacher), it can help to bring knowledgeable people into the school to share their knowledge and experience with learners. This also confirmed the findings in the Stakeholder Analysis (Section 3) which indicated that community members can share knowledge of indigenous plants and their uses with learners.



Figure 6: Dlamini showing the learners uses of medicinal plants

6.4.3 Reflection

As in the previous two lessons, I asked the teacher whether she felt that the lesson had helped learners to achieve the intended Learning Outcomes and Assessment Standards. Mrs Maninjwa indicated that she was not very happy with the lesson because not all of the groups were able to bring back the information, because they were not able to collect information in all the homesteads because people did not want to discuss the topic of diseases with small children. Also, the clinic was too far, so learners could not go there, so they could not get more information from the clinic. She reflected that she should probably have informed the parents in a meeting beforehand that the learners would be given the task of community research to investigate diseases. Another option would be to invite the clinic staff to talk to children at the school. She was, however, happy with Dlamini's contribution, and what the learners gained from that. This shows, in contrast to the Grade 5 investigation, that it is not always easy for learners to do community-based research activities, and that teachers need to plan carefully for this.

To reflect more fully on the lesson, I once again drew up a table to help with an analysis of whether the intention of the Lesson Plan (i.e. the Learning Outcomes and Assessment Standards) had been met, as well as how the research question of contextualization and inclusion of local knowledge had been addressed (see table below):

Intentions	Learning Outcomes: LO 1: HEALTH PROMOTION Assessment Standards: AS 3: Explains causes of communicable diseases (including HIV/AIDS) and available cures, and evaluates prevention strategies in relation to community norms and personal values
Opportunities	Extending knowledge from local people
Knowledge	Activity 1: Identification of communicable diseases in the community. A clear distinction between prevalent diseases and communicable diseases was not made. Activity 2, 3 & 4: Identification of available cures in the form of medicinal plants.
Skills	Investigations, talking and writing skills
Values	Will know the ways of using traditional medicinal plants in times of need; respecting community knowledge.
Assessment	Assessed the reports on investigations. Intended to assess through a writing project, but this did not happen. The intended assessment task was "Learner to write a project. They must identify communicable diseases and give causes of these. They must suggest preventive measures and apply knowledge of indigenous plants and its value".
Contextualising strategies	Local research by learners; use of parents to teach learners in the garden

As indicated above, the lessons were successfully planned, but implementation was hampered by the sensitivity of the issue, as not all learners could do the research in the communities. This was influenced by cultural norms, which the teacher indicated she would consider next time by talking to parents before the time. As in the Grade 4 activity, drawing on community knowledge of indigenous plants was successful, and learners and the teacher learned about indigenous practices using plants. Two areas, however, that did not get fully addressed (as expected in the Assessment Standard) were firstly, learners having to explain the causes of communicable diseases; and secondly, evaluating prevention strategies. Thus the Assessment Standard was only partially achieved. This may partly be because such activities were not planned for, and because the final assessment activity did not take place. As indicated above, the teacher could also have differentiated between other diseases and communicable diseases to help learners distinguish this concept.

7. MAIN FINDINGS

7.1 INTRODUCTION

From these three lessons and the action research process, I was able to develop some insights into the research question on how teachers use the gardens as a contextualising resource for teaching and learning and how they integrate local knowledge into the Life Orientation Learning Area. This section reviews and discusses these insights through analytical statements that were developed from the study data. As mentioned above, this data was generated through research with two educators, looking at lesson plans, learners' work, interview data and what I observed during garden-based learning activities.

7.2 ANALYTICAL STATEMENT 1: Gardens can be used as a teaching and learning resource in ways that relate to local context

As shown in the action research data from the lessons, the teachers used the gardens in different ways for teaching and learning activities. In the lessons, teachers used the gardens to let the learners look at and identify plant species, especially the wild vegetables (*imifino*) that are nutritious food plants. They also talked about other plants that should be planted at home for a balanced diet. They noted that developing gardens for vegetables promotes healthy living and environments.

The research area is characterised by poverty and HIV/AIDS. Jolly (2006) found in her study that HIV/AIDS and nutrition are closely related, as patients with the virus have heightened need for a diet high in proteins, nutrients and minerals. These local contextual problems came into the garden-based lessons and the use of the garden produce for school feeding was noted as being important in the community. Through the lesson with Dlamini the learners were able to learn about plants in their local context that could be used for health related practices. Similarly they were able to learn how local wild leafy vegetable food (*imifino*) could supplement their diets. In this way the teaching and learning was related to the local context.

In the wider context of the Eastern Cape, malnutrition is wide spread and vulnerable populations, impoverished, elderly and sick are the most at risk for not getting a balanced diet. Through the garden-based lessons teachers came to know that other people in the area support the teaching in the gardens for a healthy environment (see Section 2 and 3). An agriculture officer comes to school to educate the community and learners once a month on how to plant and care for vegetables. This has helped teachers to develop lesson plans and more contextually relevant activities to be done in the garden. The school also has activities that are done by its Eco-School programme on permaculture practices and activities provided by greening outreach programme on indigenous plants. Agricultural officers also promote the use of gardens as they have a programme in the school. Studies by Mvula Jamela (2007) and Ncula (2007) also showed how using the gardens promoted local relevance in dealing with the curriculum.

The local context of school gardens and its relationship to healthy living and nutrition indicated that this resource can be used to address wider concerns of malnutrition and poverty through Life Orientation learning.

7.3 ANALYTICAL STATEMENT 2: Engagement with a variety of learning activities and learning in the garden develops contextual knowledge, skills and values

In all of the lessons, teachers used a variety of learning activities. Key amongst these was the local research by learners, and involving parents in learning about indigenous plants and their uses. These two activities successfully developed learners' contextual knowledge, skills and values, as indicated for example in the learner's interview where

one learner said that she had not collected *imifino* before. The wheel garden activity (i.e. problem solving) that used local materials, also helped to develop contextual knowledge, skills and values.

However, these contextual activities often need preparation. As shown in the Grade 4 lesson Mrs Malindi designed preparatory activities using posters and pictures, as she wanted her learners to participate in and develop some skills before going into the garden to learn. Learners were also required to do an audit on traditional cultural food in their community. Later the teacher extended the knowledge that they brought from home. They thus acquired the skills of collecting and sharing local information and their knowledge was extended through applying what they learned to design menus for healthy meals. The learner work and report back showed that they were putting healthy foods into the menus indicating that they valued healthy foods. This had not been the case before. The Grade 6 lesson, and Mrs Maninjwa's reflections on the lesson, showed that if she had done better preparation (by talking to the parents before the time) the learning might have been more successful, as all learners could have completed the task, with parents prior knowledge of what was going on.

Gough (1997) notes that environmental education is a process of developing skills, creating awareness and knowledge that assists students to understand the relationships between people and their surroundings. He argues that they are developed during the participation of learners in environmentally oriented lessons. In all the lessons, the teachers recognized prior knowledge, as indicated in their lesson plans which indicated what lessons had been taught before, and by questions asked by the teachers at the start of the lessons. Teachers also recognised that learning involves providing learners with knowledge and challenges the 'gap' that exists between what the learners already know, and what they should know (Daniels, 2001). For example, in the Grade 5 lesson, Mrs Malindi first found out what the learners knew at the start of her lesson, she then set activities for the learners to extend their knowledge (the community research), and provided new ideas and suggested solutions for learners to consider and practice (the wheel garden). This reflects a learner-centred, active approach to education. As indicated in the Literature Review above (see sub-section 2 in this study), in OBE a learner-centred approach is explained as responding to what learners already know and challenging them to learn more than they already know through actively engaging in meaning making through relevant learning activities and support from the educator (NEEP GET, 2004). The learner-centred activities, and the

situating of the activities in the school garden and community (through research, demonstration and drawing on parents), indicate that the teachers were all contextualizing the Learning Outcomes and Assessment Standards by considering socio-cultural factors in the curriculum as advised by Cornbleth (1990) (see sub-section 2 in this study).

Contextualising curriculum, especially when working with indigenous knowledge requires teachers to think about resources in the local context. Masuku (1999) states that teaching and learning of indigenous ways of knowing should not be confined to school because indigenous ways of learning are learned from parents at home. In the lessons dealing with indigenous knowledge of plants the teachers drew in parents from the community to help mediate this knowledge as they themselves were not fully familiar with local cultural knowledge and practices. To develop contextual knowledge, skills and values may therefore require teachers to draw on local knowledge from the community, as was done in these lessons.

7.4 ANALYTICAL STATEMENT 3: Teacher and learners knowledge can be extended by drawing on local people to contribute to learning activities

As mentioned above, and as reported in the action research process, teachers used the contextualizing strategy of drawing on parents' knowledge in different ways. One strategy was the use of local community research. From the evidence in this study, it seemed that not only did learners gain from this, but also teachers. Teacher knowledge was extended by working with local people, as teachers did not know all of the local plant names and uses. This was made possible through the participating parents who brought in their expertise and local knowledge, which was contextualised in the garden demonstrations and naming of indigenous plants.

Learners also gained new knowledge. They were given the task of finding information from home about the uses of indigenous plants, about traditional Xhosa food, and about diseases prevalent in the community. In the food activity, they brought lists showing a traditional Xhosa menu. Learners were expected to ask older people because much of the food is not used anymore as people are influenced by modern culture and forget about the older practices (see Section 2). Through this activity, both the teacher and the learners learned about *amarewu*, *qhumatala*, *isophi* and *umphokoqo*. As reported in sub-section 6 above, learners were also given a task to go

and investigate if there were any gardens in the community, and through this they learned more about the status of gardening in their community. They also learned from the parents who came to teach them about the names and uses of the indigenous plants.

In South Africa, parents have traditionally been marginalized from schools for a long time, because of the authority of the old syllabi, and the way of seeing teachers as the only experts. From these activities, it was clear that both teachers and learners can learn new things from people in the community. In the parent interviews (Appendix 8) Mrs Mambo and Dlamini both expressed that they now they feel needed and appreciated by teachers and they are happy to share their knowledge with learners when needed. Cornbleth (1990) supports parental involvement in school when she notes that schools and classrooms are not closed systems that are inaccessible to outside influences but are social organizations, embedded in the education system, society and history. As indicated in the Literature Review, the Department of Education (2005) also supports parental involvement in schooling, as it states that the parents and the wider schools community needs to work together with the school to set priorities for learning actions within the framework of the NCS and its Learning Outcomes and Assessment Standards. This study has shown how this could be done, in the context of school garden activities and the Learning Outcomes and Assessment Standards in the Life Orientation Learning Area.

7.5 ANALYTICAL STATEMENT 4: Cultural values influence learner responses to the inclusion of indigenous knowledge in the curriculum

As reported in the action research processes above, there was more than one incident where cultural values influenced the learning process. One of these was in the Grade 4 lesson, during the *imifino* collection activity. As reported above, the boys saw this activity as being made for girls only. This is because culturally *imifino* was collected, cooked and eaten by girls and their mothers. If a boy or a man is involved in *imifino* practices he is perceived as taking on feminine roles. This was also reported in a study by Asafo-Adjei (2004) when he worked with learners on Agricultural Science activities to look after *imifino* plants in the school garden. He argued that it is necessary to consider socio-cultural factors when working with indigenous knowledge in the curriculum.

Usually in Xhosa culture there are errands that are supposed to be done by women only, for example cooking, collecting and preparing wild vegetables. Men were traditionally involved in other activities such as hunting, ploughing the fields and herding livestock. In some places people still practice these traditions, so it was not surprising that the boys in the class behaved like they did. In the interview with Dlamini (Appendix 8), he cautioned that boys could not be forced to deal with *imifino* because in the location (community) they could be looked down on by other boys and be called a 'sisi' (Another name for a woman in Xhosa). Jolly (2006) in her study supports this notion by stating that, there is a widely held Xhosa belief that man should not eat wild *imifino* for fear that it would make them cowardly, impotent, shy or "less man". I also agree with Jolly's evidence as it is widely known in Xhosa culture (own experience). Masuku (1999) argues for the need to bridge between indigenous environmental knowledge learnt at home and the knowledge in the curriculum and modern day culture and practices.

Masuku (1999) notes that indigenous ways of knowing are multifaceted, and by virtue of the fact that indigenous ways of knowing often draw on personal experience and historical story, indigenous knowledge cannot be held within one particular source. They go on in their research talking about repositories of indigenous ways of knowing. They note that there has been some contestation between the roles of men and women as repositories of indigenous knowledge but point to how knowledge is embedded in patterns of community practice more than in verbal and gender based narrations (Masuku 1999).

In the context of Life Orientation, this cultural issue raised some difficult questions, particularly related to the case of the *imifino*. *Imifino*, or wild spinach, is an important vegetable for health, as it is nutritious (Shava, 2000) and could contribute to community health, especially when cooked with mealie meal. After discussions on this, many of the boys came to the conclusion that they were happy to eat spinach and cabbage as green leafy vegetables for their health but would not eat wild plants or *isigwamba* (*imifino* with mealie meal).

As reported above, cultural norms also influenced the lesson in Grade 6 when parents did not want to respond to their children's questions about diseases, as they did not think it was appropriate to talk to young children about such matters. I did not know that Xhosa's in urban areas are so influenced by culture. This was a new and valuable

experience for me and the other teachers, and indicated that we need to plan carefully when working with cultural knowledge and sensitive issues in the curriculum. Involving parents in some of the planning activities could help to mediate this issue.

8. CONCLUSION

The main purpose of conducting this action research was to find out how teachers use gardens as resources for enhancing teaching and learning, and how they integrate local knowledge in the Life Orientation Learning Area. I started the study by outlining the changing curriculum environment in South Africa, which now foregrounds environmental learning in different Learning Areas, with a specific focus on a healthy environment. I also outlined how curriculum can be considered a 'contextualised social process' (Cornbleth, 1990), and that curriculum is an ongoing process of action and reflection (Grundy, 1987). I also considered the question of situated learning, and involvement of communities in the process of curriculum contextualization.

In the action research process, all of these aspects were considered and addressed, as we worked with the Learning Outcomes and Assessment Standards, and contextualized the learning through activities that drew on local knowledge through different strategies (investigations, demonstrations and parental involvement). The action research process only covered three lessons in one school, and was a small-scale study. It was, however, informed by two other small-scale studies – a contextual profile (Section 2) and a stakeholder analysis (Section 3). In reporting the main findings, some useful insight into contextualized curriculum development processes were gained, as outlined by the analytical statements above. Techniques that were used in the study made it possible for me to collect data that led to findings of the research.

Besides learning something about the research question, I have learned that the action research process is useful for strengthening the role of the teacher as researcher and life-long learner (DoE, 2000), and that teachers, when they are reflective of their practice, can continue to improve practice. I have also learned that when teachers fill the role of mediator of learning (DoE, 2000), they can draw on the knowledge of other people (especially parents), and that careful thought needs to go into planning. For the role of Learning Programme designer and interpreter (DoE, 2000), I have learned that it is useful to put effort into the planning process, as this guides the lessons. These

lessons all used the Assessment Standards carefully, which provided good direction for the lessons, even though the Grade 6 lesson did not adequately fulfil the requirement of the Assessment Standard. This study has also shown that when planning and teaching lessons (i.e. when designing learning programmes and work schedules) teachers can make use of the school gardens and local knowledge as a resource for achieving the Learning Outcomes and Assessment Standards.

APPENDIX 1: RECORD OF MEETING WITH PRINCIPAL AND SGB

Record of Meeting

The purpose the meeting was to let the principal, the SGB and the colleagues to work with the research process and to know the plan of the research, that it was a requirement in a Master Degree Programme in Rhodes University.

The researcher explained that she was going to work with two life orientation teachers observing how they conduct lessons that lead to greening activities and how they involve local expertise in the classroom.

The principal of the school welcomed the idea and voiced out that if this research would be a success she would like all the teachers to follow suite and conduct research amongst each other.

The SGB, parent component was not much enthusiastic, not exactly sure what was to take place.

The researcher and educators decided on a date of planning meeting so as to start the process.

Teachers asked to be given one day to collect policy documents and resource books.

Mrs. Malindi said that the planning meeting was anyone can join the meeting.

APPENDIX 2: INTERVIEW SCHEDULE FOR INTERVIEW WITH PRINCIPAL

After the presentation how do you feel about this research?

Do you think it is right to involve other teachers in the research?

Does the district conduct some national curriculum statement workshops or monitoring teachers who are involved?

If these are things that need to be brought in this process, how would you handle that, is there any fund in the school to cater for that?

Is the School Governing Body happy about the research?

You are welcome to join the teachers anytime when they do the activities, would you join them some time?

APPENDIX 3a

LESSON PLAN FOR LIFE ORIENTATION GRADE 4

Focus Area: School Grounds e.g. Food Garden Teacher: Malindi M N Lesson on: Healthy meals Duration: 3 weeks Date: 05-03-07 Topic: Cultural Menus and Healthy Meals		Activities: Activity 1: Learners brainstorm poster (food) Activity 2: Take home task (Learners investigate about indigenous edible plants used at home and the community) Activity 3: Learners report back to class with deliberations from teacher Activity 4: Visit to the garden to identify wild vegetables and vegetables	
Learning outcomes: LO1 The learner will be able to make informed decisions regarding personal, community and environment health	Assessment standards: AS I: Investigate menus from various cultures and suggest plans for healthy meals	Forms of Assessment: Teacher Peer Parent Self	Teacher Reflection: Learners participate effectively during the lesson.
Link with Previous Lessons: Different cultures in South Africa	Link with next lesson: Children's Right and responsibilities		
Core Knowledge: Cultural knowledge, Healthy menus	Context: A healthy environment	Critical and Development Outcomes: 1. Work effectively with others members of a team, group or company	
Resources Books Posters Garden Human Resources	Expanded opportunities Research: Visit to the garden	Link to action projects: Learners to make booklet and write names (lists) of edible indigenous plants.	

APPENDIX 3b

LESSON PLAN FOR LIFE ORIENTATION GRADE 5

Focus area	Food choice
Teacher: Malindi M N Lesson on: Local survey on food gardens Duration: 2 weeks Date: 26-03-2007	
Learning Outcomes LO 1: the learner will be able to make informed decisions regarding personal, community and environmental health	Assessment Standards AS 2: Investigates a local environmental health problem using different data sources, and plans a strategy to address the problems
Link with Previous Lessons Healthy meat (food)	Link with the next lessons
Cure knowledge	Context A healthy environment
LEARNING ACTIVITIES AND ASSESSMENT Activity 1: Learners investigate (do a survey) in the local community to see if there were vegetable gardens in homes. Activity 2: Learners report their findings to class. The teachers will come up with solutions to the problem of lack of enough space for vegetable gardens (which is a problem in the local community). Wheel garden is introduced. Activity 3: The teacher demonstrates how to make wheel gardens using old tyres to learners.	
Expanded opportunities: Learners will practice making wheel gardens (using old tyres)	Resources: Books, community members, learners, old tyres
Forms of assessment: Teacher, Peer, Self	Teacher reflection: Learners came with findings which led to the introduction of container or wheel gardens as small project for learners.
Critical and developmental outcomes Work effectively with others and community members	Link to Action Projects Learners to practice wheel garden at home, and are introduced to intercropping of different types of vegetables.

APPENDIX 3c

LESSON PLAN FOR LIFE ORIENTATION GRADE 6

LESSON PLAN on: Communicable diseases		GRADE: 6
DURATION: 3 weeks		
LEARNING PROGRAMME: Life Orientation		
LEARNING OUTCOMES AND ASSESSMENT STANDARDS: LIFE ORIENTATION LO1: Health Promotion – the learner will be able to make informed decisions regarding personal, community and environmental health. AS3: Explains causes of communicable diseases (including HIV/AIDS) and available cures, and evaluates prevention strategies in relation to community norms and personal values.	INTEGRATION:	
LINKS WITH PREVIOUS LESSONS:	LINKS WITH NEXT LESSONS:	
CORE KNOWLEDGE: Communicable diseases and medicinal plants	CONTEXT:	
LEARNING ACTIVITIES: Activity 1- Learners identify communicable diseases- TB, HIV/AIDS etc. Learners identify causes of the above mentioned diseases and suggest cures for certain diseases. Activity 2- Introduce to learners indigenous plants: Establish their knowledge of these plants. Take learners to go and identify some of these plants. Activity 3- Learners to go home and find out from their parents about medicinal value of indigenous plants at least four examples. Activity 4- Invite a local parent to come to the class and teach learners about medicinal value of plants.		
PLANNED ASSESSMENT TASKS FOR RECORDING: Learner to write a project. They must identify communicable diseases and give causes of these. They must suggest preventive measures and apply knowledge of indigenous plants and its value.	RESOURCES: Books, posters, human resource	
EXPANDED OPPORTUNITIES:	TEACHER REFLECTION:	

APPENDIX 4: INTERVIEW WITH EDUCATORS ON LESSON PLANNING

- What are the important factors that you look for in planning?
- How do you handle assessment standards, do you separate or cluster them?
- What materials do you need to collect that can help you when doing planning?
- Who is involved in lesson planning?
- How does one unpack assessment standards?
- Is it important to take into consideration learner's ages when designing activities?
- How do you deal with assessment in your planning?
- What resource material area are you going to use when implementing the lesson?
- Do you find it fruitful working with colleagues in planning?
- How many activities are you supposed to work with?
- How do you think having projects like gardens in wheels will help?

APPENDIX 5: OBSERVATION SHEET (TOOL)

A. Researchers details: EN Rasi
Educator: Mrs Malindi

Date of observation: 12 March 2007

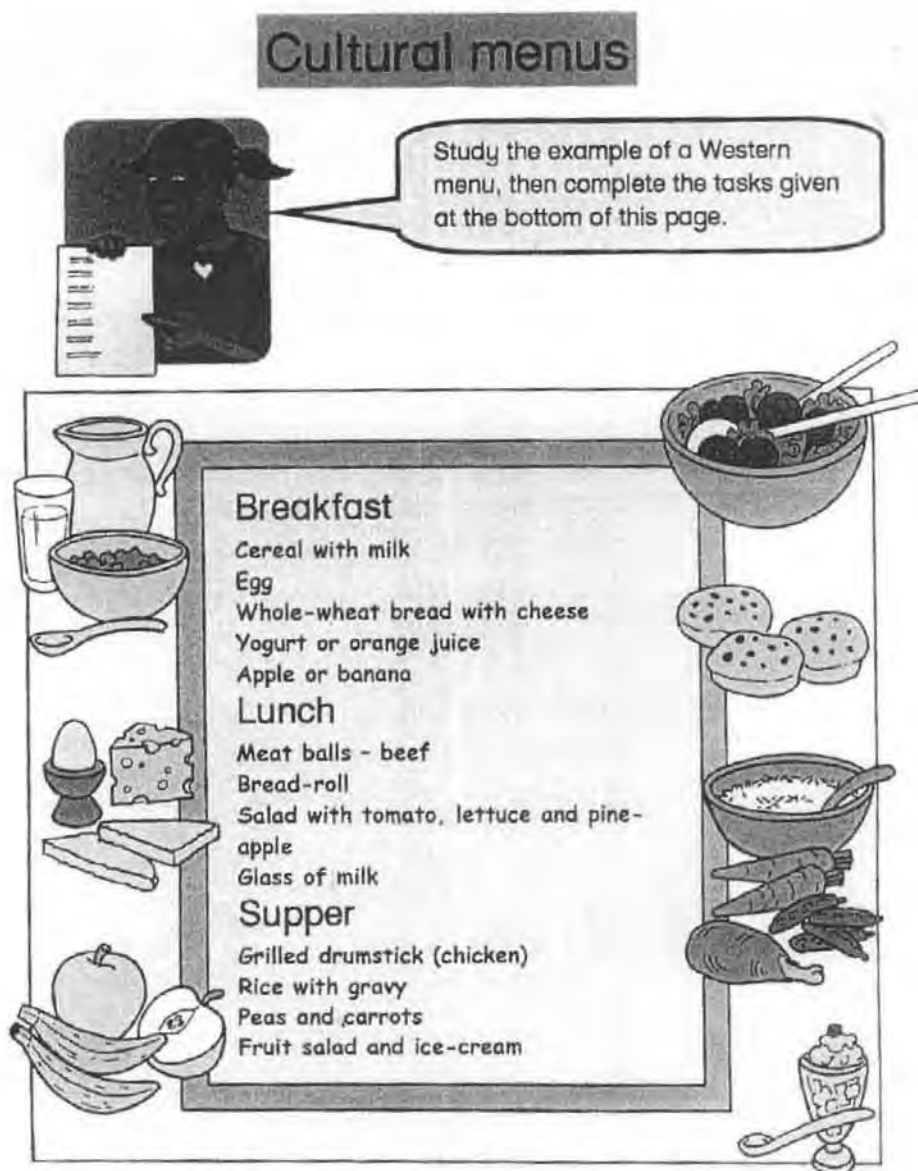
B. School Name: Zizamele Senior Secondary School
District: Butterworth
Educator's name: Mrs Malindi
Grade observed: 05
Learning Area Observed: Life Orientation
No. of Learners: 42
Language of Institution: English
Home language: Xhosa
What resources are available for use in the class: Chalkboard, Books, Posters, Food Garden, Plants.

C.	INSUFFICIENT	SUFFICIENT	HIGHLY SUFFICIENT	NOT APPLICABLE
Educator manages and emphasizes time frames	X			
Educator gives clear instructions	X			
Educator states Learning Outcomes at the beginning of the lesson	X			
Activities are relevant and applicable to own context	X			
Activities are extended	X			
Educator encourages learners to express their own ideas	X			
Educator accommodates learner's needs by code switching	X			
D Educator use different facilitation skills	X			

E. Learner behaviour	INSUFFICIENT	SUFFICIENT	HIGHLY SUFFICIENT	NOT APPLICABLE
Learner's responsibilities of their task		X		
Learners are fully engaged and focused on activity		X		
Engagement in constructive verbal exchanges between learners and educator.			X	
Learner's are cooperative and helpful with each other			X	

F. Use of resource	INSUFFICIENT	SUFFICIENT	HIGHLY SUFFICIENT	NOT APPLICABLE
Text books and curriculum based activity books and work sheets		X		
Library material		X		
Teacher resource material such as harts		X		
Learner's work is visible in class		X		

APPENDIX 6a: CULTURAL MENUS



Complete the following tasks in your assignment book:

- 1 Draw up your own Western menu.
- 2 Draw up menus that would be typical of the foods enjoyed by people from another cultural group. Use the information given in the table on the previous page and any other information collected by you.
- 3 Determine whether these menus are balanced or not. If not, make suggestions about how they could be improved.

APPENDIX 6b FOOD FROM AFRICA POSTER

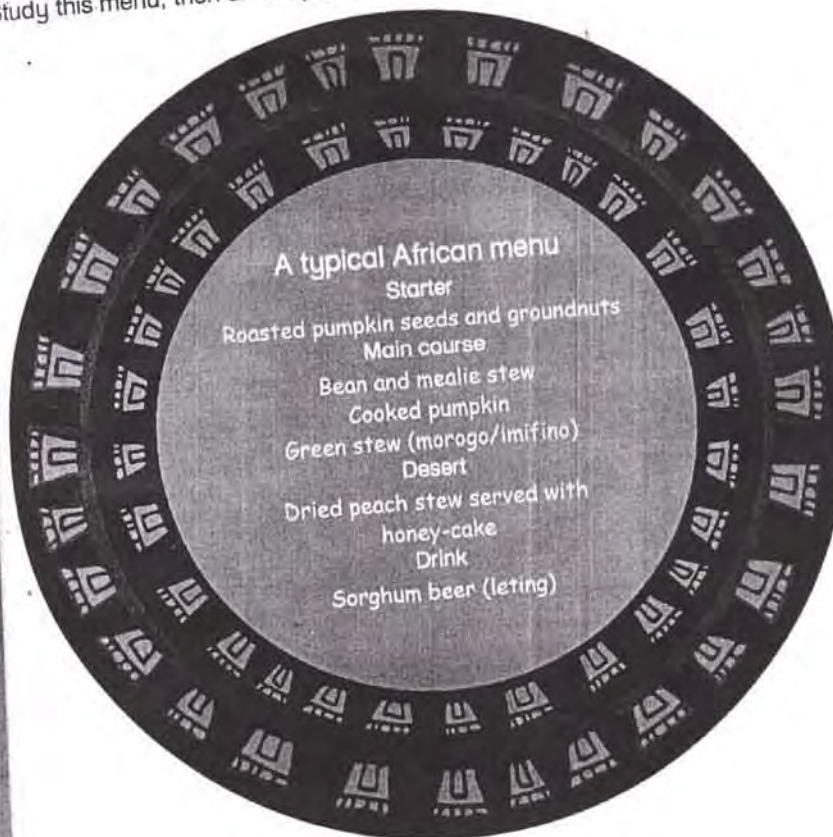
Appendix 6(b)

Food from Africa



People from Africa loved food like maize, pumpkin, wild fruits and plants.
As more people moved to the cities, their eating habits changed.
Discuss in your group how and why their habits changed.

Study this menu, then draw up your own variations.



APPENDIX 7 (a-d) LEARNERS' WORK

APPENDIX 7a

APPENDIX 7(c)

9 March 2007

Juwanda Luthane

Life Orientation Classwork

Western Menu

i.

Breakfast

Cereal with milk

rye bread with butter and jam

Poached eggs

Apple juice or yoghurt

Orange or banana

Lunch

Meat balls (fish)

Buns

Salad with cucumber, tomato and avocado

Pear

Glass of milk

Supper

Roasted chicken breasts

Savoury rice

Creamed spinach and pumpkin

Fruit salad and waffles

2. Menu for Xhosa cultural group

APPENDIX 7b

Ndwandwa Montsikelelo

23 March 2007

Appendix 7b) U

Food that was eaten long ago (traditional
Xhosa food).

1. Igqumataala	Amagamba adibene neemboty!
2. Amarewa	isidudu esivutyelwe ngomlamiso
3. Umvubo wempothulo	iinkobe eziqiliweyo zadityaniswa nancas
4. Umculo	Umpokoko ovutywe ngamarewa
5. Amaceba	Amasela acandwe phakathi
6. Umxhaxha	iinkobe ezidebene nethanga
7. Inqanqana	iinkobe ezigalelwe umkhazi
8. Umngqusho	umbona omngqushweyo
9. iinkobe	umbona oqakile andenzi waphakwa
10. Umqomboti	isiselo sakwambi enxuzis ngentlobo

Appendix 1(c)

Grade 5

Group 3

Matshingana Sixolile

Njanjala Simamkele

James Simbongile

Ncapayi Lutshe

Deja Meto

Local survey questionnaire conducted in the the community on food gardens.

- How do you get vegetables?
- How often do you cook vegetables?
- Do you know that, eating vegetables, wild or normal vegetables is nutritious?
- Are there health officers (concomit) that visit the community to educate people about taking care of the food gardens (planting, transplanting and watering) and plants.
- Is there any other way of developing gardens, in order to save space?

L. H. Thompson

APPENDIX 7d

March 2008

Appendix 7(d)

Grade 6

Worksheet

Find out about the state of health in the community, are there any invisible communicable diseases that you know of e.g. Tuberculosis - (Investigations can be done in xhosa)

- Ingaba zeziphi izifo ezixhaphakileyo ekuhlaleni? (ezosulelayo)
- Ingaba zibangelwa yintoni ezi zifo?
- Into zini ezenziwayo ukuze abantu baphile kwezi zifo?
- Ezintyeni zikhona into eutyhalwayo ezifana nemifino?
- Izigqhamo zona?
- Cebo lini elinokwaziwa abantu bafumane mifino nezigqhamo.
- Ka umntu enganamali yokuya kuzagqira bayamsetentisa amayezwa esixhosa?

Teacher's

APPENDIX 8: INTERVIEW SCHEDULE FOR PARENT INTERVIEW

Questions for Ms Mambo

- Do you have garden at home?
- Do you plant vegetables?
- Do you eat wild vegetables?
- How did you learn to look for *imifino* and cook it?
- Is it only found in the garden?
- As a young girl, were you told by your parents why you eat *imifino*?
- Can you come to the schools garden to show and explain to learners what *imifino* is, and where they are found and what time?
- Some of *imifino*, I understand are used for medicinal plants and for cooked food also?
- Are there many people in the community that cook *imifino* for family meal?
- Are all people in the community having gardens or plots for vegetables?

Questions for Dlamini

- What do you know of men not eating *imifino* or involved in *imifino* preparations?
- Do you eat *imifino* at home?
- What happens if a man eats *imifino*?
- Is it important in the community?
- Do you know indigenous plants?
- Can you take learners through the indigenous garden and explain about the plants?
 1. Medicinal value
 2. Cultural value
 3. Other value
- Can you also talk about other plants that are found in the forest, that are not in the garden?
- Can you tell them when and where they are found?
- Is it okay to use these medicinal plants without the guide of a traditional healer?

APPENDIX 9: QUESTIONNAIRES (LEARNERS' WORK)

STUDENT WORKSHEET

- Write names of indigenous plants according to wild fruit, leafy wild vegetable. Plants of medicinal value and plants of cultural significance.
- Are there any indigenous plants that are found in our school garden (indigenous and food garden)?
- Have you ever seen any of these plants in the community?
- Where do wild vegetable (*imifino*) usually grow?
- Name wild vegetables that you see in the garden?

APPENDIX 10: REFLECTIVE INTERVIEWS

- Did doing collective planning give any help (phase planning)
- Why did you decide to use the eco- schools lesson planning template when planning your lessons
- Why did you use a combination of activities in one lesson?
- Did the NCS documents provide enough guidelines when planning?
- Do you think that the lesson helped to achieve the set learning outcomes and assessment standards
- Were you satisfied about the learner's performance during the activities?
- How did you perceive the learners during the activities, were they active, did they bring much information on home tasks?
- Did the learners bring enough information (findings) from the research done in their communities?
- Did the boys perform the same as girls in all the activities?
- Did they say what the problem was in the Imifino activity?
- Are you happy about all the activities that you prepared for the lessons?
- How do you feel about the contributions made by community members, Mlamini and Mrs. Mbambo.
- Do you think that involving community members in teaching and learning helped in contextualising the curriculum?

APPENDIX 11: LETTER REQUESTING PERMISSION FOR CONDUCTING THE RESEARCH

TO: The Principal

FROM: Nandi Rasi

Zizamele Senior Primary School
Butterworth

Date: 22 January 2007

Dear Sir/Madam

I am a master of Education student at Rhodes University, Grahamstown. I am required to undertake a case study as part of my course requirements.

The study will be an action research, trying look at how teacher use the school garden as learning resource, also to find out how parents can be involved in the children's learning.

I request you to allow me to exercise in school as it is participating in the greening the nation Outreach programme offered by SANBI. I further request to work with two teachers in the life orientation learning area in the intermediate phase.

Thanking you for your co-operation

Yours truly

.....

Nandi Rasi

SECTION 5

REFLECTIONS ON THE PORTFOLIO

1. CHALLENGES OF CONDUCTING RESEARCH

In this research process, I experienced a number of challenges, these include:

1.1 Methodological difficulties

In conducting these studies, I experienced some challenges in deciding which orientation and methods to use, in an area like mine, where there are people who have never been exposed to research studies. People are always suspicious that when you need information from them you will go to the police and they can be arrested. For example, when I got to Mr. Nogqala's homestead for interviews, he asked some questions like, what I am going to do with the information, and am I going to pay people after interviews? The challenge I had was that of writing a research report, I was struggling; my supervisors did a great job in guiding me towards writing a research report.

1.2 Unit time and access

Conducting research part-time is challenging, because of time constraints. Accessing time was most challenging because I had to do my school work, attend meetings and workshops and also attend extra curricular activities. The time for conducting interviews was minimal. I came home very late from work and had to visit people during the evenings.

1.3 Gender stereotypes and culture

Another challenge I faced in the research was related to gender stereotypes, where I had to deal with a group of learners who did not want to do certain activities because they thought that those activities were meant for girls. From this, I come to the conclusion that the researcher should also understand the culture of his/her participants. I also realized that it was because of my cultural knowledge of plants that I was able to see if Dlamini was teaching the

learners accurately in the school garden. This also shows that knowing the culture of the research participants can help in the research process.

1.4 Language

Language is a challenge to research. In schools the medium of instruction is English, and learners have little background and experience in English, especially in our area. This meant that I had to conduct interviews in Xhosa and then transcribe, which is sometimes difficult to do. The context has already been described where learners struggle with language because of illiteracy (see contextual profile).

2. HOW THIS RESEARCH CAN INFORM THE GREENING THE NATION PROGRAMME

Environmental education practiced in the curriculum links is needed to ensure sustainability of Greening activities in schools, so that the gardens can be a resource for learning, and not just a decoration. I think that SANBI has taken the right decision to support schools to integrate greening activities into the curriculum, as this can help to equip learners with skills, knowledge and values, so as to be informed citizens. As shown in this study, such activities can be relevant to learners and their communities. The hope is that learners will change communities for the better, and will contribute responses to the issues relevant to their lives and communities.

This research has contributed the following to the SANBI Greening the Nation Programme:

- examples of practice in using school gardens for Life Orientation learning
- examples of practice showing how local knowledge can be used to teach learners about plants, especially indigenous food and medicinal plants
- examples of practice which show how things learned at school, can be taken to the homes (e.g. the wheel garden)
- examples of practice that show how the Learning Outcomes and Assessment Standards can be achieved using school gardens as a resource for learning

These insights can be used by SANBI to develop more curriculum orientated learner support materials that support use of gardens in Life Orientation, and integration of local knowledge into the curriculum. Why I say this is because the NCS is not explicit on how teachers can use gardens as resources for learning, or how greening activities can be integrated into the curriculum. This is left to the teachers who have the challenging task of contextualizing the curriculum, as shown in the action research study. More learning support materials could help these teachers to get started.

Supporting educators (like myself) to develop skills to support others to do such work through environmental education courses (such as the one I did at Rhodes University) could help to ensure sustainability of the project in future. This would help teachers to take ownership and extend the project and its benefits to other schools. These teachers could also advise other teachers how to contextualize the curriculum, through the use of the gardens.

3. CURRICULUM CONTEXTUALIZATION

Through three small- scale studies, I have worked towards developing a better understanding of curriculum contextualization in South Africa, which is busy implementing a new National Curriculum Statement. The contextual profile (Section 2) gave me insight into the broader context, and I learned about the issues that need attention in our community. I also learned about different interventions / projects that are working with and supporting schools in our area. I also learned more about the history of my school, and the learners in the school, and also how the school has grown and what its challenges are. The Stakeholder Analysis (Section 3) on the other hand, gave me a broader insight into people and organizations who could contribute to activities in the school related to greening and use of school gardens. In particular, I came to a better understanding of different roles and interests of the different stakeholders. It was here that I realized that parents could make a valuable contribution to the curriculum, especially when dealing with indigenous knowledge of plants. The Action Research process (Section 4) gave me better understanding of *how* curriculum can be contextualized using school gardens and local knowledge, and what issues emerge when dealing with local knowledge in curriculum contextualization processes.

The three studies together have therefore deepened my knowledge of the school that I work in, its broader community, the issues confronting this community, and how teachers can respond through curriculum activities. The main lessons that come out of this study about curriculum contextualization are:

- it is important to understand the local culture and local issues in the school community
- a variety of different teaching methods help with curriculum contextualization
- methods that involve learners in investigations, demonstrations and that involve parents can help with curriculum contextualization
- the Learning Outcomes and Assessment Standards can provide useful guidance for planning curriculum activities that also address contextual issues
- contextualized curriculum activities are influenced by cultural norms.

And finally, I have learned that teachers can create space for community knowledge to be incorporated into the classrooms to help them contextualize the curriculum. As shown in this study, this involves local members sharing their expertise with both teachers and learners, and that teachers can also learn from such processes.

4. WHAT I HAVE LEARNT ABOUT THE CONTEXT I WORK IN

Besides learning about the curriculum contextualization process, I have also learned more about the area that I teach in. As shown in the contextual profile, the area is characterized by numerous issues which range from population growth caused by people moving from deep rural areas and neighbouring farms searching for jobs. Most industrial areas have since moved and through lack of accommodation, informal settlements have developed. There is a high unemployment rate which resulted in poverty and other issues including drug and domestic abuse, infectious diseases and teenage pregnancy. Though the municipality has engaged in many projects, it seems to concentrate on rural areas and areas that are semi-urban are neglected, and there is a gap between rural and semi-urban areas under the same municipality.

Developing an environmental project through SANBI such as the Greening the Nation Programme, can address some of the problems in the area, as it has

employed people (Job creation) and has helped learners and other people in the community to cultivate and grow fresh vegetables. This is helping to supply nutritious food to communities for cheaper prices, and with developing soup kitchens for learners, while raising funds for the school. This study has also shown that it is important to include a *learning* focus in this work, so that learners can learn more about their communities' knowledge and practices, and the status of gardening in the community.

I also found out that parents are reluctant to attend meetings and associate themselves with school activities. It was said that this was the result of the past curriculum that was not inclusive of parents and other stakeholders. The school and community relationships are not that inclusive for the whole school development.

However, since I managed to consult with parents through this research which I undertook with other teachers in the school, and through the research based activities in the communities, things have changed and there are signs that parents, community members and other stakeholders feel that they are part of the school family.

5. RECOMMENDATIONS

For SANBI:

From these studies I would recommend that SANBI provide further materials to support teachers to conduct curriculum contextualization work such as the work conducted in this study.

SANBI could also draw on and build partnerships with the stakeholders in the community to help ensure that the greening activities can be sustained.

For Teachers:

From this study I would recommend that teachers continue to draw on parents as resources for learning in school gardens, and that they involve parents in the planning of the activities to ensure that the activities run smoothly.

I would also recommend that teachers take socio-cultural factors in the community into account when doing curriculum planning. Teachers when

selecting projects need to look at things that could benefit the community, because of factors like poverty and hunger that may impact in the school activities. At the same time, teachers should look at what the learners can learn from the projects.

I would also recommend that teachers in my school continue to work together with other stakeholders who can contribute to the curriculum outcomes, and to whole school development.

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