

**AN EXPLORATION OF THE AVAILABILITY,
DEVELOPMENT AND USE OF LEARNING SUPPORT
MATERIALS ON WASTE MANAGEMENT IN KWAZULU
NATAL
(A CASE STUDY)**

Submitted in partial fulfilment of the requirement for the degree of
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By

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Dedication

*This thesis is dedicated to my mother who is always there for me
You committed yourself to working under very difficult conditions to
afford me the best education you could.
I count myself lucky to have a mother like you
Ngiyaziqhenya ngawe.*

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DECLARATION

I, the undersigned, hereby certify that the work contained in this thesis is my own original work; it has not been submitted for a degree in any other university.

Signature

March 2006

Date

ABSTRACT

This case study was done in KwaZulu–Natal province in South Africa within two municipalities Ethekewini and Umsunduzi Municipality. Three communities participated in this study. The research is motivated by the lack of cooperation between some municipalities and Community Based Organisations (CBOs) in implementing the National Waste Management Strategy (NWMS) at a local level. The primary goal is to explore the availability and development of learning support materials (LSMs) that relates to waste management in collaboration with CBOs and local councillors. The secondary goal is to explore the use of learning support material to promote participation in the implementation of the NWMS. Co-researchers were from the Community Based Organisations as well as local councillors who are located within the communities of these CBOs. Pseudonyms for co-researchers from CBOs and Councillors and the name of their townships have been used to protect co-researchers. A literature review has been conducted to explore research that has been done on the development, usage, accessibility and distribution of the LSMs.

Data collection methods included semi-structured interviews; field visits to communities, tape recording of discussions and the keeping of a field journal. Some of the key findings included that LSMs is used by both CBOs and Councillors to try to reduce local environmental problems. It also identified that there are no formal mechanisms between CBOs and Municipalities in dealing with waste management programmes within the identified communities. The other important finding was that the participation of CBOs in the development of LSMs normally excludes the user groups as a result language used is not always understood. Illustrations used in some cases may be misinterpreted if the reader is not English literate as most of material in circulation is written in English. Some recommendations for further research have been made in relation to the findings made in the study. These included recommendations on the development, usage of LSMs, participation of stakeholders in resource development within the context of CBOs and local municipalities.

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List of Abbreviations

CBOs:	Community Based Organisations
DEA&T:	Department of Environmental Affairs and Tourism
DAEA:	Department of Agriculture and Environmental Affairs
EE:	Environmental Education
EJNF:	Environmental Justice Networking Forum
GET:	General Education and Training
LA21:	Local Agenda 21
LA:	Local Agenda
LSMs:	Learning Support Materials
NGOs:	Non-Governmental Organisations
NEMA:	National Environmental Management Act
NEEP:	National Environmental Education Programme
NWMS:	National Waste Management Strategy
RDDA:	Research, Develop, Distribute and Adopt
WESSA:	Wildlife and Environment Society of Southern Africa
WSSD:	World Summit on Environment and Sustainability Development

Chapter 1

Overview of the study

1.1 Introduction

This chapter introduces the thesis. It provides the context of the study. It also reflects on international and national policies and legislation that informed the study. Reference is also made to my role as researcher as a key influence in this study in my professional capacity as Organisation Development and Training Manager for Environmental Justice Networking Forum (EJNF). A summary profile of all co-researchers is provided but pseudonyms for both participants and name of townships have been used to protect all co-researchers. A brief description of each chapter is introduced to provide the reader with an idea of what each chapter entails.

1.2 Context of the study

This study was undertaken in South Africa in KwaZulu-Natal province (See annexure 1) in two municipalities namely the Ethekewini Municipality (Umthombo Township, 'O' section) and Umsunduzi Municipality (Umlahlankosi and Umdoni Township). These municipalities were chosen for two reasons: Firstly they are within the proximity of the researcher Secondly the co-researchers are situated within them. The CBO's were chosen because they are the member organisations of EJNF (my employer) and they are also within the proximity of the researcher. Motivation for this study has been informed by a perceived lack of cooperation between municipalities and Community Based Organisations (CBOs) in implementing the National Waste Management Strategy (NWMS). The primary goal is to explore the availability, development and use of learning support material (hereafter referred to as LSMs), to promote participation in the implementation and collaboration between Municipalities and CBOs in implementing the National Waste Management Strategy (NWMS).

This entailed an assessment and exploration of what LSMs existed and how these learning materials were perceived and used by the two groupings. It also involved

the critical appraisal of the LSMs documents that were collected as part of the research data from different stakeholders in the field of environmental education. Two closely related questions arise from this research context: What LSMs presently exist and are available to CBOs and Local Municipalities to collaborate in the implementation of the National Waste Management Strategy in KwaZulu-Natal? Implicit within this is the accessibility and value of these LSMs to the user groups (municipalities and CBOs).

It is intended that this research will contribute towards these two groupings (local municipalities and CBOs) collaborating in identifying relevant LSMs regarding waste management and the implementation of waste management programmes in their areas. This need for collaboration is supported by Russo and Lotz-Sisitka (2003) who observed that:

A realization has come that in order to address these problems, educators, learners, and other stakeholders needed to work together to collaboratively develop appropriate solutions, and appropriate LSMs... A better understanding of broader perspectives on environmental issues and risks is considered useful for orienting environmental education processes towards sustainable development, improved environmental management and life style choices in healthy and equitable environments

(Russo and Lotz-Sisitka, 2003:2).

1.3 Participation

1.3.1 Selection of participants from identified organisations

In selecting the CBOs I chose to work with Ukujula Youth Development Initiative from Umthombo Township, Umdoni Environment Projects from Umdoni Township and Ukuthula Community Youth Club from Umlahlankosi Township. Within these CBOs I worked with the leadership. Leadership in this context means people who have been elected by their organisations to represent them in receiving and providing training on good practice about waste management. Within the municipalities I worked with two Councillors and two Local Municipality officials from the Waste Department. Information gathered from this department was not used as part of the study. I requested copies of LSMS from the Keep Pietermaritzburg Clean Association (KPCA).

1.3.2 Summary profile of communities participating in the study

Umdoni Township is one of the oldest townships in the Greater Pietermaritzburg Area. It is located near the city centre. Umlahlankosi is a peri - urban area within Umsunduzi Municipality. Umthombo is one of the biggest townships in KwaZulu Natal. In all three areas the rate of unemployment is very high. This has been the motivation for unemployed youths who have finished High School to establish Community Based Organizations to focus on environmental education issues and job creation. The CBOs involved in this research project have been approached by their local municipalities to help in building waste management capacity at a local level using their CBOs environmental, development and sustainability education expertise. All three CBOs have established recycling projects within their communities. Projects ranged from 'waste buy back' centres, recycling centres to '*operation clean up*' campaigns.

1.4 Profile of co-researchers

1.4.1 Co-researchers from CBOs

Stimela Mwelase

Stimela is a University Graduate, when the Ukujula Youth Development Forum was initiated in Umthombo Township, he was unemployed. At present he is working for one of the provincial NGOs as a Youth Programme Manager. He has been very influential in the establishment of environmental youth forums within the environment sector. He has represented South African Youth Environment Sector in local, provincial, national and international forums. He has also facilitated workshops including Local Agenda 21 (LA21), and waste management with a number of organisations in the province. For more information on Local Agenda 21, see section 1.7.

Mtsheleni Blose

Mtsheleni is a technical college graduate. She is one of the founding members of Umdoni Environmental Projects from Umdoni Township. Mtsheleni has been unemployed for six years after completing her tertiary qualification. Her involvement in environmental activities and playing a leading role among young women on community development issues in KwaZulu-Natal has contributed to her being appointed as a provincial co-ordinator in one of the National Environmental NGOs.

Mqondisi Langa

Mqondisi is doing an undergraduate degree in one of the KwaZulu-Natal universities. His involvement in environmental programmes with Umlahlankosi Township started when he could not proceed with his university degree for a two-year period. His involvement with environmental and community upliftment programmes has assisted him in saving some money to return to university.

1.4.2 Profile of the councillors

Councillor One

'Councillor One' is a university graduate from Umlahlankosi Township. He is a very active member within the Umsunduzi municipality. When I first telephoned his office when negotiating entry, he kindly said that I could meet him anytime from five in the morning because he is usually up early in the morning. He has been involved in several community upliftment activities including environmental projects. His involvement in waste issues includes the support he provides to CBOs. This support enables them (councillors) to report back to the Ward Committee on progress and challenges in the implementation of such projects.

Councillor Two

'Councillor Two' is from Umthombo Township. I was not able to establish the qualification of this Councillor. He is involved in community development projects as well as environmental awareness and management programmes. He has participated in several environmental programmes. One that was outstanding for

him was when he won himself a prize in one of the environmental competitions. His involvement in the waste management programmes has influenced the Ethekwini Municipality to initiate the establishment of 'waste buy back' centres in Umthombo Township. He is also a 'people's person' and he did not hesitate in accommodating me in his schedule for this research.

1.4.3 Profile of '*Working with Waste*' resource consultant

June Lombard

This research participant did provide me with permission to use her real name in the research. June Lombard is working for an Environmental Management and Training Solution company called '*Icando*'. The National Department of Environmental Affairs and Tourism commissioned the task of developing the '*Working with Waste*' resource (see section 5.4). She was the project leader from '*Icando*', working with other consultants, Mtshali, Sipamla and Associates and the Association of Clean Communities Trust. She is one of the consultants who are widely used in South Africa. This is a result of her special interest and knowledge on waste management issues (personal experience). She had facilitated a number of training workshops for KwaZulu–Natal Department of Agriculture and Environmental Affairs on waste management.

1.5 The Role of the Environmental Justice Networking Forum in Waste Management

EJNF's primary function is to build the capacity of the practitioners who are involved in social development projects and affiliates of EJNF (e.g. CBOs and NGOs, women's groups, and trade unions); through training and providing necessary professional support in the field of environmental justice and sustainability education. EJNF's secondary responsibility is to provide capacity building to its constituency and facilitation of representation at policy formulation levels for its membership. It is for this reason that I chose this research topic "Exploration of the availability, development and use of the LSMs that relates to waste management as this".

The three CBO representatives identified to be part of this study have undergone several training workshops with EJNF and they have provided training to other youth organisations and community groupings on waste management.

EJNF also plays a facilitating role in the coordination of common campaigns and programmes. CBOs leadership take their own initiatives in ensuring that they implement what they learn from the EJNF facilitated workshops. Monitoring processes of success is also the responsibility of CBOs, whose insights are then shared through the network through participatory processes.

The role of the organisation and training unit (my role) is to provide training, training material, coaching and mentorship on capacity needs identified by the constituency, such as environmental education. It is for this reason that I undertook this study. I wanted to be informed about the type of LSMs being used by the CBOs and Municipalities for environmental and sustainability education when attempting to implement the NWMS. During the Strategic Planning Process of the Environmental Justice Networking Forum (EJNF) in KwaZulu Natal (which these CBOs are affiliated to), poor waste management and provision of LSMs were identified as a priority in the province (EJNF 2003:6).

1.6 Policy Processes informing the study

The *South African Constitution* of 1996 guarantees the right of every South African citizen to live in a healthy environment. The *National Environmental Management Act (NEMA)*, (Act No 107 of 1998) contains a number of rights relevant to integrated pollution and waste management. To uphold this Act, a National Waste Management Strategy (NWMS) was initiated by the Department of Environmental Affairs and Tourism (DEAT) in 1997.

In 2000 the Department of Environmental Affairs and Tourism produced the *White Paper on Integrated Pollution and Waste Management Policy (IP&WMP)* in South Africa. The focus of the White Paper was to highlight the importance of preventing pollution and waste and avoiding environmental degradation. The *White Paper* states that the private sector, civil society and government (including local

government) all have a crucial role to play in dealing with waste issues. Final responsibility for waste management is left with local municipalities to implement.

Internationally, South Africa has been part of twenty-six agreements related to waste management. South Africa has developed legislation that supports these agreements such as the *Environmental Conservation Act* (No 73 of 1989), and the *Prevention of Pollution from Ships Act* (No 2 of 1986). Local authorities are subject to the law but often lack capacity to implement them. Therein lies the role for Community Based Organisations (CBOs). Despite this legislation there are few written guidelines and very little literature available to assist either local authorities or civil society to work together in implementing environmental legislation.

1.7 Local Agenda 21

The United Nations organized the first Earth Summit in 1992, which was held in Rio de Janeiro. It was at this Summit where the world committed itself to global sustainable development. The international community reached two agreements. They were the Rio Declaration on Environment and Development and Agenda 21. “*Agenda 21* is a detailed plan of action setting specific initiatives which all nations should undertake in the achievement of sustainable development” (Du Plessis et al. 2000:8).

To fulfill this global commitment each country has to implement its own local programmes called *Local Agenda 21* (LA21). “The earth Summit recognized the vital role of all levels of society, including communities, the private sector and local authorities can play in the successful implementation of *Agenda 21*” (Du Plessis et al. 2000:8). It is for this reason that South Africa has since developed numerous environmental policies as vehicles to implement and realize *Agenda 21*.

Three LA 21 goals that relate to this study are as follows:

- To encourage all organizations and individuals to adopt sustainable practices and lifestyles;
- To minimize levels of pollution;
- To minimize the environmental impact of waste and to promote the reduction, re-use and recycling of resources

(Du Plessis et al. 2000:8).

1.8 NWMS as a response to environmental problems in South Africa

The National Waste Management Strategy presents the governments strategy for integrated waste management in South Africa. It presents the long-term strategy (up to 2010) for addressing key issues, needs and problems experienced with waste management in South Africa. The main objective of the NWMS is to reduce both generation and the environmental impact of waste. NWMS has been seen as a response to *Local Agenda 21* and its implementation is left with CBOs and municipalities. The CBO representatives participating in this research have facilitated attendance and participation of other community members at national and provincial government initiatives on waste management such as the National Waste Management Strategy. They have participated in provincial initiatives of Local Agenda 21 and represented their communities during the World Summit on Sustainable Development (WSSD) in September 2002. They have worked with several NGOs to access LSMs on waste management and have forged good working relations with their Local Government representative to try to involve the broader community in implementing the resolutions of WSSD that are relevant to their community initiatives and the NWMS and Polokwane Declaration.

The local councillors have not undergone any training on environmental management related programmes and did not participate at the September 2002 Johannesburg WSSD (Mtsheleni Blose, 2003 pers.comm.). They have not received training from provincial Department of Environment and Agriculture and rely on CBO representatives to provide training on environment related programmes including waste management ('Councillor one' and 'Councillor two' pers. comm. 2003).

1.9 Polokwane Declaration on Waste Management

The Department of Environmental Affairs and Tourism held a consultative process in 2001 on the first National Waste Summit to monitor the implementation of the National Waste Management Strategy. Participants were from national, provincial, and local government levels, civil society and the business community. All these stakeholders committed themselves to the objectives of the Integrated Pollution

Control and Waste Management Policy. All participants committed themselves to all the previous initiatives that relate to waste management.

We reaffirm our commitment to the Integrated Pollution and Waste Management Policy, the National Waste Management Strategy and the principles of waste minimization, re-use and recycling for sustainable development (Polokwane declaration, 2001:1).

The underlying goal of the Polokwane declaration is to stabilize waste generation and reduce the waste disposal by 50% by the year 2012 and develop a plan for 'zero waste' by 2022 (See annexure 2).

1.10 Accessibility of Learning Support Material

All three communities represented in the study where the co-researchers are situated are *IsiZulu* first language speakers. LSMs have been made available by environmental NGOs such as the Keep Pietermaritzburg Clean Association (KPCA), the Wildlife and Environment Society of South Africa (WESSA) and the Environmental Justice Networking Forum (EJNF). Ethekewini municipality and Msunduzi Municipality have also made the LSMs available. A list of material collected for this research is inserted as annexure 7. In section 5.3 to section 5.6 I deliberate on the sample of materials collected, and analyse them according to theoretical frameworks presented in section 2.10.

1.11 Chapter outlines

In **chapter two** I discuss the literature review relevant to availability, accessibility, usage of learning support material within the Community Based Organisation's Local Municipality contexts. I also make reference to the relevant policies and legislation that inform the study.

In **chapter three**, I discuss the methodology and methods, used in this study. I also provide reference to research literature that I used during the study and also provide critique of the research process followed. I also provide insight into the ethical considerations that were implemented during the study.

In **chapter four**, I present and discuss the findings based on the data collected from co-researchers during the interview process. I also explore themes and sub-themes that emerged from data analysis.

In **chapter five**, I critically evaluate the samples of material collected from National and Provincial Government Departments, Environmental NGOs, and Ethekewini Municipality.

In **chapter six**, I provide a summary of the study and make recommendations for future research in the field of LSMS with special reference to the informal adult learning environment.

In doing this case study I have realised that some key environmental learning processes are needed to establish professional learning support material development at the local governance level. I have highlighted disadvantages and advantages of the existing learning support material and critically engaged the study in critiquing the existing LSMs used and I have made recommendations for further development.

Chapter 2

Literature Review

2.1 Introduction

This chapter reviews the literature related to the use of LSMs. The words ‘resource material’, ‘material’, ‘teaching aids’, ‘learning aids’ are used interchangeably as they have been used by different researchers and writers but all refer to LSMs. I focussed my literature review on development, usage and perceptions of user groups on the use of LSMs. I also drew on my own experience of what I have encountered as a practitioner in the field of environmental education. As I conducted this review I experienced a growing interest in the relevance, availability, development and usage of LSMs within the context of emerging environmental education policies and environmental education processes in South Africa.

At the time of writing this study it should be noted that the study of the usage of LSMs within the CBO’s contexts ‘adult education’ has not been fully developed in terms of monitoring and evaluating the use of LSMs in the same way as this has been done in NGO’s such as Wildlife and Environment Society of South Africa and other environmental education projects (see Gobrechts (1994), O’Donoghue (1996), Taylor (1997), Jenkin (2000), Lupele (2002) and within formal education (see Mbanjwa 2002).

The sub-sections covered within this chapter are; Research, Develop, Distribute, and Adopt (RDDA), the material development processes and use of LSMs, use of pictures in developing LSMs, environmental learning processes in LSMs development, participatory approaches to LSMs development, perspectives on adult learning, material developers comments on LSMs usage, language usage in learning support material and a conclusion based on this sub-sections is provided.

2.2 The RDDA (Research, Develop, Distribute and Adopt) Model

Some resource material is developed with the purpose of awareness raising and transmission of information. This model is known as 'Research', 'Develop', 'Distribute' and 'Adapt' (RDDA). RDDA is a model referring to materials development processes. The researchers will be hired by the organisations; they will develop the material on their behalf. The LSM will be provided to the user group without involving them in testing it. The user group is therefore expected to use the LSM without critical engagement and without providing feedback to the material developer. This model has its own critics within the environmental education arena in South Africa such as O'Donoghue and McNaught (1991), Lupele (2002), Mbanjwa (2002), Russo and Lotz-Sistika (2003). It is perceived to lack consultation and often imposed a 'recipe' that was not sufficiently responsive to context or learners needs. Even though Lupele (2002) critiqued this approach in his study he further argued that: "Realities in the field forced me to draw on some aspects of the RDDA approaches in which different roles and different kinds of expertise of diverse participants were recognised" (Lupele, 2002: 144). This therefore informed me to conclude that RDDA has its own advantages and disadvantages like any other educational approach.

In this study, I encountered a number of LSMs developed through a RDDA approach such as the material on 'water and wastewater', which was produced by the Ethekewini Municipality water services. This RDDA inspired LSMs, is a good example of LSMs that can be used to reach out to communities as a tool to try to change people's behaviour (See annexure 3). In the context of the Umthombo 'O' Section community this resource (*water and waste water pamphlet*) achieved more than what the Ethekewini Municipality had intended. "The document was used as an educational tool. The idea of dramatizing and 'role playing' the whole story using LSMs was decided upon by the community representatives" (Councillor Two. pers. comm. 2003). Lotz 1999 as cited by Jenkin (2000) argued that: "Role play could be easily adapted into co-operate education and training and that role play also provides opportunity for meaning making as it creates an interactive situation for 'investigative dialogue', 'action' and 'reflection'". My view is therefore that RDDA can be used in environmental education processes as well and that the user

groups can adapt and use the material as they perceive the need in their own community context.

2.3 Material Development Processes and Use of LSMs

Developing LSMs through collaborative work and meaningful debate enhances understanding of the issues being discussed. “When LSMs are developed with people rather than for target groups a sense of ownership is developed in participants and the LSMs are likely to be widely used and relevant to peoples needs” (Russo and Lotz-Sisitka, 2003:30). This has been the case in the development of ‘*Working with Waste*’ series developed by Department of Environmental Affairs and Tourism. “The participation of a number of stakeholder groups during the planning workshops which took place at national, provincial and local levels is gratefully acknowledged” (DEAT: 2003 ii). While this indicates participation in the development of the materials, I was not able to establish the ownership of this material by both municipalities and CBOs.

Amongst the studies that I reviewed is the study by Gobrechts (1994) who studied the ‘*Recycling of waste in the Cape Peninsula: Implications for environmental education*’. Gobrechts made a recommendation that “participatory project and resource development involves long term processes” (Gobregts 1994:114). Weston (1996, as cited by Lotz-Sisitka et al. (2003) argues that: ‘The relationship between product and process [is very important even though it] is often neglected, and treating LSMs as objects or commodities leads to a cycle of self-validating reductionism, in which the potential learning associated with the materials are reduced”. I view this statement as very important in the process of developing material and it has been applied in chapter 5 in evaluating a sample of materials collected. Lotz-Sisitka et al. (2003) argue further that: “there is evidence that material development processes often tend to neglect consideration of how the materials are to be used. LSMs are often viewed as products that are detached from the learning support material process” (Lotz-Sisitka et al. 2003:7).

In his study (Mbanjwa 2002, as cited by Lotz-Sisitka et al. 2003:7) made a conclusive remark: “there is little research that illuminates and reflects on how the

LSMs are used in environmental education”. Lupele (2002) observed that participation in materials development was increased by people trying to solve local environmental problems.

In his study Taylor (1997) made recommendations on a framework for future materials development. He recommended that:

- An orientation that invites *participation* is more likely to be successful than one that is exclusively expert driven (chapter 3);
- Educational resources should where possible, be produced in a flexible and *adaptable* format (chapter 4) enabling materials to be used in diverse contexts and in differing ways;
- Clear *plans for the production* of each developmental stage of a resource should be considered prior to the commencement of the project; (Chapter 4);
- Resources, which support a clarifying engagement with relevant local issues, should be encouraged, (chapter 5) as they are likely to develop relevance in local activities (Taylor 1997: 176).

Mbanjwa (2002) made recommendations similar to Taylor (1997) on the development of LSMs He notes that:

- LSMs [should] be designed to encourage active learning processes;
- Professional development programmes aiming to encourage the use of LSMs should develop educators’ competencies in interpreting and designing of LSMs; and
- LSM should provide space for teachers to reflect on changing circumstances and conditions and adapt the LSMs accordingly. This encourages educators to become reflexive of their roles as mediators of learning. (Mbanjwa 2002: 143).

Lupele (2002) made recommendations for future participatory materials development processes in Zambia as follows: “an open process of deliberation in materials development provided the Chiawa and Nalusanga communities with learning opportunities long before the end product was produced” (Lupele 2002: 164). He further recommends “...research not only into participatory materials development processes, but in all its programmes as an ongoing exercise to inform practice” (Lupele 2000:165).

The above recommendations have shaped the manner in which I have critically evaluated the LSMs that were being used by CBOs and Municipalities during this study (see chapter 5).

2.4 Use of pictures in developing LSMs

Amongst studies that I reviewed is the study of Jenkin (2000) “*On exploring the making of meaning: environmental education and training for industry, business and local government*”. Jenkin cited Meltzer et al. in explaining the importance of LSMs in indicating that: “meanings are modified and handled through an interpretive process that is used by each individual in dealing with the signs he/she encounters” (Jenkin 2000:76). Materials development plays a key role in facilitating adult learning and in most of the literature collected for this study, the LSMs developers have used the pictures and illustrations to simplify and explain the text. Janks (1997) emphasized that the object analyses (including verbal, visual, or verbal and visual texts) are very important dimensions in understanding and analysing the discourse (Janks 1997: 329).

Jenkin (2000) argued that: “In the industry, business and local government courses pictures were used to illustrate that participants would have differing views on how they perceived our ‘environment’” (Jenkin 2000:84). This view has been incorporated in chapter 5, in critiquing the LSMs.

When pictures are used in the use of LSMs the materials developer should be aware that people would have different views and interpretation about one picture. This gave the participants and co-ordinators an opportunity to realise that people interpret our environment in many different ways and note that therefore their responses to the environment crisis would be varied.

(Jenkin 2000:84)

In his study on “*The use of environmental education learning support material in OBE, the case of the creative solutions to waste project*”, Mbanjwa (2002) argued that the use of pictures would be more appropriate to stimulate learning. The use of pictures however, had limitations in the study as learners struggled to use the LSMs because they were not clear (e.g. picture used). This pointed to the need for good quality materials that were well produced.” (*ibid*). In response to this statement I therefore concur with Russo and Lotz-Sisitka that:

Translation should not only be restricted to the translation from one language to another, but also from one type of discourse to another (e.g. from technical to plain or simple language). It can also involve the expression of written words in another form of representation (e.g. cartoon, illustration or diagram).

(Russo and Lotz-Sisitka 2003:28)

2.5 Environmental Learning Processes in LSMs Development

O'Donoghue (2001) challenged developmental processes such as the RDDA model and suggested the '*Active Learning Framework*' (see figure 2.1) He argues that environmental learning processes should consider cultural induction as well as critical reflection. "This takes place within the open processes of active learning that includes 'finding out' about environmental issues and risks, 'undertaking investigations' in the environment, 'taking action' in response to environmental issues and risks" (Russo and Lotz-Sisitka 2003:13).

Figure 2.1 Active Learning Framework (O'Donoghue 2001:10)

The '*Active Learning Framework*' (figure 2.1) is very important in the participatory processes of the development and usage of LSMs. When drawing on this

framework, learners at all levels of learning will use LSMs with the purpose of solving environmental problems in their local area. This has been found in this study (refer to annexure 8). As mentioned in section 2.2, 2.3 and 2.4 the objective of LSMs is often to increase the levels of participation in solving environmental problems and also to increase levels of environmental awareness. In the context of waste education this could involve information seeking (identifying) the different organisations that may provide LSMs (Enquiry), and sharing with each other what needs to be done in terms of minimizing domestic waste and establishing environmental clubs in the area (Action Taking). This could lead to reporting ideas through holding community meetings which could then contribute to what communities already know about waste management and continued identification of new ways of seeking solutions to the prevailing and newly identified environmental problems. Mbanjwa's (2002) research indicated that the use of the active learning framework has the potential to influence the way in which materials are developed and used.

2.6 Participatory approaches to LSMs development

The process of participatory resource development started in the mid 1990's. Gobregts (1994:114) argued that: "Coordination seems to be a pre-requisite for successful participation in a community project (Gobregts 1994: 114). In their studies Taylor (1997), Jenkin (2000), Lupele (2002) and Mbanjwa (2002) also emphasized participation in LSMs development. "The emerging understanding of the social realities faced by teachers gradually began to influence the way workshops were conducted as well as the way resource materials were developed" (Taylor, 1997:54). In her study Jenkin (2000) identified activities in the course that included various participatory LSMs processes that assisted participants to:

- Develop better knowledge and awareness of issues;
- Develop skills; and
- Interact with one another and share their experiences and ideas
(Jenkin 2000:76).

I tend to agree with this approach because if environmental educators are not trained in participatory approaches in teaching environmental education it will be difficult for them to implement the '*open learning framework*' (O'Donoghue, 2001; see figure 2.1) in the field. In his study Lupele (2002) concurred with Taylor (1997)

and Jenkin (2000) that it is very important in clarifying participants' roles in material development processes by identifying the roles of different 'actors' in the process (Lupele, 2002: 148). If this process of clarifying roles of different participants is implemented positively the participation level by all role players is increased. (as illustrated in Lupele's 2002 study).

In his study Lupele (2002) found that it was important to clarify the roles of local people as well as the roles of technical experts e.g. artists (Lupele, 2002: 148). Russo and Lotz-Sisitka caution against pseudo-participation in resource material development "Unless the roles are clearly defined and participants understand their roles clearly, this might lead to chaos and some times to pseudo participation" (Russo and Lotz-Sisitka 2003:30). They further argue that: "This can lead to pretence participation that may not be meaningful at all" (*ibid*).

When the Wildlife and Environment Society of South Africa started implementing the open ended model of learning they observed that: "the emerging understanding of the social realities faced by teachers gradually began to influence the way workshops were conducted as well as the way resource materials were developed" (Taylor, 97:53 see above). Consequently, materials were developed, that were "...inexpensive and able to be used by large classes with no audiovisual apparatus" (*ibid*: 54). I therefore present my view that meaningful participation in resource development is not something that can be realised overnight but that it is a process that environmental educators have to attempt to implement and to monitor its level of success (See Lupele 2002, Mbanjwa 2002, Russo and Lotz-Sisitka 2003).

2.7 Perspectives on Adult learning

"Adult learners have a different self concept from children, adults have experience to draw in learning situations, and adult learning is determined by social roles, adult learners are problem focused" (Lotz, 1999:55). In the community context where there is an interest in dealing with negative environmental degradation, they [adults] appear to be mainly concerned with how LSMs can help them to solve these problems. It would therefore seem important that the LSMs developers provide the user group with the background on how the material can be used and be adapted for other needs in which the learners may find themselves.

Hanson (1996: 98-107 as cited by Lotz: 1999: 55) made reference to how adults learn:

- Adults should be participants in planning learning processes;
- Adults should feel at ease in a learning environment;
- Adults only learn what they want to learn;
- Adults should take mutual responsibility for the teaching–learning transaction;
- Self-evaluation in an important component of adult learning;
- Adult learners should be guided to analyse their own experience;
- Adult learning curricula should have a problem-centred orientation; and
- The individual adult’s problems should be the departure point for curriculum activities.

(Lotz, 1999: 55)

These guidelines on how adults learn play a key role in adult learning especially in this case study as the focus is on the community which focuses on the adult learners. This is also in line with the principles of environmental education for equitable and sustainable societies.

- Environmental education, whether formal, non-formal or informal, should be grounded in critical and innovative thinking in any place or time, promoting the transformation and construction of society.
- Environmental education should empower all peoples and promote opportunities for grassroots democratic change and participation. That means communities must regain control over their destinies.

(UNCED, 1992:1).

These two principles relate to how adults learn and it would seem important that they are be considered by developers of LSMs at the initial stages of developing any resource or at any initial process of thinking about and implementing environmental learning (see annexure 4).

2.8 Developers’ comments and observations on LSMS usage

The word ‘developers’ in this context means any person or organisation, which is involved in developing LSMs that is intended to be used within and / or outside their organisations. In some cases the material developers might fail to provide what the learners or the user group might necessarily need during the session where the LSMs might be used. Even with good intentions from the developers the

learners or participants might find the LSMs not relevant to their work situation. Taylor (1997) argued that participants should be encouraged to provide feedback on the value of LSMs used in the workshop and how they articulate with the real work situation.

He made use of an example of workshops that were conducted by WESSA:

During the workshop the different clusters of materials were then briefly described to the participants. This description included commentary on the way each cluster of materials were developed including historical overview and a description of the many different ways the material were being used and adapted by other teachers.

(Taylor 1997:61).

In her comments on reviewing the publication by Russo and Lotz-Sisitka (2003), Rosenberg (2003:39) concurs with them that: "... “[Materials] developers may fail to consider how learning interactions are ‘organised’ ...” (Rosenberg, 2003:39). In chapter 5, I also evaluated the resources collected based on this assumption. The Curriculum Review in South Africa in 2000 also indicated that: “there is a need for a strong alignment between the curriculum framework, teacher development and the development and supply of LSMs” (Lotz-Sisitka and Raven 2001:48). As mentioned in section 2.1 the usage of LSMs within the CBO’s context has not been studied in detail as compared to their use in NGO’s and in formal education. I support the view that it is critical that the development of LSMs considers “the input of adult learners, through enabling learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences” (UNESCO – UNEP 1978:1).

2.9 Language usage in Learning Support Material

Out of 30 LSMs that I collected, only four have been written in both *IsiZulu* and English (see chapter 5). The rest of the LSMs have been produced only in English. The advantage of producing them in English is that the meaning of the developer has not been lost. The learners or participants are using the first-hand information as provided by developer. Russo and Lotz-Sisitka caution that: “In the process of translation meaning can be misinterpreted or lost” (Russo and Lotz Sisitka, 2003:28). It is also important that the translator has to have a good knowledge of both the languages.

The *Waste and Waste Water* brochure from the Ethekewini Municipality [according to my own observation] is a good example, which translates technical issues into graphics and plain language and an easy to read font (see annexure 3). Russo and Lotz-Sisitka (2003) argue “translation should not only be restricted to the translation from one language to another, but from one type of discourse to another” (Russo and Lotz-Sisitka 2003: 28).

Mqondisi Langa from the Ukuthula Community and ‘Councillor One’ from Umlahlankosi Township, when interviewed and asked to comment about their views on language usage in LSMs responded by saying that: “if the material is not in the mother tongue [in this case *IsiZulu*] the community would be unable to read and implement the programme”. Rosenberg (2003) notes that, “some material developers believe that if the materials are in mother tongue, the language issue has been dealt with” (Rosenberg, 2003:39). Through my involvement and participation in community development work I have also observed that simply providing materials in mother tongue does not solve all the understanding issues. The material cannot be used in isolation from other tools and strategies that are needed in education processes.

Mbanjwa (2002) observed that: “learners have difficulty in using LSMs because of the language used in the LSMs, the design of LSMs and the literacy level“(Mbanjwa 2002: 39). He further argued that: “simplifying language did not help and therefore saw the use of transcoding, (use of pictures, drawing and labelling to develop conceptual understanding as a better [method] of improving the situation”. (*Ibid*) Russo and Lotz–Sisitka make suggestions on how to overcome the [translation] language problems “Considering translation at the start of the materials development process influences not only the contents and the illustrations, but also the format of the learning support material” (Russo and Lotz-Sisitka, 2003:28).

The challenge for LSMs developers would appear to be, wherever possible, to provide the opportunity to create a balance in the use of language, graphics and provision of relevant translation, in ways that do not misguide the learner while using the materials.

Russo and Lotz-Sisitka propose a consideration of the following important issues when translating material:

- Technical issues (layout and printing);
- Expertise is often required in terms of mastering both language and technical dimensions (publication and translation) and the translator needs to be able to work with a range of language 'levels' including technical layman's language;
- Budget influences translation possibilities - particularly in multi-lingual societies. If the budget is limited, a material may only be translated into one other language;
- There is a need to consider the context in which the translations would be made - translations need to be contextual and relevant to the learner groups;
- It is important to look at the actual focus of the materials with regards to the level of language and the intended learner group.

(Russo and Lotz-Sisitka 2003:28).

The above guidelines will also have their own related problems even though they may be followed to the point as Lupele (2002) argued that:

Although many people would verbally communicate in a given language they may not be literate in the same language. ...Language for written texts cannot be discussed in isolation from the literacy level of the people; one needs to gain insight in the literacy levels. Although people in Chiawa and Nalusanga [Chiefdoms in Zambia] could speak Goba and Chitonga [languages] respectively, very few could read and write the languages.

(Lupele, 2002: 154)

Most people are experiencing environmental problems and need capacity building and environmental education processes as tools to address these problems. Some of them are not English first language speakers. "Developing materials that are likely to be translated requires careful planning to allow for flexibility and adaptability" (Russo and Lotz-Sisitka, 2003: 28). This is not always the case as in some cases these materials are developed to meet the donor requirements, financial year-end, annual reporting and planning by outputs not by objectives (See section 5.2 to 5.6 and Taylor 1997:175). I concur with Rosenberg (2003) that: "Resource materials should be developed, adapted and evaluated for their ability to support [environmental learning]" (Rosenberg, 2003: 38).

2.10 Summary

In conclusion we should note that:

Community based environmental education programmes have mushroomed; environmental education has become a new focus in industry training and public education has become an important focus of environmental education work.

(Irwin: 2003: 24 (in press)).

I therefore conclude that the need for development of LSMs for CBOs is a necessity but caution that one should consider the contemporary views on their need such as development, usage, and translation issues so as to result in effective usage by most user groups.

This study intends to investigate Learning Support Material in a socio- critical context. How language is used, how user groups perceive them to be illustrative, including the simple usage of graphics, the participation methodologies being used, and the application of the '*open learning framework*' are all aspects that will be explored (see chapter 4 and 5). I also focus on the impact that the users (CBO's and Municipalities in the case study) have made within their community in the implementation of the National Waste Management Strategy (NWMS) using LSMs.

This chapter has presented theory around learning support material and provided advantages and disadvantages on the usage of various methods of producing and using them. It considered how different authors perceived the development and use of LSMs. I also considered a few samples of material from different organisations (e.g. from Municipalities) and tried to relate these with these perspectives. In the next chapter, I describe the research process and methodological aspects of the research and how the study was designed and implemented.

Chapter 3

Research Methods and Methodology

3.1 Introduction

This chapter explains the research methods and methodology used while attempting to answer the research question: What LSMs exist in supporting CBOs and Municipalities to collaborate in implementing the National Waste Management Strategy at a local level? Implicit within these is their accessibility and usage in the implementation to enhance participation and collaboration. In Chapter One, I provided profiles of the co-researchers, their communities, and the processes used to identify them. In this chapter, I describe the research literature used to inform the study. Data collection methods and data analysis processes are explained. It also includes the ethical considerations that were implemented and observed throughout the research process.

3.2 Methodology

According to Cohen et al. (2000:75) “it is very important to decide on the main methodology to be used in research”. One of the reasons for choosing qualitative research was the fact that it uses an inductive approach. Maxwell (1996) argued that: “The strength of qualitative research derives primarily from its inductive approach, its focus on specific situations or people, and its emphasis on words rather than numbers” (Maxwell, 1996:17). Merriam (1998) concurs with Maxwell by saying that “understanding the meaning of the process or experience constitutes the knowledge to be gained from an inductive, hypothesis – or theory generating mode of inquiry” (Merriam, 1998:4).

In choosing three communities to be part of the research process I was informed by Stake’s (1995) theory that “Qualitative researchers treat the uniqueness of individual cases and contexts as important to understanding...coming to know the particularity of the case is important” (Stake 1995: 39).

This study was influenced by the interpretive paradigm where the researcher is attempting to understand the case being studied and attempts not to make generalizations in the process. In this case I was attempting to understand the research goal, which is:

- To explore the availability, development and use of learning support material to promote participation in the implementation of the NWMS and collaboration between Municipalities and communities in implementing the National Waste Management Strategy (NWMS) at a local level.

As qualitative research depends on interpretation “standard qualitative designs demand for the researcher’s interpretation to be in the field, making observations and exercising subjective judgement analysing and synthesizing...” (Stake 1995:41). This theory informed the process I used to realise the above research goal, which involved: conducting interviews; observation of participants and biophysical environments of the communities; recording of discussions by tape recorder and by taking field notes and transcribing the field notes; taking photographs of the physical environment and the biophysical surroundings of each community; and constructively critiquing a sample of the learning support material collected during the data collection process and then making recommendations in chapter 5.

According to Stake, “Qualitative researchers use narratives to optimise the opportunity of the reader to gain experiential understanding” (Stake, 1995, 40). This is supported by Cohen et al. (2000) who argued that: “Interpretive research begins with individuals and sets out to understand their interpretations of the world around them. It is a process of coming to understand a situation” (Cohen et al. 2000:23). Finally Merriam (1998) argues that: “in interpretive research, education is considered to be a process and school is a lived experience” (Merriam 1998: 4). This has been the case while doing this study.

3.3 Method

I came to my decision to use a case study methodology based on the theory provided by Maxwell (1996) who notes that: "Selection of methods depends not only on your research questions but on the actual research situation, and what will work most effectively in that situation to give you the data that you need (Maxwell 1999: 74). Informed by this position I decided to do a case study. This is supported by Cohen et al. (2000) who argue that: "Case studies can establish cause and effect, indeed one of the strengths is that they observe effects in real contexts, recognising that context is a powerful determinant of both causes and effects". Stuurman (1994:61) as cited by Bassey (1999) defines case study as a "generic term for the investigation of an individual, group or phenomenon" (Bassey 1999: 26). Choosing the case study method enabled me to focus on three CBOs and two Municipalities and that enabled me to better understand the subject that I was researching.

Maxwell states that:

Qualitative researchers typically study a relatively small number of individuals or situations and preserve the individuality of each of these in their analyses rather than collecting data from large samples and aggregating the data across individual situations.

(Maxwell 1996: 18)

The above viewpoint is argued by Hitchcock and Hughes (1995: 322) as referenced by Cohen et al. (2000) that a case study "focuses on individual actors or groups of actors, and seeks to understand their perceptions of events" (Cohen et al. 2000: 182).

As a researcher in the field I was fully involved through asking questions and being able to physically experience being in the same environment as the co-researchers. Bassey (1997) argues that: "Case study involves taking extensive data from the people being questioned or observed" (Bassey, 1997:77).

3.4 Selection of co-researchers

3.4.1 Selecting co-researchers from CBOs

In the selection of co-researchers I decided to choose the active Community Based Organisations that have initiated some community development projects, which relate to waste management. As mentioned in section 1.3.1 co-researchers were identified from three communities, Umdoni Environmental Projects from Umdoni Township, Ukuthula Community Support Club from Umlahlankosi and Ukujula Youth Development Forum from Umthombo Township. I also chose the individuals within the CBOs who have been fully involved and participated in implementing and conducting waste management workshops for their communities. Their names are Stimela Mwelase from Ukujula Youth Development Forum, Mtsheleni Blose from Umdoni Environmental Projects and Mqondisi Langa from Ukuthula Community Support Club (refer to section 1.3.1 – 1.4.1).

These co-researchers have first hand experience of using LSMs in their community environment and they are also very active members on development issues. When selecting the co-researchers I was influenced by the theory of Maxwell (1996) that: “Selecting those times, settings and individuals that can provide you with the information that you need in order to answer your research questions is the most important consideration in qualitative sampling decisions” (Maxwell, 1996: 70).

3.4.2 Selection of Municipality representatives

When selecting Municipalities that were to be involved in the study I chose to work within the municipalities where these CBOs are based. This was motivated by several factors including:

- Costs of travelling for myself and co-researchers were minimized;
 - The validation of facts during data analysis;
 - Encouraging participation between the two groupings within the same area;
- and

- I had already chosen case study as a method and this was to strengthen the research endeavour.

I only worked with two Councillors, as securing a meeting with the third councillor from Umdoni Township was not successful. Working with two councillors instead of three did not contribute negatively to the study.

3.5 Research Process

I first prepared myself by asking what type of questions I should develop. I decided to use semi-structured interviews. I did not gather information only through the research participants but I also did informal data collection through different role players in this field. This process helped and shaped the structuring of the whole interviewing process. Throughout the process I kept field notes and a field journal. The field journal was useful as a reflection book and this is also where the ideas that were shaping this study were kept. The field notes were the summary of the notes recorded during the interviews.

I also used a tape-recorder to record the discussion during the interviews. The tape recorder was useful when I was recording and transcribing all the discussion between co-researchers and myself. This recording process did not hinder contribution from both parties as the working relations between them and me were already developed to a satisfactory level. In some interviews I did not use the tape recorder because of the technical problems such as tape recorder stopping to work during the process of the interview. During the telephone interviews I could not use the tape recorder, as it was not possible to record the dialogue between myself and co-researchers.

I explained the content of the research proposal to the co-researchers and also asked them to read the content on their own. After this process I then wrote a detailed letter seeking permission to formally work with them (See annexure 5). This was rather a formality at this stage as permission to work together was already granted verbally with all of them. I then secured formal physical meetings in their place of work as some interviews were done during weekdays and during working hours. I followed the process of using semi-structured interviews in all the interview sessions. Huysamen argues that: "Semi-structured interview allow the

interviewer to use probes with a view to clearing up vague responses, or to ask for incomplete answers be elaborated on "(Huysamen 1994:145). I found using this type of interview to be useful as it enabled me to seek more information as and when the need arose.

The relationship with the co-researchers was kept at a very relaxed professional level. I tried my best not to be seen as a senior academic person amongst them. During the meeting I explained again the content of the letter where I sought permission to work with that individual. To ensure a good rapport I asked the respondents to respond using the language that they were comfortable with, whether *IsiZulu* or English. Keats (2000) defines rapport as:

The term given to that comfortable, cooperative relationship between two people in which there are maintained both feelings of satisfaction an empathetic understanding of each other's position. The most important factors influencing rapport are the conceptualisation of the situation by the participants, together with what is conveyed to the respondents of the content and purpose of the interview

(Keats 2000: 23).

Participants were also allowed to ask questions during the semi-structured interview process. When I needed to understand or to follow up on a certain response I used a probing method. "Probing is used to clarify meaning, to extend range and quality of replies, to examine consistency, to give encouragement and to reduce anxiety" (Keats 2000:64).

As the meetings took place in the co-researchers offices it was easy for them to own the process, as they were familiar with their office environment. I was a stranger in their offices and they had total control of the work environment. My "seniority status as an academic researcher" was clarified by explaining the ethics to them and how the study was supposed to benefit the field of environmental education and community development initiatives.

To gain entry to the Municipalities I asked the CBO representative to introduce me to their local councillors as they had created working relations with them. After the CBO representatives had provided me with the contact details of the Councillors I

then telephoned the councillors to secure an appointment with them. After the appointment was secured through telephone discussion, I then wrote a formal letter of request to them and fax the copy for them.

3.5.1 Gaining Entry

I first telephoned institutions that I intended working with (refer to section 3.4.1. and section 3.4.2) and received support in identifying the relevant person that I was supposed to work with. With the CBOs I encountered minimal problems, as I knew who were the ideal people to work with for the type of information I was seeking. I then followed up with another telephone call to all the identified co-researchers to negotiate the date for interviews. The dates of the interviews were set telephonically and an interview schedule was developed (see annexure 6). I confirmed the date for the interviews on the phone two days before the interview meeting. I then faxed the research proposal through to the participant concerned. Communication and securing telephone interviews with June Lombard (consultant) who developed the '*Working with Waste*' resource for DEAT and Mqondisi from Umlahlankosi were done and secured in one telephone discussion.

3.5.2 Interviewing

Maxwell 1996 describes interview questions as "what you ask people in order to gain understanding of your research question". (Maxwell 1996:74). He further argues that: "You need to anticipate, as best you can, how particular interview questions will actually work in practice, how people will understand them and how they are likely to respond" (Maxwell, 1996:75). I collected data to explore significant features of the case, so that I could create reasonable interpretations and then test the trustworthiness of these interpretations. I agree with Maxwell (1996) when he states that: "selection methods depend not only on your research question but on the actual research situation to give you the data you need" (Maxwell 1996:74). Before I went out into the field I had to ensure that the questions that I was to use in the field were tested to be accurate and relevant so as to receive useful feedback.

I also introduced the methods to be used during the session and specified how much time the session was to take. I also explained how the questions were to be framed, and recorded our discussions on paper and with a tape recorder. The research participants were comfortable with my taping of records, except 'councillor two' of Umthombo Township 'O' section who thought I should give him more attention by not writing down what he was saying. I explained to him the importance of taking the records of our discussion and also of using the tape recorder. After this clarification he was comfortable with the recording of the discussion by transcription. I also encountered a technical problem with the tape recorder as it sometimes stopped working during the process of the interview. Most research participants brought the LSMs that they have been using to address waste management problems to the interview meeting (See annexure 7). Those that did not bring the material with them acknowledged that the municipality was providing the LSMs to communities and to their offices.

3.5.3 Data Analyses

Data collection processes started during the development of the research proposal. There were two types of data that were collected. The first type was LSMs collected from different sources and the second type was data gathered during the interviews. When collecting data I was always mindful of my research goal "to explore the availability, development and use of LSMs that relate to waste management".

LSMs data was stored using 'A 4' envelopes. Each 'A4' envelope was labelled according to the source where data was collected and the type of LSMs contained in that envelope. After all data was collected and collated, I then coded each LSM using stars. For example a LSM from Ethekwini Municipality was coded with a 'colour green' star. LSMs from Msunduzi municipality were coded with a red star. The next stage was to link similar LSMs from different sources together into categories, such as books, LSMs relating to policies, LSMs used as marketing brochures, LSMs used for environmental education in schools, and LSMs to create awareness. I then classified the area of focus for each LSM. I came up with three-focus areas: Material for raising awareness, materials to support community

based activities and material to promote environmental management (See table 5.1).

Interview data are the responses from co-researchers related to the research study question (see annexure 8). These were transcribed as the constructs were provided by co-researchers. As mentioned earlier, the tape recorder was used to record interview discussions; I transcribed notes during and after the interviews. After transcribing the interviews from the tape recorder, I stored the transcripts both on the computer and in the interview notebook.

3.6 Ethical dimensions

It was very important that I consider ethical issues while preparing for and during data collection and interpretation. I provided the participants with the research proposal before they formally accepted to participate in the research. I wrote a letter requesting them to participate in the study and the letter included a 'confidentiality clause', request for permission to use any data collected during the research and their right to withdraw their permission to participate at any stage. I also emphasized to all the participants that the data that they provided was to be kept and used for the purpose of the study only.

During the beginning of the study I only promised confidentiality not anonymity. Thereafter I developed the need for anonymity after considering that there was a justified need for it as information that was provided by most research participants highlighted some confidential issues. Participants from CBOs have indicated the weaknesses in the manner that the councillors were handling environmental management issues. Councillors highlighted the weaknesses in the Local Governance systems such as lack of the provision of training to them by the relevant authorities. I also considered the negative impact of using the real names of the interviewees in the situation.

Confidentiality and anonymity in this study was used to protect the interviewees. It was never used to allow the validity and reliability of their responses to be compromised during the interview process. I trusted that the rapport that had developed during the initial stages was good enough to allow the interviewees to

be open when answering questions. When negotiating entry with the research participants I did promise the participants confidentiality with regard to the information they provided. However, during the course of data collection I realised that very important and controversial information was coming out. I then decided to use pseudonyms for both participants and their townships.

Once the interviews had been collected, I circulated their responses for comments. When I anticipated a delay in the study a letter was written to all participants highlighting the anticipated delays and they were told of the likely period when the researcher was to come back to them for feedback. This was an important part of the research as the co-researchers were to be informed about the record of the information that they provided to me. Secondly this provided them with the opportunity of disputing any information, which they felt that it was no longer relevant nor they were not comfortable for it to be published.

While preparing and conducting interviews I was guided by the theory of Merriam (1988), who argue that:

Qualitative researchers are guests in the private spaces of the world. Their manners should be good and their code of ethics strict... Respondents may feel their privacy has been invaded, they may tell things they had never intended to reveal (Merriam, 1998:214).

3.7 Critique of research process

In the initial stages of the research design I had anticipated that the research process was going to be in three phases.

Phase 1: Collection of LSMs on waste management by the researcher

Phase 2 (a): Conducting semi-structured interviews with co-researchers.

Phase 2 (b): Collection of LSMs from co-researchers

Phase 3: Information sharing workshop of all co-researchers on how they were using LSMs.

I could only implement phases 1, 2(a) and 2(b). The reason for delays and cancellation of phase 3 was due to the commitments of co-researchers in their day-to-day activities. At a later stage I confirmed that I should proceed with the research by discarding phase 3. I planned to interview three Councillors (one from

each community, I however only interviewed two because I was unable to secure an appointment with 'Councillor three'. I made several attempts to contact him but did not succeed. In August, I decided to call off my attempts to locate him as political organisations were starting with their '2004 national election campaigns'.

Thirdly, I had problems in dealing with the Municipality representatives because their ranking is senior to mine with reference to authority. I however got used to them after several discussions over the phone before the interviews. When we eventually had a meeting I was somehow at ease as I had developed some understanding of who they were. Lastly, as the councillors are politically deployed in communities, I was very careful that my questions were by no means trying to question their role and delivery within the community. This concern had an influence on how my questions were framed and how I responded to their responses. This might have influenced their responses as well. I am however confident that their responses did contribute in answering the research questions as well as fulfilling the goals of the study.

3.8 Summary

In this chapter, I have discussed the detailed research process, method and methodology. I also discussed the details of how I gained entry, process of handling interviews, process of data collection as well as ethical dimensions that were implemented while conducting the research. I concluded by critiquing the research process. In Chapter 4, I will present Interview findings and explore themes and sub-themes that emerged from this dimension of the study.

Chapter 4

Interview Findings

4.1 Introduction

In chapter 3, I provided a detailed description of the research process, method and the methodology. I also discussed the process of data collection. In this chapter I will explain the findings from the interview process with all research participants in detail and also explore themes and sub-themes that emerged from the study. I also present findings from other research in the field of LSMs and make recommendations.

In this chapter I will present all the themes that emerged from data analyses, environmental problems encountered within the three communities; accessibility and availability of LSMs to Community Based Organisations; accessibility and availability of LSMs to Councillors; language usage in the use of LSMs; how LSMs are used by communities; capacity building needs on how to use LSMs; participation and collaboration between councillors and CBOs in dealing with waste management issues and the adaptation of LSMs for use by CBOs.

4.2 Themes emerging from data

4.2.1 Themes emerging from the process of data analysis. These included:

- Environmental problems encountered within the three communities;
- Accessibility and availability of LSMs to Community Based Organisations;
- Accessibility and availability of LSMs to Councillors;
- Language usage in the use of LSMs;
- How LSMs are used by communities;
- Capacity building needs on how to use LSMs;
- Participation and collaboration between councillors and CBOs in dealing with waste management issues; and
- The adaptation of LSMs for use by CBOs.

Embedded within several of these themes are a number of sub–themes. These will be developed in the text.

4.3 Environmental problems encountered within the three communities

All three communities identified poor waste management as a problem in their areas. Problems ranged from water pollution by local industry in the case of Umdoni Township, to poor management of domestic waste by some members of the Umlahlankosi, Umdoni and Umthombo township communities.

In two townships, that is: Umdoni Township and Umthombo Township, there is provision of waste collection services by their local municipalities. Umlahlankosi Township is a semi-urban area and services are provided on an *ad hoc* basis, as the infrastructure, such as access roads to all houses, is not yet well developed. ‘Councillor One’ (2003, pers.comm.) from Umlahlankosi Township supported this statement: “The other problem is the [none] collection of domestic waste by the municipality” (*ibid*). My observation suggests that the collection of waste by municipality is not the only key issue, but bad behaviour and poor environmental management skills by some community members are also contributing factors. This is again supported by ‘Councillor One’ who observed that: “People also contribute to this problem by dumping their domestic waste in the wrong places” (‘Councillor One’, 2003 pers.comm.).

‘Councillor One’ described how the people have to take their rubbish to a large collection container. These containers are not fenced and they are too high for children to reach. They are filled with rainwater, smell terribly and are covered in flies. The Councillor commented that flies were a health risk to the community. What I noticed was that all of these factors contributed to people not taking their rubbish to the container but just leaving it anywhere, so it was scattered by animals and the wind. The Councillor described how the people did not want the container but wanted rubbish removal. This suggested to me that the dumping of rubbish anywhere could also be an expression of frustration and resistance to the failure of the council to provide the rubbish removal that people wanted.

4.3.1 Observations from Umlahlankosi

I visited the area during the week and I observed that there were few common rubbish bins in the streets and in the shops. The 'waste containers' were located close to a few houses. Other houses were a distance away from the containers. I concluded that this was contributing to people littering in the neighbourhood. There were many of domesticated animals such as dogs, cats, cows and goats. I did see a couple of dead animals on the streets that I travelled through, although the whole area looked generally clean. Co-researchers from the area mentioned that waste collection was, however poor.

Figure 4.1 Surroundings of Umlahlankosi

4.3.2 Observations from Umdoni Township

This township was visited during the week. As in the case of Umlahlankosi area, I observed that there was a shortage of community rubbish bins in the shopping centres as well as in the schools. There were sweet papers and cans lying around the streets. I assumed that these were dropped by school children on their way home, as there were not enough rubbish bins on the streets. Generally the township looked clean, however I also observed that as you drive out of the

township there was an illegal dumping of solid concrete debris such as old bricks by companies. Local people were picking up some of the debris to use in their own homes. This illegal dumping site was never raised as an issue during the interviews with the community representative. The assumption I made was that the community was somehow benefiting by getting building material at no cost. Like the other two areas, the township is generally clean.

Figure 4.2 Surroundings of Umdoni Township

4.3.3 Observations from Umthombo Township

I visited this township during the weekend. My observations were similar to the other two areas. The shortage of street dustbins is also prevalent here in 'O' section. Even though people were aware of taking their garbage bags to the streets for collection by the municipality, they were still littering on the streets. I went to the nearby stream and observed that there was domestic waste pollution next to the stream. I could not observe the storm water pipes, as there was a lot of

vegetation, which prevented me from getting close enough to make observations. I also concluded through these observations that pollution from domestic waste is minimal in the area.

Figure 4.3 Surroundings of Umthombo Township

4.4 Accessibility and availability of LSMS to CBOs

All research participants, except 'Councillor Two' from Umlahlankosi, acknowledged that there is material available to assist in addressing the poor waste management system that exists. However, in my own view, it seems that availability of the material is not the problem. Other issues, such as high levels of functional illiteracy appear to affect accessibility of the materials and the way the materials are used. For example, 'Councillor One' reflected that: "Even if it can be available most of the community members are illiterate" (Councillor One pers.comm. 2003). My assumption, therefore, is that because of high level of

illiteracy amongst the communities, it might not be easy for the Department of Environmental Affairs and Tourism and other stakeholder groupings such as Local Government departments to implement the Polokwane Declaration (see section 1.6), through providing LSMs, as accessibility involves more than availability.

The key finding related to accessibility, in this theme is illiteracy and the use of LSMs within communities. This finding was also encountered by Mbanjwa (2002) who observed that: “the findings of [the] research are that learners were not able to access LSMs in some cases, as a result of the language used in the LSMs, and their literacy level”. Similar findings have been uncovered by Gobregts (1994), Lupele (2002) and Russo and Lotz-Sisitka (2003) who argued that material developers may also need to consider the role of language in learning in the materials development processes (Russo and Lotz Sisitka 2003:26). (See section 2.8).

A further related issue seems to be a culture of non-reading amongst adults. This was reflected by statements such as: “Most of them are adults; they will look at the illustrations and misinterpret it [them]. Written information is not useful, who is going to read?” (Councillor One (2003) pers.comm.).

He told me that an old person looking at the illustration for example of ‘a child is hurt by a tin can’ feels sorry that the child has been hurt and is bleeding. They might not link the tin can cutting the child to a dumping problem, nor do they see that dumping in their local environment would mean that the child would not be injured. While this seemed to be a key issue amongst a number of respondents; Stimela from Umthombo, said “*Iyasiza lento* [LSMs are useful], *Abantu bayazithanda izinto ezingamapheshana* [people like reading information brochures]”. This was echoed by Mtsheleni from Umdoni Township: “people do use LSMs that assist them in solving local environmental problems” (Mtsheleni, pers.comm.2003). This indicates that the community contexts are different. In Umthombo and Umdoni, people attend workshops to participate on issues that are affecting them locally. Workshop facilitators collect different materials that relate to a workshop’s theme. In some instances, the people who have developed the LSMs facilitate the workshops. In the case where the communities cannot use the

material, they adapt it to their own community context. My comment, therefore, is that it is important to engage people on issues and provide LSMs that will be relevant for them to use and adapt for their own needs and context. This would seem to enhance accessibility and the use of LSMs.

The material is not enough but the material needs to be appropriate and worked with. The CBO representative described how they could collect appropriate material from Ethekewini Municipality, but there was usually no one to explain the usage to them. They thus started to take the material away and have working sessions where they adapted the LSMs for their own local needs.

The other finding within this context is that participatory engagement of communities in solving local environmental problems appeared to enhance the use and accessibility of LSMs. This issue was dealt with by Jenkin (2000), where she observed that: “the participants and co-ordinators bring a variety of experiences, skills and knowledge to the course”. [Business and local government course offered by Rhodes University]. She further argues that: “the course could be seen as a venue in which two different and diverse groupings of adults converge in a situation where they will learn from each other, and share each others experiences” (Jenkin 2000:51).

The other issue on accessibility of LSMs seems to be the involvement of NGOs in producing and making waste-management-related LSMs available to the CBOs. “When we are preparing for workshops, we normally gather the material from different sources such as the Environmental Justice Networking Forum, Keep Durban Beautiful Association and WESSA” (Stimela pers.comm. 2003). This is an indication of initiatives taken and networking done by the membership of some CBO’s in ensuring that LSMs are made available to people at a local level. A similar finding and recommendation was made by Gobregts (1994) who suggested that, in order to allow accessibility of materials to communities: “Information management officer[s] should be appointed ... to compile, co-ordinate and disseminate the information and documentation on the recycling of domestic waste ...” (Gobregts 1994: 116).

My view, which is informed by reviewed literature and dialogue with co-researchers, is that a wealth of LSMs is available. However, there is no formal mechanism of identifying appropriate development processes within the organisations or how the LSMs are distributed to promote their accessibility to user groups. The distribution mechanism needs to be identified at the planning phases of the development of LSMs. It has been observed by Russo and Lotz-Sisitka that: "LSMs are often produced without consideration of how they are going to be distributed and used". Czerniewicz et al. (2000) as cited by Russo and Lotz-Sisitka (2003) argue that: "learning support materials are also inaccessible to many users" (Russo and Lotz-Sisitka 2003:64). A similar situation has been observed by Taylor and Russo (2002) that: "This tends to lead to a scenario where materials end up on shelves or in store rooms, reducing their potential to support learning processes"(Taylor and Russo 2002: 36:40). This is discussed in detail in chapter 5.

All three CBO respondents described how they had gathered information from many different organisations. They also described how it was important to attend information and training workshops where they found out about available material so that they could collect it. They would then work with the material as a team and choose to use what was best for their communities even if it was not exactly what they needed.

The final finding in this theme is the significance of networking for the purpose of accessing LSMs as illustrated by the above finding. In the literature that I reviewed, I could not find much data on networking. Therefore, I recommend that more research needs to be done in this field, with special reference to enhancing the accessibility of LSMs through networking among Community Based Organisations. This study has found that access to LSMs involves much more than availability of LSMs in CBO contexts.

4.5 Accessibility and availability of LSMS to Councillors

Not all Councillors are involved in active participation in waste management initiatives. The responsibility is left with the CBOs, as in the case of Umlahlankosi Township.

Ibona abasebenzayo, baqala ezikoleni basibriefe ukuthi sebenzeni. [They (CBO's) are the people who are involved, they start working with schools and they update us about progress made]. Ipracticality yenzeka lapho kuhlala khona abantu [the practical work is taking place in the residential areas]. Yibo aba-athenda ama [CBOs attend in-service training]"

(Councillor One (2003) pers.comm.).

Based on this information, I concluded that this Councillor would not make attempts to access LSMS, as he was relying on CBOs to deliver on waste management and he expressed confidence with the input being made by the CBOs (See annexure 8). This is an issue as Councillors and their staff is paid, through taxation, to care for their constituencies. If they transfer their responsibilities to CBOs, they are not being responsible. CBOs have to find the funding elsewhere, sometimes they work with no budget at all and the municipal obligations are not met. All of the three CBO representatives that were interviewed reported how they had been invited to attend training activities provided by NGOs. They then started to work in their communities with what they got from the workshops but were given no funding by municipalities. (Refer to annexure 8). My recommendation therefore is that the Councillors should take the lead in waste management programmes in their municipality by involving CBOs and other stakeholders with funding that has been allocated to this function.

A different scenario was found in Umthombo where 'Councillor Two' had access to the resource information office in Ethekwini Municipality. He makes the material available to the community during community meetings. 'Councillor Two' was aware of the materials available on waste management and did bring several copies to the interview. He also demonstrated that he had been fully involved in educating the public about waste management with and without the CBO's involvement. "Before I came to this interview I participated in the 'sewerage pipe awareness campaign' with the department of Storm Water". (Councillor Two (2003) pers.comm.).

He described how unwanted household furniture and old cars are often dumped in the storm water canals. This results in drain blockages which contribute to flooding of people's homes and streets. Clearing these blockages and solving the health problems costs the municipality a lot of rate payer's money. This made it worthwhile for them to invest in community environmental education programmes, which contributed to the reduction in pollution of storm water canals.

Through considering these two scenarios of councillors not being trained and CBOs struggling to commit themselves in solving local environmental problems with no budget led me to another finding. The local nature of many of waste management problems suggest that programmes will be more effective when Councillors and CBOs work in their local context to develop material that relate to specific local problems. The kind of material needed are not materials that make people aware of waste management problems but tools for looking and understanding and solving local problems (personal experience). Similar finding was made by Taylor (1997), who made reference to the production of local resource material at Share-Net: "the underlying orientation to the development of resource materials had, ... evolved to a process of giving away tools of science rather than materials designed to 'get the message across' (Taylor, 1997:116).

Russo and Lotz-Sisitka argue that the involvement of learner groups who will be using the material during the development of LSMs. They argue that: "drawing on their [learner groups] expertise and experience can help not only to improve the material but also provide useful insights into how the materials may be used" (Russo and Lotz-Sisitka, 2003:31). My view is that this point cannot be overemphasized, as the user groups are a very important audience for the provision of feedback on the usefulness of the LSMs. Some of the problems of literacy, accessibility, and distribution that have been encountered by the co-researchers might be linked to the lack of involvement of the user groups during the development of the LSMs.

The scenario of Councillors not receiving training on LSMs related to waste management and the CBOs being the only group that receive training but having

no access to resources might be solved if there were processes of both groupings being trained on LSMs development.

4.6 Language usage in the use of LSMs

All co-researchers raised the language issue as a problem except Mtsheleni. In section 4.4, I mentioned that language seemed not to be the only issue that hindered the usage and comprehension of LSM. In the study, I observed that the majority of LSMs was written in English and that there had been wide use of LSMs written in English. The materials have been used and adapted to effectively support the implementation of local waste management strategies. This observation was supported by Mtsheleni from Umdoni Township: “They [community members] are able to read it and adapt it to their local needs”. (Mtsheleni, 2003: pers.com).

The CBO has facilitated several waste management workshops in the area using these LSMs and this workshop has been attended by community members especially youth to try and promote a cleaner environment. Funding for this workshop was made possible by EJNF who is the umbrella organisation for capacity building on waste management in KwaZulu Natal. I never made time to attend these workshops to observe how they used the material because they were not in line with my work-schedule.

Mtsheleni described how some community members took the material home, read them and interpreted them in ways that were relevant to their local situation. Mtsheleni described how some people in her community have taken the material on ‘sewerage pipes protection’ from the Ethekwini Municipality and adapted them to their local context. This contributed to the clean water education programme for the community.

The key finding in this context is that the use of English in the development of LSMs in the South African context has been contested by several writers. Even though the above scenario illustrates that language was not a problem in the case of adaptive use of material at Umdoni Township, the other two respondents from

Umlahlankosi and Umthombo townships described how illiteracy and lack of material written in mother tongue language was a problem. Russo and Lotz-Sisitka argue that “Language also forms the basis of learning, in that concepts and ideas are formed through language, and human beings use language to express what they know, communicate and learn” (Russo and Sisitka 2003:26). Further findings on this study are noted by Mbanjwa (2002) who report that when materials were provided in English, the young learners were unable to use them, as they had not yet developed the reading skills in English. He further recommended that the learner material be translated to isiXhosa [which is the mother tongue for learners] and that the teacher material could stay in English (Mbanjwa 2002:26).

The idea of language usage was, however, contested by Lupele (2002) and Rosenberg (2003) who reports that simply translating the material to mother tongue was not a solution to addressing language problems (See section 2.9). They emphasize the need for facilitating the learning process. A good example where the educator is seen as a facilitator of learning process is the work of Paxton as cited by Russo and Lotz-Sisitka (2003) who note that:

When [Paxton] was developing the *Enviro Fact Sheets* in South Africa, she tried to design them [fact sheets] so that both children and adults could use them. She designed them to be aimed at the reading of an average 12 year old (reading in English first language), thus making them useful for upper primary age learners, high, school learners and adults. In second language environments, the teacher would play a stronger mediation role and assist learners to use or summarize the materials.

(Russo and Lotz Sisitka 2003:26).

In the case of Umlahlankosi Township, a high level of illiteracy hinders participation of some people, as they are unable to read or interpret illustrations, even though the intention of the material developers was to make the LSMs more accessible. As a response to this problem of language and use of illustrations the Resource developer consulted with local groups in the development of ‘*Working with Waste Resource*’ for DEAT. “They [CBOs] were all happy that the pictures were clear and that especially in the case of the poster picture that the words were kept to a minimum” (Lombard, (2003) pers comm...). In my view, this might have been made easy by the minimization of language and maximization of illustrations.

I concluded that where illustrations were workshopped with the representatives of the user group the material might be more accessible to the semi-illiterate community members (see annexure 9).

Mqondisi (pers.com 2003) mentioned that even if the material can be developed in English for user groups, the semi-illiterate group of adults will find it difficult to read on their own and, as a result, the enthusiasm to continue participating in the community development programmes is reduced.

We observed that after the workshop there were few people who were implementing what they have learnt. We soon received feedback that it was difficult for people to follow up on activities on their own e.g. recycling. Reasons being that *lowomuntu aka understandi, nasekhaya akakwazi ukuzifundela ngoba isingisi sibukhuni. Noma ene- intresti angeke akwazi ukuqhubeka afunde ekhaya. Ngalokho-ke umuntu ugcina eloose l-interest.* [That people are unable to read on their own, even though they have interest [passion] within, he/she will be unable to read alone at home, as a result the interest is lost.

(Mqondisi (2003) pers.comm.).

My view on this issue is that translation issues should be considered at the initial stages of the material development process. Russo and Lotz-Sisitka (2003) argue that: "Sometimes the translation is anticipated and therefore planned, but in most cases translation arises from the success of a particular material" (Russo and Lotz-Sisitka, 2003: 28). They further suggest that:

Special attention should be given to the initial purpose and context of the original material and the assumptions about its use to foster environmental learning should be considered anew in the context in which the translated text will be used.

(Russo and Lotz-Sisitka 2003: 28).

The issue of translation was raised by Stimela and Mtsheleni (2003), who contend that the material has helped in their local context and mention that people have made a difference in the implementation of the recommendations gleaned from LSMs. "This [poor domestic waste management] has been reduced extensively because of education materials provided by the metro" (Stimela and Mtsheleni 2003, pers comm.).

4.7 How LSMs are being used by communities

The data indicates that the use of LSMs has been informed by the fact that people have acquired knowledge on waste management. They have developed values on how they perceive their physical environments. The change in attitude informed them to identify a need to develop skills on how to combat prevailing environmental problems e.g. effective management of domestic waste (personal experience).

Skills development was informed by the content of LSMs, amongst other things. The development of skills leads to more participation of people within the communities. This is exemplified by Mtsheleni and Stimela (2003) who noted that: “there was an indication that people are aware and conscious of polluters. *Iyasiza lento*. [You can see that LSMs are useful]” (*ibid*).

The usage of LSMs by different groupings differed. I came to conclude that LSMs had a key role to play, which differs with the context that each community finds itself in. The disadvantage, however is that community leaders (in this case the co-researchers) lacked support and cooperation from the general members of the public, especially those that are unable to read on their own after the workshops or community gatherings. This perception is supported by Stimela, (2003): “We observed that after the workshop there were few people who were implementing what they have learnt” (Stimela, 2003 pers.comm.).

Contrary to this translation of waste material into a stage play lead to better participation and understanding of issues by most members of the community at Umthombo township. This resulted for example to people adhering in not dumping their domestic waste in the streets but instead they adhered to putting their domestic waste in the street in relevant days for collection by municipality.

Similar findings have been realized during the National Environmental Education Project (NEEP) that responding to teachers development interests some teachers’ had serious problems expressing themselves in English (which is a second language for the majority)” (Lotz-Sisitka and Raven 2001:65).

4.8 Capacity building needs on how to use LSMs

Capacity building emerged as needing attention with regard to two themes in the data:

- Capacity of community members to be able to take action to address environmental problems [effective waste management]
- Capacity building for municipality officials on environmental issues e.g. waste management issues.

4.8.1 Capacity building needs for Community Members

LSMS have been perceived by both CBOs and Municipality representatives as a tool to develop the capacity of community members on local environmental issues, e.g. waste management. This has enabled them to create dialogue based on what they already knew, what they needed to find out, and identifying organisations for providing support to be able to take action and use the skills acquired in the process. Participants were able to reflect back on what has been learned and evaluated success on progress made. This was also mentioned by 'Councillor Two' (2003 pers. comm.): "For those who can read the behaviour has changed certainly and people know where and when to dump waste for collection by the municipality". A co-researcher from Umthombo township highlighted that the availability of material from the Ethekewini municipality has enhanced participation of some youth members who have been fully involved in initiating local environmental clubs where most of the environmental problems including waste are being addressed (See annexure 8).

4.8.2 Capacity building on waste management for councillors

The willingness to participate in environmental training programmes, with special reference to waste management, has been demonstrated by Councillors from both Umthombo and Umlahlankosi Township. The lack of support and engagement with community initiatives has been influenced by a lack of exposure to environmental education processes. There has been no in-service training provided to them by the Municipality, or by the Department of Agriculture and Environmental Affairs (DAEA)). The issue of a lack of capacity was raised by both CBO representatives,

as well as by Councillors themselves. “*Abantu angeke bafunde kwasathina singafundisekile ngalezinto*” [people will have to learn from us, but we are not fully informed on these (waste management issues)] (‘Councillor One’, 2003 pers. comm.). Councillor two also indicated the need for capacity building “We need capacity building and training on environmental issues as they relate to our day-to-day work with the communities” (Councillor Two (2003), pers. comm.).

During the interview session ‘Councillor One’ made a request to assist his community by linking him up with the recyclers that can assist his community in buying the domestic waste. He also indicated that if this idea of selling waste was to succeed, some of the people might benefit to overcome poverty as they might be able to sell this waste to the recyclers. As a response to the above need, the National Department of Environmental Affairs and Tourism responded to this need by developing a ‘*Working With Waste* resource pack’ (See section 5.4).

The key finding on this theme is that there is a need for capacity building for the user groups. Similar findings have been presented as recommendations in the NEEP GET pilot research programme by Lotz-Sisitka and Raven (2001:97) who note that: “it is important that LSMs developed for professional development and curriculum implementation be hands-on and provide teachers with a flexible range of tools to interpret the curriculum policy documents”). They further made recommendations on the kinds of material that were useful to support capacity building:

Materials that interpreted the OBE curriculum policy framework in the form of illustrative learning programme units...Materials providing pedagogical ‘guidelines’ or orientation to the implementation of the educational ideas associated with OBE; Materials to provide teachers with conceptual and content knowledge Materials to support learning in the classroom

(Lotz-Sisitka and Raven 2001: 97)

Despite these recommendations being meant for teachers they are also useful for community contexts too, particularly the provision of conceptual and content knowledge. The provision of pedagogical guidelines to trainers would also strengthen the delivery of these materials.

4.9 Participation and collaboration in dealing with waste management

The need for meaningful, well-coordinated professional collaboration between CBO's and Municipalities was recognised as an urgent need by all research participants. CBOs claim to be more informed about National Waste Management Strategy and the LSMS related to this. Mqondisi claims that: "Youth organisations are aware of what should be done as they have received training on Waste Management and [they] have participated on policy initiatives". (Mqondisi, 2003 pers. comm.)" If *ikhansela alikho informed* [if the Councillor is not informed] that will result in more [environmental] problems in the area." (*Ibid*). Stimela concurs with Mqondisi by saying that "*ayikho kahle lelink* [the link is not there] between CBOs *ne* [and] government in terms of [the] implementation of environmental programmes".

In the study I have observed, based on the responses received from all research participants, that there is cooperation between the Councillors and CBOs. However, in the absence of formal mechanisms for collaboration this cannot be easily realised. Collaboration is forged by CBOs if they have a need to implement waste management programmes within the community particularly if there is funding available. At that level they are compelled to work with Councillors.

The issue of participation is not only focussed on poor cooperation from municipalities but CBOs also encounter problems when working with community members. The levels and expectations of enhancing participation included attendance at workshops and impact through the implementation of other programmes. This has been the case at Umthombo Township. Stimela from Umthombo stated that: "Participation is only achieved by those who attend workshops. There are less people who attend workshops than the people who receive invitations to come to waste management workshops". (Stimela 2003 pers. comm.). This confirms the perception that participation processes are important in implementing community-driven projects in order to achieve results with a positive impact.

Participation is also achieved by those who do not attend meetings, but are able to read the LSMS on their own, and implement what they have read. This appeared to result in them taking appropriate action, even though there is some doubt about the actual cause of the change and the role of the LSMS. This has been the case in the encounter and experiences of the communities who participated in the study. This was emphasized by 'Councillor Two': "The CBO consists of youth members and they can read and implement what is in the material". "They have also assisted by dramatizing the resource material from Ethekewini Municipality and performing this dramatization for the community (See section 2.2). This was a tool for reaching out to more people especially to the audience that could not read on their own" (Councillor two, 2003 pers. comm.).

The other focus of participation is other stakeholder invitations to CBO to participate in policy formulation on waste management issues at a local level. Such a forum is perceived to be one where sharing of information occurs, as well as where discussion takes place on policy issues. This is the case in the Msunduzi Municipality. "We have received invitations to participate in the Local Agenda 21 committee for the council. We accepted that invitation and we shared with them the resolutions of 2002 WSSD, as they [Councillors] did not attend" (Mtsheleni, 2003 pers. comm.).

4.10 Adaptation of Learning Support Material for use by CBOs

As mentioned in section 4.4, the accessibility of material from the municipalities is not optimal for some communities. Accessibility of LSMS seems not to be the only issue that confronts CBOs. The Umthombo CBO has no problem accessing LSMS from Ethekewini Municipality, because the information office is in the Durban city centre. After they have collected the material from the Municipality office, they are, however, often unable to find a person from the municipality to show them how to use the materials. The CBOs end up adapting the resource for their own needs. The adaptation and use of LSMS was confirmed by both 'Councillor Two' and Stimela, who responded to the issue by adapting the materials using drama to educate more people especially the illiterate and semi-illiterate groupings (Refer to section 4.9).

“Sometimes you end up not getting a person who will facilitate the workshop for you. *Ayikho kahle indlela yokuthi nifundiswe ukuthi lematerial ningayisebenzisa kanjani.* [There are no guidelines, demonstrations nor training support provided to assist the user in using the materials]. You just take that material *nihambe niyoyidistributer ngokuthi nani nizicabangele* [and distribute it and adapt it to your own needs]” (*Stimela (2003) pers. comm.*).

4.11 Concluding comments on research findings

In all the above themes I noticed that the participation of both CBOs and Councillors in the process of material development is lacking. This is confirmed by the type of responses that they provided (See annexure 8). They all received LSMs from different institutions. They were not familiar with the usage of each type of resource. As a response to the uncertainty of not being able to use them 'as perceived' by the developer, they ended up adapting them to their own needs which in itself is an encouraging form of participation. Russo and Lotz-Sisitka (2003) support this finding (see section 2.3).

The use of language has also been discussed and identified as one of limiting factors in access to, and use of LSMs. However this has not been the case in all three areas. Even though they acknowledged that English language usage as a problem in using LSMs there have been contrasting views amongst participants about the *pros and cons* of this. There is evidence that initiatives have been explored by different CBO members and 'Councillor One' to ensure that where language was a barrier, alternative ideas and methods were used.

My observation, which is confirmed by the type of responses that I received from co-researchers, indicated a general lack of formal cooperation between the Councillors and the CBOs in implementing the NWMS. Both groupings implement the strategy and there has been an *ad hoc* interaction between them. There are no formal documented programmes or methods and resources that have been produced to address these initiatives. The challenge, however, is to encourage the involvement of CBOs and Councillors in developing and adapting the learning material. What may be of value is the establishment of formal learning programmes or Learnerships within the NGO and CBOs sector where the learners might be encouraged to learn the environmental education processes in a formal framework through learnerships with support from recognised institutions.

Chapter 5

Critical Appraisals of LSMs collected

5.1 Introduction

This chapter will focus on the implementation of the theoretical framework suggested in chapter 2. It critically evaluates a sample of material collected, namely: awareness raising material, material to support community based activities, and environmental management and posters (see table 5.1). I also critically evaluate one sample per category except with regards to posters. The reason for choosing the sample materials was motivated by the fact that they were widely used by all three CBOs except the 'Working with Waste' resource file. The reason for choosing the 'Working with Waste' resource file was motivated by the fact that it was developed by DEA&T as a response to a need for LSMs that address waste management issues at a local level. I deliberately left out posters as none of the participants said that they used posters while interviewed.

5.2 Samples of LSMS collected

Table 5.1 Sample of materials collected

Type of Learning support material	Developed by	Title of Document	Language
Awareness Raising Material	WESSA	<i>Know your Environmental Rights.(Booklet</i>	English
	Rand Water	<i>Water wise your contribution to Using water efficiently (pamphlet)</i>	English
	DEAT	<i>Vermiculture – or earth worm farming(brochure)</i>	English
	Ethekwini Water Services	<i>Sewage disposal education Programme (booklet)</i>	English
Posters for Environmental Awareness	DWAF	<i>'Reduce', 'Reuse', 'Repair'(Poster)</i>	English
	DEAT	Found inside the 'Working with Waste' resource file. (poster)	English
Material to support community based activities	EJNF	<i>Landfill sites and rubbish dumps (booklet)</i>	English
	KZN Department of Health	<i>Build your own toilet to stop the spread of disease (poster)</i>	English and IsiZulu
Environmental Management in local government	DEAT	<i>Working with Waste (resource file)</i>	English

I have critically evaluated a sample of these materials. These include materials developed by an NGO, a municipality, a provincial government as well as national government. The following criteria for appraising each of the LSMs were used:

- Relevance to the context of intended usage
- Clarity, appearance and presentation, language and illustrations
- Participation of users
- Distribution

These criteria were derived from the literature review in chapter 2 and also draw on the interview findings.

5.3 Case study 1:

***Landfill Sites and Rubbish Dumps* booklet by Environmental Justice Networking Forum**

Description of the resource

The resource is in an A5 format and has 14 pages, and is having a cover page which is written "*Landfill sites and rubbish dumps. A simple guide for communities*". (See annexure 7). In the outside cover it then shows the illustration of a dumping site, which is in front of some few houses. It also shows the illustration of a child walking in this site. The outside cover also shows that the resource has been compiled by EJNF. The first page informs people about their environmental rights and asks people if they know what to do if they stay next to landfill sites or dumping sites. On the second page, it explains what a landfill site is; the rest of the booklet explains the hazards of the landfill sites. Illustrations are used to explain text and these illustrations are put in text boxes. Some have captions and others don't have. The back of the page includes the details of EJNF, as well as the role of other organisations in producing this booklet. Lastly contact details of the local council's waste management office and EJNF office are provided.

5.3.1 Background

I will provide background to this section, as I was involved in the process of developing the resource. In other sections I will not provide background as I am not informed and did not conduct interviews in this regard. From 1997 to 1999 EJNF

participated in the development of the Integrated Pollution Control and Integrated Waste Management Strategy (Refer to Section 1.3). While enabling EJNF's constituency to participate effectively through this process, we observed that most of the constituency members at a national level were unable to participate meaningfully in this NWMS process, as they did not have content background information on landfill sites, nor had they been given a basic introduction to waste management.

The need to develop an easy-to-read resource on landfill sites was identified by the EJNF constituencies from eight provinces of South Africa excluding the Northern Cape. This need was identified through a process of consultative National Strategic Planning by EJNF. This resource development process is supported by Taylor (1997) who argues that, "resource developers should endeavour to respond to requests for help and seek opportunities for providing collaborative support amongst wider partnerships" (Taylor 1997: 177). This material was developed within the framework suggested by Taylor (*ibid*). The content of the booklet includes the following,

- What problems do people have with landfill sites?
- What are your rights?
- The minimum requirements;
- Classification of waste and grouping your rubbish;
- What can you do if there is already a site near you?
- Things to find out regarding the site;
- Who can you go to for help?
- If there are plans to start a new site near your community;
- What else can you do?

All these are written in English, in some parts of the text, illustrations have been used.

5.3.2 Relevance to the context of intended usage

A booklet '*Landfill sites and rubbish dumps*' was produced as a response to the need identified by EJNF members, who were particularly concerned with issues affecting communities staying next to illegal and legal landfill and dumping sites.

Russo and Lotz-Sisitka argue that: “The purpose and context of LSMs can also be informed by institutional priorities at a more local level” (Russo and Lotz Sisitka, 2003: 24). By producing this resource, EJNF was able to respond to the needs at a local level by involving people who were exposed to the hazards of the landfill sites. People were asked to provide experiences that they have had with regard to staying next to landfill sites. This was done in the form of workshops. Involving these people informed the content of the booklet to be informed about the information needs of the intended user group. Russo and Lotz Sisitka support the view that: “Materials do not stand alone” (Russo and Lotz Sisitka 2003: 24). It is therefore very important to link the material development of LSMs to the activities of the organisation or project.

5.3.3 Clarity, Appearance and Presentation

Figure 5. 1 Outside cover of a Landfill sites and Rubbish Dumps

To comment on the clarity, appearance and presentation, I reviewed four illustrations and associated text from the booklet. The visual illustration on the outside cover, which also provides the visual text, depicts the ‘little boy’ playing in a rubbish dump (See figure 5.1). He is carrying a ‘stick’ [my interpretation] in his right hand and moving forward. The debris on the ground may be interpreted as rubbish or unwanted domestic waste from the neighbouring houses, as the title of the booklet reads *‘Landfill sites and rubbish dumps’*. The text below illustration of

the boy on the booklet reads '*compiled by the Environmental Justice Networking Forum*'. EJNF is an advocacy and lobbying organisation and if a reader is not illiterate and knows the role of the organisation, the reader will assume that this booklet is about advocating against illegal dumping sites. If the reader is illiterate the possibility of misinterpreting the illustration is expected, as the reader may be unable to link the text to the picture. The 'little boy' in the picture might be interpreted as a person looking for something to play with or something to eat. This will be an understandable interpretation from a person who understands poverty-related issues within some South African communities. The picture does not however 'limit' the boy as boy looks 'free' to go beyond this landfill site. This also, however, depicts a hazard, as the boy is alone in this 'unhealthy environment'. There is no adult around the dumpsite; even the doors in the nearby houses are closed.

In my view, therefore, this picture provides the reader with some insight into what they may expect in the booklet if the reader is able to read English.

Figure 5.2 Children playing on the landfill site

This illustration depicts two children, the first child is half dressed (only wearing pants) and he is standing and looking at the rubbish dump. The second child is

kneeling down and carrying a container with his right hand. The writing on the container (figure 5.3) is not clear enough for the reader to know whether it is dangerous or not. But having read the text on the right, the literate reader will be able to link the picture to the text on the left “children play on the rubbish, and may pick up germs that make them sick”. However this statement is misleading, as it does not explain what type of germs might occur in such an area and how dangerous can they be to human beings. Including a capacity below the picture would have made it more informative. E.g. *Figure 1, Children playing in the unfenced rubbish dump.*

Figure 5.3 Hazardous containers

This illustration on figure 5.3 has no caption. The four containers are assumed to have been used to store dangerous chemicals and the assumption is that the reader will understand the paragraph below it, which suggests better methods of discarding dangerous chemicals. The container on the left has no text, there is a sign, which in my interpretation might indicate ‘flammable’, and the one in the middle has a label with lines. The reader might assume that the sign was attached at the factory, indicating the levels of hazardous content, the third container is written in *IsiZulu* ‘*ingozi*’ which means danger. The use of *IsiZulu* is also a limiting

factor, given that EJNF is a national organisation and *IsiZulu* may not be an understood language in all provinces of South Africa.

Generally, these containers are mainly re-used by people to store their domestic water. Normally people who collect these drums from dumping sites do not have water services supplied to them. My view is that more attention should have been paid to the on labelling of these containers to emphasize the point that these drums might contain hazardous waste, which might poison the environment and damage people's health. In particular the booklet could have provided more information on what the different labels mean.

Figure 5.4 Legal Action demonstrations

This illustration is well captured and informative. It has a caption, '*Legal Action*'. People are staging a public demonstration or a march and they have written information demonstrating that they are campaigning against illegal dumping sites and showing their 'banners'. On their banners people have written what they suggest as alternatives to an unhealthy environment. My view therefore, is that the developer of the text could have used more of this type of illustration and could have provided captions and numbering for all illustrations. The use of both texts and illustrations to make the point is important.

5.3.4 The use of Language

The font and size used in the booklet is easily readable. The text is all written in simple English and aimed at readers who have finished at least grade 10 in a school where the learners are learning English as a second language. Not all terms are explained to the reader and few illustrations are used. As indicated above, these are not always clear, and the text does not always complement the illustrations.

The material could have been improved by providing a glossary of terms for the reader who is English literate but not fully conversant with the concepts of waste management. The illustrations are not numbered (no captions provided under each illustration) to point the reader to the relevant number within the text. As the document was meant to be distributed at a national level, the idea of using English and not translating it to other languages was ideal. Information is clear; it does provide different perspectives such as social, economic, political and biophysical factors. Information contained was also relevant to issues of waste management.

5.3.5 Participatory processes while developing the resource

The material was developed by a team of people who had different expertise regarding resource production, as it is mentioned at the back of the booklet. The need for the resource was researched and the content of the booklet was also researched with different stakeholder groups. This type of development of resources is supported by Russo and Lotz-Sisitka who say that: "Research is an integral part of planning in materials development" (Russo and Lotz-Sisitka, 2003:16).

Lupele (2003: 120) recommends that: "it is important to work with people with different expertise while developing LSMs". Amongst the participants were a team of artists, the layout person, as well as Adult Educators from the University of Natal, Pietermaritzburg. Acknowledgement of those who participated in the development of the resource is contained in the booklet. A reference to sources is also included at the end of the resource to assist the reader in seeking help on

landfill sites. The provision of contact details and publishing information assist the learner to follow up further information. The book also provides permission for photocopying as long as the publisher is acknowledged.

5.3.6 Distribution

The material was distributed to member organisations of EJNF through surface mail using the EJNF database and it was also distributed to EJNF provincial offices and to other constituency organisation offices. The book was not publicized through any media such as the radio as the organisation lacked funding. The only source of publicizing the booklet was through word of mouth and EJNF's internal communication media such as the EJNF newsletter. The booklet is now out of print. However, there are ongoing demands from the public to make the book available. Each organisation received one copy through the mail or through the EJNF organised workshops. It is not clear whether the booklet was made available to all of the organisation's constituencies or whether it was placed in the organisation's library for use by more people. This was not followed up in this study, neither was it followed up by the organisation.

5.3.7 Summary

This resource does follow a clear sequence and, the writing style is appropriate to the audience. From my interactions within the organisation, I am aware that it did contribute to raising literacy levels on waste management for EJNF participants. This was important since participation on waste related issues had been part of the EJNF input at the Johannesburg WSSD 2002 (See EJNF report on WSSD 2002). As the resource was donor-funded it had to be produced within a specific time frame and as a result some of the critical issues for consideration when developing the material as suggested by Russo and Lotz-Sisitka (2003:28) were not covered.

To enhance the use of the LSMs of the booklet by NGO's and CBO's, this review indicates that the following changes could enhance the booklet: The resource could have been pilot tested with the user group, before circulation.

5.4 Case Study 2:

***'Working with Waste'* a Guide**

Produced by Department of Environmental Affairs and Tourism

5.4.1 Relevance to the context of intended usage

This resource was produced when the need for implementation of National Waste Management Strategy was seen as a priority by the Department of Environmental Affairs and Tourism (See annexure 2). The final responsibility in the declaration of implementing National Waste Management Strategy is left with Municipalities. The purpose of this resource is to assist municipalities in the implementation of the National Waste Management Strategy. The resource specifies that it deal with Integrated Waste Management systems, and especially with solid waste.

5.4.2 Clarity, Appearance and Presentation

This resource is well presented with illustrations and it is easy to read the text and the font size. It was developed for local municipalities, (who have an appropriate level of English competency), and it had to be at an acceptable standard in terms of reading and it had interpreting illustrations. Information on how to use the guidelines is provided and it does tell the reader how the guidelines were produced and they appear easy to use.

"This series of *'Working with Waste'* guidelines has been specially prepared to give every practical, easy to follow steps that a municipality should take responsibility to manage waste. This is one of a series of guidelines that deal with management of waste. These guidelines are easy to read, updateable and have been designed with colourful section divider cards to double as awareness raising and capacity building resource materials when municipalities work in communities and consult with their residents

(DEAT 2003: (ii).

This above quotation was influenced by the participation of stakeholder groupings that assisted the developers to try to simplify the resource (Lombard, 2003: pers.com). In my view the above quotation is yet to be proven to be 'true' during the implementation of the resource. As the content of the *'Working with Waste'* resource file is very detailed and it assumes that the reader of the resource is fully informed about waste management issues and the terminology used. The other

assumption is that once every Municipal official has been trained by the facilitators hired by DEAT, he/she will be able to move on, and implement the content of the file without any problem. DEAT's intentions were appropriate and had the interest of the municipalities in mind while developing the resource. In my opinion this *'Working With Waste'* resource is a good example that illustrates 'RDDA' critiques made by Taylor (1997). As Taylor points out this 'costly' resource cannot replace a teacher or an informed facilitator or trainer if good results are to be achieved. Even though the process was participatory and involved different stakeholder groupings I still argue that this resource is developed based on RDDA model, as the percentage of local government officials who participated was minimal and it was also not possible to include large numbers of officials.

Figure 5.5 Hierarchical management of waste

This illustration shows methods of reducing waste at the source. Similar illustrations have been used throughout at all four levels of the illustration. It is easy to understand the text without losing meaning as the size of the illustrations is big enough and readable.

5.4.3 The usage of language

The language used is English, which is accessible to a reader who has a grade 12 qualification second language English reader.

I have critically looked at the whole resource and realised that the file is easy to read but there is a need for training the users about the content of the resource pack. The need to provide training and to monitor the implementation and use of the resource cannot be overemphasized. The graphics are clear and the use of

cartoons makes the document reader friendly. For the reader who cannot understand the language it might be easier to read the cartoons and interpret them.

5.4.4 Participatory processes while developing the resource

The process of developing this resource was very extensive and participatory as well as donor-driven. The participants included donors, DEAT officials, Consultants, Artists and Layout and Design artists, and stakeholder groupings. 'A number of stakeholder groups during the planning workshops which took place at national, provincial and local levels are gratefully acknowledged'. This is highlighted in the list of people who participated in the development of the research (DEAT, 2003). Such processes were certainly helpful however, as has been previously stated the number of municipal officials involved was probably inadequate.

5.4.5 Distribution

The first circulation of this resource was done in August 2003. The material is being distributed to Municipalities through workshops, which are coordinated by the consultants hired by DEAT to train the Municipal officials. It is assumed that the CBO's will access the information through working with their local municipalities. This assumption, in my view, is worth being followed up and investigated further.

5.4.5 Summary

This resource is a relevant response towards solving environmental problems that relate to domestic waste management at a local level. It should be seen as one of the tools towards solving the problems, but other alternatives should also be considered. The implementation of this resource might be enhanced or hindered by budgetary constraints within Municipalities, non-attendance of Councillors at training workshops and the lack of monitoring by the Local Government as to whether the resource is being used effectively. Lastly if the copies are only made available to Municipality officials only, this may result in CBOs and NGOs not being aware of this valuable and expensive resource.

I conclude that the development of this resource fulfils most of the requirements that were mentioned in section 2.9, but the concern is on its implementation and its usage. Firstly, from the discussions with Lombard (2003 pers. comm.). (See interview notes annexure), It is clear that the 'two days training' of Councillors on how the resource is to be used is a once off exercise. Secondly, support structures at a local level where action is taking place are not written in the resource. Thirdly, the training of local municipalities is sanctioned by DEAT. This isolates the Provincial Environmental Departments in providing support to local municipalities. Lastly follow up mechanisms on problems encountered and further training on the use of the resource has not been clarified in the resource.

5.5 Case study 3

'Build your Toilet to stop the spread of disease'

By Department of Health, KwaZulu-Natal

5.5.1 Relevance to the context of intended usage

This resource was produced as a response to the Cholera crises in KwaZulu-Natal. It therefore aims to respond to the environmental crises, which occur in some parts of KwaZulu Natal province.

5.5.2 Use of Language and illustrations

The resource is written in *IsiZulu* and English. The font size and type is easily readable for semi-literate readers. The graphics are simple and clear and not crammed together. However, the illustrations can be misleading as they contradict what is in the text. Even though this resource provides both illustrations and *IsiZulu* to clarify English text, it is misleading, as the illustrations do not depict what is written in the text. The text below and above the graphics provides information on the causes and the prevention of cholera. It does not provide information on what the graphics are trying to say to the reader. The captions also do lead to the text (see figure 5.8).

Figure 5.6 Activities that should not be done next to streams

This illustration depicts a woman carrying a baby and washing clothes in the stream, which is close to the houses. On top of the stream there is an illustration of another woman collecting water using a container, and between these two women is a girl who is drinking from a container. (My assumption is that the water was collected from the same stream. Far left is a man responding to the 'call of nature'. These illustrations alone are not linked to the text below as the caption states '*build your own toilet*'.

On top of the illustrations is the representation of a cloud and rain, which is also pouring into the stream. The caption on top of this illustration is '*Build your own toilet to stop the spread of disease*'. This caption claims that the spread of disease is only caused by *ecoli* spreading into the streams. The activities of washing the clothes in the river and drinking water that has not been boiled straight from the stream is also not seen as a contributing factor to the increase of water borne diseases. The caption is also misleading as this brochure is not only talking about

'building your own toilet', as it also shows other contributing factors to waterborne diseases.

The arrow showing a vomiting girl could not be easily linked to the illustration of the girl who is drinking water from the main illustration. It also does not indicate that because the girl drank polluted water, she ended up vomiting. The arrow should have been directed from the girl in the main illustration to the illustration of the vomiting girl below.

Russo and Lotz-Sisitka (2003) argue that: "The illustrations used in LSMs should be able to illustrate something mentioned in the text and not just to fill up space or provide nice cartoons" (Russo and Lotz-Sisitka 2003: 59). They further argued that illustrations have a role in clarifying the meaning of the text. This illustration in this LSM has been used just to fill up space as the text and the illustrations do not provide the same message.

5.5.3 Participatory processes while developing the resource

The resource was produced as a joint project by KZN Department of Health, KZN Sanitation task group, and Partners in Development, which is an NGO focussing on Development issues. The processes and role of each organisation is not specified in the brochure. This is a good example of the LSMS that is produced with the hope of changing people's behaviour. The Department produced this resource as a response to the need to inform people about dangers and causes of waterborne diseases.

5.5.4 Distribution

The material was distributed by the KwaZulu-Natal Department of Health, to clinics, schools and community organisations and community centres where there was a wide spread of cholera as well as in the surrounding areas. Radio was also used as a media to popularise the cholera crises.

5.5.5 Summary

In the process, the message has been lost: the caption is misleading; readers' ability is undermined by using illustrations, which do not explain the text. In my view, this resource does not provide relevant information to an illiterate reader, who will rely on reading the graphics. I recommend therefore that the use of 'x' symbol next to what not to do in the illustration should have been used to clarify the text. Secondly, there should have been relevant text next to illustrations to explain. Generally, I found this resource confusing both to an illiterate and literate audience.

I conclude by saying that the KwaZulu-Natal Department of Health cannot claim that this resource contributed to the reduction of cholera, as it is very misleading to both the English and the *IsiZulu* reader. My assumption is that the contributing factors to the success in reducing cholera in the province may be ascribed to popular Media such as the radio and visits to clinics by the affected members of the society. The method provided for making toilets is also not easily readable and understandable to a person who is not a qualified builder. Necessary steps and processes on how to build the toilet are not provided in the text. Ingredients and measurements needed for making a strong 'concrete slab' is not provided in the brochure.

5.6 Case study 4

***'Sewage Disposal Education Programme'* sanitation awareness programme,**

Developed by Ethekwini Municipality (Water Services Department)

5.6.1 Relevance to context of intended usage

This resource was produced by the Ethekwini Municipality Water Services Department. The purpose of producing it was a response to the increase of people discarding foreign material into the sewerage system. This resulted in high expenditure by the department in maintaining the sewerage pipes. "The main objective of the education campaign is to create a better understanding of the waterborne sewerage system" (Ethekwini Municipality: undated). This resource is relevant to the needs of the community in Umthombo Township as sewerage and storm water pipe blockages have been identified as one of the environmental problems by the Councillor.

5.6.2 Clarity, appearance and presentation

The text is written in English, but it is crammed together. Talking to several people about their perceptions about this resource, I came to conclude that the photographs on the cover page were not easily translated by a number of them. They further commented that for a reader to be able to understand and interpret the resource he/she should have high knowledge of reading this type of data. They also commented that the map of KwaZulu-Natal is also very small to be used a learner support material.

The use of illustrations and photographs is over-emphasized. On page one alone there are four photographs. They are very small and not easy to decode. The photograph on the top right hand corner depicts the Durban harbour. The text on the outside does not make reference to the harbour. Captions are provided below each photograph. Though the captions are provided it is not easy to the reader to actually see the photographs.

Figure 5.7 Covering page of sewerage disposal education programme

My opinion is that there is no relevance of the photographs in the outside cover to the text. This resource is written as an educational support resource, yet the whole appearance of the resource is not well suited for use as an educational resource (my opinion from experience) as is claimed on the cover page. The outside cover should have contained a simple introduction to sewage disposal process so as to raise and provide information and graphics related to sewage disposal.

Page '3' of the resource does have relevance to education, as it educates the public on how to access the Waste Water Department.

Figure 5.8 Use of comics and photographs in the sewage disposal education programme resource

The illustrations and photographs used as well as the use of a cartoon format make it an easy to read resource for school children and adults that are literate in English.

5.6.3 Use of Language and illustrations

The content of the material is written in English. Even though the text is written in English, they also use 'slang' English, such as 'Whodunnit'. My own assumption is that, as this resource is targeted to adult readers and schools, the writer was trying to make the English text suit both young readers and adult readers. As a second language English reader I found it difficult to understand the meaning of the word 'Whodunnit'. I had to ask an English reader to explain the word to me. To avoid the loss in the meaning my view is that the use of slang language should have been avoided, as this does not encourage the learners to learn good English.

5.6.4 Distribution

This resource is distributed to schools and community members. It is available at the information office in Durban. It is widely used during the 'Schools Sanitation Awareness Week'. The resource is produced by Ethekwini municipality and its sustainability is dependent on the departmental priorities each year. The resource also allows for adaptability, for example the drama on page 3 is useful and other resources in the resource pack. Even though this is a once-off exercise by the

department during the 'Sanitation Week', communities continue implementing the recommendations and adapting the resource to other similar issues.

5.6.5 Summary

This resource reflects that it has been developed without involving the user group and it had not been trailed out to school groups before it was printed. The resource is showing the different process of resources produced within the Municipality. The challenge for this resource will be to summarize it and synthesize important facts based on what the Ethekewini Municipality wanted school children to learn about. Secondly linking it with the several environmental education initiatives or other Learning Areas that the Department of Education has prescribed for secondary schools.

Evaluation of these resources has assisted the researcher to be able to apply the theoretical framework provided in section 2.9. Resources are developed as a response to different situations, such as in crises situations e.g. the response to cholera situation in section 5.5. When there is enough time and money to produce the resource as in the case of section 5.4, the focus tends to be more towards the extensive participatory processes on resource development. The focus on the user and providing training to the user groups, whom the delivery of the programme is often neglected. The assumption here is that the resource can be easily used and its content will be implemented by the reader. In the instance where the interest of the user is emphasized and taken cognisance of (section 5.1) the emphasis is on the text and the illustrations were not used in context. The interest of the donor is also emphasized as the resource in section 5.1 was to be produced within a specific time frame to meet the donor reporting requirements.

In the next chapter I will present the conclusions and recommendations based on the findings of this study. I also clarify areas that need further research based on the research goals. Lessons learnt and research imitations of the study are also presented.

Chapter 6

Conclusion and Recommendations

6.1 Introduction

In chapter 1 of this study, I provided the context of the study and reflected on national and international policies that informed the study. I also provided profiles of the co-researcher and the communities in which I worked. In chapter two I provided a literature review which provided perspective on aspects of LSMs development that relate to the implementation of National Waste Management Strategy within Community Based Organisations as well as in local municipalities. In Chapter two, the literature review revealed that on the use of LSMs within CBOs and Local Municipalities in support of local initiatives appears to be under-researched. While implementing this study, some of the recommendations made by other researchers in the field have been confirmed and I have also developed some new findings (see Chapter 4 and Chapter 5).

In articulating these 'findings', I conclude that there is a need for further research in this field. In this chapter, I therefore, clarify areas that need further research. I will first present the summary of the study according to each chapter in relation to the goals of the study. I will then present overall recommendations, which have emerged from the study.

6.2 Summary of the study

As indicated in Section 1.2, the primary goal of the study was to explore the availability, development and use of learning support material to promote participation in the implementation of NWMS and collaboration between Municipalities and communities in implementing the NWMS. This entailed an assessment and exploration of what learning materials existed and how they were perceived and used by the two groupings. This assessment also involved a critical appraisal of the documents that were collected as part of the research data from different stakeholders in the field of environmental education.

Two closely related questions arise from this research context: What LSMs presently exist and are available to CBOs and Local Municipalities to collaborate in the implementation of the National Waste Management Strategy in KwaZulu-Natal? Implicit within this is the development and accessibility and value that LSMs provide to the user groups (municipalities and CBOs). It is intended that this research will contribute towards local municipalities and CBOs collaborating in identifying relevant learning support materials regarding waste management and the implementation of waste management programmes in their areas.

This study was informed by several contextual issues such as international, national and provincial waste management policies (see section 1.6). The responsibility of local government to implement the National Waste Management Strategy in consultation with and involving participation of local communities using learning support material has informed the way the study was conducted.

The National Department of Environmental Affairs and Tourism is committed in providing skills on acceptable standards of waste management to local municipalities. In August 2003, this Department started outsourcing training facilitators who were to train the local municipalities at a provincial level on how to use the 'Working with Waste' resource (See section 5.4). The success of this training and use of this resource was not evaluated during the study. However, such training is likely to be very useful in enhancing understanding and use of LSMs, although short-term training would need to be strengthened.

NGOs as well as CBOs are also trying to implement the NWMS at a local level using LSMs that are developed within their institutions or from other service providers. The government has initiated and supported national programmes such as National Environmental Education Project (NEEP) to support the process of integrating environmental learning in the formal school curriculum. There has not been much effort to formalize initiatives in the informal sector to implement environmental education. As a result, CBOs and NGOs are finding to work on a trial and error basis to implement environmental programmes within their communities (see annexure 8). There is therefore little professional development

support provided to environment and sustainability educators and community developers with reference to the development, use, and identification of relevant LSMs in the field of environmental education. This is indicated by the responses from both councillors and CBOs in this study that have not received training on the implementation of the NWMS.

The choice of the study was also influenced by the fact that in 2001 the Department of Environmental Affairs and Tourism invited different stakeholder groupings in the field of waste management to attend the first 'Waste Summit' to monitor the implementation of NWMS (See section 1.8). All these stakeholder groupings committed themselves to stabilize waste generation and reduce waste disposal by 50% by 2012.

While conducting the interviews this resolution was a driving issue in my mind because, for the realization of this declaration, it is very important that civil society as a whole is able to participate and that there is enough learning support material to support this initiative. Different research approaches and the 'open learning framework' shaped the way the study was conducted.

The research study provided me with various outcomes, which provided several themes and sub themes. The following themes have emerged as the leading themes as they assisted in answering the research question.

- Environmental problems encountered within the three communities;
- Accessibility and availability of LSMs to Community Based Organisations;
- Accessibility and availability of LSMs to Councillors;
- Language usage in the use of LSMs;
- How LSMS are used by communities;
- Capacity building needs on how to use LSMs;
- Participation and collaboration between councillors and CBOs in dealing with waste management issues; and
- The adaptation of LSMs for use by CBOs.

In my attempts to answer the research question, “what learning materials existed and how these learning materials were perceived and used by the two groupings”, I used a case study method (refer to section 3.3).

In Chapter 3, I described the method, methodology and research process used to implement the study. I used semi-structured interviews to generate data with co-researchers. Research ethics were applied during the study and when the study was completed, I informed the participants of what came out of the research. I used a tape recorder, field journal and photographs as well as the transcribing of interviews as data documentation methods. Using the tape recorder as a data collection method sometimes provided me with technical problems. This unfortunately took some of the interview time from the interview process while I was attempting to sort out the difficulty.

This study informed me as a researcher about processes that CBOs undergo in order to access LSMs from different service providers with the purpose of implementing good environmental education processes in their communities. I came to the conclusion that the use of LSMs should be informed by the objective of implementing the Polokwane Declaration as well as the National Waste Management Strategy. The National Environmental Management Act requirements and the need to implement environmental education at a local level are further objectives that LSMs should address.

The participation of community development leaders as well as of local municipalities was visible in this study. Even though the materials are available and are accessible, participation of both CBOs and Councillors is hindered by high levels of functional illiteracy within the community members. The contradicting factor was that even if some community members are able to read there is still a culture of non-reading from several community members (See section 4.4).

The other finding within this context is the participation of communities in solving environmental problems only if the problem affects them. If they are not affected the level of participation is decreased. Even if the participation level increases there is still a problem gaining support through demonstrations and training on

how to use the material from material developers. This results in communities having to adapt the material to their own local context and missing the opportunity of implementing what the material developer had in mind while developing the resource.

I further noted that there is plenty of literature available on waste, but I observed that there is no formal mechanism of identifying ways within the organisations on how to develop, distribute, and promote the accessibility of LSMs. Organisations have no mechanism of ensuring that the resource is available to other organisations. There is no mechanism of ensuring that, if materials are developed and distributed, more than one copy gets sent to one organisation. It was also not easy to determine how many copies of materials were available to the CBOs membership except that some LSMs were kept by CBO leadership.

The most critical and exciting finding is to do with the informal networking within Municipalities and CBOs on accessing and developing LSMs. I did not find much literature, which documented this loose networking. The strength of this networking is based the needs that arise at a community level which then informs the CBOs to seek help from the municipalities and the municipalities provide professional support based on their expertise.

6.2.1 Lessons learnt and research limitations

Even though I managed to finish the research there were some few lessons learnt in the process. The timing of the research was done during the count down of the local government elections in South Africa. This affected the research sample, as I intended to interview three local Councillors but I only interviewed two as Councillor three was always busy canvassing for his party as a result missed out on the opportunity to interview him.

I also planned to interview member organisations in focus groups but I ended up interviewing three group leaders, one per organisation but because of limited time frames and lack of financial resources to provide transport fees to transport the members, catering and booking the venues for the workshop. I also wanted to test

how the material could be used and how they were using them in the form of a workshop so as to get first hand information while they were using them. I was going to observe the use and understanding of language and interpretation of illustrations, again time frames and non-availability of financial resources hindered the process. Time allocation did not allow me as a result the use of the material is not well documented in this research.

I would have also liked to do member check in a focus group and include their comments but their questions and comments were not relevant to the research topic. I decided not to include them except for comments from June Lombard (see annexure 8 pg. 26-30). Co-researchers were also committed in their day to day duties of their organisations and could not provide more time than they provided. Most communication was done through the phone and through faxing. This was also a limiting factor to communication as I was unable to read the body language of the participants. I found this process to be limiting.

If I have to do this research again I will focus on the use of LSMs as a primary goal and test how the user groups use the material considering language, layout, use of illustration etc. This process will allow me to observe the material in use, how they interact with different languages used in LSMs and also how they will interpret the messages contained in the documents. This will enable the researcher to be able to validate information provided during the interviews and the actual learning experience in a workshop session.

6.3 Recommendations

These recommendations are based on the findings presented in Chapter four and Chapter five. They are presented in point forms below:

6.3.1 Accessibility and availability of LSMs

One of the important findings of this study is the accessibility and availability of LSMs to both CBOs and Local Municipalities. Noting that community environmental education programmes have increased and that environmental education is being used as a tool to implement such processes it is therefore

critical that further research is done to determine the extent on how communities and councillors access the LSMS to implement their local environmental education programmes. The study also revealed that availability does not guarantee accessibility, as there are more factors associated with accessibility (such as language and illustrations).

6.3.2 Participation of CBOs and Councillors in LSMS development

In my opinion this research has highlighted the need for participation of user groups in the development of LSMS (see section 2.6). It also highlighted the need to provide LSMS that will be relevant for them to use and adapt for their own use.

I therefore recommend that participation in LSMS development should involve the following in order to achieve effective participation:

- Stakeholder groupings (who are to benefit from the use of LSMS) should be consulted at the initial stages of the development of LSMS.
- The process of stakeholder analysis should be done thoroughly and in time to identify potential user groups.
- This process might assist in identifying different role players and how feedback can or may be provided to the task team that is developing the resource.
- Roles should be distributed as per the expertise of individuals participating in the process rather than how much input the individuals are providing to the process (see Lupele, 2002).
- Pilot testing of materials should include the participation of the identified user groups.

I recommend the development of a local forum which could be seen as a venue where two different groupings (CBOs and Councillors) can meet to discuss what they can learn from each other and what skills exist within the two groupings that can be useful in implementing a waste management strategy at a local level and in developing LSMs that can be useful in these community contexts.

6.3.3 Distribution of LSMs by developers and user groups

This research highlighted that there is no formal mechanism for the distribution and development of LSMs on how the resources are distributed to the CBO's. The interesting finding was that the user groups visit the relevant institutions to look for resources as and when the need arose. It was also highlighted that the resources get distributed during waste management workshops, which are facilitated by different NGOs such as WESSA and EJNF. This research also highlighted the need to develop and distribute the resource has also been through donor driven projects such as the development of the '*Landfill Sites and Rubbish Dumps*' booklet, which was produced by EJNF.

The distribution factor of the LSMs has been seen as a limiting factor in ensuring who receives the LSMs. I therefore recommend that further research be done on how LSMs is distributed and how feedback is received from the user groups to inform the future development of LSMs. Implicit within this is the need for material developers to provide more training and allocate staff that will be responsible for training user groups on the use of this material.

Finally, I also recommend that a distribution mechanism should be identified at the planning phase and participants should provide the input during the participatory process of all the stakeholder groupings. LSMs distribution mechanisms need to be further researched. This is because many LSMs end up staying in the shelves of the developers (see section 4.4).

6.3.4 Language usage in the use of LSMs

One of the most important findings of this study is that of language usage and low levels of functional literacy within the user groups, which influences how they use LSMs. (See section 4.6). The finding here is that English has been mainly used to develop the LSMs. Language is very important in order for effective learning to take place. In one instance (e.g. in section 2.2) the user groups have adapted the resource by converting it into a dramatized story using mother tongue '*isiZulu*'.

This created more responsibility to those who could read English to translate the meaning to other community members, so that they could benefit from this. The following recommendations are relevant

- That co-operative learning should be encouraged when using LSMs, Co-operative learning will be beneficial as the participants will share knowledge and this will facilitate skills sharing.
- That translation issues should be considered at the initial stages of the development of the resource. Translation of documents at the beginning of the material development phase will benefit both the material developer and the reader in ensuring that the meaning of the message is not lost in the process.

Further research needs to be done on functional literacy and the use of language during developmental stages of LSMs as well as during the usage. The challenge for LSMs developers will be, wherever possible, to provide the opportunity to create the balance in the use of language, graphics and providing relevant translation, which will not misguide the learner while using the materials.

6.3.5 How LSMs is used by user groups

Another finding is that communities and councillors are using LSMs based on the need to implement what they have learnt about waste management. The use of LSMs has assisted in the skills development such as implementation of recycling projects and being able to participate in the selling of waste at the buy back centres. Skills development leads to more participation in solving local problems (See section 4.7). I therefore make a recommendation that there is a need to research how LSMs have contributed to skills development within the CBOs in attempting to implement environmental education.

I also recommend that community leaders (in this case 'councillors') be provided with training on how to use LSMs in the context of active environmental education programmes, as the final responsibility for implementing the government strategies at their level. This finding is linked to the capacity building needs of councillors and CBOs (see section 4.8.1 and 4.8.2). The need to participate in environmental

education processes has been raised throughout this study. (See chapter 4). I therefore recommend that:

- More research needs to be done in this field, with special reference to developing accessibility of LSMs by community-based organisations.
- There is a need for a meaningful well co-ordinated professional collaboration between CBOs and Municipalities.
- An establishment of formal learning programmes through SAQA accredited learnerships and or skills development programmes is established so as to formalize the informal education that is taking place at community level.
- This formal learning programme may make use of the existing qualification provided by National Qualifications framework.
- Local recognised educational institutions, local government, professionally organised CBOs and NGOs form a body that will be able to initiate this recommendation at a local level.

Once the above recommendations are implemented, I further recommend that further research on learning or skills development programmes be done so as to inform the developing initiatives.

As mentioned in section 2, that: “Community based environmental education programmes have mushroomed; environmental education has become a new focus in industry training and public education has become an important focus of environmental education work” there is a need to continuously research the development and usage of LSMs and monitor how different user groups use them and how feed back is provided to inform future processes. This should include researching co-operation within CBOs and municipalities in the use of LSMs produced by the government with special reference to the ‘*Working with Waste*’ resource (See section 5.4).

This chapter provided the summary of the key findings on the issues identified in this research case study. It also makes recommendations for further research in the field of LSMs that relate to waste management in South Africa. The research

took place in the KZN province within two municipalities Ethekewini Municipality and Umsunduzi Municipality and three communities Umlahlankosi Township, Umthombo Township and Umdoni Township. The research explored the availability, development and use of LSMs that relate to waste management. A case study method was used in conducting the study.

The research involved interviewing six co-researchers as well as informal discussions with several people who helped in shaping the study. The co-researchers have been fully involved in waste management and in using LSMs while attempting to implement the NWMS and to solve local prevailing environmental problems. Data collection methods were used to assist in getting rich data, which then informed my study.

In using the case study I managed to get relevant data and managed to focus on three communities and a few co-researchers. This data will inform my organisation strategies in developing LSMs for future use within the NGO and CBO sector. My own practice in developing resource material has been informed by this study. At the time of finishing this research EJNF (my employer) Rhodes University (EE Unit) and WESSA are attempting to make a feasibility study of implementing one of the recommendations mentioned in this research (see section 6.4).

In conclusion I draw on Yeld (1993)

Environmental Education [LSMs] should enable all citizens to acquire the necessary knowledge and understanding including, critically that of ecological principles and processes - which will enable them to make informed choices and decisions about the environmental issues.

Yeld (1993:43).

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