ACTION RESEARCH CASE STUDIES OF PARTICIPATORY MATERIALS DEVELOPMENT IN TWO COMMUNITY CONTEXTS IN ZAMBIA

THESIS

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ABSTRACT

ACTION RESEARCH CASE STUDIES OF PARTICIPATORY MATERIALS DEVELOPMENT IN TWO COMMUNITY CONTEXTS IN ZAMBIA

This research reports on two action research case studies of participatory materials development in two rural community contexts in Zambia, namely Chiawa and Nalusanga. It aims to explore and articulate the relationships between community-based environmental education and participatory materials development in the WWF Zambia Education Project context; clarify participatory materials development processes by identifying the roles of different 'actors' in these processes and identify and analyse the contextual and other factors that may influence development and use of environmental education materials in rural communities. These aims were explored by means of a number of action research cycles of inquiry in the two communities.

The study also articulates the significance of considering ambivalent globalising influences such as international conferences, debates, overseas development aid, national policies and how these shape and influence materials development work in a local context. In order to gain more insight into the local contexts, I developed contextual profiles on the two communities. These capture the contextual factors that influenced the participatory materials development processes. They include issues such as language, ethnicity, literacy, power relations and the local social economy, amongst others.

Although this study has been predominately guided by the socially critical orientation to research and education, I have drawn on aspects of other research orientations. I have also explored some of the emerging critiques of the socially critical orientation. The findings of this study reveal the different roles participants can play in participatory materials development; participatory materials development processes as a learning process; the dynamics of participation in an African context; the role of language and literacy in materials development; the need for open-ended process models of learning amongst adult learners and the importance of merging expert and local knowledge in participatory materials development. This study opens up possibilities for further exploration of participatory materials development processes within the WWF ZEP context and beyond.

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This thesis is dedicated to

My wife, Edrivione, and children
Chisala, Bwite and Lumbanya,
who endured my long absence
from home as I worked
in contexts where the ideals of
democracy, equity, social and
environmental justice are
increasingly violated,
ambivalent and uncertain.
Through their support and
encouragement this work
was made possible.

and

My late Mum and my Dad for the
struggles and sacrifices they made
to see me through school.

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CHAPTER ONE

INTRODUCTION TO THE STUDY

> *The first stories we learn to tell are the true experiences from our lives - anecdotes. These anecdotes are so close to us that we hardly recognise them as stories. Caught up in the immediacy of an experience, we often use tremendous storytelling skill without being aware of what we are doing. We might fall into character voice or gesture or take special care to set up the irony of the story we are about to unfold … (Strauss, 1996:8).*

1.1 BACKGROUND TO THE STUDY

For the past twelve years, I have been involved in the development of educational materials for use in schools and communities. My involvement began with the development of formal educational materials such as primary school textbooks, curriculum development (syllabi) and posters. When I joined WWF[1] Zambia Education Project as a materials developer, I drew on my experience from the formal educational sector and the guidance of my colleagues on the project, to develop educational materials that supported community environmental education processes and the teacher training components of the project.

The urge to gain more insight into materials development processes was mooted when I undertook to review materials developed by WWF Zambia Education Project in a pre-and post test evaluation exercise in ten pilot schools in Lusaka Province (see WWF ZEP, 1998). These schools were located in urban, peri-urban and rural areas and were representative of the geographical distribution of schools in Zambia. The results of this study showed some gaps in the way the resource materials development processes were carried out, resulting in some of the materials being shallow or out of context in different settings. The findings from this study informed future materials development processes on the project. For example, when the project focus shifted from working directly with schools to communities, we sought more participatory ways of supporting environmental learning in the communities (WWF ZEP, 2000).

[1] Short form for World Wide Fund for Nature, an international conservation organisation, with an office in Zambia.

While writing the funding proposal for phase three of the project, we proposed that local people in rural communities should contribute to the development of resource materials locally in their local languages, in a participatory manner. We further indicated that the materials would be issue-and context-specific. Although we found it convincing, for funding purposes, to talk of participatory materials development and the use of action research (see section 2.5.1), we were at the time not really competent enough to work with these approaches.

As the person who was responsible for materials development on the project, my colleagues consented to the idea that I undertake this study, an academic exploration of research into participatory materials development in community contexts. Thus, I carried out this research in the context of my job as an education officer in charge of resource materials development in the WWF Zambia Education Project. The study involves action research case studies of participatory materials development in two rural communities of Zambia-Chiawa and Nalusanga.

1.2 BRIEF INTRODUCTION TO THE STUDY AREAS

Chiawa and Nalusanga are located about 300km west and 250km south east of Lusaka, respectively. Both are in Game Management Areas (GMA), which are areas adjacent to national parks or game reserves (Tilley, 1995). Chiawa is found in the Chiawa GMA near the Lower Zambezi National Park and Nalusanga is located in the Mumbwa East GMA (commonly referred to just as Mumbwa GMA), adjacent to the Kafue National Park. Figure 1.1 shows a map of Zambia's GMAs.

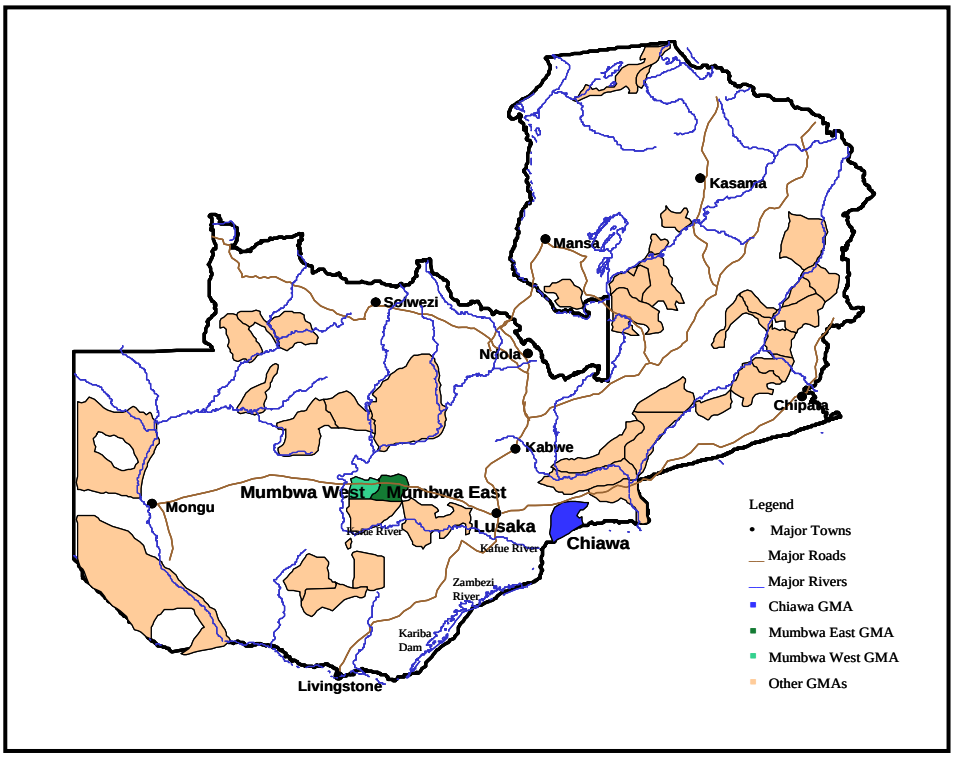

Figure 1.1 Map of Zambia Showing GMAs and the study areas. (adapted from Mwenya et al., 1990)

Game Management Areas were created following the relocation of people to pave the way for the establishment of national parks and game reserves in the early 1950s (Tilley, 1995). They were not recognised (by law) as human settlements until 1998 when they were declared GMAs, under the Zambia Wildlife Act No. 12 of 1998.

Many people in the GMAs have been alienated from the management and utilisation of natural resources in the adjacent national parks and reserves as they are not allowed free access into these areas (Tilley, 1995; Booth *et al.*, 1997; Zerner, 2000). Apart from the inability to access natural resources in the protected areas, the people also suffer from occasional raids by problem animals[2] from the national parks. The animals destroy crops and sometimes attack human beings. These animals move from the protected to the open areas (GMAs). This is particularly common in Chiawa. Unlike in other countries in the southern African sub-region, there are no fences between the national parks and human settlement in Zambia.

[2] Problem animals is a term commonly used to refer to animals that move from protected areas to adjacent areas such as GMAs to attack people and their property (see Tilley, 1995).

The effects of animal raids, poverty levels and the denial of access to wildlife resources in the protected areas have created tensions between the law enforcers and many of the local people (Tilley, 1995; Booth *et al.,* 1997). In order to reduce some of the suffering of the people in the GMAs there has been a trend towards seeking initiatives that would help them to improve their livelihoods. One such method has been the establishment of community based natural resources management (CBNRM) programmes (Booth *et al.,* 1997). WWF Zambia Education Project has also been working in selected rural communities in the GMAs with the aim of contributing to poverty alleviation and improving livelihoods through environmental education (WWF ZEP, 2000).

1.3 THE OBJECTIVE OF THE STUDY

In this study, it is not my intention to discover new knowledge as would be the preoccupation of a positivist researcher as noted by Janse van Rensburg (1995). My intention is to gain more insight into participatory materials development processes in community contexts. The objective of the study is therefore:

To build on previous participatory materials development processes in community contexts in response to local environmental issues with a view to:

- Exploring and articulating the relationships between community-based environmental education and participatory materials development in the WWF Zambia Education Project context.
- Clarifying the participatory materials development processes by identifying the roles of different 'actors' in these processes.
- Identifying and analysing the contextual and other factors that may influence development and use of environmental education materials in the communities.

These research goals were used to formulate the following research questions:

(1) What is the relationship between community-based environmental education and participatory materials development processes in WWF ZEP context?

(2) Who are the actors and what are their roles in participatory materials development processes?

(3) What contextual and other factors influence participatory materials development processes and the use of environmental education materials in the communities?

The above research questions guided me in the collection and analysis of the data in this study (see chapter 3).

1.4 THE WRITING STYLE OF THIS THESIS

The style in which I have presented this thesis may be found to be unconventional in academic work by some readers, especially those rooted in the positivist research traditions where objectivity frames the style of academic writing or report writing. They may find it strange that I have written this report in the first person. I follow Lotz-Sisitka and Burt (2002) who question whether the conventional "thesis" with its culture, history and tradition is the only valid way of writing a study. Janse van Rensburg (1995) observes that the conventional and positivist thesis and academic writing styles using terms such as 'the researcher' and the 'writer' create an impression of self-detachment on the part of the researcher. She further argues that:

> … reconceptualisation in the arena of science has allowed researchers to recognise that they are not neutral in the sense of having no opinions or feelings about 'their' topics. There is thus little need to purport to such neutrality or disinterest by distancing oneself from one's work as 'the researcher' or 'this writer' … (Janse van Rensburg 1995:14-15).

I have found it inappropriate to refer to myself as 'the researcher' or 'the writer'. My style is intended to develop a research voice as articulated by Pirie (1996) and Lotz, (1996). As a participant in the materials development process, I am part of the research story, like the many people I worked with. My voice is located in the use of the first person singular and the quotation of entries from my research journal as argued by Pirie (1996). In addition, I have reflected the participation of community members and other partners in this research through the use of photographs, direct quotations and journal entries.

Lotz (1996:8) notes that the development of a research voice through this textual practice attempts to break from the traditional safety of the third person account and academic conceptualisation. My choice of style is also informed by the fact that this thesis will be read by both academics and non-academics. Sherman (1993:236) emphasises the use of the active voice in reporting qualitative research when he writes "… qualitative research writing requires the researcher to take a stand, to be an interpreter, and to be engaged in the action. It requires the active voice."

1.5 AN OVERVIEW OF THE THESIS

1.5.1 Chapter One

In chapter one, I provide a brief background to the context of the study. I discuss my personal experience in materials development and how this motivated me to undertake this study to gain more insights into participatory materials development within the context of my job responsibilities within the WWF Zambia Education Project. I also discuss how participatory materials development initiatives in WWF ZEP were shaped by the history of materials development in the project.

Bearing in mind that this thesis, apart from fulfilling the standards and requirements for the award of a degree, will also shape and inform participatory materials development processes in the WWF Zambia Education Project and other organisations working in similar areas, I am sensitive to the style and presentation of my work. Chapter one describes and justifies my choice to write this thesis in the first person, in an attempt to reflect the qualitative and participatory nature of the study (Lotz-Sisitka & Burt, 2002).

1.5.2 Chapter Two

This chapter provides a broader picture of the context in which the research took place. The description highlights how the broader context may affect the existing *status quo* in so far as participatory materials development in community contexts is concerned. I also look at issues that influence environmental education practice in Zambia such as policy, development aid, educational theory and pedagogies. I consider these influences at both local and global level

and how these influence environmental learning at community level (Lupele, 2002a)[3]. I indicate how the above contextual influences have impacted upon, or influenced my practice and this study, in the context of the WWF Zambia Education Project. I also take cognisance of previous researchers' observations on the importance of contextual influences as they may affect the choice of a research design and its implementation (Lotz, 1996; Janse van Rensburg, 1995; Irwin, 1993; O' Donoghue, 1990).

Furthermore, I discuss the socially critical educational orientation that underpins this study. My choice of such an orientation to this study is explained by comparing different educational orientations (ideologies) as explained by Kemmis *et al.* (1983), Fien (1993) and Tripp (1992), among others.

1.5.3 Chapter Three

Chapter three describes the research methodology which informed my inquiry into participatory materials development in the two community contexts-Nalusanga and Chiawa. I explain the research methods, data collection techniques, data organisation and data analysis techniques. According to Cohen *et al.* (2001), methods are a basis for the inferences, interpretations, explanations and predictions and inform the way in which a thesis unfolds. With this in mind, this chapter presents an account of the research process and the insights and decisions that shaped the 'emergent' design of this study, as described by Janse van Rensburg (1995). The chapter also lays a basis for the results of this research as described in chapters four, five and six.

1.5.4 Chapter Four

Chapter four illuminates my experience of working with rural community members in participatory materials development processes in more depth in the context of the first action research case study in the Chiawa community. Findings are discussed according to emergent themes. The discussion in this chapter begins with an analysis of the Chiawa contextual profile data gathered through a questionnaire administered to a stratified random sample of thirty households. The profiles show how context may have influenced the participatory materials development processes in Chiawa. This is aimed at clarifying further the context in

[3] An earlier draft of these perspectives was published in the 2002 Environmental Education Association of Southern Africa (EEASA) monograph.

which the research was undertaken (Janse van Rensburg, 1995), and how the issues under discussion may have been affected by some historical, ecological and social factors (Feuerstein, 1986). I then discuss the findings from the participatory materials development processes. These are discussed according to six themes that emerged during data analysis, as explained in section 3.13. These are: the role of the WWF community environmental education programme; the roles of different actors in participatory materials development; gaining access to the community; outcomes of participatory materials development processes; issues and challenges in participatory materials development processes and use of materials in the community.

1.5.5 Chapter Five

In this chapter, I discuss the findings in the context of the second action research case study – Nalusanga. I share the findings in Nalusanga according to the same six themes as in Chiawa (see section 1.5.4). Although the findings in the two communities are discussed under the same themes, the reader will notice that due to the different contexts and materials produced there are differences in the depth of the research outcomes. As in the case of Chiawa, the findings in Nalusanga begin with an analysis of the discussion of contextual profile data. The rest of chapter follows a similar structure to chapter four (as described in section 1.5.4 above).

1.5.6 Chapter Six

In chapter six, I discuss the main findings of the two cases (as reported in chapters four and five) in more depth and in relation to the research questions (see section 1.3). I explore the significance of these findings for participatory materials development in community contexts. I also reflect on the socially critical orientation of the research, the action research methodology and process. Chapter six includes a concluding section and presents recommendations to guide further research into participatory materials development case studies in community contexts.

In the final section, I provide an account of the broader context and theoretical orientations influencing the study. In particular I describe the context, global trends and theory that influenced my study.

CHAPTER TWO

FRAMING THE STUDY: CONTEXT, GLOBAL TRENDS AND THEORY

2.1 INTRODUCTION

This part of the thesis provides an analysis of the contextual influences that form the backdrop of this study. It provides a broader picture of the context in which I carried out the research and how it may affect the existing *status quo* in so far as participatory materials development in community contexts is concerned. In this section of the thesis, I share issues that influence environmental education practice in Zambia. These issues include: the influence of global policy developments on national and local policy making; the influence of overseas development aid (ODA) on possibilities for practice; the influence of educational concepts and ideas on local practice; local perspectives influencing ways in which Community-Based Natural Resources Management (CBNRM) and education are practised and the influence of conservation ideals in the lives of communities. I consider these facets of the broader context by drawing on international trends in the environment and development arena, and more specifically in environmental education to provide a theoretical orientation for the study. I describe this orientation as being 'socially critical.'

Throughout this chapter, I indicate how these influences have impacted upon, or influenced my practice and this study, in the context of the WWF Zambia Education Project and their relationship to the two case study areas-Chiawa and Nalusanga. I take cognisance of other researchers' observations on the importance of contextual and ecological influences as they may affect the choice of a research design and its implementation (O'Donoghue, 1990; Irwin, 1993; Janse van Rensburg, 1995; Lotz, 1996).

2.2 AN OVERVIEW OF ZAMBIA

Zambia was a British colony until 1964 when it became an independent republic. The country is located on the great plateau of Central Africa and forms part of the Southern African Development Community (SADC). The country has been a haven of peace in Africa for the past thirty-eight years, since independence. Zambia's strong national identity and pride is founded on Kenneth Kaunda's[4] motto of 'One Zambia One Nation' (Carwardine, 1987). The motto has helped to unite the different tribes and cultures. For example, inter-tribal marriages were previously unheard of, but are now commonplace.

Zambia has 73 officially recognised ethnic tribes and seven official vernaculars that are used on national radio and television (Carwardine,1987). The seven languages are also used as media of teaching instruction in lower primary schools. Each of the nine provinces uses one or two of the vernaculars in primary schools. These are Chinyanja, Icibemba, Silozi, Chitonga, Kikaonde, Luvale and Lunda. Historical and archaeological research findings indicate that almost all the tribes of Zambia originally came from the Luba Lunda Empire in Zaire, in the present Shaba Province (Machishi and Musona, 1999). They were called the Bantu-speaking people and their languages have a lot of similarities, which makes communication between language groups much easier.

Zambia is also home to tens of thousands of refugees from Rwanda, Angola, the Democratic Republic of Congo and Burundi. The country also played a major role in the liberation of the region by harbouring freedom fighters from Zimbabwe, Namibia, South Africa and Mozambique, among others. Some of the people who came when there was political instability in their own countries have remained and become integrated into the Zambian society, as the case is with some of the people in Chiawa and Nalusanga.

Zambian agriculture is characterised by subsistence and large-and small-scale commercial farming. The rural dwellers such as those of Chiawa and Nalusanga are predominantly subsistence farmers who produce enough for their family and sell only the surplus. The white population dominates large-scale commercial farming. Maize has always been the major cash crop, followed by sorghum. In recent years, export crops such as paprika have been grown on

[4] Kenneth Kaunda was the first Zambian president. He ruled the country from independence in 1964 to 1991 when he lost power to Fredrick Chiluba in a multiparty election.

a large commercial scale. The country is, however, not self-sufficient in food production due to poor agricultural policies and sometimes adverse climatic conditions. This has exacerbated the poverty levels especially in rural areas (see sections 4.2.3 & 5.2.3).

2.2.1 Environmental Policies and Institutions in Zambia

Zambia has formulated many laws and regulations addressing environmental matters since the colonial days. These include one environmental law, eight resource conservation laws and at least twenty-four laws of an administrative nature. The country has also enacted several statutory instruments that amplify the provisions of various Acts. Although some laws have been derived from sectoral policies (Forestry, Wildlife and Water), the country has no national policy on the environment or environmental education (ECZ, 2001: 141). Laws to stop or reduce environmental degradation have been inadequate as these are administered at sectoral level by different government departments working in isolation. Many of these policies and strategies have been influenced by international policy developments guiding environmental change, and almost all of them have influenced the work that we do as the WWF Zambia Education Project.

In 1985, five years after the publication of the World Conservation Strategy (Carwardine, 1987*)*, the Zambian government adopted the National Conservation Strategy (NCS), as the principle policy that would guide sustainable use of the country's natural resources. The focus of the strategy was on the central role natural resources play in enhancing development. This saw the creation of the Ministry of Environment and Natural Resources in 1991.

Following the Earth Summit in Rio de Janeiro in June 1992, Zambia endorsed the Agenda 21 Plan of Action and other Rio agreements. The Zambian government, with assistance from the UNDP, World Bank and the Norwegian Agency for Development Co-operation (NORAD), developed the National Environment Action Plan (NEAP) that was adopted in 1994 (MENR, 1994).

The NEAP identifies the five main areas of environmental concern in Zambia as:

- Wildlife depletion;
- Air pollution;
- Land degradation;
- Deforestation;
- Water pollution and inadequate sanitation.

The NEAP's implementation involved the development of the Environmental Support Programme (ESP). This investment plan addresses issues concerning natural resources management activities and conservation, sustainable economic planning, public awareness, environmental information systems, research and policy development. I have been involved in the ESP programmes, on behalf of the WWF Zambia Education Project, in facilitating some of the learning processes with communities as well as teachers (see Nalwamba & Lupele, 2001). As a result of ESP, WWF ZEP has been able to reach many people in the rural areas through workshops organised by the programme. The fact that the programme has similar activities to WWF ZEP, as far as environmental education is concerned, has helped our project to concentrate on small geographical areas such as Chiawa and Nalusanga since other far-flung areas are covered by ESP projects.

The Environmental Protection and Pollution Control Act (EPPCA) was enacted in 1990 as a further development of the NCS. This paved the way for the establishment of the Environmental Council of Zambia (ECZ) in 1992. Through its interactions with the council, WWF ZEP is able to refocus its activities in line with government policies. These interactions have been providing us with the necessary insights into environmental issues in areas such as Chiawa and Nalusanga.

Environmental policy-making in Zambia, in particular, has been widely influenced by international environmental policies, treaties and global developments. Subsequently, all these developments have an influence on environmental education practitioners like myself (see Lupele, 2002 b). It is, however, not only at the level of policy, economics and structure that global influences have shaped practice in a local context (including the working areas of this thesis–Chiawa and Nalusanga) as I illustrate in the following sections.

2.2.2 Global influences shaping environmental education in Zambia

Greenall (1987) traces the history of modern forms of environmental education back to the media and popular authors such as Rachel Carson (1965) who revealed the threat of environmental degradation and the implications of the human impact on the ecosystems in the 1960s and 1970s. There were calls for a new ethical principle that was concerned with the quality of the environment based, on an awareness of the interrelationships between people and their environment (Greenall, 1987). Di Chiro (1987) also notes that environmental education emerged in the early 1970s, when international debates during conferences, started to consider environmental education as the most appropriate response to the deteriorating quality of life. Through conferences and publications came various definitions of environmental education. Perhaps one of the earliest and most widely used definitions of environmental education is the IUCN definition of 1971:

> Environmental education is the process of recognising values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his [sic] culture and his [sic] biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality (IUCN 1971:17).

Since this definition, the understanding of environmental education has been interpreted and expanded in different settings (Irwin, 1990; Lotz-Sisitka & Janse van Rensburg, 2000). Many educators have tried to expand the understanding of environmental education in terms of a broader view of the term environment, to include its political, social, economic and transformative dimensions (Fien, 1993; Janse van Rensburg, 1995). These ideas were expanded further in the context of international debates, articulated through environmental education conferences and documents over a 30 year period. These include the Belgrade conference in 1975 and the Tbilisi Intergovernmental Conference on Environmental Education in 1977. The Tbilisi conference advocated a socially, culturally and epistemologically critical role for environmental education (Di Chiro, 1987).

In the early 1990s, a new radical view of environmental education, with a focus on social change and critique emerged in southern Africa. This perspective was influenced by the socially critical orientation to environmental education, which gained currency in Australia,

through the works of Robottom (1987), Greenall (1987), Fien (1993) and many others. These environmental educators were questioning the institutional context and scientific roots of environmental education, which had dominated the understanding of the concept (and associated practice) prior to 1990.

Educators in southern Africa (particularly South Africans) were influenced by the work of these and other socially critical theorists, particularly since these ideas resonated with the social and political transformations that swept across the region in the early 1990s (Zerner, 2000). Critical theorists (see section 2.8) have influenced my own practice as an environmental educator. In my earlier practice, I worked primarily from a scientific bias to environmental education. In recent years, I have worked more closely within a social focus, encouraging communities to participate in activities. I also draw on their prior knowledge and experience in my educational programmes (see sections 4.8.2 & 5.8.2), and I pay attention to the way in which others ascribe meaning to situations and contexts.

WWF ZEP has made headway in conceptualising environmental education with a social focus, drawing on these regional and global trends by running comprehensive courses in environmental education. On the other hand, the Zambian government's major focus on environmental education is within the geographical or scientific approach. There is still a lot of uncertainty concerning the distinction between environmental education and public awareness (ECZ, 1994; ECZ, 2001). The first attempt to integrate environmental education into the Zambian school system was during the 1993 National Symposium for the Basic School Curriculum Review, but even this effort viewed environmental issues primarily from the biophysical point of view. As a result only a few subjects, such as social studies and science, were identified as 'carrier subjects' that could 'carry environmental messages.'

Environmental educators (Huckle 1991; Fien, 1993; Lotz, 1996) have argued that environmental education is more than knowledge provision and awareness raising. Lotz (1999: 51) describes environmental education as, "… a range of educational processes through which we respond to environmental issues in order to foster change in the direction of sustainable community life in a healthy environment". This focus on fostering social change has become an important dimension of our work at WWF ZEP over the past few years. These perspectives have influenced our work in all the project sites in communities, including Chiawa and Nalusanga.

2.2.3 Indigenous Environmental Education Practices

Changes taking place in the global arena have shifted the frameworks and processes of decision-making with regard to the conservation and management of natural resources. Before colonialism, decisions associated with the conservation of natural resources were made through traditional social structures. Decision-making is now largely shaped and influenced by global trends and developments.

For the vast majority of African societies, education was an integral part of everyday life long before the colonialists and western educationists came to Africa (Mwanakatwe, 1968; Irwin, 1993; WWF ZEP, 1999). Traditional education involved a detailed understanding of the local biological resources and helped to develop knowledge and skills that enabled people to adapt to and manipulate their land, flora and fauna. Mwanakatwe (1968) further observes that by the time a child became a teenager, he/she had been exposed to an educational process facilitating the acquisition of knowledge and skills for survival and adulthood. In traditional education, conservation was often realised in a pattern of shared beliefs, cultural taboos, folklore and myths. These embodied a common interest among communities to manage natural resources in order to obtain a livelihood (see Lupele, 2002a).

Before the 1930 Native Authority Act in Zambia, natural resources were under the custodianship of traditional leaders. Chiefs controlled and imposed utilisation restrictions for the common good of community members. The Unga chiefs fishing communities around Lake Bangweulu in Luapula Province, for example, imposed a fishing ban (Banda, 1998) at certain times of the year (which coincides with the modern fishing ban under the Fisheries Act 7 of 1999). During the period of the ban, no one was allowed to fish (WWF ZEP, 1999). The Ila people of Mumbwa (which includes Nalusanga community) district shift their cattle from the villages to the Kafue flats during the dry season, in search of more greener abundant pastures. The seasonal transfer of animals reduces pressure on pastures near settlements and improves the nutritional status of the animals (*ibid*). In chieftainess Chiawa's area among the Goba-speaking people, big game such as hippos and elephants were only killed under special permission from the chief. The elderly people of Chiawa told me, during interviews, that

when a big animal was killed, the meat was shared amongst all the villages and was never sold for cash (DF 3).

Traditional education and conservation systems were largely dismantled by colonisation and the emergence of scientific and conservation organisations such as the International Union for the Conservation of Nature and Natural Resources (IUCN) and WWF, whose sole purpose was the conservation of wildlife resources (Booth *et al.,* 1997). This may have been justified by the fact that there was rampant depletion of animal resources at the time. Nevertheless, the initial conservation ideas brought in by conservation organisations, tended to ignore the social impacts of the creation of national parks and game reserves (Lupele, 2000b), as the importance of nature conservation was emphasised through new structures and approaches to managing wildlife and natural resources in Africa. With these developments, 'environment' was mostly seen in terms of nature (Thompson, 1998).

In the 1970s, there were many international conferences, commissions and publications debating the issue of conservation. These debates have come to inform the way we view the environment. *The World Conservation Strategy* (IUCN *et al.*, 1980), " … based on the views of more than 700 scientists and 450 government agencies from 100 countries" (Carwardine, 1987:67), stresses the importance of conservation and sustainable utilisation of life-support systems, biodiversity and renewable resources. It identifies the priorities of conservation and presents an agreed-upon approach and a broad plan for achieving these priorities. Every country is mandated to come up with its own strategy, which looks at priority conservation areas, stimulates the appropriate action, raises public awareness and works to overcome any obstacles to taking action.

Further international debate revealed the importance of broadening the view of environmental problems from the scientists' perspectives to include those of non-scientists across the globe. The World Commission on Environment and Development, under the aegis of the United Nations, published the Brundtland Report, *Our Common Future* (WCED, 1987). This publication opened up debate on the concept of sustainable development. As a follow-up to the *World Conservation Strategy*, *Caring for the Earth* (IUCN *et al.,* 1991) broadened the solution to the environmental crisis by introducing the term sustainable living. This brought another chance to re-examine conservation and development, as was done at the NGO forum during the Earth Summit in 1992. The above organisations and commissions have all

recommended a number of responses to environmental crisis. One of the common features of these recommendations has been the need for education and training:

> Education, including formal education, public awareness and training should be recognised as a process by which human beings and societies can reach their fullest potential. Education is critical for promoting sustainable development and improving the capacity of people to address environment and development issues (UNCED: chapter 36, Agenda 21, 1992).

The World Summit on Sustainable Development, held in Johannesburg in September 2002 and a follow up to the 1992 Earth Summit, reaffirmed the role of education in helping to eradicate poverty through sustainable development by supporting:

> …development of national programmes and strategies to promote education within the context of nationally owned and led strategies for poverty reduction, and strengthen research institutions in education in order to increase the capacity to fully support the achievement of internationally agreed development goals related to education … (UNWSSD, 2002:).

The Johannesburg summit also took cognisance of the need for nations to develop policies and means to improve access by indigenous people and their communities to economic activities. This is congruent with earlier initiatives of involving the local communities in the administration and management of wildlife resources through community based natural resources management programmes (Mwenya *et al.,* 1990).

2.3 COMMUNITY-BASED NATURAL RESOURCES MANAGEMENT (CBNRM)

When the law to create national parks and game reserves was enacted in the 1940s, people were relocated from their land to make way for the creation of these protected areas and were thus alienated from the management and utilisation of natural resources (see also Moore and Masuku van Damme, 2002). Prior to the colonisation of Northern Rhodesia (now called Zambia) by Britain in 1890, wildlife was an integral part of the African life (Mwenya *et al.*,1990). Zambian people owned the land together with all the natural resources on it, including animals. The chief controlled the allocation of land to households or clans for agricultural purposes as well as wildlife resources (*ibid*).

However, when the protected areas were being created, there was little consideration for the traditions of the local people who depended on the wildlife around the parks. This caused a lot of resentment and resulted in conflicts between the displaced communities and the government (Tilley, 1995; see also section 2.3.4).

In 1988 a plan to try and address the problems of the past created through displacements and relocations was mooted in Zambia. According to Tilley (1995), the idea was to provide a way for both the people and wildlife to live together profitably. The plan involved implementing a community-based natural resource management (CBNRM) programme called Administrative Management Design for the Game Management Areas (ADMADE). As observed by Booth *et al.* (1997), CBNRM programmes were seen as the panacea that would solve all the problems that had resulted from the creation of protected areas in many parts of Africa. For example, while Zambia was implementing the ADMADE programme, South African National Parks introduced a Social Ecology programme that attempted to improve the organisation's relationships with the communities surrounding the parks (Moore and Masuku van Damme, 2002). Zimbabwe was busy implementing the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), which was aimed at giving direct benefit to the people living near national parks.

The development of CBNRM has been widely influenced by overseas development aid programmes, as donors and governments sought ways of encouraging people to live in such a manner as to promote sustainable development, especially where people are heavily dependent on the natural resource base for their livelihoods. Community participation in the management of wildlife was seen as the only way ADMADE would work (Tilley, 1995). In some cases, this has led to real benefits for local communities. For example, the people in Lupande Game Management Area are reported to have built a school and a clinic from the proceeds of the South Luangwa Area Management Unit, a CBNRM project near the South Luangwa National Park (Chundama *et al.*, 1998). Some Game Management Areas are said to have improved their economic status:

> Mumbwa Game Management Area (GMA) receives significant income from the safari industry. It represents the fifth highest revenue earner of all GMA and in Chibuluma village in particular, residents have a good understanding of the Administrative Management Design (ADMADE) programme and place a high value on wildlife (Tilley, 1995:5).

Ironically Nalusanga falls within the Mumbwa GMA, which is reported to be the fifth highest income-earner of the GMAs in Zambia (see above quotation), but the level of poverty in the area as established by this study (see section 5.2.4), is at variance with the earnings reported by Mwenya *et al.,* (1990) and Tilley (1995). In the case of Chiawa the GMA, has since been classified as depleted, although some income is earned through levies paid by tour operators. This demonstrates the fact that many of the global influences on the local situations are ambivalent (see Lupele, 2002a). They can have positive outcomes, but are often difficult to implement and more complex than initially assumed. ADMADE raised people's expectations. Local people were promised that 35 percent of revenue from hunting concessions would be given to the communities in the GMA where the income was realised. In many cases, the money raised was not enough for any meaningful community projects. In other cases the money was never given to the communities. After almost ten years of implementing the ADMADE programme, communities such as Chiawa and Nalusanga in the GMAs where the programme was implemented still feel cheated in relation to the original plan (see sections 4.2.4 & 5.2.4; Simasiku, 2002). The original plan was that:

> … wildlife based earnings would go into a central processing system at the National Parks and Wildlife Services headquarters. Of this 35% finances local community projects, 40% supports wildlife management costs in the GMA, 25% goes to NPWS to administer ADMADE (including training, extension services, surveys and workshops), as well as contributing to management costs in National Parks (Tilley, 1995:3).

Chundama *et al.,* (1998) observe that the incentives from wildlife in protected area management rarely trickle down to the community members. This makes understanding of the need for conservation difficult for people who are promised incentives when they participate in the conservation programmes. In addition, there are problems associated with the way in which the traditional leadership is seen to benefit more from wildlife resources in most CBNRM projects than their subjects (Shackleton & Campbell, 2001; Simasiku 2002). This has brought about some misunderstandings and mistrust among community members.

With the help of the non-governmental organisations such as Women For Change and Zambia Civic Education, which have been educating the rural communities on their rights and liberties, many rural communities have started to voice their concerns about the way in which the natural resources occurring in their areas are being managed without their involvement (see Lupele, 2002a).

2.4 THE VOICE OF CIVIL SOCIETY

An area of importance to environmental education practitioners working in environments which are influenced by the ambivalence of global and local environmental ideas, policies and interventions, is an understanding of how people are coming to understand and react to these influences. According to Zerner (2000), one of the offshoots of the political changes of the early 1990s in the southern African region has been the unmuzzling and amplification of historically silenced voices in the struggle for customary rights of access. The transformation from one-party segregative politics to more liberal multi-party politics has reconfigured political landscapes in Zambia, Tanzania, South Africa and Malawi. More people have been empowered through the work of the civil society and NGOs to voice their concerns on issues affecting their livelihood (*ibid*). This awakening of community groups has not spared the NGOs that are working in rural communities.

There is an increased response from civil society to the ambivalent influence of global ideas, policies and interventions, even in contexts where poverty levels are high, and communities have few options in terms of making decisions about their livelihoods (see also Babikwa, 2002). I have found that community protest and situations of conflict are increasingly characterising the nature of our work. For example, our work in chieftainess Chiawa's area was slowed down because of the conflicts and mistrust between the community and Zambia Wildlife Authority (ZAWA). The latter are accused of pocketing money from tour operators' levies meant for community development activities. Since some of the ZAWA vehicles were bought with WWF funds[5] and carry the organisation's logo, community members have difficulty in differentiating the two and sometimes mistake us for ZAWA officers.

Civil society has helped the local people to develop critical understanding of their own reality. Most civil society NGOs in Zambia, such as Women for Change, engage community leaders in dialogue that enables them to develop informed decisions of the ideal society. As Freire (1970: 68) writes:

[5] WWF bought the vehicles for the department of National Parks and Wildlife Services before it transformed into ZAWA. However, some vehicles still carry WWF the logo and the common villager does not understand the transformation.

> … leaders do not go to the people in order to bring them a message of 'salvation', but in order to come to know through dialogue with them both their objective situation and their awareness of that situation … their various levels of perception of themselves and the world in which and with which they exist ….

Amidst these ambivalences in the field of education and conservation work in Zambia, many local and international organisations have been working in the country for many years with the goal of achieving global principles at the local level. One such organisation is WWF.

2.5 WWF EDUCATION AND CONSERVATION INITIATIVES IN ZAMBIA

WWF commenced conservation work in Zambia in 1962. This started with the purchase of the Lochinvar Ranch, from private hands, on behalf of the Zambian Government. The ranch was at the time teeming with a large presence of wildlife, especially the endemic Kafue Lechwe[6] and a variety of bird life (Jeffery, pers. comm., 2001). WWF's earliest support for environmental education in Zambia was through the Wildlife and Environmental Conservation Society of Zambia (WESCZ) which, together with the Bata Shoe Company, supported the launch of *Chongololo*[7] *Club* in 1973 (Carwardine, 1987). In 1980, a sister club to *Chongololo*, the Wildlife Conservation Club, was launched under WESCZ to cater for secondary schools and college students. A weekly thirty-minute radio programme called *Chongololo Club of the Air* runs on Radio Two of the Zambia National Broadcasting Corporation, disseminating environmental awareness messages to a wide audience. WESCZ has been involved in the development of educational materials (with the help of WWF and other well-wishers) in the form of books, posters, leaflets and pamphlets, to raise awareness of various environmental issues. The *Chongololo Club* was one of the first means of providing some form of environmental education (Carwardine, 1987). For over a generation, the *Chongololo* programme has been trying to put nature on the local and national agenda (Thompson, 1998).

Key amongst international developments in the field of environmental education is the realisation that environmental education processes are not simply about nature awareness. These changes have influenced environmental education practice in Zambia. For example,

[6] A subspecies of antelope.
[7] Chongololo is the name for a millipede in most Zambian vernaculars. There are, however, some variations in the spelling and pronunciations in the different languages.

WWF ZEP has been working with communities in the area of environmental education, with the aim of assisting them to achieve the capacity to initiate and carry out activities that would improve their livelihoods and immediate environment. This involves engaging communities in learning processes that will empower and help them to identify available alternatives in the utilisation of natural resources (see section 3.7 in the case of the learning processes for Chiawa and Nalusanga). Through these educational processes, communities engage in actions that address their needs and contribute to poverty alleviation. Our experience in working with communities has shown that environmental issues as well as perceptions of sustainable development differ from one community to another (WWF ZEP, 2000). In terms of environmental education materials and training provision, each community group should be considered as unique, with its own needs.

2.5.1 WWF Zambia Education Project initiatives

In 1989, WWF International responded to the Zambian government's need for a comprehensive environmental education programme as identified by the National Conservation Strategy of 1985. This gave birth to WWF Zambia Environmental Education Programme, now called WWF Zambia Education Project (WWF ZEP), in 1989. The project's initial activities were the production of materials for primary schools, to meet the dire need for educational materials (see section 1.1).

Along the way, the project changed hands, for funding purposes, from WWF International to WWF UK, under a joint funding scheme with the Department for International Development (DfID) of the British government. The project focus shifted with the donor demands. Whilst it was more concerned with the provision of education materials for the lower basic primary school level in the first phase, the shift in the second phase was towards poverty alleviation in selected communities, in line with DfID interests. Community environmental education was further necessitated by the need to develop an integrated strategic plan for WWF in Zambia and the southern African region as a whole. One of the key strategic priorities identified was the designing of Community-Based Natural Resources Management Systems (see section 2.3). These developments have influenced WWF ZEP's current goals:

> To increase capacities in rural communities in Zambia to address their environment and development concerns and to understand, initiate and participate in the sustainable

> utilisation and management of their natural resources for short and long terms benefits aimed at alleviating poverty (WWF ZEP, 2000:4).

WWF ZEP therefore, established community projects in Mumbwa and Mpika in the Central and Northern Provinces respectively. Beekeeping and fish-farming were just two of the community projects decided upon after involving the community members in environmental education processes such as Participatory Rural Appraisal (PRA). Being aware of the need for enabling processes that cater for community voices and community perspectives, we were able to influence the project design and to negotiate the boundaries of the project within the broader DfID mandate, available funding and the logical framework of planning restrictions. For example, during the writing of the funding proposal for the third phase, we proposed that the local people would develop resource materials locally, in a participatory manner and that the materials would be issue and context-specific (see chapter 1.1). As noted in section 1.1, we had very scanty ideas of what exactly was involved. However, planning the project using logical framework analysis (commonly known as log-frame, a global planning tool widely used by ODA organisations) helped us to disguise our lack of competence in the matter. We were able to come up with indicators, objectives and assumptions, even when these were not shared with the people we were supposed to work with (Feuerstein, 1986).

Often log-frames do not engage with or reflect the changing socio-historical issues and contextual changes in the project milieu. This once again illustrates the ambivalence of global influences on the local – the project direction was 'constrained' by the project design process, and by donor priorities, yet we were able to establish an important process focus within this. While being able to do this, we nevertheless drew on the 'security' of the project design product (the logical framework), and in doing so, we were not as 'participatory' as we had intended to be. What was important in coming to terms with this ambivalence, however, was our increasing experience of working in community-based contexts, around the priority focus areas we were trying to establish.

2.5.2 Participatory materials development initiatives

In 1998, WWF Zambia Education Project, in collaboration with the Environmental Council of Zambia, was contracted to produce posters for schools around the Lake Tanganyika catchment area on behalf of the Lake Tanganyika Biodiversity Project (LTBP). This project

was in response to issues of environmental degradation around the Lake Tanganyika catchment area. Influenced by international and regional ideas on environmental education, particularly the ideas associated with socially critical environmental education processes (see section 2.8), WWF ZEP grappled with some of the issues associated with participatory materials development. We commissioned two artists, an editor, a curriculum specialist and twelve teachers from the thirteen schools in the catchment area to participate in a five-day poster production workshop. They participated throughout the designing, information gathering and final development of the scope and sequence chart stages. The posters produced were all problem-solving in orientation, highlighting issues that affected the catchment area. Captions were provided to consolidate the effectiveness of some of the posters. This was the first comprehensive attempt at participatory materials development processes in the WWF ZEP project (Lupele, 2000a). Besides drawing on the influence of international educational ideas, this process was also based on assumptions that influence development work in a global context, which indicate that one of the ways of ensuring the sustainability of a project is to encourage the participation of the beneficiaries (Mikkelsen, 1995).

While the materials development process was successful and high quality materials were developed with the participation of the communities, these materials never progressed further than camera-ready stage. This was because the materials were produced towards the end of the life of the LTBP, with the hope of its renewal, illuminating a further dimension of global-local ambivalence (Lupele, 2002a). Projects often end, unfinished, after raising a lot of expectations amongst local people (see section 2.3, the case of DAMADE in Chiawa and Nalusanga).

This experience has, however, led to further participatory approaches to materials development in the WWF ZEP project. We have established two participatory materials development projects, one in the Chiawa community and another in the Nalusanga community. These are aimed at supporting the education processes with a view to realising WWF ZEP's goal (see section 2.5.1) of working with communities and fostering sustainable development in the long run.

2.6 SUSTAINABLE DEVELOPMENT

The term 'development' is interpreted differently by different societies and is socially and culturally contested. It takes on different meanings not only between cultures, but also between different groups within the same society (Fien & Tilbury, 2002). In traditional Zambian societies, development was viewed differently from one community to the other. For example amongst the Tonga pastoral communities of the Southern Province, development was measured in terms of the size of the cattle herd one had. In the case of the fishing communities of Luapula and Western provinces, development was seen in terms of the number of fishing nets and canoes one had.

These traditional views of development no longer hold even amongst rural communities, since the coming of the development model of the North. Sachs (1999) and Esteva (1992) attribute the loss of the traditional view of development to the introduction of the term 'underdevelopment' by American President Harry Truman during his inauguration speech in 1949 when he said "… we must embark on a bold new programme for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas…" (Esteva,1992:6).

Esteva (1992) sees this as the point at which the two thirds of the world population who are classified as poor became underdeveloped. He notes:

> On January 20, 1949 [during Truman's inauguration], on that day, two billion people became underdeveloped. In real sense, from that time on, they ceased being what they were, in all their diversity, and were transmogrified into an inverted mirror of others' reality: a mirror that belittles them and sends them off to the end of the queue, a mirror that defines their identity (Esteva 1992:7).

Although Truman was not the first to have used the term underdevelopment, both Sachs (1999) and Esteva (1992) claim that the term acquired relevance when he presented it as the emblem of his own policy. Sachs (1999: 74) notes that development used in this way has created a global middle class of those with cars, bank accounts and career aspirations and those without.

Today even traditional Zambian societies view themselves through the lenses of the model of development introduced in the North. Northern models of development are increasingly being identified as the cause of much environmental degradation due to extractive production that depends on natural resources. For example, under the ADMADE grand plan, both Chiawa and Nalusanga, being in GMAs, are supposed to develop from the earnings of safari hunting (see section 2.3). This reduction of the term development to economic growth has exacerbated environmental degradation (see Esteva, 1992; Sachs 2002). Zerner (2000: 4) observes that "… nature has become an emporium, a commercial warehouse awaiting its brokers." The communities, such as Nalusanga that WWF ZEP work with and engage in micro projects such as beekeeping, view development in terms of selling their honey on the global market or to the tourists who visit their areas. Communities like Chiawa wish to engage in ecotourism so that they can participate at the global market.

Sachs (1999) observes that due to dilemmas associated with the Northern model of development and associated impacts on nature, there have been calls for an alternative model of development " … a development that promotes both ecological sustainability and international justice" (Sachs, 1999:76). In this process of seeking for 'an alternative model of development', two camps of political discourse emerge, one under the banner of 'environment' and another under the banner of 'development (*ibid*). This prompted the World Commission for Environment and Development (Brundtland Commission) to try and reach a compromise on the two key interests by using the term sustainable development in 1987. It described sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs,' (WCED, 1987:43). Fien and Tilbury (2002) observe that the 1992 Earth Summit in Rio de Janeiro accelerated the process of awakening the world to the urgent need for sustainable development by fostering international co-operation on developmental and environmental issues. Fien and Tilbury (2002), however, argue that the *Brundtland Report* definition of sustainable development, although widely accepted, is highly ambiguous and it obscures the political and philosophical issues that remain in tension, but Pezzey (1989) says this ambiguity has proven useful in arriving at consensus on sustainable development.

Part of our (WWF ZEP) goal is to ensure that local people, through educational processes and action acquire enough skills and knowledge to enhance their own livelihoods (see section

2.5.1), reflecting our engagement with issues of sustainable development. Fien and Tilbury (2002:6) note:

> Sustainable community development is a process of local empowerment that enhances the ability of people to control their own lives and the conditions under which they live. This involves learning and action to ensure that as many people as possible participate in making decisions about the issues and problems that need addressing and all work collaboratively to implement them. Sustainable community development means taking action to ensure that poverty is addressed by actions that both redistribute wealth appropriately and generate productive and stable employment ….

The 1992 Earth Summit (UNCED, 1992) and the 2002 Johannesburg Summit (WSSD, 2002) and other major international reports such as the *Brundtland Report* (WCED, 1987) acknowledge the fact that education has a major role to play in bringing about the social changes necessary for sustainable development. Since this study was carried out in the context of the non-formal education sector with adult learners, the next section explores the concept of adult education.

2.7 ADULT EDUCATION

Schumacher (1973) describes education as the greatest resource for achieving a just and ecological society (see also Fien & Tilbury, 2002). International debates and major international publications such as the *Brundtland Report* emphasise the role education can play in pursuit of sustainable development. The World Conservation Strategy describes the role of education as a process of change as follows:

> A new ethic, embracing plants and animals and people is required for human societies to live in harmony with the natural world on which they depend for survival and well-being. The long term task of environmental education is to foster and reinforce attitudes and behaviours compatible with this new ethic (IUCN, UNEP & WWF 1980; see also section 2.2.4 on WSSD perspectives on education)

Influenced by these global views on the role of education in achieving sustainable living WWF ZEP, embarks on (adult) education with rural communities to enable them to realise sustainable livelihoods (WWF ZEP 2000). Lovett (1997) links community education to community development, especially in developing countries where the process of community development is recognised as a ‘learning process’ that reaches out to those adults involved in

learning processes which enable them to tackle real issues such as was the case of Chiawa and Nalusanga in this study.

The political transformation in the southern African region brought with it a number of non-governmental organisations in the development and political arena (Zerner, 2000). With these changes more lifelong learning opportunities are being offered in community development contexts, where the emphasis is on individual and collective development of certain social economic or political and cultural values (Lovett, 1988; Knowles, 1984). We see these forms of adult education in the work of Zambia Civic Association, Women for Change and other developmental and environmental organisations like CARE and WWF. The ultimate aim of these forms of adult education is to bring about social change in communities (Knowles, 1984). Adult education is offered in the form of civic and human rights education or through development work.

Lovett (1997) identifies three models of community education as: *Education for the Community*, *Education about the Community* and *Education with the Community*. 'The first two models are at the non-formal and formal end of the lifelong learning continuum. They are essentially about provision of courses and classes' (Lovett, 1997:2). *Education with the Community* is based on motivation and goal orientation and is linked to problem solving as it encourages participation and draws on experience. This is where this study is located. The community members in the two communities of Chiawa and Nalusanga are active participants in the learning process and are involved in problem solving, considering and addressing real life problems that affect them. This form of adult education is congruent with the socially critical orientation to education, an important theoretical orientation supporting this research, as explained in the next section.

2.8 THE SOCIALLY CRITICAL ORIENTATION OF THE STUDY

A number of educationists (e.g. Kemmis *et al.*, 1983; Greenall Gough & Robottom, 1993; Fien, 1993) have tried to define and categorise educational ideologies. Fien (1993:17) defines an ideology as a coherent set of values and beliefs and states that an educational ideology provides a philosophical framework or orientation that may be used to guide educational decisions and explain their consequences. In this study, I shall not endeavour to survey the

many attempts to classify educational theories but shall work with the definitions and classification provided by Kemmis *et al.* (1983). These are the vocational/neo classical orientation, the liberal/progressive orientation and the socially critical orientation. This classification is useful in identifying the nature of various approaches to environmental education (Fien 1993).

Fien (1993:19) argues that the vocational/neo-classical orientation views socialisation, education and training as similar processes and seeks to help students to find their place in society by providing them with the skills required to fulfil their work roles. He says it is an education that accepts existing social structures and hierarchies and may perpetuate oppression and inequalities in society. He notes that the vocational/neo-classical orientation has an instrumental view of the role of schools in society, a view of knowledge as 'scientifically objective', a foundation in behaviourist learning theory, an emphasis on exposition and other forms of closed teaching, teacher authority and firm classroom control, homogeneous and streamed class groupings and subject assessment standards.

According to Fien (1993:19) the liberal/progressive orientation sees education as preparation for life rather than work. He states that this orientation seeks to help students fulfil a wide range of life roles through a broad general education based, as much upon the humanities and liberal arts as upon science and technology. He notes:

> It recognises the need to address social problems and adopts a reformist approach in which the means of social change are seen as already existent in the structures of democratic societies and in the next generation of citizens, presently in school, receiving liberal progressive education'(Fien, 1993:19).

He says liberal/progressive education is practically oriented and favours open enquiry based teaching styles, the negotiation of curriculum content with students, and approaches to assessment that show evidence of individual achievement and growth.

This study is informed by the socially critical orientation. Unlike the neo classical and liberal/ progressive, the socially critical orientation to education promotes principles of social justice, empowerment and democracy amongst the learners (Tripp, 1992; Fien, 1993; Greenall Gough & Robottom, 1993).

A socially critical orientation to education draws on critical theory and aims at creating a just society where people are culturally in control of their lives (see Tripp, 1992; Janse van Rensburg & Lotz-Sisitka, 2000). Critical theorists such as Habermas (1972) argue that these goals could only be achieved through the emancipation process by means of which oppressed and exploited people become empowered to transform their circumstances for themselves. For many years the voices of the rural communities have been suppressed to the extent where outsiders were controlling their lives (Zerner 2000). Socially critical orientations to education try to level the power gradient between the teacher and learner, the oppressed and the oppressor and recognise the fact that people have the ability to organise themselves without authoritative control (Janse van Rensburg & Lotz-Sisitka, 2000).

In order to make the learning socially just (Tripp 1992; Fien 1993; Greenall Gough and Robottom, 1993), participatory approaches to learning are adopted and encouraged, as in the Chiawa and Nalusanga cases, where community members were involved in participatory materials development processes. In choosing a socially critical orientation for this study, I also draw on Greenall Gough and Robottom (1993) who argue that environmental education is characterised as socially critical in its intent and that both environmental education and its associated social pedagogy seek to empower learners to participate in the democratic transformation of society. Further to this argument, Fien (1993) observes that, apart from valuing the personal development and achievement of liberal/progressive education, a socially critical orientation believes that some educational goals are structurally unequal in terms of class, gender and race relationships.

Socially critical perspectives are further preferred in this study because participatory materials development is guided by processes of reflection and action (Kemmis *et al.*, 1983). Fien (1993:15) observes that this can be true of environmental education in which three discrete forms have been identified as ‘education about the environment’, ‘education through the environment’ and education for the environment.’

A critical review of the strengths and weaknesses of these three approaches to environmental education has led a number environmental educators, such as Huckle (1983), Robottom, (1987) and Fien (1993) to argue that it is only when the overall goal of a programme is education *for* environment that one can say that effective environmental education is taking place. Jickling and Spork (1998) note that these scholars’ notion are informed by the claim

that other approaches to environmental education neglect controversial environmental issues and avoid values and the problem-solving objectives.

Jickling and Spork (1998) argue that education for environment has become a mere slogan, which has been misused.

> While we recognise the term 'education for the environment' has been stimulating and productive, we acknowledge that the utility of this slogan also comes with some difficulties. We believe there is a danger that uncritical use of this slogan may serve to limit possibilities in environmental education and contribute to an increasingly sterile discourse in this field (Jickling & Spork, 1998:311).

Socially critical theorists such as Huckle (1991) observe that the crisis of the economy and ecology that befalls the world to day requires a solution and education is part of that solution. Although socially critical orientations to education have become popular amongst action researchers in the southern African region (see Louw, 1996; Atiti, in press, Babikwa, 2002), including myself, it has been subject to critique. For example, Walker (1997) argues that much educational research has been grounded in socially critical theory and that while this theory is an effective mechanism to critique practice, the theory falls short of a transformative process and does not adequately explain educational change.

Critical theory assumptions have been criticised for "… falling prey to the irony of domination and repression inherent in efforts to free one another" (Lather, 1991:59). Lotz (1996: 274) argues that:

> … while many of the ideals of critical theory and socially critical environmental education are possible to 'implement' in practice, to reify and slavishly follow a critical theory position' or a 'recipe for socially critical environmental education' would appear to be a myth, not possible in practice.

Table 2.1 below illustrates further critique of critical theories as captured by Lotz (1996: 268-269):

- The dependence on the vocabularies of politics and culture which are wedded to the dictates and assumptions of modernity's most sacred 'root metaphors'[8] models of criticism are thus value laden and intimately fashioned by the language of the modern consciousness which " … no longer make sense in terms of our current understanding of the ecological crisis, the belief system of other cultures and the advance of scientific knowledge" (Bowers 1984:99);
- Structure and agency which is characterised as either –or (Lather 1991:154);
- Inscribing the will to power through sense making efforts which aspire to universal, totalising explanatory frameworks or 'grand narrative' (Lather 1991:155);
- Assuming a deficit approach to change in which the 'other' is cast as someone who is judged as needing improvement, enlightenment and empowerment (Janse van Rensburg, 1994:13);
- Rationalist, individualist and structuralist assumptions which underpin most critical theories, and which seem to subvert the realisation of transformatory ideals (Janse van Rensburg, 1994:13);
- Theoretical shortcomings which reflect a tendency to become disembodied and too abstract to be useful as an organising tool in education (Bromley, 1989);
- Non – dialectical, non – reciprocal perceptions of the role of the researchers or 'universal intellectuals' (in Neo – Marxian critical theory) in which the researchers or 'universal intellectuals' become intent on the demystifying the world for the dispossessed (Lather, 1991; Goodman, 1992; Smart, 1986);
- A perspective which views social traditions as unchanging mechanisms of ideological suppression from which human beings need to be emancipated (Elliott, 1992:7).

Table 2.1 Some critiques of critical theory as captured by Lotz, (1996:267-268).

Bearing the above critique of critical theory in mind, I have nonetheless drawn on the assumptions and theoretical ideals of the socially critical orientation to (environmental) education as a loose framework for guiding and providing perspectives for research into participatory materials development in Chiawa and Nalusanga, I draw this approach from Atkinson *et al.* (1988). This framework has also informed my discussion of the notion of participatory materials development in the next section.

2.8.1 Participatory materials development

Historically, materials development has been expert driven, where the experts identify the need for materials often through a research, develop the materials and disseminate them to the end-users, who adopt them. This process developed with the aim of raising awareness (SADC/RU EE Course File, 2000; Taylor, 1997). As already stated, early environmental

[8] According to Bowers, as cited in Lotz (1996:268), modernism rooted metaphors refer to being for the good of progress, the absolute autonomy of the individual, the conquest of nature, the ideal of rational control, and the transcendence of traditions, all of which have been elevated to the status of Enlightenment icons.

education programmes such as those of the WESCZ were centred on raising awareness. The materials produced under such programmes were also meant to make people aware of the environmental problems. Examples may include the *Mr. Chongololo* booklets and early WWF ZEP posters. These had their own relevance at the time and have greatly contributed to current approaches to resource materials production. However, the technicist communication model is still regarded as a model of environmental education information dissemination where experts develop resources and distribute them to those who need them (Taylor, 1997). I have encountered, as a resource materials development officer, situations where I have been invited to present a paper on "… Methods of providing environmental education information to communities" (see Nalwamba & Lupele, 2001). I struggled to approach this. First I was faced with the challenge that organisers wanted me to produce a blueprint on 'materials delivery methods' for the community-based organisations and non governmental organisation leaders attending the workshop (Journal entry, 25-06-01). I found this to be an example of a top-down approach to materials development as articulated by Lotz (1996). My observation is echoed by Taylor (1997) in the following comment:

> In the past conservation agencies including the Society [Wildlife and Environmental Conservation of South Africa] have been trying to *do* environmental education by communicating clear messages about conservation problems and by developing resource materials with which they hoped to promote change in schools. Unfortunately, these 'top-down' or 'centre-to-periphery' approaches seldom led to the intended changes in the 'target community'. Such approaches assume a linear, causal relationship between educator and the learners and fail to acknowledge the complexities involved if meaningful learning is to occur. A greater understanding of processes of change suggests that 'target –group' communication strategies and other attempts at the rational management of change are unlikely to be successful (Taylor 1997:110).

The change from linear learning models, often based on behaviourist theories of learning (Fien, 1993) to a more interactive, open ended model of dialogue-encounter-reflection has changed the way resource materials are developed (Fien, 1993; Taylor, 1997; Lotz, 1996; SADC/RU EE Course File, 2000). Recent trends have seen three models of materials development emerge:

- the RDDA approach;
- action research to engineer change and
- action research as a critical social process

The Research-Develop-Disseminate and Adopt (RDDA) model is still a popular approach in materials development (see Lotz, 1996). Early WWF ZEP materials were developed through this approach. The project staff, with commissioned authors, researched and developed materials. These were taken to the curriculum development centre for evaluation and approval for distribution in schools. This is still a common way of developing resources in Zambia. Lotz (1996) observes that the approach can be quite prescriptive as the educators have to follow instructions of how to use the resource.

With the advent of political transformation in the southern African region in the early 1990, came the need for a more open and more democratic way of looking at many aspects of life. This included approaches to resource materials development and approaches to community work (Zerner, 2000). RDDA approaches were re-examined and the need for more democratic and participatory methods was sought (Robottom, 1987; Cornbleth, 1990). Action Research was found to provide alternative approaches to resource materials development, driven by the quest to improve and understand the world by learning actions, reflection on these actions and ongoing changes (Kemmis & McTaggart, 1988).

It is, however, worth noting that some educators use action research as a model to steer and engineer desired changes. The 'experts' design everything beforehand and, although the learners seem to participate in resource development processes, they become implementers of a predetermined plan. This has come to be referred to as **Action Research as a Strategy to Engineer Change** (SADC RU EE Course File, 2000)

In line with the socially critical orientation of this study, action research informed the participatory materials development processes in Chiawa and Nalusanga (see section 3.6). The community members were able to provide input based on their own experiences. In both communities, we started with general ideas (see section 3.9) about the issues in the two communities, produced a plan of action to reach an identified objective, together with a decision on the first step (Lewin,1946, as cited in Kemmis & McTaggart, 1988:2). These plans were revisited and changed as the need arose.

2.9 CONCLUSION

This chapter has presented an overview of the broader context in which the action research case studies of participatory materials development in Chiawa and Nalusanga took place. It has also highlighted some of the global, national and local influences that shaped the research. I have attempted to show that environmental education practices are influenced by policy changes, educational ideas and concepts that influence the way we think about our practice, funding patterns, models and approaches to development (see also Lupele, 2002a). Often these influences are of an ambivalent nature, they sometimes affect us both negatively and positively. However, local voices and practice are able to influence and shape these global forces in contextually significant ways (see Zerner, 2000). The chapter also looks at the socially critical orientation to this research, as a guiding framework that helped me to structure and implement the participatory action research in Chiawa and Nalusanga (see also Lotz, 1996). I have also attempted to examine the different arguments around socially critical theory as these influenced my research design decisions.

In the next chapter I describe the research process and methodological aspects of this study and show how the study was designed and implemented. I also discuss some examples of works that influenced the research methods and techniques of data collection.

CHAPTER THREE

RESEARCH PROCESS AND METHODOLOGY

Men and women have long been concerned to come to grips with their environment and to understand the nature of the phenomena it presents to their senses. The means by which they set out to achieve these ends may be classified into broad categories: experience, reasoning and research (Cohen & Manion, 1994).

3.1 INTRODUCTION

In this chapter I describe the research methodology that informed my inquiry into participatory materials development in the two-community contexts-Nalusanga and Chiawa. I also discuss the action research processes and cycles of inquiry in the two communities. Kerlinger (1970) defines research as the systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relationships among natural phenomena. However, although qualitative research shares some of the characteristics of positivist research as defined by Kerlinger (1970), it emphasises how people differ from inanimate natural phenomena and from each other (Cohen & Manion, 1994). This view stems from the different conception of reality and of individual and social behaviour (*ibid).*

This section of the study explains the research methods, data collection techniques, data organisation, and data analysis I used. According to Cohen *et al.* (2001), methods are a basis for the inferences, interpretations and explanations, predictions and inform the way in which a thesis unfolds. I draw on Janse van Rensburg's (1995) notion of presenting an account of the research process, the insights and decisions that shaped the 'emergent' design of this study. The chapter also lays the foundation for the results of this research as described in chapters four, five and six. I, however, wish to point out to the reader that the methodology and results are not discrete components of the study and I have attempted to present them accordingly.

3.2 METHODOLOGY

Methodological orientations in education research have been subjected to lengthy debates within and between the social and natural sciences (Hart, 1993). Carr and Kemmis (1986) attribute these debates to the desire by many researchers to establish the strengths and weaknesses of different approaches with a social focus as against the traditions of experimental psychology and positivism in the social sciences.

I have drawn on Guba's (1990) suggestion that methodology is concerned with the relationship of the various parts of the study to the production of results and Kaplan's (1964) idea that the aim of methodology is to help a researcher and readers understand, in broader terms, the process of inquiry.

Apple and Carspecken (1992: 511) argue that all social research is informed from its very beginning as a set of concerns in the mind of the researcher by a particular orientation that implicitly bears a theoretical view, and Gibson (1986:3) states that the division between "… theory and practice are indivisible … there is always theory underlying, embedded in, any practice …", this study is not an exception and thus considers a theoretical viewpoint (*ibid).*

As already stated (see section 2.8), the study draws on a socially critical orientation to education, which is derived from critical theories. According to Giroux (1983), the concept of critical theory refers to the nature of self conscious critique and to the need to develop a discourse of social transformation and emancipation in that "… critical theory refers to both the 'school of thought' and a process of critique" (*ibid*: 8). Gibson (1986), Tripp (1992) and Giroux (1983) ascribe the roots of critical theory to a group of sociopolitical analysts commonly referred to as the Frankfurt School. Tripp (1992:13-23) observes that the Frankfurt School was interested in the idea of a more just society where people, beyond having equal access to resources, are in control of their cultural, economic and political lives. The group argues that a just society could only be attained through *emancipation* (Gibson, 1986; Giroux, 1983, Cohen *et al.,* 2001).

Tripp (1992:12-23) defines emancipation as "… a process by which oppressed and exploited people became sufficiently 'empowered' to transform their circumstances for themselves by

themselves." This view stresses the importance of critical thinking by arguing for self-emancipation and social change (Gibson, 1986: Giroux, 1983: Cohen *et al.* 2001).

Critical theorists associated with the Frankfurt School further argue that it is only in the contradictions of society that one could begin to develop forms of social inquiry that analyse the distinction between the *what is* and *what should be.* One of the outcomes of this school of thought is that "… the present crisis lies in developing a more fully self-conscious notion of reason, one that embraces elements of critique as well as of human will and transformative power" (Giroux, 1983: 9-10).

3.2.1 Research design decisions

Drawing on the critical theorists argument that "… in all human affairs all 'facts' are socially constructed, humanly determined and interpreted, and hence subject to change through human means" (Gibson, 1986:4), I sought to design a research process around participatory materials development in community contexts that would not only actively involve community members in the development of materials, but would also encourage interaction between them, a view shared by Janse van Rensburg (1995). Through these interactions, the communities would be empowered to socially construct their own meaning of an 'ideal society' (Giroux, 1983; Gibson, 1986).

My choice to frame this study within socially critical orientations to education and research is informed by principles of social justice and democracy (Greenall Gough & Robottom, 1993; Fien, 1993). Socially critical research in education, as explained by Tripp (1992:13-23) "… involves strategic pedagogic action … aimed at emancipation from overt and covert forms of domination". He further argues that socially critical education and research does not only challenge existing practices of the system, but also seeks ways of understanding what makes the system the way it is (*ibid*).

I also draw on some of the methodological principles of socially critical research as outlined by Tripp (1992: 13-23). The principles relevant to this study are:

- Participation: Socially critical research is most effective when done by mutually supporting groups;

- Direction: Whether group or individual, socially critical research is self-directed because the emancipatory interest of the participants will inform the way they themselves work as well as inform what they aim to achieve;

- Outcomes: Socially critical research tends to seek to develop quite new practices, rather than simply make existing ones more efficient. Outcomes will often be incorporated into political action as well as into the development of academic knowledge;

- Meaning: Rather than regarding knowledge as the culmination of subjectively neutral and objectively verified facts, socially critical research sees knowledge as socially constructed and held differently by different groups. It aims at understanding people's values and uses of their meanings rather than 'finding "the" truth'; and

- Audience: The primary audience for the research 'findings' are the participants themselves.

The key features of my study that follow from these principles are: the question of participation, meaning-making in the local context and the role of different actors in the participatory materials development processes (see the objectives of the study in section 1.3).

3.2.2 Methods of the study

According to Cohen and Manion (1994), research methods refer to the different approaches and techniques used in gathering and analysing data (see section 3.1). In more traditional research orientations, the word has been associated with positivist techniques of responding to predetermined questions, recording measurements, describing phenomena and performing experiments (*ibid).* However, Cohen and Manion (1994) extend the meaning [of method] to include not only the methods of normative research, but also those associated with qualitative research.

During data collection, I used a number of methods (see section 3.3) for the purpose of gaining deeper meaning and for documenting how this meaning emerged from my interactions with the different actors in participatory materials development processes in the two community contexts (Hart, 1993). My use of a variety of methods draws on Wolcott's (1992) observation that no one single method can provide all the necessary data in complex

field research. The variety of methods also helped me to triangulate the data collected from different sources.

Zelditch (1962) argues for the use of multiple methods in data collection and analysis in field research. He claims that due to the complexity of field studies one needs a variety of methods to gather different types of data (Zelditch, 1962:566). I also draw on Lotz's (1996) experience of working with a number of methods and techniques that seemed to provide most insight into the research question and a clearer understanding of the particular contexts. The following section illuminates the data collection techniques and research process I followed.

3.3 DATA COLLECTION TECHNIQUES

In this section I look at the data collection techniques I used. In some cases, there was little distinction between one technique and the other. For example, PRA techniques such as semi structured interviews and document analysis were later used independently. The repetition of such techniques in some sections serves to emphasise the point that I applied them at different stages of the data collection process.

I entered the field to collect data about the two communities with an open mind, in order to build on the techniques that I planned to use when preparing my study proposal. More data sources emerged as the action research progressed (Lotz, 1996). Below are the sources of data that I used in this study:

- Document analysis;
- Questionnaires;
- Workshops
- Interviews
- Observations and field notes;

3.3.1 Document analysis

During the process of document analysis, I came across a number of documents. Some of these were developed by the project (WWF ZEP, 2000), while others were written by NGOs and government departments. In some cases, I was party to the generation of such documents. I started the process of document analysis, with the analysis of WWF Zambia Education Project documents and annual reports (1989-2000). As I only joined the project in 1996, I wanted to know the background to the project's materials development processes, decisions made and trends over the years. Patton (1990) notes that programme records and documents serve two purposes:

- They are a basic source of information about the programme decisions and background, or activities and processes; and
- They can give the evaluator [researcher] ideas about important questions to pursue through more direct observations and interviewing.

The other documents I analysed included a baseline survey report on Chiawa (Kapungwe, 2000), a scientific study on the vegetation of Chiawa (Muwowo, 1989), three PRA reports on Nalusanga and a special study on the cost benefit sharing of income from wildlife income on Mumbwa GMA (Chundama *et al.*, 1998). In the case of the Chiawa PRA, I was part of the PRA team and I therefore had first-hand information about the participants' responses.

- **Baseline survey reports**

The baseline survey in Chiawa was carried out by a consultant, with the help of project staff (Kapungwe, 2000). The objectives of the survey were:

- To ascertain the current status of the environmental and natural resources in the Chiawa area; and
- To identify the potential areas of intervention by the WWF Zambia Education Project for an educational programme and to initiate micro-projects that would aim to alleviate poverty in the community.

Data collection techniques used in this survey included a literature review, interviews with key informants and field observations (Kapungwe, 2000). I analysed the report in the light of my research goals (see section 1.3) and to triangulate other sources of data, especially the contextual data.

- **Participatory Rural Appraisal (PRA) reports**

Data from PRA reports was generated differently. In the case of Chiawa, I was part of the PRA team. During the PRA process I was able to generate contextual data, which was later triangulated during the PRA report analysis. In Nalusanga case, I analysed three existing PRA reports (Muntanga *et al.,* 1999; Ntala *et al.,* 1999; Chifunda *et al.,* 2000) that I came across during my data search. I used PRA data gathering techniques by relying on methods such as semi-structured interviews and secondary data analysis. In the Nalusanga case, the PRA reports from the forestry and agricultural departments were supplemented by special studies, which were done by National Parks and Wildlife Services (now called ZAWA) and the Ministry of Finance and Economical Development (Chundama *et al.,* 1998*).* These provided the baseline data that was used in the triangulation with the contextual data gathered by means of a questionnaire I developed at the start of the study (see appendix 3B**).**

In some cases, I found myself using some of the PRA data analysis methods, such as ranking, in order to help the community make a decision where several alternatives and choices occurred (see Figure 3.1). According to Mikkelsen (1995), PRA techniques complement other more formal methods and in many cases they are preliminary methods in the research process.

Figure 3.1 Participants carrying out a ranking activity during the PRA exercise in Chiawa.

The aim of the PRA exercise in Chiawa was to explore some of the contextual and environmental issues affecting the community, with the hope of identifying an education

programme that would eventually culminate in community micro projects. At the end of the field data gathering exercise, the PRA team came up with a number of developmental and educational priorities for the area. The need for resource materials to support education and foster development in the area was ranked amongst the top five priorities. The exercise also generated information about the people and their culture that I later used in triangulating data from the contextual questionnaires (see appendix 3 B), my observations and interviews (Chambers, 1994: Mikkelsen, 1995: Manion & Cohen, 2001, influenced my decisions) for the purpose of compiling the contextual profile.

3.3.2 Questionnaires

Jackson (1995) describes a questionnaire as being made up of a series of set questions, which may provide a space for an answer or give a number of fixed alternatives from which respondents are required to make a choice. Questionnaires are often used in surveys to collect data on specific questions or issues for analysis (Neuman, 2000). In this research, I used data from the questionnaire to compile contextual profiles for Chiawa and Nalusanga (see sections 4.2 & 5.2). Janse van Rensburg, (1995) notes that the contextual profiles illuminate the contextual factors of the two communities and how these may have influenced the study (see sections 4.1 & 5.1). As indicated by Feuerstein (1986), the profiles provided me with more insights into the communities' way of life.

I trained two research assistants (referred to as RA 1, RA 2, RA 3 and RA 4) in each of the communities to help me with the administration of the questionnaires, since the answers needed to be written down and the majority of the people were illiterate (see sections 4.2.2 & 5.2.2;). The research assistants were local people residing in the communities where the research took place. They understood the local languages and culture and did not have problems working with the rest of the community members (Feuerstein, 1986). They were easily accepted by the local people since they had some 'responsibility status' in the community they lived in (*ibid*), having completed secondary school education or having worked in community development programmes before.

Feuerstein (1986:90) cautions, that "…familiarity with the community (by the local interviewers) may tend to make interviewers/enumerators feel they know all the answers already and they may record them from knowledge and observation instead of asking the

chosen questions." In the light of this, I held several discussions with each of the research assistants to share some understanding of how the research should be carried out professionally (Powney & Watts, 1987). This was done before and during the questionnaire administration.

Through this process of dialogue, I discovered that three of the four research assistants had experience in conducting research (DF 2). As much as I tried to train them as research assistants, I also learned a lot through the interaction. One of them explained to me the importance of listing the entire population before a sample was taken. He also emphasised the need for permission from the traditional leadership before any research was done in the community.

The first draft of the questionnaire was tried on ten households in each community and each of the four research assistants wrote a report about the process and some of the difficulties they faced (DF 2A-D). I also had verbal discussions with each of them to share some of their experiences with the people and the questionnaire items. They suggested some adjustments to the questionnaire in the light of some difficulties faced by the questionnaire respondents in answering some of the questions (RA 3 and RA 4; see appendix 1 for details of this abbreviations).

In order to try and capture the different entities that make up the population (Slocum *et al.* 1995), I used the refined questionnaire in a stratified random sample of thirty households in each community. According to Burroughs (1975), in a stratified random sample the population is first stratified into a number of small categories. I divided the population into the following categories in order to involve a wide range of community members with different characteristics in the research (Cohen & Manion, 1994). The categories were as follows:

- 5 Single -male headed households;
- 5 Single -female headed households;
- 5 Girl child- headed households;
- 5 Boy child -headed households;
- 5 Husband (married couple) -headed households; and

- 5 Wife (married couple) headed households;

The data collected through the questionnaire supplemented that of the PRA, baseline surveys and workshop group discussions in the compilation of the contextual profile of each of the communities. I coded some questions in the questionnaires and left some uncoded before administering the questionnaire. This was a way of reducing data for easy management and analysis (Cohen & Manion, 1990). After administering the questionnaire, I further coded the open-ended questions following the Cohen & Manion (1994) methodology of taking a sample of the questionnaires and generating a frequency tally of the range of responses. This helped me to write the contextual profiles of each community as I worked with the categories from the responses (see appendix 3B for sample of semi-coded questionnaire).

3.3.3 Workshops

The growing number of non-governmental and overseas development aid (ODA) agencies in Zambia and the southern African region, in general, have popularised the use of workshops in planning and decision making processes. Workshops have become common methods in strategic planning, community mobilisation (Hope & Timmel, 1986) and providing INSET for professionals (Lotz, 1996).

Fortino (2002:82) identifies two types of workshops as follows:

- The 'sit and get' workshops where the 'expert presenter' model of staff training is used. The facilitator selects the objectives, learning, activities and training. The goals of this type of workshop include awareness, knowledge and skill development. The outcomes are often related to changes in attitude and the transfer of training knowledge.
- The second type is the 'inquiry based' workshops where educators follow a process of inquiry. They identify a problem, analyse the activities needed to solve the problem and eventually come to logical conclusions about the best course of action.

I worked with Fortino's (2002) second example. I tried to make the workshops as democratic as possible by not only involving a large constituency of the community in the process of materials development but " … accommodated diverse learning styles with activities that are not only practical but also thought-provoking …" (Fortino, 2002:83).

I used workshops as a data gathering technique during materials development, trialling and induction workshops (see sections 3.9; 3.11; 3.12.2). Workshops brought people together and helped me gather insights into the process of materials development and community dynamics. Through workshops, I made observations, discussed intricate issues with local people in a less intimidating situation (see section 5.7.1 for a participant's comment in support of this view). I came to understand the community members well within a short period of time through group discussions, during workshops. Workshops also provided opportunities for cross checking some of the data and methods I had gathered or used earlier (triangulation). Workshop data was captured through the recording of proceedings and observation notes.

Workshop data analysis started in the workshop through plenary sessions, which provided opportunities for critical reflection and synthesis of some of the data. Raven (in press) observes that workshops introduce participants to the theoretical ideas and encourage interaction among them. In my case, I noticed that workshops brought the participants together as they discussed (planning) and critiqued (the implementation of action). The group discussions also facilitated critical questioning of some of the local practices in the villages. Participants were also able to question why people had been doing things in certain ways. This is an example of critical enquiry in practice or praxis, as articulated by Janse van Rensburg and Le Roux (1998).

3.3.4 Interviews

Koul (1984) describes interviews as a tool for gathering data through conversation between the researcher and the researched. Frey and Fontana (1991) state that whilst the most common form of interviews involves individual, face-to-face verbal interchange, interviews can also take the form of face-to-face group interchange, mailed or self-administered questionnaires, and telephone surveys.

Walford (1991) observes that interview data in many social science studies are treated as prime data. In my case, I used interviews as an additional source of data and for triangulation purposes, to verify what was said and done during a workshop or focus group discussion. After each workshop, I talked to some participants as Mercer (1991: 99) recommends "… in

order to elicit their ideas about the content and purpose of the activities they engaged in." In this way, interview data had a clarification purpose and helped me to resolve any ambiguities in the process of observation (*ibid).*

There are three common types of interviews used in qualitative research. These include structured, semi-structured and unstructured interviews (Koul, 1984; Chambers, 1994; Mikkelsen, 1996). Koul (1984) defines structured interviews as those interviews in which the procedure to be followed is standardized and is determined in advance. Unstructured interviews provide greater flexibility, although the series of questions and procedure to be followed are decided upon beforehand. It is argued that in unstructured interviews, the interviewer is free to arrange the form and timing of interviews while in structured interviews, the interviewer has to follow the interview schedule strictly (Koul, 1984; Mikkelsen, 1996; Frey & Fontana, 1991).

I used both semi-structured and unstructured interviews, in focus group discussions, informal discussions and interviews with individuals (see appendix 3A). I was more comfortable with these two types of interviews as they gave me room to ask questions in a more informal manner. I was also able to probe some responses further. My approach is supported by Frey and Fontana (1991), who note that semi structured and unstructured interviews provide greater breadth of data than structured interviews. I tape-recorded most of the interviews and transcribed them later (see Figure 3.2). This helped me to get as much detail as possible for the purpose of data analysis, as noted by Patton (1990).

Figure 3.2 Tape recording an interview in Chiawa.

3.3.5 Observation and field notes

I used a field note book and a journal to note down the observations I made during the participatory materials development processes. The observations were not merely what I observed happening, I also described the different settings in which materials were being developed (Patton, 1990;). Patton (1990) notes that descriptions from observations should be factual, accurate and thorough. Patton (1990) further argues that the most fundamental distinction that differentiates observational strategies is the extent to which the observer is a participant in the setting being observed. He notes that this is not a simple choice between participation and non-participation. The extent of participation can change over time.

In this study, however, I was a participant observer throughout the process of materials development, as I was immersed in the process (Patton, 1990). The community members viewed me and the rest of my colleagues on the project as part of the community, as we had been working in the two areas for some time. This is evident from the fact that even missing traditional ceremonies became an issue, as can be seen from this observation:

> I visited chieftainess Chiawa's palace in the company of the artist and the project driver to pay a courtesy call on her. She is happy with the way the education programme is going on in the area, but uncertain whether the camp site will take off. She was cross with us (WWF) for not attending their annual ceremony. I tried to explain that we were not invited. She insisted that we did not need an invitation because we were part of the community (Journal entry, 28 November 2001)

I used the technique of observation to triangulate and validate data from other sources and methods (Lotz, 1996). Denzin and Lincoln (2000) observe that observation is an omnibus field strategy as it simultaneously combines document analysis, interviewing of respondents and informants, direct participation and observation, and introspection.

3.4 ORGANISING THE DATA

Patton (1990) notes that data gathered in qualitative research is usually voluminous and may prove problematic when it comes to interpretation and analysis if not well organised. It is for this reason that researchers (Patton, 1995; Stenhouse, 1978; Burroughs, 1975) emphasise the need for good organisation of data before analysis.

I tried to organise my data in an orderly and easily retrievable manner, but was often confronted by the problems faced by case study researchers, as observed by Cohen and Manion (1994:123) as follows "… case study data, paradoxically, is 'strong in reality' but difficult to organise. In contrast, other research data is often 'weak in reality' but susceptible to ready organisation". Drawing on Lotz (1996), I aimed to produce an ordered and manageable data set which could support and validate the findings of this research. In the case of this study, I classified the case data into data files (DF 1-10, see appendix 1). Each folder contained a list of files (labelled alphabetically for example DF 1 A). In the case of the research assistants, they are labelled as RA 1, RA 2, RA 3 and RA 4. For example RA 1 means research assistant 1.

3.5 DATA INTERPRETATION AND ANALYSIS

> Data interpretation and analysis involves making sense of what people have said, looking for patterns, putting together what is said in one place with what is said in another place, and integrating what different people have said. These are processes that belong primarily to the analysis phase of qualitative evaluations after the data are collected (Patton, 1990:347-348).

Patton (1990) argues that there are no straightforward tests and rules of data analysis in qualitative research that can replicate the researcher's analytical thought processes. He notes that although there are no basic rules, researchers need to do the best with their full intellect to fairly represent the data and communicate what the data reveals in the light of the purpose of the study.

The process of data analysis started in the workshops with participants during reflection sessions (e.g. plenary sessions). Participants analysed and summarised, for example, the environmental issues affecting them (see section 3.11). During the trialling workshops they analysed the materials and made decisions on how best they could be presented. Schensul and Schensul (1991) note that involving participants in the process of analysing and interpreting data, even if it is at a superficial level, may contribute to the overall interpretation because they are familiar with their context.

Many other authors, among them, Robottom and Hart (1993) and Lather (1986) have recommended the need for participant involvement in data analysis. In trying to follow some

of these recommendations I had difficulties in involving the participants, except at a superficial level as most of them were barely literate. I was also confronted with the problem of having only a few contact sessions with the community members, since I only visited the two communities occasionally, due to other job demands and impassable roads during the rainy season.

The second level of data analysis was done immediately after I gathered the data through interviews or observations. I followed McKernan's (1996) model of data analysis i.e:

- Stage one: Processing the evidence–editing, coding and conceptual and theoretical sampling;
- Stage two: Mapping the data by noting the frequency of recurrence of issues, themes and units;
- Stage three: Interpretation of data and;
- Stage four: Presentation of results –reporting evidence/conclusions (see section 4, 5 & 6)

3.5.1 Triangulation

Triangulation was an ongoing process throughout this research as I checked for clarification and facts at every stage. As noted in 3.3, I used multiple sources of data, such as interviews with key informants and document analysis, to support or contradict interpretations as I observed or heard them. I drew this strategy from the work of Pitman & Maxwell, 1992. For example, after each workshop, I interviewed some workshop participants as a way of checking my observations or issues raised during such workshops.

Cohen & Manion (1994) describe triangulation as the use of two or more methods of data collection in a study of aspects of human behaviour. They further explain that "… Triangulation techniques in the social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data" (Cohen & Manion, 1994:233).

Patton (1990:187) outlines four basic types of triangulation as:

- Data triangulation

- Theory triangulation
- Methodological triangulation
- Investigator triangulation

I used three of the types of triangulations based on Patton's (1990) classification above. These were data, theory, and methodological triangulation. I used a variety of methods (see section 3.3) in order to gain confidence about the data generated and the findings (Cohen & Manion, 1994). My use of different types of methods in data collection served as a check and balance in the application of these methods and in enhancing the validity of the research findings (Muralidhar, 1993). Drawing on Lotz's (1996) experience, I compared the way in which different data collection methods provided different types of data.

As I explored how different theoretical orientations to education compared (theory triangulation), with the socially critical orientation to this study (see sections 2.8 & 6.5), in informing the selection of data collection methods, I became aware of the unreliability of some of the methods (especially those commonly used in positivist research such as questionnaires) if used on their own (Feuerstein, 1986), in the context of socially critical research. On the other hand, the questionnaires provided data that enabled me to gain an in-depth understanding of community issues, and thus contributed to the socially critical intentions of this research.

3.5.2 Validity

Historically, validity has been associated with experimental research where experimentalists sought to establish the trustworthiness of inferences drawn from data such as measurements, testing, and interaction between maturation and selection effects on results (Le Compte *et al.,* 1992). Based on the experimental approach to validity, researchers in qualitative research such as Goetz and Le Compte (1984), Lincoln and Guba (1985) have proposed alternative ways of looking at validity within the social sciences. For example, they argue that experimentalist procedures for external validity cannot apply to qualitative research. They emphasise the fact that qualitative researchers can validate their work if they clearly and comprehensively describe the contextual conditions for their studies.

Roman (1992) argues that for research in critical education to be 'valid', it should use a methodology that:

- Resonates with the lived experiences of the group being researched;
- Enables members of the group to comprehend and transform their experiences of subordination;
- Reduces the divide between the researcher's intellectual work and group members' ordinary ways of describing and understanding their experiences; and
- Allows the researcher's prior theoretical and political commitments to be informed and transformed by understandings derived from the group's experiences (Roman & Apple, 1990: 63-64).

McCormick and James (1983) suggest that:

> In view of the apparently subjective nature of much qualitative interpretation, validation is achieved when others, particularly the subjects, recognize its authenticity. One way of doing this is for the researcher to write out his/her analysis for the subjects of the research in terms that they will understand, and then record their reactions to it (McCormick & James, 1983: 241).

The work of Roman (1992) and McCormick and James (1983) influenced my choice of data collection techniques. I collected most of the data on site by visiting the two communities, observing and talking to people (community members). I employed a variety of data collecting techniques and methods by using the combination of questionnaires, observations, interviewing and document analysis. The different sources of data helped me to validate and cross-check findings (Patton, 1990). Marshall and Rossman (1989) note that each type and source of data has strengths and weaknesses and using them in combination increases validity as the strengths of one approach compensate for the weaknesses of another approach.

The foregoing methods were applied in the context of two action research case studies of participatory materials development in the Chiawa and Nalusanga communities (as mentioned in 1.2). In the next section I discuss the action research case studies.

3.6 ACTION RESEARCH CASE STUDIES

As already stated, this study looks at two action research case studies of participatory materials development in two rural communities of Zambia - Nalusanga and Chiawa (see section 1.2). Stake (1995) and Wolcott (1992) share the view that the case study can be used in the context of a variety of research methods such as ethnographic, biographic and naturalistic. I used action research case studies to gain insights into participatory materials development processes in the two community contexts (Cohen & Manion, 1994).

Although I carried out the two case studies in two different communities, each individual action research case has been examined in depth in order to provide an opportunity to learn more about participatory materials development (Edwards, 1990; see also chapters 4 & 5). The process of learning in the two action research case studies may be interpreted and used by community members for individual or communal development (Cohen & Manion, 1990; Stake, 1988).

3.6.1 Why Action Research Case Studies?

Carr and Kemmis (1986), observe that action research is a form of self reflective enquiry that can be undertaken in social situations in order to improve the rationality and justice of practitioners' own practices, understanding of these practices and the situations in which the practices are carried out. Lotz (1996) expands the meaning of social situations to include educational situations. Kemmis and McTaggart (1988) note that action research is motivated by a quest to improve and understand the world by changing it and learning how to improve it from the effect of the changes made. In other words, action research aims at solving some of the problems faced by society in order to improve the quality of life in the social setting (McKernan, 1996; Carr & Kemmis, 1986). This view is congruent to the socially critical orientation of this study (see section 2.8).

3.6.2 Theoretical models of action research processes

McKernan (1996) outlines three models of action research as follows:

Type 1 Scientific action research: This emphasises the scientific methods of problem solving.

Type 2 Practical deliberative action research: The goal of practical action researchers is understanding practice and solving problems immediately. It responds to the immediate situation, which is deemed problematic from a moral perspective.

Type 3 Critical – emancipatory action research: This is a shift from the above technologisation of reason. It is seen as a politically empowering process for the participants. It promotes more rational, just and democratic forms of education.

This study follows an emancipatory action research orientation as it uses eclectic methods to select ideas from diverse strands of theoretical and practical interventions in the field (McKernan, 1996, Carr & Kemmis, 1986) with the aim of contributing to the empowerment of the people in context. However, the reader should take note that all the three types of action research take the form of reflective inquiry, as observed by McKernan (1996).

Often action research is characterised by a spiral of cycles of planning, acting, observing and reflecting, which are not simple linear cycles, but are interrelated with each phase informing the action to be taken in the next phase (Carr & Kemmis, 1986). After a thorough consideration and analysis of the results in a three-phase action cycle, the next stage of planning may be entered and the cycles continue again (Lotz, 1996; Robottom, 1987). The knowledge and findings from one cycle help the practitioners to strategise the action for the next cycle (Carr & Kemmis, 1986; McKernan, 1991). Action research requires that the project involve those responsible for the practice in each stage of the cyclic spirals. There is also an emphasis on widening the level of participation from a small group to include others affected by the practice and maintaining collaborative control of the process (Carr & Kemmis, 1993; McKernan, 1996).

Lotz (1996: 284) notes the complexity of action research when she writes:

> … I realised that action research is not merely a ‘set of techniques’ or even an ‘approach’ which can be ‘implemented’ to realise goals within a research project. Action research represents an orientation to research which is ongoing.

She further explains that:

> I was further confronted with representations of action research as cycles of inquiry containing elements of *planning, action and reflection.* My initial encounter with the

> process … presented a 'simple and easy' interpretation of these events and I was able to present the research as a 'cycle' of inquiry. However, as themes or 'sites of change' and further inquiry emerged, I was confronted with the reality of pursuing simultaneous inquiry processes into diverse areas with/in the research project. I found myself bound up in multiple cycles of inquiry … within these diverse, yet interrelated areas (Lotz, 1996:285).

This research further draws on the views of McTaggart (1991:178) that action research is not only about 'doing', it is also about learning by doing. He further explains that action research is about making changes and that change is a process not a product:

> … to sustain the process of improvement, we must monitor changes in language and discourse, activities and practices, social relationships and forms of organisation, and in the light of reflection on the tentative products of change achieved so far, steer our next steps in the continuing process of change.

3.7 ACTION RESEARCH CYCLES OF INQUIRY IN CHIAWA AND NALUSANGA

The action research cases of participatory materials development processes went through five and four cycles of inquiry in the Chiawa and Nalusanga communities respectively. Each cycle comprised three complex and often interwoven phases of planning, action and reflection (Lotz, 1996). I often found myself caught in a web of confusion when the phases overlapped or simply meshed (see Carr & Kemmis, 1993; Lotz, 1996). Though it is not my intention to compare the two case studies, I present both cases under each cycle for clarity and to avoid repetition, as the cycles are similar in many instances despite the fact that the materials developed and the contexts were different. For example, Chiawa community members produced posters and their counterparts in Nalusanga produced pamphlets (see sections 4.3 & 5.3).

3.8 CYCLE ONE: COMMUNITY CONTEXTUAL PROFILES

3.8.1 Planning Phase: Contextual data collection

In both communities the processes of materials development started with data collection about aspects of the community's historical, social and ecological context through a survey

questionnaire (see section 3.3.2). Data collected by means of the questionnaire formed the main source of contextual data. This data was supplemented by data from document analysis (see section 3.3.1) of the baseline survey, PRA, government reports, newspaper articles and history books (Cohen *et al.,* 2001).

In the process of triangulation, clarifying and validating some of the data gathered through the questionnaire and document analysis, I carried out a series of interviews and informal discussions with key informants such as government workers, political and traditional leaders. (DF 3).

3.8.2 Action Phase: Community contextual profiling

After data collection and analysis from the planning phase above and drawing on the methodological approach to compiling contextual data outlined by Lotz-Sisitka and Janse van Rensburg (2000), when they compiled the contextual profile on the Learning for Sustainability Project (*ibid*), I wrote up the first draft of the contextual profile for each community (see sections 4.1 & 5.1, respectively). This was further refined through the process of reflection and change as I shared my contextual findings with some community members and WWF ZEP staff.

According to Lotz-Sisitka and Janse van Rensburg (2000) contextual profiles provide insight into the changing *status quo* of the social historical, economical and political context of the community in which the study is carried out. Feuerstein (1986) notes that a community contextual profile provides an accurate picture of a community, as it gives an ongoing deepening insight into changes taking place in an area over time. I therefore drew on these observations to compile a contextual profile that would help me gain insights into the two communities as promised by the above authors (i.e. Feuerstein,1986; Lotz-Sisitka and Janse van Rensburg (2000).

3.8.3 Reflection Phase: Using contextual profiles

The contextual profiles developed in the action phase became a monitoring and a guiding tool for the work that followed in Chiawa and Nalusanga. As a way of reflecting on the use of the contextual profile, it was presented to a WWF UK funded projects' strategic planning

meeting as an example of a monitoring tool in community-based environmental education projects (Muwowo, pers. comm., 2002). Reflecting on the use of the contextual profiles in this study provided me with insights into the social, historical, economical and political issues affecting each community. This also influenced the planning and execution of the materials development processes.

3.9 CYCLE TWO: MATERIALS DEVELOPMENT PROCESSES

3.9.1 Planning Phase: Planning sessions

During this phase, I made at least three visits to each of the communities to plan for the materials development workshops. In Chiawa, I had meetings with the community liaison officer for ZAWA, the advisor to the chieftainess, some local civic leaders and educational administrators, such as school head teachers.

In Nalusanga, I worked with two WWF Zambia Education Project community educators based in the community. These were elected members of the community who oversaw WWF activities and encouraged innovations in community environmental education in the area. I was also helped by the chairpersons of the community clubs to select three members from each of the four clubs to participate in the materials development workshops. Since it was clear from previous meetings that the Nalusanga people wanted to develop materials based on the activities in which they were involved, I started the process of identifying the technical experts in fisheries, forestry, agriculture (crop production) and wildlife resource management with whom to work with during the materials development processes.

The discussions in both communities centred around the logistics of holding a workshop to develop materials. These included the venue and provision of lunch, especially since some participants were expected to come from far flung areas. When all was set, I moved to the next phase of the cycle of inquiry.

3.9.2 Action Phase: Materials development workshops

In each case environmental issues were identified by the community members as a focus for the materials development work. The participants also debated the type of materials they wanted to develop. Due to contextual differences, we approached materials development differently in the two communities.

- **Identification of environmental issues as themes for materials development**

The Chiawa materials development workshop brought together fourteen participants drawn from four of the five zones of the community. Among the participants were four government workers, two teachers, one officer from the judiciary and a community development officer. The workshop ran over a period of four days.

We started the workshop by exploring the meaning of the term 'environment' as understood by the participants. Having developed their own understanding of the term environment, the participants worked in two groups to identify the environmental issues affecting them. The issues as discussed in the groups were analysed [with the community] and summarised into clusters of 37 themes. The 37 themes were further analysed and summarised into the twelve most pressing issues that needed immediate attention (see appendix 2B). The process of identifying the environmental issues was characterised by ongoing dialogue and critical reflections.

In the case of Nalusanga, the workshop was attended by three members of each of the four community clubs, three extension officers and two ZAWA officials. The themes for developing materials were based on the activities in which the community members were already engaged in four different community clubs. These included beekeeping, fish farming, vegetable growing, agroforestry and fruit tree growing. The participants reflected on how they had started the process of establishing their particular activities through sharing their stories.

- **Choosing the medium for materials**

The choice of the type of material we were to produce was left in the hands of the community members. I intervened to the conceptual dimensions of each of the types of materials chosen. In Chiawa, for example, three media were proposed. Some participants wanted us to produce posters, another group wanted to produce a book and a third group wanted pamphlets. Each

of the suggested types of materials was subjected to a critical review through discussion. The participants explored the advantages and disadvantages of each of the materials. After a long debate it was agreed that as a starting point, they would produce posters and explore the idea of pamphlets later, funds permitting.

In Nalusanga, the group settled for pamphlets that would serve as a record of community based micro-project activities. It was further argued that the pamphlets would also be used as field guides to help in the management of existing community activities. The pamphlets would also serve as monitoring and evaluation guides for the field activities.

- **Using metaphors and storytelling in materials development**

Metaphors and storytelling have been used as communication channels and to explain situations in traditional African societies since time immemorial (WWF, 1999; Mwanakatwe, 1968; Strauss, 1996). The use of metaphors and stories is also becoming increasingly common in academic research.

For example, Lotz (1996) uses the metaphor of a journey to present her doctoral thesis on the development of environmental education resource materials for primary education through teacher education; Janse van Rensburg (1995) uses the metaphor of a landscape of shifting priorities when she researched environmental education research priorities in southern Africa towards doctoral degree and Heylings (1999) uses the metaphor of distance to present her masters thesis on semi-distance learning in Zanzibar.

The Rhodes University/SADC certificate course in environmental education uses participants 'stories' to develop the curriculum framework. These stories are told from their lived experiences as professional people. Strauss (1996:8) notes that: "…the first stories we learn to tell are the true experiences from our lives – anecdotes."

In Chiawa, we used the twelve environmental issues identified by the participants as the themes for our poster design. The participants worked in four groups of three people each. Each environmental issue was explored in terms of the causes, effects and possible solution or responses. These were presented in the form of art briefs–descriptions of visual impressions (DF 5 B, artist's report). As a facilitator, I encouraged the group to be as creative and imaginative as possible in coming up with detailed art briefs on each of the

themes. This was for the purpose of 'capturing reality' of the environmental issues 'as they experienced them' (du Toit & Squazzin, 1999: 28). I did this through the use of a photographic metaphor.

I explained that when a photographer sets out to take a picture, the picture is first constructed in the mind of the photographer before it is captured by the use of camera. I likened the writing up of art briefs (text) to the process of preparing to take a picture, where the photographer chooses the background that would help give a picture of the reality.

My use of the photographic metaphor helped the participants to be imaginative as they constructed pictures of the issues, through the writing of detailed art briefs for illustrations. The art briefs depicted the causes, effects and responses related to each of the twelve themes. In the metaphor, I explained that an artist 'acts' as a camera that captures the picture as constructed (textual form) by the 'photographers' (community members).

In the case of Nalusanga, the community members told stories of how they started their particular community activities. I drew on Strauss's (1996: 25) view of storytelling as a successful communication form, accessible to audiences of various learning styles. She also points out that "… storytelling shapes a narrative to create meaning or address a problem, a question, an imbalance or a desire" (*ibid*). In this case, the guiding question in the process of developing the materials was how the community members would tell the story of how and why they started the particular activities they were engaged in, in their clubs.

This question invoked a reflexive review of the processes of establishing the community micro projects, the reasons that led to such actions, the challenges and problems faced on the way. Storytelling processes thus formed the basis for the materials development processes in Nalusanga. The participants worked in three groups and each group looked at the same topic. In the process of storytelling, technical people who were part of the groups took notes of what was being said. They were assisted by teachers and farmers who could read, write and understand the language used in the workshops.

- **The workshop working language**

In Chiawa the working language used during the workshop was Goba and Chinyanja. English was only used when developing the working titles for the posters. In Nalusanga, however, despite the fact that the draft materials were written in the English language, the presentations were done in either Chitonga or Chinyanja. Some people explained their points in other (their own) vernaculars, especially during the group discussions, but there was always a person who would translate to the rest of the group. Unlike Chiawa, Nalusanga proved difficult in terms of the local language to use. As shown in the contextual profile (see section 5.2), there is no specific common literacy vernacular, though the common spoken languages in Nalusanga are Chitonga and Chinyanja. While I was not fluent in all the languages used during the workshops, I was able to converse in Chinyanja. I understand a bit of Chitonga and after working in Chiawa for two years, I was able to understand some Goba words.

3.9.3 Reflection Phase: Critical review and revision of first drafts

In Chiawa, the art briefs were presented in plenary for a critical review. During this session, new ideas were suggested and changes made. I guided the presenters for clarity and logical sequencing of the art briefs, which in essence represented pictures.

In the case of Nalusanga, the groups' narrations on each topic were written on flipcharts as a synopsis of the pamphlets. Each synopsis was subjected to a critical review by the rest of the members during the plenary session. Facts were checked in reference materials, which I had provided at the beginning of the workshop. The technical experts also helped to correct some misconceptions, without interfering too much with the deliberations. I was on hand to clarify some difficulties and to facilitate the process.

In both cases, suggestions for review and changes were made during the plenary session. It must be noted, however, that the critical review was ongoing as members discussed each topic in the groups. After the plenary session the individual groups started considering some of the suggested changes. The process of reviewing and change continued during group work. New ideas were presented in plenary session to inform the next phase of deliberations. With each review that followed, the quality of materials and presentations improved. Participation also improved as more and more people looked at the process with a critical eye.

- **The art gallery**

At the end of the third version of the posters in Chiawa, an art gallery was mounted. All the posters (in the form of art briefs) were stuck on the wall for participants to view and critique. This gave the participants another opportunity to reflect on the work done so far. As the participants discussed each art brief in the gallery, new ideas were incorporated into the posters.

- **Workshop evaluation**

At the end of the materials development workshop in each community, I asked the participants to reflect on the participatory materials development processes they had been through. These reflections were captured on flip charts. The materials were then given to the technical experts to work on.

The art briefs produced by the community members were given to an artist who made illustrations based on the art briefs. In Nalusanga, the initial synopses developed from the stories of community members were given to the technical experts for editing.

3.10 CYCLE THREE: WORKING WITH TECHNICAL EXPERTS

3.10.1 Planning Phase: Contracting technical experts

After the materials development workshops, the project contracted the technical experts to edit the draft materials further. In Nalusanga, the experts (who were agriculturalists and forestry officers) were asked to check the facts and correct any misconceptions the community members may have included in the initial materials. They also worked on the language by toning it down to primary education level. This was to accommodate the high levels of illiteracy (CSO census report, 2000; section 5.1). I provided the experts with reference materials by making copies of some of the relevant materials from the WWF resource library.

In Chiawa, we commissioned an artist to illustrate the posters using the art briefs. I spent some time explaining the context in which the posters were being developed. As part of the

contractual obligations, the artist produced three sample posters from the ten drafts of art briefs. The contract was only signed when the (WWF ZEP education team) were happy with the quality of work.

3.10.2 Action Phase: Illustrating and copy editing

The artist illustrated the Chiawa posters according to the art briefs. I discussed the first drafts of the posters with other project staff. Some changes were suggested in areas where the artist diverged from the art briefs. We also agreed that the posters would have be done in full colour if they were to help in the education process. According to the artist, colour was appealing to adults, just as much as it was to children.

I started the process of copy-editing the Nalusanga draft pamphlets as worked on by the experts. I also gave the drafts to independent evaluators with an agricultural and forestry background, for a second opinion. This involved a lengthy process of rewriting, review and change. The members of staff at WWF Zambia Education Project helped with proof reading. I discovered experts used a lot of technical language, which needed to be changed. The comments from independent evaluators were equally helpful in improving the materials. I also carried out a search for illustrations (art work) from existing publications. In instances where no pictures or illustrations were found, I wrote up art briefs. Illustrations and pictures were meant to make the reading of the pamphlets easier.

3.10.3 Reflection Phase: Feedback from technical experts

After the first draft of the posters, we reviewed them further and agreed to some adjustments. These changes were effected by the artist. I asked the artist to write a report reflecting on his experience of working from art briefs and the problems and challenges he had encountered in the process of illustrating the posters (DF 5 B). He produced an elaborate report on the procedure of the work. He also made some recommendations as to how the process could be done in future.

The technical experts who worked on the Nalusanga pamphlets also wrote reports on the processes they were engaged in (DF 5). I asked them to comment on the lessons they had learned from the process of materials development and to make recommendations on how best the pamphlets could have been developed in the community context.

After incorporating the feedback from the technical experts, the materials were ready for cycle four, the trialling phase. The intention was to gather opinions from the community members on the draft materials.

3.11 CYCLE FOUR: TRIALLING WORKSHOPS

3.11.1 Planning Phase: Planning meetings

During this phase, planning meetings took place at three levels. Plans of how to conduct the trialling were discussed with the WWF project staff, with the technical experts and some community members. Preliminary findings on the issue of participation indicated that people from far flung areas were opposed to having workshops at Chiawa central (see section 4.8.1). We decided to carry out trialling workshops in four of the five villages. This was meant to extend the level of participation by allowing as many people as possible to take part in the materials development process.

Meetings with the artist involved considering details of how the trialling workshops were going to be carried out in each of the villages. We agreed that the participants would conduct peer teaching using the posters. At the village level, I worked with the Village Action Groups (VAG) under the Community Resource Boards. The VAG members in collaboration with the ZAWA community liaison officer organised all the trialling workshops in each of the villages in Chiawa.

In Nalusanga, my initial idea was to carry out the trialling workshops from village to village as I did in Chiawa. I was advised against doing so by colleagues on the project who felt that the context and the nature of the materials were different. Therefore, I planned for one workshop at a central place. The workshop was attended by the people who participated in the first workshop (see section 3.9.2), except for a few who were committed elsewhere.

In order to cut down on the costs of production, the draft pamphlets were photocopied by the project and the loose papers were stapled together. A total of 20 pamphlets were made on each of the five themes.

3.11.2 Action Phase: Trialling workshops

During the trialling workshops in Chiawa, I worked with a total of 36 people, including the artist and a project driver who also took part in the display of posters and discussions. For each new group I met, I asked one of the community members who attended the first materials development workshop to give a brief history of how the materials had been developed. I then asked a member from the group to discuss an environmental issue as presented on the poster. The process of using the posters in discussing environmental issues affecting the people of Chiawa introduced other issues, beyond those reflected on the posters.

In Nalusanga, the participants worked in four groups; each group was guided by a group leader. The group leaders read and interpreted each of the materials for those who could not read. The language barrier was not noticeable as all the members were contributing to the process, in their own languages. The group leaders kept a master copy of each of the pamphlets in which they incorporated the suggested adjustments by the group. Besides the deliberations that took place in the groups, the participants were given a chance to reflect, compare and make changes to their work during the plenary session. During the session, a lot of new ideas were put forward by the group. These were debated upon and adopted according to suitability.

- **Discourse analysis**

The fact that I extended the trialling to those who did not participate in the first workshop broadened critical perspectives on the materials development processes. The stories based on the use of posters in Chiawa, for example were told differently in the four villages. What was common was the fact that the posters aroused a lot of debate on issues that affected the people. Some of the ideas in the posters were challenged as participants considered the visual texts (du Toit & Squazzin, 1999).

Fairclough (1989) uses the term discourse analysis to describe the methodologies used to analyse written and spoken texts. du Toit and Squazzin (1999: 28) consider the use of discourse analysis in education as a useful method to analyse visual aids. They used this method in the context of ‘reading’ photographs. I found the discussions and critique that followed each presentation during the trialling to be similar to processes of discourse analysis

(as used by du Toit & Squazzin, 1999), as participants interpreted the posters and pamphlets differently. This helped to bring out different dimensions of the issues affecting the community (*ibid*). The discussions and critique also provided insights into how the posters and pamphlets could be used differently by different people (see sections 4.9 & 5.9).

Clarke (1997) notes that photographic messages contained in an image reflect the codes, values and beliefs of a culture. The trialling workshops revealed that the different ways in which people interpreted posters brought about a variety of complex social meanings and constructions (du Toit & Squazzin, 1999). The process of analysing the images also served as a cross checking process-to validate some of the ideas.

3.11.3 Reflection Phase: Revision and editing of materials

After each day of trialling workshops in Chiawa, the artist and I sat down to review the trialling processes and the suggested adjustments made by the community members (see Figure 3.3).

Figure 3.3 *One of the trialling workshop review sessions with the artist (Mwenya Lamba), (left).*

Throughout the trialling workshops I took field notes to document the community members' discussions. The artist, while participating in the discussions, took some time off to make sketches of the landscape of the area (see Figure 3.4). The sketches and my notes were discussed, and where appropriate these were incorporated into the posters.

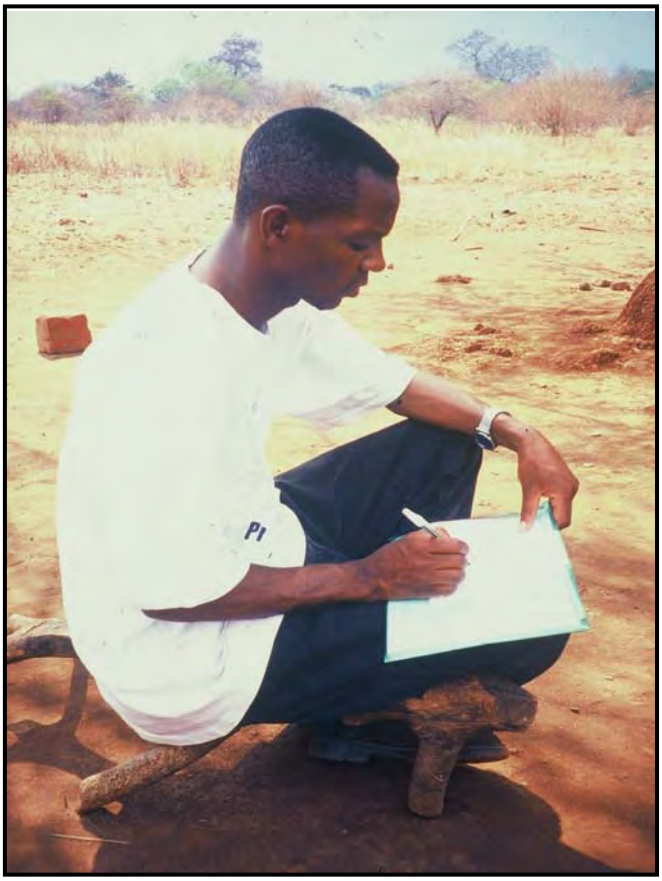

Figure 3.4 The artist, sketching the landscape of Chiawa.

In Nalusanga, I engaged a language editor to edit the pamphlets. Apart from correcting typographical and linguistic errors and editing the flow of language, I asked the editor to comment on the suitability of the materials for community use. I also asked him to make recommendations on how the materials development processes could be made more participatory to ensure community ownership of the materials. After performing the tasks on the pamphlets, the editor wrote a report, reflecting on the process he went through and the changes he had made (DF 5A).

- **Translating the poster titles**

The Chiawa poster titles were written in English for working title purposes. During the trialling workshops, some suggestions of titles in the vernacular were made. Often these were either in Chinyanja or Goba. When all the trialling workshops were completed, I called a focus group discussion to translate the titles into Goba as it became apparent that the majority of the people wanted materials in this language. A number of people who could converse in Goba attended the translation sessions. Some of the English words were not easy to translate

into Goba and they became long sentences. The group agreed to retain the English titles and only write the subtitles in Goba.

After all the adjustments to the posters had been made by the artist, we discussed the technicalities of bulk printing, for the purpose of making them available to the wider community.

3.12 CYCLE FIVE: USING THE POSTERS

As mentioned earlier (see section 3.7) Nalusanga had only four cycles of inquiry as the pamphlets were still not yet printed by the time I started writing this report. Therefore, this section looks at the last cycle of inquiry in Chiawa community only.

3.12.1 Planning Phase: Printing

In this phase, I looked at the cost of printing the ten posters. I got quotations from three printers as per the financial requirements of WWF. Most printers in Lusaka had no capacity to printing full colour. None of the printers in town (Lusaka) were able to produce the posters on A1 (paper size). The alternative was to print the posters on A2. This meant reducing the art work from A1 to A2.

The cost of printing the ten posters was too high. As a project, we decided to reduce the number of posters to be printed based on the available money. We were only able to print four of the posters. I tried to have the posters photocopied in black and white, but this was not well received by my colleagues as they were said to have lost impact. The four posters (River Gardens, Poisoning, Poaching and Vandalism) were chosen after a critical review by the project staff. We chose the posters that would make the greatest impact within a short period of time and at the same time pave the way for WWF Zambia Education Project follow up work in Chiawa.

When all was set, the posters were taken to the printers. The art works were reduced from A1 to A2 by scanning them and reducing the gutter and margin spaces. I had to proof-read the new art works before the final printing was done. This process gave me another chance of reflecting on the new changes and to decide on the next phase of action.

3.12.2 Action Phase: Induction workshop

The induction workshop was aimed at introducing the posters to a larger community constituency. It was also meant to discuss possible ways of using the materials in the community context. 28 people from a cross section of the Chiawa community attended the induction workshop. Most of these were not involved in the previous workshops, materials development and trialling workshops. As a starting point I explained the background to how the materials were developed. I also explained the process of trialling. In order to establish the ideas people had on how to use the posters, I asked them to state what they expected from the workshop. This phase ended with the distribution of posters to various groups and individuals present for their use.

3.12.3 Reflection Phase: Snap survey on the use of the posters

Six months after the distribution of the posters, I conducted a snap survey to see how the posters were being used (Lupele, 2002c). I used semi-structured interviews with recipients of the materials and some key informants. The questions provoked reflections on how individuals had used the posters (see section 4.9).

3.13 EMERGING ISSUES FROM DATA ANALYSIS

After analysing data by coding and categorising it, I came up with themes and sub-themes. As noted by Janse van Rensburg (1995), this was not an easy process as I struggled to establish relationships and trends from different sources of data (*ibid*). The stages I applied follow those applied by Louw (1996).

These included:

- The identification and coding of themes;
- Identification and coding of issues and trends relating to the themes and sub-themes;
- Integration of themes and sub-themes based on the emergence of issues and trends;
- Formulation of theoretical ideas and recommendations.

Through this process, the emergent themes helped me to relate key aspects of the participatory materials development process. I was able to generate sub themes (Louw, 1996), which helped me to clarify the finer details of the significance to this study.

The following were the emerging themes:

- The role of the WWF community environmental education programme;
- The roles of different actors in participatory materials development processes;
- Gaining access to the community;
- Outcomes of participatory materials development processes;
- Issues and challenges in participatory materials development processes;
- Use of materials in the community.

These themes are discussed in chapter 4 and 5, in the context of each case. In addition, the discussions include the contextual profiles, which reflect on some of the contextual factors of the two communities.

3.14 CONCLUSION

The methodology and methods I used in this chapter were informed by the socially critical orientation of this research. Central to this orientation are the ideas of social justice, democracy and equity. I worked with methods that embraced these ideas. For example, the process of developing materials through action research was aimed at empowering individuals and social groups to consider issues of significance to their lives and to critically engage in dialogue and action to address those issues (see Cohen *et al.,* 2001). Action research facilitated ongoing critical reflection and interaction of the participants through workshops, and helped in the generation of data. The sub-themes and the discussion that follows may not represent the reality of participatory materials development in other contexts, as Janse van Rensburg (1995:61) notes that "… categorisation of data tends to reify results, i.e., to present ideas as reality, ignoring their human construction and decontextualising the results they aim to reflect." The two cases presented are also not intended to present generalised results, but to provide WWF ZEP with a deeper insight into the possibilities and practice of participatory materials development in Zambia.

In chapter 4 and 5, I describe the themes and sub-themes which emerged in the data analysis and comment on their possible implications for materials development work in WWF ZEP.

CHAPTER 4

PARTICIPATORY MATERIALS DEVELOPMENT IN CHIAWA: CONTEXT, ROLES AND PROCESSES

4.1 INTRODUCTION

In chapter 3, I provided a description of the research process and the methodology I followed in the context of two action research case studies of participatory materials development in Chiawa and Nalusanga communities. I also introduced the six themes that emerged during the research process and data analysis (see section 3.13). Using these themes, this chapter illuminates my experience of working with rural community members in participatory materials development in more depth (Lotz, 1996). I particularly share the findings of the study in the Chiawa community and discuss them in relation to the emergent themes. During the research processes there was little distinction between method, theory and results as noted by Robottom & Hart (1993) in their work. The emerging themes are interrelated around the action research case study of participatory materials development processes in Chiawa (as discussed in section 3.13).

The action research cycles of inquiry and the entire research process, as described in section 3.7 was not done in isolation from other contextual and ecological factors facing the community. Janse van Rensburg (1995) notes that research is often influenced by the context within which it takes place. It is for this reason that I started the study by compiling a contextual profile that provided me with insights into the changing *status quo* of the context in which I was to do the research (see section 3.8.2). I therefore start this section by sharing the contextual profile of the community to illuminate how context may have influenced the participatory materials development processes in Chiawa. This is aimed at clarifying further the context in which the research was undertaken, and how the issues under discussion may have been affected by some historical, ecological and social factors (Feuerstein, 1986).

I also describe the roles of different actors in the participatory materials development processes in Chiawa. Furthermore, I examine the perceptions the community members and WWF ZEP staff hold with regard to the role of WWF community environmental education

programme. The chapter further looks at the processes involved in participatory materials development. These include: gaining access to the community; outcomes of participatory materials development processes; issues and challenges in participatory materials development and the use of materials in Chiawa.

4.2 CHIAWA COMMUNITY CONTEXTUAL PROFILE

Chiawa is located at the confluence of the Kafue and Zambezi rivers, south of Lusaka (see Figure 1.2), in chieftainess Chiawa's area. The area has a population of over 12 000 people, who are mainly subsistence farmers (Kapungwe, 2000). These are spread across 37 villages. Most settlements are near to the banks of the Zambezi and Kafue rivers, which are the sources of their livelihoods. For political and social administration Chiawa is divided into five zones. Each zone is made up of a cluster of villages. Some zones such as Gota Gota have as many as 448 households (Kapungwe, 2000).

According to oral history, the kingdom was established in the sixteenth century when a group of Korekore-speaking people crossed the Zambezi from the neighbouring Zimbabwe (previously called Southern Rhodesia) into Zambia. They invaded the local people who were living in the lower Zambezi valley (Machisi & Musona, 1999). The conquered were mainly the Swaka- and Lamba-speaking people. After establishing themselves in this valley, they came to be known as the Goba people, which means valley people. The invaders, who were mainly men, married the neighbouring Soli-speaking women and settled in Chiawa. Although the Korekore followed the patrilineal tradition of leadership before they came to Chiawa, they changed to a matrilineal type of traditional governance upon marrying the Solis who were matrilineal. Though the area was rich in wildlife resources in the past, the people now live in abject poverty and depend on occasional relief food from government and other well wishers.

4.2.1 Vegetation

Being in a valley, Chiawa is prone to adverse weather conditions such as high temperatures, prolonged droughts and sometimes floods caused by the Zambezi and Kafue rivers. The weather conditions also affect the vegetation distribution.

Chiawa vegetation is largely composed of deciduous trees with open woodlands and wooded grasslands (Muwowo, 1989). The vegetation can be classified into five distinctive vegetation

types. These are: the mixed species layered, dry forest ('Jesse' bush), Colophospermum mopane woodland, Acacia woodland, grassland and riparian vegetation (*ibid;* Kapungwe, 2000). According to the baseline survey carried out by Kapungwe (2000), the Miombo vegetation is found in the higher elevation of the escarpment and plateau areas.

The natural vegetation provides the main source of fuel wood. For example, 27 of the 30 households interviewed depend on fuel wood for their energy source. The fuel wood is mainly collected by women and girl children. The high population growth has negatively affected the utilisation of the forestry resources. This is further exacerbated by the fact that there are no forestry officers in the area (DF 4; Kapungwe, 2000). However, it is gratifying to note that there is no charcoal production in Chiawa as Kapungwe (2000) notes in his survey report. Deforestation is mainly due to the clearing of land for agricultural purposes and settlement. The few remaining forests may be spared with the coming of electricity in the area, under the rural electrification programme. Three households in the sample population were already benefiting from this government initiative (DF 6A).

4.2.2 Ethnicity, language and literacy

The main tribes found in Chiawa are the Gobas, Chikundas, Solis, Ngonis and Tongas. Goba-speaking people account for over 50% of the ethnic groups in the area. However, the most widely spoken language is Chinyanja, followed by Goba, which is a Shona dialect from across the Zambezi River in Zimbabwe. In terms of literacy, 57% of the respondents are able to read and write Chinyanja. 36% are literate in English with 23% able to read and write Goba. I observed that the majority of those who were literate in Goba were elderly people who had attended school in the neighbouring Zimbabwe since Goba is not offered in schools in Zambia.

Some people are literate in more than one language. In fact many of those who are literate in English have no difficulties in reading and writing one or two vernaculars. Illiteracy is rife in Chiawa due to many factors; one being lack of schools, especially in the past. Another factor could have been the liberation wars across the Zambezi River in Zimbabwe which lasted for eight years (1972-1980). Around this time no meaningful development was undertaken in the area, which was infected with landmines. Schools and villages were deserted. Although most

people (who are literate) have completed primary school level education, the majority have had no chance of getting secondary school education. The worst affected are women. For example, only 16% of females from households who responded to the questionnaire reached junior secondary school. The number of schools is now increasing in the area. Chiawa Basic School has recently been upgraded into a high school (Chola, pers. comm., 2002).

4.2.3 Religious groupings

Chiawa has eight main religious groupings. These include Roman Catholic, Jehovah's Witnesses, Church of God, Seventh Day Adventist, New Apostle and Pentecostal Holiness. Others are the African Apostolic Faith Mission and African traditional believers. Religious beliefs and groupings play a major role in decision-making in Chiawa. Some religious groups do not participate in political activities, while others take the lead in such matters. Some churches do not encourage the use of conventional modern medicines by its rank and file membership. In communal work, there is often a need for compromises to be made on appropriate dates for events since the churches in the area meet at different times. Although the materials development workshops were run over the weekend, church-going patterns did not affect attendance, though I initially anticipated that they might.

4.2.4 Social Economy

- **Agriculture**

Chiawa is a predominately subsistence farming community. 50% of the respondents to my questionnaire (see appendix 3B) are subsistence farmers; 20% earn their livelihood through fishing, while 10% are traders. Another 10% work on commercial farms such as Masstock (now under receivership[9]) and Jerry Cabin Farms as seasonal labourers. The crops grown are mainly maize, sorghum; millet and a few people grow vegetables. In the past, a number of people grew bananas along the Kafue and Zambezi River banks under the traditional gardens

[9]Receivership is a situation where the original owner of the property is asked (often through a court order) to surrender the administration of the property to another person/institution due to bankruptcy or inability to continue administering it profitably. In this case Lender Burton is now running the farm after Mastock became bankrupt.

called *matoro* (see poster on River Gardens, appendix 4). People took advantage of the alluvial soils and the soil moisture on the river bank.

However, crops that were grown on the river gardens-*matoro*-were destroyed in 2000 by the artificial floods caused by the early opening of the Kariba and Itezhi Tezhi dam spillway gates without warning. This has caused considerable hardship for the people who were used to growing crops twice a year. They are now dependent on rain-fed crops. As a result of the hunger caused by the Kariba and Itezhi Tezhi- dam floods, there has been a shift in the method of cultivation as more people are now concentrating on upland cultivation. Over the years, the area has been dependent on relief food from well wishers and the government. Most people live in abject poverty as they can barely afford one meal a day. Only few households rear cattle, the most common domestic animal being goats and chickens.

- **Effects of problem animals on food security**

Food security in Chiawa is seriously affected by the occasional invasions and destruction of field crops by wild animals from the adjacent Lower Zambezi National Park (see section 2.3). The number of problem animals has increased over the years. In an interview with a group of people in the area, I was told that the farmers spend the night in the gardens to guard the crops from the animal invasions (DF 3). The people blame the animal invasions on ZAWA's lack of seriousness. They accuse ZAWA officials of serving the interests of the animals instead of those of human beings (see section 2.3). In some instances crocodiles have attacked and killed human beings. There is no system for compensating those who have been affected by the beasts. Other problems include the high temperature ranges coupled with persistent droughts and poor road infrastructure. The poor road has hampered agricultural expansion in the area. Chiawa is connected to Chirundu, a border town on the highway to Lusaka, by a ferry on the Kafue River (see Figure 4.1). The area has no micro-credit schemes for agricultural inputs and implementation or for other business ventures that would boost the economy of the area.

Figure 4.1 Crossing the Kafue River on a ferr.y

- **Sources of income**

The major source of income is agriculture. Local people (especially women) work on the large commercial farms as seasonal farm labourers. They harvest the high value crops - paprika and cotton. Others sell thatching grass to the lodges along the banks of the Zambezi River. Thatching grass is a lucrative business in which people earn about K500 to K1000[10] (about 12 to 24 US cents) per bundle of grass. The lodges also provide seasonal employment for young men who are employed during the tourism season. They are paid between K60 000 to K150 000 (about US$ 15 to US$ 38) per month.

Other people earn their living through fishing, although Chiawa is not a big fishing community, despite the abundant fresh water of the Kafue and Zambezi Rivers which have created a lot of fishing communities upstream. Some households engage in the brewing of illicit local brews in order to earn their livelihood.

According to a WWF ZEP baseline survey of the area (see Kapungwe, 2000:9), poverty levels in the area are still relatively high. Most households fail to pay school fees pegged at

[10] Kwacha is the Zambian currency. It is symbolised by a capital letter 'K' before a Figure when written in numerals i.e. K5, K8, K9, etc. At the time of administering the questionnaire US$ 1 was equivalent to K4 000.

K4 000 (US$ 1) for primary school classes and K10 000 for the junior secondary school. Most households earn slightly above K900 000 (about US$ 125) per annum. However they are still often unable to pay their medical bills because of the cost implications for large families, among other reasons. The clinic demands K2 000 per visit.

4.2.5 Wildlife utilisation

Wildlife has been utilised in both consumptive and non-consumptive ways. Consumptive utilisation has been confined to culling through residents' and non-residents' hunting, although the Chiawa GMA has no safari hunting company. The main non-consumptive utilisation includes game viewing, bird watching, angling and canoeing.

Tour operators in the area pay levies that are supposed to be channelled to community development projects, but the money is seldom released by ZAWA, which collect it on behalf of the people. It is for this reason that most people feel cheated and claimed that they have not benefited in any way from the wildlife resources in the area. Of the 30 households who responded to contextual data questionnaires, only questionnaire respondents QR 7, 10, 13, and 14 said they benefited from the wildlife in the area as they worked in the lodges during the tourist season. According to one research assistant (RA 3), most people see benefit in terms of cash accrued and given to them. There is also a strong feeling that the community members who worked under the Administrative Management Design (ADMADE) enjoyed the benefits of the programme more than anyone else in the community (DF 3; see section 2.3). The other people who are said to have benefited from the wildlife resources in the area are those closely associated with the traditional royal establishment (Simasiku, 2002).

People's perceptions about benefits from wildlife utilisation (as evident in data collected for this contextual profile) differ greatly from the pronouncement and purported achievement of the ADMADE programme as claimed by Mwenya *et al*,(1990). They note that some of the major achievements of ADMADE in the utilisation of wildlife in the GMA were the construction of schools and creation of employment through the recruitment of village scouts. Under the ADMADE programme, communities were entitled to 35% of revenue accrued from tourism activities in the GMA but, as already stated, these benefits rarely appear to trickle down to the people (see section 2.3).

4.2.6 The effect of armed conflict in Zimbabwe

Chiawa was deeply affected by the war during the liberation struggle in the nearby Zimbabwe. Houses were burnt down by the Rhodesian Army who were pursuing the Zimbabwean freedom fighters. One resident recalls that in 1979, houses were burnt at Mushonganhende village and an old woman died in the inferno (DF 3). Several people are said to have died from landmines and from stray bullets that were fired from across the Zambezi River. The war destabilised families as men were enlisted by the Zambian government for military training in a military programme called home guards. A large number of women, children and men who didn't volunteer for military training were evacuated from the area and taken to Lusitu about 200 kilometres west of the Chirundu border.

Poaching is said to have started during the Zimbabwe liberation war, first by the freedom fighters who brought fire-arms into the area. After the war in 1980, when Zimbabwe became independent, it is believed that a lot of military weapons found their way into the hands of the local people who used them for poaching.

The war had ambivalent effects on the natural resources and the people of Chiawa. For example, during the war, fish in the Zambezi River multiplied as the people were scared of going into the river because the Rhodesian army patrolled the shores of the Zambezi on the Zimbabwean side. The vegetation remained intact in the eight years of the war. But as soon as the war ended there was an influx of people from different parts of Zambia who visited the area for its bananas and fish. Some went into poaching as the area was well stocked with wildlife. Some fisherpersons introduced destructive methods of fishing in the area. Charcoal burning was also introduced. Recent efforts by the traditional leadership stopped the influx of 'foreigners' into the area and some of the malpractices such as charcoal burning.

The above contextual influences affect the way of life of the people of Chiawa. Their social, economical and political life is to a greater extent influenced by the contextual issues raised above. For example war and floods have rendered most of the people hunger-stricken, they have become dependent on humanitarian aid. This is exacerbated by the fact that even those who would want to grow their own crops are unable to cultivate on the upland due to fear of the landmines left behind by the armed conflict. Their traditional cultivation practice along

the river bank has also been affected by floods caused by the opening of the spillway gates at Kariba and Itezhi Tezhi dams. The fact that the locally spoken language is not of medium of interaction in schools has also contributed to the high level of illiteracy as many people have to learn to read and write in two different languages that are not their mother tongues (English and Chiyanja). These factors had an influence on the participatory materials development processes, the different roles people played and the processes they were involved in, as explained in the following sections.

4.3 MATERIALS DEVELOPED IN CHIAWA

In response to some of the environmental issues in Chiawa, which to a large extent have been influenced by the above contextual issues, I worked with 14 participants drawn from four of the five zones of Chiawa. We developed educational materials that would respond to some of the issues resulting from the contextual factors. The people I worked with included four government workers (two teachers, one officer from the judiciary and a community development officer) (see section 3.9.2).

As noted in section 3.9.3 the participants worked in four small groups to come up with 37 environmental issues that the community faced (see appendix 2A). The 37 themes were further analysed and prioritised into twelve most pressing issues that needed immediate attention, through ongoing dialogue and critical reflections (see appendix 2B).

After a long debate on the type of material to develop, the participants agreed to develop posters (instead of a booklet or pamphlets) around the twelve issues (see section 3.9.2). However, due to difficulties in coming up with an illustration of hunger and the fact that early marriages was disputed as an environmental issue by some of the participants, the artist I engaged to draw the posters from the art briefs only came up with ten posters . The Figure 4.2 below shows the first draft posters in an art gallery.

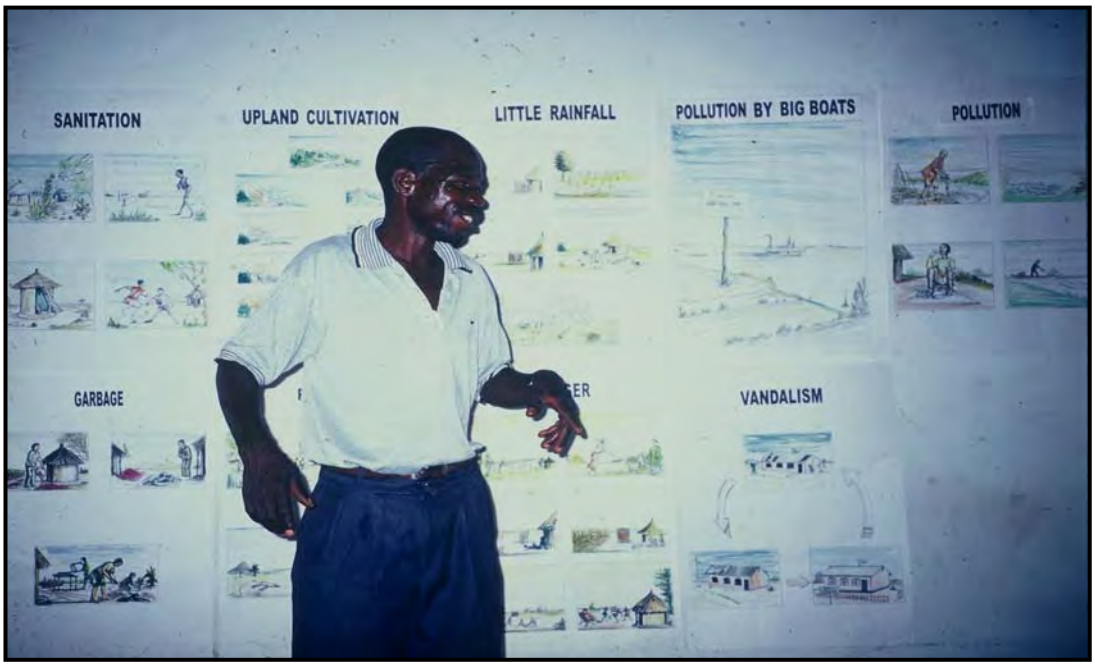

Figure 4.2 Community participant discussing posters contents in an art gallery.

However, as explained in section 3.12.1, the financial limitation only allowed WWF ZEP to print four of the ten posters (see appendix 4).

Through the process of developing these posters, a number of themes emerged (see section 3.13). In the next section, I discuss these themes as they arose in the context of participatory materials development in Chiawa. The themes relate to the roles played by different actors and a diversity of processes and outcomes. I discuss the role of WWF ZEP's community environmental education programme in the section that follows..

4.4 THE ROLE OF WWF ZEP'S COMMUNITY ENVIRONMENTAL EDUCATION PROGRAMME

In this section I discuss the role of WWF Zambia Education Project as defined by the project document, which presents a shared view of the project staff and the WWF network. I then look at the community members' perception of the role of WWF ZEP, as noted in observations and some of the discussions throughout the course of this study.

4.4.1 Project staff's perception

The staff's perception of the role of WWF ZEP is derived in part from the reason for its establishment in 1989. Their perception is further informed by the project goal as stated in section 2.5.1.

According to the project's Component Three–'Community environmental education', education is seen as a social strategy that would promote democracy and social justice amongst selected impoverished rural communities, by engaging the local people in educational processes that would help them to acquire skills and knowledge necessary for them to engage in informed decision-making processes regarding the management and utilisation of natural resources occurring in their areas (WWF ZEP, 2000). Recently the project staff's perception of the role of WWF ZEP has been influenced by WWF publications such as the *Africa/ Madagascar Success Stories* which reads in part:

> The participation of stakeholders in the design and implementation of the programmes [environmental education] in each country ensures that they are appropriate to the cultural context in which they are set and are not imported from other cultures … Through the use of participatory and capacity building methodologies, local communities are encouraged to take ownership of their own learning processes. This empowers them to take part in problem–solving and informed decision-making about their environmental concerns (WWF, 2002:4).

4.4.2 Community members' perceptions

Through my interactions and observations in the Chiawa community, I was able to gain insight into some of the perceptions that community members hold about WWF ZEP in general and the environmental education processes in particular. These community views were often at variance with the aims and objectives of the project.

Some community members view WWF ZEP as one of the donors that could end all their problems in the short term as expressed by one of the traditional leaders "… I was telling the other people that when WWF gives us a substantial amount of money, we shall invest in the campsite and this will help solve some of the financial problems we face …" (Journal entry, 14 June 2002). Others looked up to WWF to bring about equity and social justice in the community in as far as distribution of resources and developmental activities was concerned.

A number of participants bemoaned the fact that previous educational and conservation programmes were only concentrated at Chiawa central. Table 4.1 below gives more insight into community members' perceptions about WWF ZEP, as captured by means of the contextual profile data questionnaire:

- WWF has to carry out educational programmes that will tackle illiteracy and agriculture (DF 3D).
- Through education and sensitisation workshops, the people of this area would understand what development is. They will participate more in the programmes than when programmes are just imposed on us (DF 1G).
- The coming of WWF in the area is good because, if we work together, the community will benefit (RA 3, DF 2).
- The people of Chiawa rely on agriculture. We are still grappling with the concept of sustainable agriculture and if WWF help us in agriculture then hunger will become history (DF 2).
- I strongly feel that the education through the use of posters can help to solve some of the problems we face as a community (DF 3).
- The other organisations that have worked here before came with their own agenda and imposed it on the people. We did not like this approach and we did not accept these projects as our own because we were left out in the process of the planning and implementation (DF 3).

Table 4.1 Chiawa community perception of WWF ZEP

Having illustrated the role of WWF in community environmental education programmes with the project staff and community members' perceptions, I now look at the roles played by different actors in the participatory materials development process.

4.5 THE ROLES OF DIFFERENT ACTORS IN PARTICIPATORY MATERIALS DEVELOPMENT

The participatory materials development processes in Chiawa involved working with different people. These included local people from Chiawa community; government workers such as teachers working in the area; traditional and political leaders; technical experts such as the artist, the printers and colleagues in WWF. Each of the actors in the process had a role to play and some actors assumed different roles in different circumstances in the life of the study. The roles played by different individuals sometimes became complex to the point where they conflicted with each other. Due to the diversity and complexity of the roles, it is beyond the scope of this study to identify and discuss the roles of each of the people with whom I worked. I highlight the roles of some key actors in this section to illustrate how different actors participated in this research.

4.5.1 The role of the chieftainess

The chieftainess, although she never attended any of the materials development sessions, was the guiding hand behind the participatory materials development processes in Chiawa and played a big role in the success of this research. She inspired her subjects to understand what the programme was all about and motivated them to participate in the study. At the first meeting to welcome WWF in the area, she reminded her subjects that the area was rich in natural resources and what was lacking was the skills and knowledge to harvest these resources sustainably. The chieftainess encouraged her subjects to work hard in the education programmes that WWF was introducing in the community.

When the process of materials development started, she played the role of a *monitor* as she was interested in the progress made. Occasionally she would phone WWF offices in Lusaka to get an update on the progress. On two occasions, she came to the offices and encouraged WWF to continue working in the area. Whenever I was in the area, she ensured that I had an audience with her to brief her on the progress made. She also occasionally met the ZAWA community liaison officer to find out about the progress of developing the materials and the people's response.

4.5.2 The role of government workers

There were a number of government workers who participated in the participatory materials development processes in Chiawa. Key among these were teachers from nearly all the schools in the area. Others included the ZAWA community liaison officer, who was one of the key actors and the Chiawa local court clerk who often worked hand in hand with the community liaison officer.

The teachers helped me with logistical arrangements such as the preparation of the venue and meals though this was often taken over by the other community members (DF 4A). During the workshops, some teachers helped with the process of *data gathering*. They recorded the proceedings, which became part of my data. The teachers also served as *key informants* in the triangulation of data gathered in the workshops.

The ZAWA community liaison officer acted in the role of *organiser* of most of the meetings. He would inform the community members about the workshops, even at short notice, because of his vast experience in community work. Another advantage he had was that he was a local person who knew the area well. In most cases, he worked with the court clerk in mobilising people.

The court clerk often acted as an *interpreter* in situations where some community members spoke in Goba. He interpreted in Chinyanja for the benefit of most of the participants. The clerk also played the role of *data collector* during the compilation of the contextual profile (see Figure 4.3). He was one of the most reliable *peer educators* on the use of posters during the trialling workshops. He also assisted in the process of compiling the history of the Goba-speaking people, and I found him useful in trying to validate some of the information and contextual data collected from other sources by comparing notes.

Figure 4.3 *The court clerk (Isaiah Museto) right, administering a contextual data questionnaire*

4.5.3 The role of the artist

The artist was one of the essential actors in the process of producing materials in Chiawa. He interpreted information from the art briefs or spoken word (during the trialling workshops) into pictures (illustrations). In both cases, the situations arose from discussions during workshops. According to the artist (see DF 5 B), through careful selection and placement of dots, lines, shapes, colour, form and space, he was able to create illustrations that at a glance, gave the viewers a story of their descriptions.

During the trialling sessions, the artist assumed different roles. I asked him to reflect on what he thought his role(s) was. The following was his reflection:

> I was a note taker. I have been taking and making notes of the discussions during the workshops. The people made a lot of clarifications and so I have recorded the information in the form of pictures. My role has been that of illustrating their thinking, pictorially. In another role I participated in the discussions during the workshop as one of them. I wanted to make them realise that any other person can work with them, discuss their problems and share their experiences. In a way, I was helping them see how else they could see the same poster and problem. Through the discussions, the people saw the posters as lay persons, but I had to move in with the professional touch, making them see the pictures from the sequence point of view, the order of information, in line with their art briefs, the size of the pictures, the message and explore the details we would have missed in the original message through the pictures etc (DF 3).

It was fascinating to note that the artist took notes in pictorial form. This was the first time (during trialling) that he was able to capture some of the distinctive shapes and forms of the area. In some cases we had to use a still camera to get particular features as mentioned in the discussion. The artist participated in the workshops like a member of the community despite the fact that he was not conversant with the two local vernaculars (Goba and Chinyanja). I had to do some interpretations for both the artist and the community members.

4.5.4 My role as an action research case study researcher

Stake (1995) discusses the roles of a case researcher as: teacher, participant observer, interviewer, reader, storyteller, advocate, artist, counsellor, evaluator and consultant. During the participatory materials development processes in Chiawa, I found myself performing all

of these roles. The roles I played were beyond what Stake (1995) lists above. In fact they were too many and too complex to identify on my own. I therefore asked some actors and key informants during interviews and informal discussions what they thought my roles were. The artist, for example, had this to say about my roles:

> Your role was that of a facilitator and coordinator. You moved the motions [during trialling workshops] then left us to discuss, to see things for ourselves and to be able to identify the shortfalls. The people made suggestions and possible changes on their own. All you did was to probe further to see if the discussion can be concluded. You did not impose your own values onto us. It was not a guided composition where you had something prepared in advance then given unto us. You allowed the discussions to unfold in a natural manner where all the suggestions, contributions came from the people who started the original idea. As an artist, I chipped in to explain how best these could be represented (DF 3).

From the artist's point of view I was a *facilitator* and a *coordinator* as I created opportunities for the participants to engage in discussions. In Stake's (1995) outline of the roles of a case researcher, my roles as pointed out by the artist would be located within those of *a teacher* as I arranged opportunities for the learners to follow and provided information where they could not move forward in their discussions. I also selected information; experiences needed and created the conditions that would facilitate learning.

Beyond these two views, I found my role to be that of a *mentor*, which embraces of all the different roles (*adviser, coach, counsellor, guide, instructor, teacher and tutor*) I undertook at this stage. I was an adviser as I advised workshop participants on what to do when they were stuck for ideas. I also counselled those who felt intimidated to participate in the discussions. In some instances, I was seen as a teacher/tutor as expressed by one head teacher "… you are a natural teacher, I did not know that there were other methods of encouraging participation in learning situations, this has been a good lesson" (DF 7). I also guided the process to ensure that all was on course. As a *mentor* some participants who were working on other community programmes came to me for tips on how to conduct particular programmes with groups of people as expressed by a workshop participant "… how can I also organise my community outreach programmes so well like you do?" (DF 7).

At the start of the materials development workshop, I played the role of an *artist* and an *evaluator* as I helped the community members design posters through the use of art briefs (see section 3.9.2). These were done in small groups of three or four people and brought to

the plenary session for critical reflection. At this stage, in the absence of an artist, I ensured that I guided the community members in the designing of the posters. I asked them questions that were aimed at helping them to develop a sense of artistic thinking in terms of the flow of the proposed illustrations and to visualise the layout when done by the artist (see my use of a photographic metaphor in section 3.9.2). I also carried out an evaluation of the practicability of the written art briefs for the purpose of making illustrations as I put myself in the shoes of the artist. My roles as an *artist* and *evaluator* continued even as I worked with the artist. Many a time, I had to guide the artist to interpret what the art brief depicted. In some cases, I had to evaluate the artworks as they were being drawn by the artist.

As a *storyteller* I told stories of how we would proceed in the development of the posters. I used metaphors to try and explain the conceptual ideas. For example, from my story of constructing the picture in the mind of the photographer before capturing it by means of a camera, the participants were able to come up with detailed art briefs that were interpreted into pictures (illustrations) by an artist (see section 3.10.2). The posters that were developed by one group of community members, carried different stories when they were being interpreted by other community members during the trialling and induction workshops (see section 3.9.2; also du Toit & Squazzin, 1999).

I also played the role of an *arbitrator* during discussions as people became emotional. In one instance during the induction workshop (see section 3.12.2), the poster on poaching raised many emotional reactions as participants explored the causes and effects of poaching. Some put the blame on ZAWA officials whom they accused of serving the interests of the problem animals rather than those of the people (see section 2.3). There were examples of situations where animals had attacked and killed human beings whilst ZAWA police did nothing. Some people blamed the ZAWA scouts for the increase in poaching as some of them were said to have been caught up in the vice. One participant bemoaned how some people had been maimed by the problem animals without compensation. As tempers flared, I had to find a way of stopping the discussions (see section 4.7.2).

My role as a *participant observer* started long before the actual research, when I was still working on my research proposal. At the time WWF ZEP was still looking at the possibilities of working in Chiawa. The project work in the area started almost at the same time as this research. However, I had earlier visited the area on a number of occasions in the company of

my colleagues-education officers. On one occasion, we went to familiarise ourselves with the Chiawa community. The other was during the PRA exercise (see section 3.3.2). My presence as a researcher was therefore not viewed as that of an outsider. This situation allowed me to assume the role of a *participant observer* without any suspicion. I was seen as a participant who was committed to help finding solutions to the environmental problems that faced the area (see section 3.3.6). This afforded me an opportunity to observe and at the same time interact with the participants as the story of the action research case study of participatory materials development in Chiawa unfolded (see section 3.7).

4.5.5 The role of the community members

Often we speak of communities as if they are homogenous, undifferentiated wholes (Slocum *et al.*, 1995). This assumption blinds us to the reality of the different roles individual community members play in a given developmental or learning situation. This trend has been exacerbated by the emergence of participatory methodologies in the early 1990s (Chambers, 1994). The assumption is that all community members participate in the same way (Slocum *et al.*, 1995). Barrow and Murphree (2001) argue that participation is broad reflecting the different interests people have in who participates, for what purposes and on what terms. This factor provides much of the motivation for clarifying specific roles in the participatory materials development process.

As I worked with different community members in this study, one thing that became clear was the fact that each individual had a role to play in the process of materials development. There were those who were good contributors during the debates and discussions. Others were critical and often came up with controversial standpoints to the discomfort of certain group members. For example, one member confronted me during one workshop lunch break:

> Why are you giving too much time to that old man? The old man is slow and is delaying the process. He brings unnecessary arguments and destroys the working mood. Please avoid giving him more attention; we need to make progress (Journal entry, 3 June 2001)

I noticed that the man in question always had a point to make and took time to talk because he was old. Most people did not like him for being open-minded and critical. As far as this

study was concerned; he had a role to play. Firstly he, like anyone else, was supposed to contribute to the process of materials development and meaning-making in the light of the socially critical orientation of this study (see sections 3.2.2 and 2.8).

Secondly each individual had a special role to play. Some were good at encouraging others to participate, others were time-keepers. Those who could read and write became valuable resource persons as they helped in the interpretation of some of the conceptual problems. During the study, I worked with over fifty community members at different stages of the materials development (see appendix 2C) and it thus becomes difficult to list all the actors and their roles.

In this section I have demonstrated some of the roles of different actors in the participatory materials development in Chiawa. Whilst some physically attended the workshops others, such as the chieftainess did not, yet their roles were as important as those who did attend the workshops. Whilst some actors participated in the process of producing materials, there were those who provided logistical support such as preparing meals to ensure that the process was not disrupted. In short, the contribution of each of the actors was important.

In the next section I look at how I gained access to Chiawa in order to start the participatory materials development processes through the support of different actors.

4.6 GAINING ACCESS TO THE COMMUNITY

We (WWF) started working in Chiawa shortly after an NGO [name withheld] was chased from the area by the local people who felt the NGO had failed to deliver on its promises (DF 3). The NGO in question is believed to have come with its own agenda, which was not shared by the local people (DF 3). It was said to have spent millions of Kwacha on planning meetings, with little going into the development of the community. The NGO lost the people's confidence and was asked to leave the area.

Working in Chiawa (as in many other communities) required the support of the local leadership, both traditional and civic leaders. Whtye, as cited in Haralambos (1986:40-41) supports this view when he writes: "… I learned early in my Cornerville period the crucial

importance of having the support of the key individuals in any groups or organisations I was studying."

RA 4 when responding to a question on the procedure he used at the time he was testing (trialling) the contextual data collection questionnaire writes: "… We must write down the names of the household heads in the villages and get permission from the chieftainess before we start administering the questionnaire …" (DF 2). It was the view of RA 4, based on his past experience as a community liaison officer under the ADMADE and as a research assistant in one of the University of Zambia surveys that, before starting any research in Chiawa, the researcher needed authorisation from the chieftainess.

I did not have problems working in the area as we were invited by the chieftainess, through the ZAWA community liaison officer. However, I had to consolidate support from the traditional leadership throughout the study, by being in contact with the leaders who included village headmen, the chief's adviser, ward councillors and sometimes teachers. I noticed that every time I paid a courtesy call on the chief's advisor or the chieftainess, they felt honoured and encouraged me to continue working in the area. The chieftainess would ask about the response of the community members (DF 7).

Although I needed and enjoyed support from the local leadership, I had to be careful as some leaders were accused of dominating the process, as is evident from the following journal entry:

> I have received complaints from many people against one leader's family [name with held]. The family is seen to be dominating in all the programmes that come to the area. A government worker in the area told me that most programmes in the area fail because of this family. He claimed that the head of the house abuses traditional powers to dominate community activities. This revelation explains why every time I involve local leaders to organise people for a meeting there are a lot of complaints as members of certain families out-numbered other families. I am lost, I do not know what to do, as some of these leaders belong to the royal establishment and have been very supportive of my work. There is also this complex of extended family, which is very strong in the area. Sometimes I invite people who seemingly came from different households, only to discover that they share the same ancestral or parental lineage and the local people see them as one family (Journal entry, 14 April 2001).

From the above observation, I decided to be careful with the way I handled the matter. Besides the support of the local people, I also needed the support from the government if we

were to operate as an NGO in the Chiawa Game Management Area (GMA). Under the Zambia Wildlife Authority Act of 1998, GMAs are under the jurisdiction of the Zambia Wildlife Authority. At the time I undertook this study, ZAWA was in the process of establishing Community Resource Boards (CRB) (see section 2.3). We (WWF ZEP) participated in the formation of the Chiawa CRB. However, the formation of the CRB became a controversial issue; CRBs were accused of alienating the traditional leaders from their positions of power and control of natural resources. This was against the background that traditional leaders had enjoyed a lot of authority under the ADMADE programme (see section 2.3). We as a project were confronted with such technicalities. While we seemed to be supporting the CRB (the project took part in the election of board members, through the community education officer.), we also found ourselves duty-bound to support the traditional leadership as an influential institution, if we were to be accepted in the community (see Whyte 1992; DF 4 B).

In order to solve the differences, WWF convened a meeting between the chieftainess on behalf of the people of Chiawa and the ZAWA extension services members. The meeting revealed that the misunderstandings were the result of a poor approach to working with communities on the part of the ZAWA staff, who tried to intimidate everyone by the fact that CRB was enacted in parliament and people had to comply with its demands without question.

In Chiawa, the traditional leadership is the most powerful institution and it is absolutely impossible for any individual to work in the area without the support of this institution. The leadership is not only the chieftainess but the Chiawa Royal Establishment Council. The council advises the chieftainess, on the day-to-day running of the chiefdom. Members of the council enjoy the respect of the chieftainess and some of them have the power to expel people who are not in favour. During the contextual profile research, I learnt that in the past, government workers who fell out of favour with the royal establishment were forced out of the area (DF 3).

Despite the power of the traditional leaders and to some extent, the politicians, a great deal of power [although not easily visible] lies in the unity of members. These can decide not to participate in a given programme if they do not approve of its implementation. I came across complaints that the traditional leaders sometimes just imposed programmes on the people, and that such programmes easily died away.

Having discussed the context (see section 4.2), the materials that were produced (see section 4.3), the roles played by different actors (see sections 4.4 and 4.5) and gaining access to the community, in the next section I describe the outcomes of the participatory materials development processes in Chiawa.

4.7 OUTCOMES OF PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES

During the participatory rural appraisal in Chiawa, the local people identified educational materials as one of the responses to the environmental issues (see section 3.3.1). The need for an education programme supported by learning materials was reaffirmed in my later interviews with selected community members who saw environmental education (and materials) as one of the strategies for identifying and responding to the environmental issues facing the community (DF 3; DF 7 A),When the materials development processes started, I gained more insights into the role of education materials as themes and sub themes emerged from the research and interactions with the people with whom I worked.

I describe the outcomes (sub-themes) under this theme in the proceeding paragraphs. These include the ideas that participatory materials development processes in Chiawa supported learning, invoked emotional feelings and support praxis.

4.7.1 Supporting learning

Most participants alluded to the fact that the process of materials development provided them with new knowledge. For example one participant remarked "… the materials development workshop was more like a school for most of us as we learnt many new things' (DF 7A). Another said the posters would help in the 'Breakthrough to Literacy' programme. Group discussions during materials development, trialling and induction workshops further revealed that materials development processes helped people to acquire new skills and knowledge that could enable them to manage the natural resources occurring in the area (DF 4 & DF 7). Through the participatory materials development processes, community members were able

to share knowledge and skills through dialogue and reflections, as shown in the following statements from the first workshop captured in Table 4.2. (see Figure 4.4 as well)

- The ideas we have learnt in this workshop if put into practice would bring development to the area.
- The process was beneficial to community workers on teaching approaches.
- The workshop increased our knowledge in understanding our own environmental issues.
- The workshop was more like a school for most of us who have not been to school.
- The knowledge learned from this workshop should be written in Goba to reach as many people as possible.
- I did not know that I could also be a teacher.
- We have been trained to be more or less writers/authors.
- The workshop exposed us to people we have never worked with, yet we live in the same community.
- The process inculcates patriotism in the individual.
- The workshop exposed us to ways of solving problems in our own locality through sharing.
- As a teacher, I did not know that there were other methods of encouraging participation in learning situations; this has been a good lesson.
- The workshop gave us a chance to express ourselves freely.

Table 4.2 *Evaluation comments from the first materials development workshop in Chiawa*

Figure 4.4 *One of the participants (Clement Kapesa) leading a discussion on vandalism using a draft poster during the trialling session*

Throughout the processes people shared different aspects of bringing about change to the environmentally unfriendly practices and problems in Chiawa. This deliberation took place during the materials development, trialling and induction workshops.

I also gained a lot of insight into participatory materials development processes. Others who learned from the process included the colleagues I worked with on the project and the artist I worked with in this research (see section 3.10.2), who notes:

> It was necessary to work with you because I have been exposed to Chiawa community. I have also learnt the progression involved in participatory materials development. I have seen information starting from the discussion that was recorded in form of art briefs to images on posters and the people in Chiawa studying this, appreciating the pictures and suiting their problem (see DF3).

4.7.2 Invoking emotional feelings

As the people reviewed the posters through materials development, trialling and induction workshops (see sections 3.11 & 3.12) they became emotional when they discovered the damage that had been done to their environment over the years. They pointed accusing fingers at certain sections of the community. The government workers, especially those working for ZAWA, were in most cases on the receiving end as they were accused of many things, ranging from encouraging poaching to protecting the rights of problem animals that killed people and sometimes destroyed crops (see section 1.2). The others who received some condemnation were the tour operators and lodge owners along the Zambezi River. These were blamed for contributing to the depletion of resources in the area, reflected in this journal entry:

> Today I got scared that some people might fight. We were discussing causes of poaching in the area and how the rest of the community can help to curb the vice, during the induction workshop. We used the poster on poaching to start the discussion. One community member [name withheld] got annoyed and accused ZAWA of being responsible for the increased number of cases of poaching. He also said ZAWA was insensitive to the plight of the victims of problem animal attacks. Another participant said that every time a community member was attacked by a wild animal, ZAWA officials were reluctant to take the victim to the nearest hospital and gave an excuse of not having transport or fuel. She explained that they (ZAWA) always find transport to take poachers to the police. At this moment more participants joined in the discussions. Some were shouting at the top of their voices. They gave examples of people that had been killed by wild animals. They also complained that even when animals such as elephants destroyed

> crops in the field, the officials ignored calls of distress. As tempers flared I somehow managed to stop the discussion and moved on … (Journal entry, 28 March 2002).

All in all, the illustrations in the posters brought mixed emotional feelings; some people felt happy while others became annoyed with the revelations, accusations and counter accusations that arose in the poster discussions. The artist made the following observations: "These illustrations brought different emotional reactions. Some people were happy, others angry, some were shocked or calm as pictures amplified what was contained in words through discussions" (DF 5B).

4.7.3 Supporting praxis

Janse van Rensburg and Le Roux (1998:104) explain that praxis implies a conscious recognition of the relationship that exists between practice and its rationale. They observe that praxis involves asking why we do things the way we do, and this questioning informs the next course of action (*ibid*). Carr (1995) further notes that praxis should not be viewed in terms of 'practice' and 'theory' as means to an end but as "… a form of reflexive action which can itself transform the 'theory' that guides it" (Carr 1995:73). Further, Carr and Kemmis (1986) trace the debate about the relationship between practice and theory to Greek philosophers such as Aristotle. They note that:

> … in praxis theory and practice are dialectically related and are to be understood as *mutually constitutive* as in a process of interaction which is a continual reconstruction of thought and action in the living historical process which evidences itself in every real social situation (Carr and Kemmis, 1986).

In the context of the participatory materials development processes in Chiawa, the participants worked in groups to identify and explain the environmental issues around which art briefs were developed (see section 3.9.2). These were reviewed in plenary session and new suggestions were made (see Figure 4.4 below). The groups reworked their drafts in the light of the suggestions from the plenary discussions. This second draft was also critically reviewed and new changes made. The process of review and action went through four stages until the participants were happy with the draft. During the trialling workshops, participants carried out peer teaching on the environmental issues affecting the area through the use of the posters (see section 3.11.2). After each presentation there was a plenary session, where

suggestions on how to improve the posters were made. Some members even suggested the best way of teaching a particular topic using the poster.

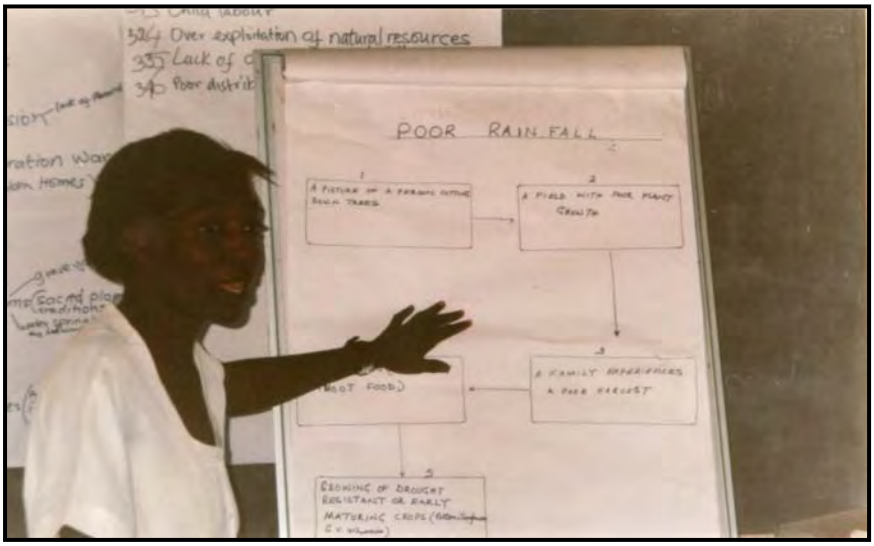

Figure 4.5 A workshop participant presenting her group's initial ideas (art briefs).

The view of participatory materials development as supporting praxis is also drawn from Grundy (1987: 115), who notes that praxis constitutes action and reflection when she looks at a praxiological curriculum.

From the data analysis and the findings above, it seems that participatory materials development processes can support learning even before the end products have been produced. The processes provide an opportunity for ongoing learning through dialogue negotiation and reflection as the participants are involved in materials development deliberations (WWF ZEP, 2002). Long before the materials are finally produced, the readers acquire and share knowledge and skills. We often think of the role of learning support materials when using the final products such as books, posters, pamphlets etc., but the Chiawa case points to the potential learning processes associated with deliberations surrounding the development of materials.

The processes enable them to critique their own practice and explore new, and sometimes better ways of doing things, in support of praxis (see Janse van Rensburg & Le Roux, 1998). This sections shows that participatory materials development invoked a lot of emotional feelings as the processes opened and exposed some of the problems of society. However,

though emotional at times, the processes provided opportunities for the community members to challenge the existing practices and *status quo* (Tripp, 1992). This helps to empower people to socially construct new meanings in the context, and consider alternatives and future possibilities. These processes, are however, not explicit issues and challenges (*ibid;* section 2.8 and section 3.2.1).

In the section that follows, I look at some of the issues and challenges that emerged during the participatory materials development processes in Chiawa.

4.8 ISSUES AND CHALLENGES IN PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES

In this section, I discuss emerging issues and challenges arising in the materials development process in Chiawa. Some of these emerged during the contextual data-collecting phase. Others emerged during the materials development workshops, while some emerged after the materials had been developed and were being used. These issues and challenges include the idea of participation, language and literacy, existing knowledge and culture and the flexibility of materials development processes. These issues, though discussed separately below, are actually interrelated in many cases, as the reader will notice.

4.8.1 Participation

Participatory orientations have been influenced by global trends towards democratisation of institutions and social life. These have been further influenced by socially critical theory in environmental education (Lotz, 1999). The concept of participation has been emphasised further, as people seek lasting development results or sustainability (Mikkelsen, 1995). However, the term has been highly contested and sometimes misapplied in development work and education. Barrow and Murphree (2001) argue that the concept of participation is broad and reflects the different interests people have in who participates, for what purposes and on what terms.

- **Who participates?**

As early as the first planning meeting, the question of who should participate was raised by various stakeholders including the advisor to the chieftainess. He objected to the list of

participants drawn up by the ZAWA community liaison officer on the grounds that most of the people on the list were government workers who were not indigenous to the area and would go away when retired or transferred. The community liaison officer's understanding was that participants at workshops should be people who are literate in the English language since it involved the writing of materials (DF 4), reflected in the journal entry below:

> I travelled to Chiawa with the WWF ZEP community education officer this morning to start preparations for a community environmental education workshop. We had earlier asked the ZAWA community liaison officer to make a list of 25 people who would participate in the workshop. When the ZAWA official produced the list of the would-be participants, the majority of the people on the list were government workers i.e. teachers, health workers and ZAWA wildlife police officers. This did not please the advisor to the chieftainess, who observed that the indigenous people were not given a chance to participate in the workshop. He emphasised the fact that government workers would easily move away to other places when transferred or retired. He said there was need for the local people to participate if the projects were meant to uplift their standards of living. He complained that it has been a trend in most community programmes to only work with government workers. He was supported by one of the head teachers who attended the meeting. We agreed to include a lot of the indigenous people and fewer government workers (Journal entry, 31 March 2001).

In the first materials development workshop, I thus tried to involve as many people as possible (see appendix 2C), but it turned out that most of the people in the area were from the royal family and were viewed as one family by others. I started thinking of ways to broaden participation. At the same time, I did not want to offend the traditional leaders by dictating to them about who would attend the workshops because I needed their support to work in the area (see section 4.3). They had much power in directing community activities and naturally everybody in the community seemed 'on the surface' to respect this authority. In confidence, some participants expressed their displeasure with the authoritative nature of some traditional leaders (DF 3). At the same time the idea of participation would have been little more than of academic interest if I could not find another way forward.

- **Broadening participation**

Apart from the question of who should participate, the other pertinent challenge I faced was the question of the venue for the workshops. Many people complained that, in the history of this community, most development initiatives start in Chiawa central, an area near the chief's palace. Civic leaders echoed these complaints and advised me to extend the level of participation to other villages. One of the civic leaders met me for the first time at a materials development workshop with 14 other community members. He was surprised that such a

workshop was taking place in the area without his knowledge. He also lamented that most workshops and meetings about the well-being of the people of Chiawa were held in Chiawa central, excluding other parts of the bigger community. He lamented:

> … Workshops and meetings are held here. The chief's advisory council is found here. Relief food is distributed from here. The ADMADE sub-authority worked with mainly people from here. People from other places feel alienated from the process of decision-making. They feel those close to the chief were being favoured (DF 1 F).

In trying to respond to the above concerns, the first thing I did in the next cycle (see section 3.11) of the action research was to broaden participation by conducting some of the materials development processes in other villages (see section 3.11.2). For example, I took the trialling workshops to four other villages.

The materials development processes, which started in Chiawa central, spread to other communities (DF 7F). Trialling workshops conducted in this way included as many people as possible. The fact that I extended the workshops to other villages where people were participating for the first time meant that there was a challenging critique of the draft materials by the people who had not participated in the first workshops. In every village I went to, people eventually associated themselves with the materials after reviewing and critiquing them. One member in the outlying villages made the following observation: "… the whole process was not done by the people from Chiawa central alone, we all participated" (DF 7F).

After the trialling workshops, I interviewed a number of participants, asking them to reflect on the process of materials development they had been through. Table 4.3 below, contains one of the questions and two sample responses I received (DF 7).

What would be your comment on the materials development processes we have just gone through?
Responses …

1. This was a good strategy as it involved a wide participation. Other organisations that have worked here before, come with their own agenda and impose it on the people. We did not like this approach and we did not accept these projects as our own. We did not take part in the planning and implementation. ADMADE went up to public meetings. The Save the Child programme engaged the people in participatory approaches to some extent. Although it is difficult to compare with what other organisations did, they never engaged in materials development within the community context, they brought materials into the community (DF 7).

2. The materials development processes you introduced are very good as they engaged people in active participation. People in this area have never had an opportunity to interact with outsiders in the process of developing materials. Even people who are barely educated can still learn from the posters. They are able to tell the story behind the pictures.

3. The materials suit the local environment since they were drafted from here, the local people will be able to identify some features on the posters with the local environment. Thus it will be easy for the people to follow the lessons behind the posters. The materials would increase the knowledge. They would be very effective because they carry what happens in Chiawa.

Table 4.3 Reflections on materials development from the broader Chiawa community.

- **Decision making and power relationships**

In this study, participation was not limited to the venues of the workshops or the number of people involved in the materials development processes. It also included the process of decision-making and sharing of power. For example, the participants had to decide on the type of material they wanted to develop during cycle two of the action research (see section 3.9.2). It went further to include aspects of freedom of expression. People were free to debate issues because the participatory materials development processes created a conducive atmosphere for debate and free thought. Both traditional and civic leaders whose voices had often dominated past community gatherings seemed to internalise the idea that everyone's point was important (DF 8). Slocum *el al.* (1995) note that to promote social change through participatory processes, it is essential to understand how to address the way that power is distributed and wielded in the local community. I managed to do this by emphasising the point that everyone's contribution was very important and that no one should feel intimidated. With this assurance, even some of those who had been silent gradually opened up (DF 7). In the next section I look at the 'levels' of participation in more detail.

- **'Levels' of participation**

Often it is assumed that people participate in the same way. As I have illustrated in section 4.4, different actors had different roles to play. In short they all participated in the process of materials development differently. Barrow and Murphree (2001) outline six "levels" of participation in the development programme context as shown in Table 4.4.

Participation typology	Roles assigned to local people
Passive	Told what is going to happen or already happened.
Information giving	Answer questions from extractive researchers. People not able to influence analysis or use.
Consultative	Consulted. External agents listen to views. Usually externally defined problems and solutions. People not involved in decision making.
Functional	Form groups to meet predetermined objectives. Usually done after major project decisions made therefore initially dependent on outsiders, but may become self-dependent and enabling.
Interactive	Joint analysis and actions. Use of local institutions. People have stake in maintaining or changing structures or practices.
Self- mobilisation or Empowerment	Take decisions independent of external institutions. May challenge existing arrangements and structures.

Table 4.4 Typology of participation. Source: Adapted from Barrow & Murphree (2001).

Based on this typology, Barrow and Murphree (2001) note that the common forms of participation are consultative and functional. In my research, however, the level of participation could be described as being located in the last three 'levels' of the table, namely functional, interactive and self-mobilising. While it can be problematic to 'neatly categorise' participatory processes in this way, I use Barrow and Murphee's (2001) table as a way of reflecting on the nature of participatory processes in this study.

The mixture of functional, interactive and empowerment orientations to participation (see Table 4.4) in this study are reflected in the fact that I made several preliminary visits to Chiawa and met traditional leaders, government officers and other stakeholders to plan for the materials development processes (see sections 3.9.1). The people I met had a greater say in how the process would develop and who was to be involved (see sections 3.9.1 and section 4.8.1.). I also carried out a number of interviews and focus group discussions where people

spoke freely about what the problems were and what they thought were the possible solutions (DF 3). However, the fact that the WWF ZEP objectives of working in communities were determined without the contribution of the communities meant that the communities initially depended on our perceived initiatives. For example, during the PRA in Chiawa (see section 3.3.1), it was clear that the local people wanted agriculturally related activities, followed by the establishment of a campsite as their top priority of development needs. Although education was only number five on the list of priorities, WWF ZEP started with the education programme because this was where the project objectives where located. Through participatory processes, the local people where able to participate in decision-making (Barrow & Murphree, 2001).

Figure 4. 6 *Group discussions amongst community members in Chiawa during a materials development workshop.*

During the materials development workshops, participants worked in small groups to analyse and propose actions for particular issues as they developed the materials (see Figure 4.6). Decisions made in the small groups were taken to plenary sessions for further analysis and action (see section 3.9.2). The plenary session was the place where final decisions on how to proceed with a given issue, where made. For example, it was through the plenary session in cycle two of the action research, that the participants decided to produce posters in preference to pamphlets and booklets (see section 3.9.2). They also participated in the selection of the language that the posters would carry. This decision was arrived at after long debate

- **Language and literacy**

My preliminary findings obtained through meetings and informal discussions with people of Chiawa were that they wanted the materials to be developed in the local language-Goba. I was made to believe that since most people speak the language, they would not have problems in writing and reading it. However, from the contextual profile of Chiawa (see section 4.2.2), it was clear that only 23 % of the sample of 30 households was literate in Goba, 36 % in Chinyanja, the official vernacular and 57% in the English language.

It became obvious to me that those who advocated for the development of materials in Goba were mostly elderly people who were schooled in the Shona language in nearby Zimbabwe, as the language is not one of the recognised seven vernaculars that are taught in Zambian schools (see section 4.2.2). The elderly people harboured fears of losing their cultural heritage and wanted to ensure that their children carried forward their cultural identity through the language, as was evidenced by the statements captured by the contextual profile questionnaires (DF 4).

During the materials development workshop (see section 3.9.1), some people were told to keep quiet when they wanted to help in the translation, as they were said not to be indigenous language speakers. The indigenous language speakers become very showy and proud of their language. However, even the so called indigenous language speakers had problems in translating the titles into Goba. In one particular instance, we could not find the Goba equivalent of the word “Vandalism,” only the advisor to the chieftainess was able to suggest the word “Kuparadza” as an equivalent. Even then, the explanation he gave for the meaning of the word was disputed until many months later when I had an opportunity to triangulate the translation with colleagues from Zimbabwe. I suggested adopting the English titles as working titles, which would be reviewed after the trialling of the materials.

As noted in section 3.11.2, some participants insisted on having the titles in either Chiyanya or Goba. As I probed further, I discovered that most participants below the age of 40 were not able to suggest alternative Goba terms or words. They appeared to be more comfortable with the titles in English.

During a focus group discussion (DF 3) held specifically to discuss the issue of language, it was unanimously agreed that the main titles would remain in English and sub titles were going to be written in Goba (see Figure 4.6). The argument was that though the traditionalists would love to have all the materials in Goba, the reality was that the children used English and Chinyanja as a medium of learning in school. The elders in the group found the use of English and Goba a good compromise and a way of teaching Goba to the young people who would be able to read the translations (DF 7).

Table 4.5 below shows the ten English titles and Goba subtitles.

English Title	**Goba Title**
Little Rainfall	Kushomara Kwekunoya kwe Mvura
Garbage	Marara
Upland Cultivation	Munda Wekunze
Vandalism	Kuparadza
Poaching	Ugocha Usina Mvumo
Hunger	Nzara
Poisoning	Mushonga Unebaya
River Gardens	Matoro
Pollution	Ndomba
Sanitation	Utsanana

Table 4.5 English and Goba sub titles of the initial Chiawa draft posters.

Working in Chiawa around the issues of literacy and language, I learned that the common assumption as expressed by Tilley (1995: 8) and our project document (WWF ZEP, 2000), that community materials should be developed in the local language is a simplistic view, which disregards community dynamics. Both the contextual profile data and my own field observations show that the spoken language is not necessarily the language of literacy (see section 4.2.2).

Those who were literate in Goba were seen as holding some power and authority over others. When I called for a focus group discussion, only those who were literate in the Goba language were invited. In fact most of them had never been to any of the workshops, but were specially invited by their colleagues to help with the translations (see appendix 2C & DF 3). This perhaps may explain why the community liaison officer wanted to invite mainly

government workers during the first workshop, as these were literate in the English language (see section 3.9.1).

> The ZAWA community liaison officer assumed that only those who are able to read and write should participate in community workshops. This is so because most community workshop organisers carry pens and folders for participants. I noticed that the moment I distributed pens and folders in the materials development workshop, those who were illiterate felt somewhat intimidated as they giggled amongst themselves (Journal entry, 2 June 2001).

Through my interactions with the community members during this study, I learned that even people who are said to be illiterate in one language may actually be literate in another language (see section 4.2.2). Furthermore, throughout the process of materials development, even those who could not read and write had valuable knowledge to contribute to the processes through debates and discussions during workshops. In the next section, I give some insights into working with the existing knowledge among community members.

4.8.2 Existing community knowledge

Community members had wide-ranging knowledge of the environmental issues they faced. This was my starting point for materials development and I soon realised that they understood the local problems, but lacked a forum in which they could express themselves and seek longer term solutions. When I provided this forum during cycle two of inquiry of this research (see section 3.9) they easily identified environmental issues as a focus for the materials that would be developed (see section 3.9.2). One participant went further to write up an unsolicited article on the historical perspectives associated with issues such as hunger. In his short passage, he explained the history of the construction of the Kariba Dam and how the effect of the disturbance of the natural water flow of the Zambezi River has affected the local community members who once planted their staple food twice a year, on the river bank during the dry season and upland during the rainy season. He claimed that with the opening of the spillway gates at short notice in recent years, most field crops along the river banks were swept away in 2000 and the situation has never been the same. The group was able to connect materials development to other issues within the community and were able to be critical of the *status quo* (see section 2.8 on the socially critical orientation of this study)

Community members were also able to discuss and agree on the type of materials (see section 4.6.2 & appendix 4 for the posters they developed to respond to these issues),.they needed immediately to address the identified environmental issues The fact that local people possess invaluable knowledge that should not be ignored is further supported by the artist in the following statement:

> From my experience of working with you, the people of Chiawa are not very educated but they know their problems, they really want to express themselves through their native language. For one to get the best out of these people one has to let everything unfold in a more natural manner, like you have done (DF 3).

Although the local people possess such knowledge, they seldom have opportunities like the one I provided through this study to express themselves. Their ability to express themselves can be enhanced through a flexible and open process of deliberation (Lotz, 1999). In the next section I discuss how working with a flexible structure enabled materials development in Chiawa.

4.8.3 Working with a flexible open ended structure in materials development

The materials were developed around the environmental issues, as perceived by the people of Chiawa. Some of the issues they raised, such as early pregnancies and drunkenness would be highly contested by many environmental educators with a scientific focus on the environment, yet this was what Chiawa people understood as environmental issues in their social context. Though I probed for further clarification of what they meant, it was not my pre-occupation to impose my values and universal understandings. I drew on Lotz (1999:18) when she writes about enabling curriculum deliberations amongst adult learners (in the context of course development). I, however, considered the significance of these perspectives for materials development.

> … with the understanding of the essentially diverse and contextualised nature of adult learning, adult educators need to recognise that it is virtually impossible to strive for mastery and transmission of an all embracing knowledge of a field, or of universal 'messages.' [Materials] developers need to recognise the significance of partial or incomplete perspectives, and facilitate ongoing … deliberation processes,which enable learners to contribute to establishing the knowledge … [materials]… (Lotz,1999:18).

I went to Chiawa with a flexible, open process in mind for participatory materials development in the community context, based on exploring the environmental problems affecting people as explained by Elvey (1996). Through this approach materials development processes became an open ended process of deliberation and reflexive review around the issues and risks expressed by community members involved in the process (Lotz, 1999). The participants were able to share their own understandings of environmental issues, contribute to the drafting of the materials and through deliberation and critical reviews (see sections 3.8.3; 3.9.3; 3.10.3 & 3.11.3) they were able to refine the materials. Through this process some of the initial ideas were dropped as people gained more insights into what constituted environmental issues. They debated and came to an agreement on the type of materials they wanted to develop (see section 3.9.2).

The issues that were to be addressed through the materials development processes were identified by the participants themselves. Their lived experiences and association with the local environment became the text upon which the posters were developed (Strauss, 1996; du Toit & Sguazzin, 1999). The flexible nature of the materials development processes provided a framework for discussing environmental issues in Chiawa and seeking solutions/responses to the identified issues and other interrelated issues. For example, in trying to respond to the issue of hunger, which they blamed on the disturbed natural flow of the Zambezi and Kafue Rivers, they designed a poster (see appendix 4, poster on River Gardens) that would address the issue. Instead of growing their crops closer to the river, they suggested leaving a strip of uncultivated land (the picture strip on the right of the poster). The picture strips on the left side of the poster, show the traditional way of river gardening as practiced in Chiawa over the years. The results of these two types of farming are that, in the example on the left, all the crops are swept away by the floods and there is no food in the storage bin. The school classroom is deserted as no pupil reports for school. On the other hand, the pictures on the right head column show the improved practices associated with river gardening, where a strip of land between the river and the garden is left uncultivated. The result is that the flood water does not reach cultivated crops with force. There is enough food for everybody and class attendance is good.

The second example is on the poster entitled ‘Poisoning’ (see appendix 4). The problem being depicted is the fact that chemicals are used to kill animals. In some instances I heard that people put poisonous chemicals in pumpkins as bait for elephants that die after

consuming such pumpkins (DF 3). In this particular example, a fisherman poisons water in a stream in order to kill fish. All the fish in the poisoned part of the stream die. The animals that drink water from the stream also die. The fisherman picks the dead fish for home consumption. After eating fish, the entire family falls ill and they are seen going the clinic. This poster was aimed at teaching about the bad effects of poisoning.

There were many issues and challenges that emerged in the action research case study of participatory materials development in Chiawa. I have only highlighted the crucial ones. These include the idea of participation, language use, existing knowledge and working with a flexible structure amongst adult learners in materials development. In the next section, I share my findings on the use of materials (posters) in the community context.

4.9 USE OF MATERIALS IN THE COMMUNITY

In the fifth cycle of the action research (see section 3.12) I carried out an induction workshop to share different ways of using the posters in the community. Different actors demonstrated how they would use the posters in the community. Generally the materials invoked the ideas of conversation, dialogue and emotional reactions (see section 4.5). On the question of who would use the materials, it was agreed that the materials would be used by teachers, health workers, church leaders, village headmen and other village groups. The group also agreed that the most appropriate way of using the posters was to mount them at the time of discussions and remove them immediately after the discussions. The majority of the people were afraid that if the posters were left hanging they would be vandalised. Their fears were related to what was happening to the political posters which were being put up by one political party and pulled down by the opposing parties.[11]

Six months after the induction workshop, where the posters were distributed for use in the community, I conducted a snap survey (see section 3.12.3) to assess how the posters were being used and the following is a summary of the results of the survey:

[11] The study took place during the 2001 presidential, parliamentary and local government elections. Most of the people's understanding of posters originated from the political perspective.

> The posters are being used in churches, schools (in social studies and science teaching), village meetings (VAG, health, CRB) clinic, social gatherings (beer party), clubs (Anti-AIDS, literacy, women clubs, neighbourhood) and in court cases. The facilitators have seized opportunities as they arise in these gatherings to share some of the environmental issues affecting the community. One community educator has been going from door to door, meeting households. There has been no deliberate meeting called to discuss environmental issues at which posters have been used. This area needs to be explored further. The recommendations by some of the respondents to this survey were that the project should run workshops for local leaders such as councillors, village headmen, teachers and church leaders. Initiatives such as those taken by the Anti-AIDs Club by adapting the posters should be encouraged … (Lupele, 2002c: 4).

The results of the use of posters did not tally with the assumed way of usage discussed in the induction workshop (see section 3.12.2). Some people who received the posters developed innovative ways of using them and went door to door, talking to households. The adaptation of the posters for use in other community activities is a possibility that was never discussed during the induction workshop. For example, the court clerk used a poster on river gardens in a land dispute case, when the local court session moved to the disputed land for arbitration. He shared his experience in an interview with me:

> When the local court justice adjourned a land dispute case, so that we could visit the disputed land, I noticed that most people had their gardens close to the river. I took advantage of another adjournment as the court justice was preparing his ruling to explain the importance of good agriculture practices when farming near the river banks. These include the leaving of the strip of uncultivated land between the garden and the river. The poster on *matoro* (River Gardens) helped me to explain the situation well (see appendix 4). I, however, noticed that the aggrieved parties were not interested in what I was discussing but some of those who had just come to listen to the court case showed interest as they asked a lot of questions (DF 3).

In another situation the clerk explained that a group of boys came to report to him that they had found pumpkins near the national park and were surprised because there was no garden nearby. When the clerk and the boys arrived at the scene, they found the pumpkins. Upon a closer look at the vegetable they noticed that the pumpkins were stuffed with some unknown substance. “I immediately knew that the pumpkins were being used as bait to kill elephants. Poisoning of water sources or fruit for animals to eat is common in the area… ”(DF 3). He said the boys’ action was as the result of an earlier lesson he had with them, using the poster on poisoning (DF 3).

4.10 CONCLUSION

In this chapter, I have discussed the community contextual profile of Chiawa and how contextual issues influenced participatory materials development processes in Chiawa. For example one of the arguments for selecting posters was the fact that most people were illiterate. By looking at the context in more depth, I had a rough understanding of how power is shared in Chiawa. This helped me to work with the rulers and the ruled. In terms of the roles of different individuals I worked with, every member of the materials development team had a special role to play. These roles were informed by context, for example teachers were perceived as the most educated members of society and so most times they played roles which involved clerical work. The artist had skills that most of the participants I worked with did not possess. His participation in the trialling workshops was appreciated by the community members as it gave them the chance to relate the art brief to the final product. The last part of this chapter looked at the processes that were associated with participatory materials development. These processes included: gaining access to the community, based on my experience of working in Chiawa; some of the issues and challenges in materials development, and perspectives on how the materials were being used.

In the chapter that follows I describe participatory materials development around similar themes as in this chapter, but in the context of the Nalusanga community and in the production of pamphlets based on the community members' own experiences.

CHAPTER FIVE

PARTICIPATORY MATERIALS DEVELOPMENT IN NALUSANGA: CONTEXT, ROLES AND PROCESSES

5.1 INTRODUCTION

In chapter four, I discussed the findings of the participatory materials development processes in Chiawa, one of the two action research case studies of this study. In this chapter, I discuss the findings of this study in the context of the Nalusanga case. My discussion of the findings in Nalusanga is based on the same six themes as in Chiawa (see section 3. 13). Although the findings in the two communities are discussed according to the same themes, the reader will notice that due to contextual differences, the materials produced were also different and so were the roles, processes and the details of the results.

As already explained in chapter four (see section 4.1), the action research cycles of inquiry and the entire research process, as described in 3.7, were undertaken with close consideration for the contextual and ecological factors facing the community. As in the case of Chiawa, I again start sharing the findings by looking at the contextual profile of Nalusanga as contextual influences determined the way the research was approached (Janse van Rensburg, 1995). The community contextual profile that follows in the next section is derived from the analysis of contextual profile data collected mainly by means of a questionnaire administered to thirty households (see section 3.3 for details of data sources).

5.2 NALUSANAGA COMMUNITY CONTEXTUAL PROFILE

Nalusanga community is in chieftainess Kabulwebulwe's area in Mumbwa district, in the Central Province of Zambia. It borders the Kafue River on the southern and western sides and lies within the Mumbwa East Game Management Area (see Figure 1.1). The area has over one thousand households with a total population estimated at over ten thousand people (CSO, 2000). Females comprised 53.10% of this total. Among the sample of 30 households, there are no traces of child headed households. The area still retains the tradition of the extended

family, where the orphans[12] are taken care of by members of the extended family. Most respondents were retirees who have settled in the area. This has created problems of land and resource distribution as the new settlers also claim land ownership (Simasiku, pers. comm., 2002)

5.2.1 Vegetation

The predominant vegetation types are miombo woodlands with abundant *Brachystegia spp.* and *Julbernardia spp*. Although the area has generally been cleared of big trees, fuel-wood has remained the main source of energy. The nearest place with electricity is Mumbwa town, about 45 km away. Fuel-wood is collected in the nearby Kafue National Park under the watchful eye of the Zambia Wildlife Authority police officers. These officers ensure that the local people pick only dead wood as opposed to cutting down trees. This, perhaps, explains why charcoal burning is no longer a common practice in the area. The land outside the national park has been cleared of the trees as a result of agriculture and earlier charcoal production practices.

Chifunda *et al.* (2000) acknowledge the fact that certain tree species such as the *Mukwa, Mubanga* and *Mulombwa* have been plundered to extinction. The local people attribute this plundering to the 'outsiders' who infiltrated the area in the 1970s. The excessive exploitation of the forests forced the animals to move further into the national park (Chifunda *et al.*, 2000). In 1998, the traditional rulers of Mumbwa GMA (chiefs Mulendema and Kabulwebulwe) imposed a ban on the cutting of trees, without the permission of the chief in charge of the area. This was to allow the forest to regenerate. In a way this has paid off, as there is evidence of vegetation regeneration in some parts of the area.

5.2.2 Ethnicity, language and literacy

About 26% of the contextual data questionnaire respondents were Shona-speaking (a tribe from Zimbabwe). They constitute the largest tribe in the area. They originally came from the then Southern Rhodesia (now called Zimbabwe) where they fled from the liberation wars of

[12] According to DfID (1999), in 1999 there were 500, 000 children in Zambia who had lost both parents due to AIDS. DfID projects that the figure is likely to rise to one million by 2010.

the 1970s. The offspring of these immigrants are Zambians by birth and they have integrated into the community. The distribution of tribes is so wide that it is difficult to tell the indigenous owners of the area. Although the Ilas are said be the original owners of the land, there are very few still living in Nalusanga. For instance, in the sample of thirty households, only one was Ila by tribe. Other tribes found in the area are: Tonga, Luvale, Ngoni, Ndebele, Mbunda, Bemba, Chewa, Kachokwe, Lozi and Luchazi.

The early settlers in Nalusanga were relocated from the western part of Mumbwa to allow for the establishment of the Kafue National Park (see section 1.2). They were pushed beyond the present Nalusanga when there was a problem with tsetse flies in the 1950s (DF 3). Around the 1980s they started returning. Some claimed they had to come back to take care for the graves of their dead relatives (DF 3).

Most people in the area speak more than one language. A few cannot speak the languages of their own tribes. Chinyanja is the widely spoken vernacular (40%), probably because of the influence of the retirees from the big cities and the nearby Lusaka (about 200km). This is a contradiction to the fact that Tonga is the official vernacular, which is taught in schools in the area. Another striking feature is that about 40% of the sample was able to converse in the English language. Again, this can be attributed to the fact that the majority of the settlers are former civil servants with a good educational background. Their children speak good English on average as most of them went to good schools in cities.

Over 60% of the respondents were able to read and write English, with 33.3% literate in Chitonga. Most of those who are literate in Chitonga were also able to read and write the English language. In fact, the general trend is that those who are literate in one vernacular are also literate in English. Although most people speak Chinyanja, they are unable to read and write the language. The same can be said of other languages. It was clear that spoken languages are not necessarily the languages of literacy.

Of both the men and women 46.7% in the sample have been to secondary school, 36% of these are males with only 10.7% representing women who had been to secondary school. This trend is a common feature of most of rural Zambia (CSO, 2000). Girl children tend to drop out of school due to early marriages or simply as a result of gender inequality, while boys are favoured for school by most parents, particularly in cases of insufficient finances.

The majority of the school-going children are at primary school. Very few attend the grade eight and nine classes at the nearby upgraded Nalusanga Basic School.

5.2.3 Faith and religion

Christianity is the dominant religion in Nalusanga. There are many church groupings, which may render planning for community meetings difficult, as some churches do not work on particular days of the week. The workdays are the most appropriate days for meetings, notwithstanding the fact that most farming activities are carried out at this time of the week. In one materials trialling workshop that ran over Saturday and Sunday, the number of the absentees was noticeable on both days. Nevertheless, a good number of workshop participants attended throughout both days. The most popular churches in the area are the Jehovah's Witnesses and Evangelical Church of Zambia, each accounting for 14% of the respondents in the sample. The African traditional believers also accounted for the same percentage. Faith and religion has a high level of influence in Nalusanga as churches tend to accuse one another of being anti-development.

5.2.4 Social economy

- **Agriculture**

Agriculture is the major economic activity of the area, with about 90% of the respondents involved in various agricultural activities. Most people are largely subsistence farmers. The major crops grown include maize, groundnuts and tomatoes. Cotton and paprika are the major cash crops. These are mostly rain fed and seasonal crops. Formal employment and fishing each constituted 3.3% of the community's economic activities. Although agriculture is the main economic activity of Nalusanga, scarcity of inputs and marketing facilities have hampered economic growth, resulting in abject poverty amongst some of the community members. The people closer to the National Park do very little cultivation and view wildlife utilisation as a viable economic land use option (Chundama *et al.,* 1998).

- **Income**

The majority (33.3%) of the respondents earn less than K100 000 (approximately US$33) per annum. 30% of the respondents earn between K100 000 and K300 000 (US$ 33 and US$ 100) per annum respectively. However, food produced and consumed by households is not valued in monetary terms and so it is difficult for the majority of the people to consider this as income.

The major sources of income were identified as agriculture (73.3%), hired labour (16.7%), gifts (3.3%) and formal employment (3.3%). Some people worked for food, but do not consider this to be income because they do not see the monetary value of such work. There is no seasonal employment as the area is devoid of big commercial farms or industries.

5.2.5 Wildlife utilisation

Seven of the 30 respondents said they did not enjoy direct benefits from wildlife apart from collecting fuel-wood, which they were allowed to fetch from the nearby Kafue National Park. Community members feel they are not benefiting from CBNRM programmes such as ADMADE (Chifunda *et al.,* 2000; see section 2.3). Chundama *et al.* (1998) observe that incentives from protected area management in most parts of Zambia rarely trickle down to community members directly. One of the research assistants (RA 3) said most people understood benefits in terms of cash given directly to individuals.

Only one questionnaire respondent cited the construction of the school building as one of the community benefits from wildlife resources. A PRA report by Chifunda *et al.*,(2000) indicates that animal populations increased in the 1990s with the introduction of the ADMADE programme. Under this programme hunting was only permitted by special licence, issued by the Minister of Tourism. The dependence on hunting licences has resulted in the commercialisation of natural resources, described by Zerner (2000:4) as "… nature as an emporium, a commercial warehouse awaiting its brokers…."

On average, most respondents felt that they were not benefiting from the CBNRM initiatives and advocated total ban on hunting in the breeding season (see also Ntala *et al.,* 1999). This makes understanding of the need for conservation difficult on the part of the community

members who are promised incentives (Muntanga, *et al.,* 1999) if they participate in the conservation programmes. The traditional leadership is seen to benefit more from wildlife resources in most CBNRM programmes, creating some misunderstanding and distrust among community members (Shackleton & Campbell, 2001; Simasiku, 2002). Wildlife management in Mumbwa GMA is largely consumptive. This includes safari hunting, non-resident hunting and resident hunting. Non-consumptive utilisation through tourism is still under-developed (see Chundama *et al.,* 1998).

The above contextual factors influenced the way the participatory materials development processes in Nalusanga were undertaken, the processes involved, the role the different actors played and the outcome of the process as explained in the sections that follow.

5.3 MATERIALS DEVELOPED IN NALUSANGA

In this study, I worked with the Nalusanga community to produce five pamphlets on the theme of '*Environmental Action'*. The development of pamphlets was based on the experiences of community members who were engaged in community micro-projects. These resulted from the community environmental education programme that WWF ZEP had established in the area as a response to environmental degradation and poverty. The community environmental education activities were delivered through participatory methodologies, which allowed both the community and the project staff to work together in identifying the existing resources, utilisation patterns and available alternatives (WWF ZEP Document, 2000). The micro projects are aimed at poverty alleviation and the fostering of sustainable development (see section 2.6).

At the start of these projects, there were no learning support materials for the community members. The community activities were facilitated by people who were brought in by WWF ZEP. They often left immediately after the workshop and never followed up what they had started in the community. One of the problems this posed was the fact that the community members had nothing to refer to when they encountered problems in the process of running their communal projects (DF 3).

As a result of this and after many years of learning, through trial and error in most cases, the community felt the need to record their success stories in the form of pamphlets. Through this study and working with community members, WWF ZEP staff, teachers, foresters, agriculturalists and wildlife personnel in Nalusanga developed five pamphlets on the following community activities:

- Gardening;
- Agroforestry;
- Fruit Tree Growing;
- Fish Farming; and
- Beekeeping (DF 8).

The pamphlets are a step by step '*do-it-yourself*' type meant to help record the processes of establishing micro-projects in Nalusanga, as experienced by local community members (see appendix 5, for a sample pamplet). The pamphlets serve to support the management and participatory monitoring of community activities in the four Nalusanga community groups i.e. Nalusanga Mother Club, Buchete Nkuyanda, Rufaro and Lungamana Community Clubs. They also serve as guides to other satellite community groups wishing to start their own community projects (WWF ZEP, 2000).

As I look at the emerging themes identified in the course of the materials development processes in Nalusanga, I wish to remind the reader that I have presented the emerging themes in a somewhat linear and categorical way, for the sake of clarity. Themes, however, overlap and are integrally related to each other. For example, the theme of participation is influenced by the different roles people played in the processes of developing the five pamphlets.

5.4 THE ROLE OF WWF ZEP COMMUNITY ENVIRONMENTAL EDUCATION PROGRAMME.

The role of WWF Zambia Education Project has been similar in the different community settings where the project works (see section 4.4). The project started working in Nalusanga in 1997, long before this particular study was conceived. The first community activity supported by WWF ZEP was a women's beekeeping club. The introduction of modern

beekeeping was in response to rampant deforestation resulting from use of old traditional bee farming methods such as use of tree bark and fire when harvesting honey. Over the years the project's influence has spread to other satellite communities, from a women's club to those incorporating men. With the help of WWF ZEP, the community groups have set up other micro-projects such as fruit tree growing (see Figure 5.1), fish farming, vegetable growing and beekeeping in response to specific environmental issues.

Figure 5.1. Communal vegetable garden in Munkolo community, near Nalusanga.

These issues include, among others, poverty, malnutrition, deforestation and the depletion of wildlife resources.

5. 4. 1 The project staff's perception

As in Chiawa (see section 4.4.1), the project staff's perception of the role of WWF is informed by the project's goal which is aimed at empowering communities to make informed decisions and take action in the implementation of the alternative opportunities available for improving their quality of life through income-generating activities (see sections 2.5.1 and 4.3.1).

5.4.2 Community members' perceptions

Like their counterparts in Chiawa, the community members in Nalusanga view WWF as a donor organisation with money to fund community projects. This is evident from the many

requests for cash to develop new community projects (DF 6A). Sometimes even WWF staff members are seen as rich people who can help individuals. For example, during the first materials development workshop (see section 3.9.2), one of the community members wrote me a personal letter asking me for money in the form of a loan to buy farm inputs such as seed and fertiliser.

Having looked at the roles of the WWF ZEP environmental education programme from the points of view of the project staff and community members, I describe the different roles of different stakeholders in the materials development processes in Nalusanga in the next section. The reader may find some of the roles similar to those of Chiawa, as described in section 4.5. In such cases I have only highlighted the salient features for Nalusanga.

5.5 THE ROLES OF DIFFERENT ACTORS IN PARTICIPATORY MATERIALS DEVELOPMENT

As in Chiawa (see section 4.5) there were many actors who were involved in the production of the pamphlets in Nalusanga. These actors played different roles as illustrated below. It is difficult to group all the actors and discuss their roles, but discuss the key actors and their roles.

5.5.1 The role of the technical experts

Besides the community members' experience and knowledge, the processes of materials development in Nalusanga needed specialised skills and knowledge in order to produce pamphlets on various community activities (see sections 5.4 & section 3.10). It is for this reason that I found myself working with people with special skills and knowledge (I shall call them technical experts for convenience) such as the language editor, forestry officers, agricultural officer, teachers and wildlife officers. Each of these actors played a specialised role. Furthermore, there were some community members with special responsibilities in the materials development processes. These included the community educators, the chairpersons and executive members of various clubs who played vital roles in materials development processes in Nalusanga, including the motivation of individuals to attend workshops. In the next section, I look at the roles played by these key actors in more depth.

- **The role of the forestry officers**

There were two forestry officers who participated in the materials development workshop (see section 3.10). One of the officers worked with the group that was writing the beekeeping and the agroforestry pamphlets. He chaired discussion sessions as community members shared their experiences in these two areas. During the plenary sessions, the expert helped to correct some of the misconceptions that were expressed by various people. At the end of the workshop, he took the flipcharts that people had used for the presentations and discussions to edit them. He worked on the language and made some adjustments to the original ideas to incorporate technical aspects. These, however, became too technical and I had to re-edit the pamphlets (see section 3.10.2).

The other forestry officer worked with the group that was dealing with fruit tree growing. Like his counterpart, he was the team leader of the group and helped with the translations and interpretation of some of the difficult terms. He also took the materials after the workshop and edited them into a final form. It must be emphasised, however, that though these two actors provided expert knowledge in the development of particular pamphlets, they also contributed to the debates and processes on other pamphlets (outside their area of specialisation) like every other participant (see Figure 5.2).

Figure 5.2 One of the forestry officers (third from left) making a contribution during a group discussion.

- **The role of the agricultural officer**

The agricultural officer looked at all the pamphlets that were agriculturally related. She helped to develop the pamphlet on fish farming and the pamphlet on vegetable-growing. This was after helping the community to establish a fish farm (a year earlier). During this materials development workshop, she helped the community members recollect their memories of the process they went through during the fish pond construction, following the process through to fish stocking. This helped many of the community members to discuss the processes. One community group actually developed the fish pond from a fish conservation book, which was developed by WWF ZEP earlier.

- **The role of teachers and wildlife officers**

In most cases these two groups of actors played the roles of note takers and interpreters. They recorded the proceedings in readiness for plenary sessions. In some cases, they helped those who could not read English to understand what was being discussed by translating some of the written text. Although, there was no deliberate move on my part to make them group leaders the groups appointed them spokespersons during the plenary sessions.

- **The role of the editor**

The editor was contracted to edit the Nalusanga materials following the trialling workshop (see section 3.11.3). After the editing, I asked the editor to reflect on his role so that I could gain an insight into some of the challenges that he may have faced in editing the materials. Below is his reflection, in part:

> I also looked at the suitability of the materials for the community and made recommendations for what needed to be done in order to make the materials development processes more participatory. The general editorial work involved correcting typographical and linguistic errors and editing the flow of language to make the pamphlets reader-friendly (DF 5A).

Other major observations and adjustments made by the editor are captured in Table 5.1 below:

• Removal of inconsistencies with regard to the numbering of headings and sub-headings and numbering them where necessary; • Removal of inconsistency in the use of bullets, roman numerals and letters in listing points; • Removal of inconsistency in the presentation of headings in the text; • In general, the vocabulary level was found to be appropriate for the target audience except for technical terms most of which were too remote even for a fairly educated reader because they are highly specialised; • Insertion of articles such as *the*, *a* and *an*. These were inserted wherever they had been omitted; and • Splitting of overloaded paragraphs either into several sentences or into lists to ensure clarity (DF 5).

Table 5.1 Adjustments made to the pamphlets by the editor.

5.5.2 My role as an action research case study researcher

My roles were not different from those experienced in the case of Chiawa (see section 4.5.4). However, in addition to the roles I played in Chiawa, in Nalusanga I played an active role in gathering all the necessary resource and reference materials. These materials covered topics that were relevant to the community activities (see section 5.3). One reference source that proved useful in the development of materials was a draft edition of a book entitled *Environmental Action* (WWF ZEP, 2000) that I had developed earlier in the project for teachers. This book contained ideas on activities similar to those in the Nalusanga community projects (WWF ZEP, 2000).

My knowledge of agricultural science helped me to clarify some of the technical aspects that the community members could not agree on. During the process of editing, I played the role of a sub editor as I edited the work of the technical experts. In some instances, the language was too technical for many of the readers. I had to rewrite these to a level similar to primary school literacy level, as most people in Nalusanga had only completed primary school (see section 5.2). This role was made much easier because of my past experience of writing for primary education literacy levels (see section 1.2). If I did not have had an agricultural

background and experience of writing for primary literacy levels, I would have looked for other actors to play these roles.

In as far as my role as an *artist* is concerned, I took photographs of the community projects that needed to be illustrated such as the photograph of the apiary shown in Figure 5.3 below:

Figure 5.3 An apiary in a Nalusanga community project.

In some cases I provided sketches or art briefs for illustrations. These were meant to support or extend the understanding of the materials amongst the readers (see appendix 5). I also played the role of '*context interpreter*' by helping the technical experts to comprehend the context in which the materials were being written (DF 7).

5.5.3 The role of the community educators

In terms of bringing people together, I worked with the two community educators who worked with all four community projects (see section 5.3), asking the chairpersons to appoint three members from their clubs to participate in the participatory materials development processes. The two community educators also supervised those who were helping with the provision of meals so that the logistical dimensions of the programme were on schedule. In addition, the two community educators assisted with record keeping. During the workshops they played a pivotal role in explaining some of the activities being carried out in the community. They also exhibited a good knowledge of the traditional practices of activities such as beekeeping.

5.5.3 The role of the community members

Community members had a range of different roles that are difficult to itemise. Some were good at leading the discussions while others had hands on experiences to share with the rest of the group. Most of them could read and write English and so they helped the handful who could not read and write. Community members who came from Rufaro where they had just established an orange orchard, provided insights into the training they had been through. They helped to lead the discussion on fruit tree growing and contributed to the production of the pamphlet on fruit tree growing. Those from Buchete Nkuyanda who were involved in fish farming and beekeeping, also played a major role in the development of the pamphlet on fish farming and beekeeping. They played the role of resource persons as they narrated their own experiences, which provided information for the development of the pamphlet. Since some community groups such as the Nalusanga Mother Club, Lugamana and Buchete Nkuyanda had similar projects in beekeeping, they helped to cross-check ideas with the of the technical experts and other community groups.

The different actors above would not have played any role if I had not gained access to Nalusanga. In the first place, I was able to carry out my study in the area because WWF ZEP, under whose umbrella I undertook the research, was already working in the area. In the next section, I discuss how I gained access to the community.

5.6 GAINING ACCESS TO THE COMMUNITY

The people of Nalusanga do not have strong traditional attachments as most of them are settlers in the area (see 5.2.2). According to oral history, the Kabulwebulwe chiefdom was relocated from the Kafue National Park and has since moved to several chiefdoms. However, due to conflicts, they have asked chieftainess Mulendema of Nalusanga for the portion of land they occupy as explained by one senior head man:

> Kabulwebulwe, who is our chief was moved from Ngoma (this is part of the Kafue National Park) to Buntiti. As a result of conflicts with Chief Mono, Kabulwebulwe asked Mulendema for a piece of land in Nalusanga. We still strongly believe that one day we shall go back to Ngoma (DF 3).

This however does not mean that chieftainess Kabulwebulwe has no say over the activities in the chiefdom. WWF is working in the area with the full blessing of the chieftainess who believes that development will result from educational activities. Occasionally, she sends village headpersons and traditional advisors to check on the activities in the area. Apart from allowing WWF to work with the community members, the traditional leaders are not involved the activities (DF 3).

During the materials development processes, all the arrangements were made by community educators, who informed the traditional leadership of what was taking place. The political leaders, such as the ward chairpersons, were not involved in the programmes. ZAWA is an institution that was particularly interested, and wanted to be involved, as is evident from following journal entry:

> We visited the office of the Ranger in charge of Nalusanga to brief him about the forthcoming monitoring and evaluation exercise by a group of training of trainers' course participants. I took advantage to ask questions on the environmental education process taking place in the community. The Ranger was worried about the slow pace of work in the community, which was however, attributed to hunger in the area. He said most people chose to concentrate on agricultural activities rather than community work because agricultural activities gave them immediate solutions and alternatives to improving their livelihoods. He said that environmental education activities in Nalusanga were helping people to be busy and this reduced pressure on wildlife resources. He was hopeful that in the long run environmental education activities may bring development to the area (Journal entry, 7 March 2002).

ZAWA officials have been working with WWF ZEP as partners in materials development processes, through the community liaison officer and the ranger in charge. Without the support of ZAWA and the chieftainess through the headpersons, WWF would not have worked in the area and this study could not have taken place.

5.7 OUTCOMES OF PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES

In this section, I discuss the outcomes of the participatory materials development in Nalusanga. In addition to the outcomes of the Chiawa experience, another outcome emerged in Nalusanga: that of fostering cooperation amongst the different government departments in the area, as they often work in isolation. The reader will also notice that although the sub-

themes may be similar to those of Chiawa there is some variance due to the different contexts in which the research was conducted (as explained in section 5.2).

5.7.1 Supporting learning

The community activities in Nalusanga started as early as 1997, with the Nalusanga Mother Club. As noted earlier, environmental education activities spread to other satellite communities and involved other community projects such as fish farming, beekeeping, fruit tree growing and vegeTable growing. The training programmes to initiate these community projects were technically and financially supported by WWF ZEP who paid the facilitators.

Figure 5.4 *A Nalusanga community member (Andrew Mwiba) stocking fingerlings*[13] *in a newly dug fishpond as his colleagues look on.*

During this study, community members wanted to develop pamphlets based on their activities in the field. Hence, the primary role of participatory materials development processes in the area was to record the activities based on the experience of the community members and to share these with others. However, along the way new insights unfolded. For example, most participants soon realised that the process of discussion and sharing of experiences became

[13] Fingerlings are young, fish used as seed fish.

more of a learning session as participants gained new knowledge from one another, as illustrated by the following remark by one of the participants:

> The workshop process was very participatory and democratic as every one's view was taken into consideration. We all freely brought in our own experiences. I have gained new knowledge and concepts such as agroforestry, woodlots and the use of and making of compost manure (DF 7).

The rest of the participants' perceptions of the role of participatory materials development processes is summarised in Table 5.2:

• As a government worker, I have learnt a lot through the interaction with the community members; • This is the first workshop in this area to bring government departments, NGO and community members together and I have just realised that the different sectors can play a major role in the conservation effort and uplift our livelihood; • The workshop process was very participatory and democratic as every one's view was taken into consideration. We all freely brought in our own experiences. I have gained new knowledge and concepts such as agroforestry, woodlots and the use of and making of compost manure; • Every one here is now a teacher. I am not educated, but after this workshop I feel confident that I will teach my children and my peers; and • The workshop made us reflect on our traditional beliefs and practice, which has helped us to grasp some technical knowledge (DF 7).

Table 5.2 *Summary of participants' perception of the role of participatory materials development processes, illustrating learning*

A school teacher I interviewed immediately after the trialling workshop said the process of materials development provided an opportunity for learning as people shared experiences in a friendly atmosphere:

> The process of materials development you have adopted is very good as community members have an opportunity of learning more complex ideas in a very friendly atmosphere. In the process of producing these materials we shared a lot of experiences. I learnt a lot from everyone present here. I also found time to explain certain issues that the members could not understand. Although some people are not able to read the English language in which the materials are written, those who know should read and help others to follow like it happened during the workshop (DF 3).

Figure 5.5 *Community members sharing their experience during the first materials development workshop in Nalusanga.*

5.7. 2 Fostering cooperation

The participatory materials development processes were also said to be fostering cooperation between the different government departments, and the community members. The different government departments rarely meet to share their expertise and the problems faced by the community they serve. They all try to tackle community problems with the sectoral approach (ECZ, 2001). This study enabled the government workers and community members who participated in the materials development workshop to meet and discuss how to improve the livelihood of the larger community together.

5.7.3 Invoking emotional feelings

In Chiawa when the workshop participants reviewed or used the posters, they became emotional, expressing emotions of anger and annoyance. However, in the case of Nalusanga, most people expressed emotions of satisfaction, they appeared to be happy with the realisation that they had gained much knowledge, and that they could contribute to the process of materials development. One participant remarked:

> I am happy that my efforts of working with the beekeeping project have not been in vain. I have gained knowledge that can help me establish my own apiary at home. Most of my friends used to laugh at us when they saw us working in the community projects. They

> claimed that we were just wasting time, but now they are asking me for the materials we are developing here (DF 3).

On the other hand, the workshop participants realised the damage that has been inflicted on the forest by those who practiced traditional methods of wild honey hunting and used fire to scare away bees. The fire destroyed the forest. At this realisation the people became emotionally angry and sad about the situation. To some extent, as in Chiawa, the pamphlets also brought mixed emotional feelings of sadness and happiness in response to local issues.

5.7.4 Supporting praxis

Janse van Rensburg and Le Roux (1998:104) explain that praxis implies a conscious recognition of the relationship that exists between practice and its rationale (see section 4.7.3). During the materials development and the trialling workshops, the participants were afforded an opportunity to ask themselves why they did things (community projects) the way they did them. Through discussions they tried to answer this question and identify ways of doing better. As mentioned in section 4.7.3, Carr (1995) notes that praxis should not be viewed in terms of 'practice' and 'theory' as means to an end, but as "… a form of reflexive action which can itself transform the 'theory' which guides it" (Carr, 1995:73). The Nalusanga community members used the discussions (theory) to inform the next action (practice). They worked in groups and shared their experiences and discussed how they could do better in their various programmes.

5.8 ISSUES AND CHALLENGES IN PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES

The issues and challenges that emerged during data analysis for Nalusanga, like those in Chiawa (see section 4.8), included the idea of participation, language and literacy and existing knowledge. I share insights around these issues as they unfolded in Nalusanga in the following sections of this report.

5.8.1 Participation

As already explained in section 4.8.1, the term participation has been highly contested and sometimes misapplied in developmental work and education. In this section, I present a different dimension (from those in Chiawa) as reflected by the different interests people, had in who participates, decision making and power relationships during the materials development processes in Nalusanga.

- **Who participates?**

The participation in materials development in the Nalusanga community was restricted to those who belonged to any of the four community clubs (see section 5.3). These were often committed members of the clubs. The argument was that the club members wanted to document their experience of working in these community projects. The chairpersons of the four groups chose who was to represent their various groups. I had no influence on who I was to work with and left the decision making process in the hands of the group leaders. There were no complaints regarding the selection procedure, except in one group, where members thought the wife and husband who were both leaders dominated the process. They were accused of running the club as a family affair (DF 3).

- **Broadening participation**

Although the idea was to document the clubs' experience, I was wary of the fact that the aim of WWF ZEP was for the activities to be replicated in other satellite communities (see WWF ZEP, 2000). I therefore extended the contextual data collection beyond club membership through a stratified random sample (see section 3.3.2). I also invited the government workers in the area to participate and contribute to the process of materials development by drawing on their technical expertise (see section 3.10).

- **Decision-making and power relationships**

In terms of decision making and power relationships, the executive committees of the four clubs were mandated to make all the decisions on behalf of the general membership of their respective clubs. This seemed to work well at club level. WWF ZEP communicated with the Nalusanga community through the two community educators who oversaw the club activities.

For all the years we have been working in the community as WWF ZEP, it seemed that everything was running smoothly. As soon as I started to work on this study and when I tried to gain insight into the community dynamics, I learned that there were under-currents of conflict and power struggle in the community. For example, I learned through informal discussions with club members that community educators had assumed so much power that they threatened the smooth running of the community activities. Sometimes the role of the community educators was seen as interference by various club members as the club leadership wanted independence to run their own affairs. This was despite the fact that apart from the first club, the other three were established through the initiatives and efforts of the community educators. They were accused of boasting about having the mandate from WWF ZEP to expel anyone from the club if they become uncooperative.

The introduction of a coordination committee by WWF ZEP and its partners (government departments in the area) to coordinate all the activities of the various clubs in the area, though of good intention, fuelled the role conflicts as the coordination committee was accused of over-stepping their limits. Various executive committees and the community educators felt threatened and wanted to challenge this wielding of power. A typical example of how power struggles in Nalusanga affected this study is shown in this journal entry:

> Yesterday I told one of the community educators to announce to the colleague that the materials development workshop will be on today. I was shocked, this morning to learn that the other educator was not informed about the workshop. When I probed further from the colleague, the excuse I got was that time was not enough to inform everyone. What surprised me was the fact that the said educator had informed all the club chairpersons, including those under the jurisdiction of the colleague. I had to send some people to go and fetch the other community educator and some members before the workshop could begin (Journal entry, 24 April 2001).

Other tensions associated with power relationships arose during plenary sessions of the workshops when some community members, mainly those who had worked in the civil service such as the police and the army wanted to dominate the process of decision-making. These were often articulate members of the community who wanted to always ‘explain’ their ‘colleagues’ views with the intention of pleasing the audience, especially the outsiders in the group. Dudley (1993:63) described such people as “… man of the world who knows how outsiders should be entertained and, out of hospitality, will not let the guest be bothered by ‘ignorant womenfolk’.”

However, since people had to tell their individual stories of what they were doing, I quickly broke through this potential barrier to participation by emphasising the point that everyone should be given a chance without interference. During the discussions, for example, I ensured that I gave everyone a chance to contribute to the debate by asking even those who did not volunteer to contribute to say something.

5.8.2 Language and literacy

Contrary to the popular belief that materials for rural communities should be written in the local language, preliminary findings from the contextual profile (see section 5.2.2) showed that there was no common local language of literacy in Nalusanga as most people were settlers, from other parts of the country or even from neighbouring countries. The only common language of literacy was the English language, though this was at an elementary level (see section 5.2.1). This popular belief is derived from the way people define the term 'community'.

For example, Barrow and Murphree (2001) give three perspectives from which the term community can be viewed. These are spatial, socio-cultural and economic perspectives. They argue that by combining these three perspectives one can derive a model of community as: "… an entity socially bound by a common cultural identity, living within a defined spatial boundary and having a common cultural economic interest in the resources of the area …" (Barrow & Murphree, 2001:25).

Such ideal models of a community can lead many development workers and educationists to assume that materials developed for community use should be in the local language (see section 4.8.2, Tilley, 1995). The assumption is that all rural communities are homogeneous and that they speak read and write the same language (Tilley, 1995).

This study, however, illustrates the fact that 'communities' may be more differentiated and dynamic than the Barrow and Murphree (2001) model implies. For instance, the results from the contextual data analysis indicate that although the majority of the people in Nalusanga were Shona by tribe (see section 5.2.2), the most widely used language is Chinyanja. On the

other hand, the results also showed that Chinyanja was not the language of literacy in the area.

Despite the fact that the official vernacular taught in schools is Chitonga, only 33.3% of the contextual data questionnaire respondents were literate in the language. These were mainly young men and women who had been through the education system in the area. In contrast, 60% could read and write English. Drawing on this data and after negotiation in the workshop, it was therefore agreed that the material would be written in accessible English (see appendix 5 for draft sample of the Nalusanga pamphlets).

Unlike in Chiawa, the language to be used in the development of the materials was not an issue in Nalusanga mainly because of the diversity of languages people speak. There are very few people who can speak or are literate in the indigenous local dialect-Ila (see section 5.2.2). Most of the people are retirees who have settled in the area. In general these and their family members are literate in the English language as shown by the contextual data (see section 5.2.2).

5.8.3 Existing local knowledge

Researchers in development studies such as Chambers (1994) argue that villagers often classify knowledge differently to those of outsiders. They place emphasis on uncovering indigenous technical knowledge and the ordering principles underlying that knowledge (Dudley, 1993). It was in recognition of these arguments that materials development in Nalusanga was based on the participants' prior knowledge, gained from what community members were already doing.

Some workshop participants had been involved in the community activities such as beekeeping for over five years. During the materials development workshop (see section 3.9) and trialling workshop (see section 3.1), they shared their experiences of working in various community projects and their experiences were captured on flipchart paper as shown in Figure 5.6 .

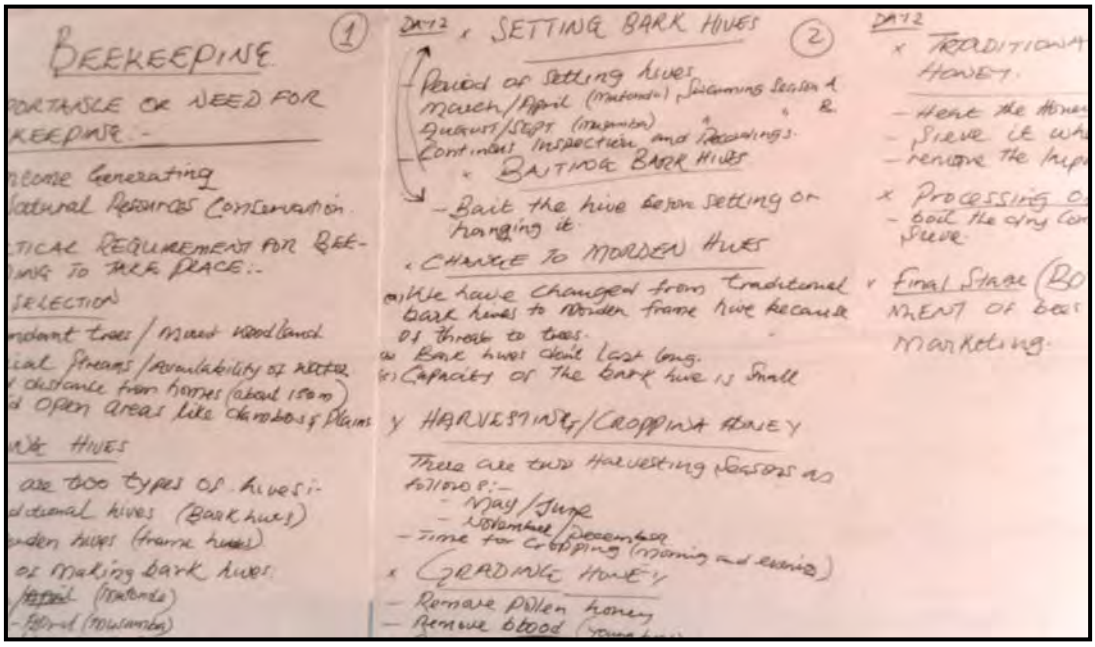

Figure 5.6 Flipchart showing some ideas on beekeeping.

After establishing what experience and knowledge the group had, it became easy for me and the technical experts to contribute, and add further insights.

> We started the workshop by looking at the various activities being carried out in the area and what the community members would wish to include in their programmes. The following activities were identified: composting, vegetable growing, natural pest control, agroforestry, woodlot establishment, fish farming, beekeeping and fruit tree growing. The group then agreed that we needed to develop pamphlets on these themes. This was contrary to the project's early idea of developing an "Environmental Action Book" on these activities (Journal entry, 27 April 2001).

One technical expert summarised the knowledge that community members possessed and the need to incorporate this knowledge into participatory materials development processes in the following statement:

> Communities have vast latent knowledge and experience in the management and development of natural resources though not documented. Leaving out community experience in development of such materials would be compromising the value and validity of such materials (DF 7).

5.8.4 Working with a flexible open ended structure in materials development

As in Chiawa, the process used in developing the materials in Nalusanga, was open-ended. The community members shared their experiences of working in community projects and this

became the basis for the development of the five pamphlets. As already explained in section 3.9.2, the community members told stories of how they started each of the following community activities: fish farming, beekeeping, agroforestry, vegetable and fruit tree growing. The participants worked in three groups. As noted earlier, (see section 3.9.2) in the process of storytelling, technical experts (who were part of the groups) took notes of what was being said. They were assisted by teachers and farmers who could read and write.

They told stories in response to the following question: *How and why did you start the particular activities your community group is involved in*? This question became the open framework upon which stories were told. The participants appeared to enjoy recounting their experience, which was not always smooth as sometimes they painfully recalled for example, how the bees absconded from the swarm boxes or the fish ponds dried up after so much had been expended effort (Strauss, 1996). In case of the orange orchard, for example, the young seedlings were attacked by the orange dog caterpillar[14] at an early stage before this study started.

In the process of materials development, some of the challenges and difficulties (as told in the stories) were addressed through dialogue and reflection as the participants exchanged ideas. According to Strauss (1996:26) "… sometimes life gives us the perfect story, complete as an art piece, and sometimes we are called to work with the raw experience as a sculptor with a piece of wood – bringing out the fine grains and colours of the story …". What follows from this view in this research is the fact that when the community members told stories, often there were some scientific misconceptions and problems that needed attention. Through the process of dialogue and reflection on each story, they were refined and more details added to the stories during the plenary sessions, alternatives and solutions to some of the problems were suggested. For example, it was during the development of the pamphlet on vegetable growing that a suggestion was raised to include a section on natural pest control methods as most peoples' incomes would not support chemical pest control programmes (see section 5.2.4), their effects on the environment, notwithstanding. Through the process of sharing expertise, participants were able to outline the complete story of, for example, 'how to start a community beekeeping project', incorporating all the issues that the community members

[14] This is a young brownish with white patches caterpillar. It resembles a droplet of a bird (Bohlen, 1973:65). The caterpillars are voracious feeders on young orange trees. The community members in Rufaro did not realise that their seedlings had been invaded by the pest until I explained this to them. The caterpillar when fully grown turns into a brightly coloured (yellow and black) butterfly, which is scientifically known as *Papilio demodocus*.

might have over-looked or were not aware of. The open process and flexible structure, allowing all to contribute their diverse experience and expertise therefore seemed to facilitate the participatory materials development process.

5.9 USE OF MATERIALS IN THE COMMUNITY

One of the emerging issues during the contextual profile data collection and follow up interviews with selected individuals in this study was the need for community education through the provision of learning materials for the ongoing community projects (DF 3). This desire for learning materials is also evident in earlier research in the area by Tilley (1995:8) who writes in the context of ADMADE programme: "… projects are going well, but there is not enough information reaching the community. They need booklets in their own language (*sic*)."

The need for learning materials was also expressed through the fact that those who participated in the first workshop were already using the draft materials in their households as evidenced by the following journal entry:

> A chairperson for one of the groups said she was using the draft pamphlets from the previous workshop to help her school-going children with some of their school subjects and that her children were very happy with the learning they have acquired from the materials. "I am using these pamphlets to help my children with their school work. In fact they are very surprised at the amount of knowledge I have acquired from these workshops and I am very proud that I can also contribute to the education of my children at this old age. (Journal entry, 17 January 2002).

In cycle four, of inquiry, during the materials trialling workshop (see section 3.11), most participants said they were already using the materials with their own families. Others said they were trying ideas contained in the draft pamphlets on their own small pieces of land. As a result of these trials, there was a high demand for the materials after each session. Even people who were not part of the workshops were asking for the materials (DF 7).

Apart from the use of the pamphlets in the households, those who participated in the process of their production appeared to have developed a sense of pride. For example, the school head teacher who was in the first materials development workshop, but missed the subsequent ones approached me, and asked that I give her the pamphlets as well, since she

was one of the first people who worked on them. She explained that she would like to keep them and show the children that she was part of their production.

One of the participating teachers recommended that the materials could be used during community club meetings in schools since most of the topics were covered in the school curriculum (DF 3; DF 7). According to the ZAWA Ranger in charge of the Nalusanga command, the pamphlets opened up debate and the sharing of ideas on conservation work in the area, as people shared their own experiences and added to what was been provided for in the learning materials. As noted in 3.12, the use of the learning support materials did not form a major focus of the research in Nalusanga community, due to other demands in the area and the time lag between the development of the materials and their printing, but the above findings indicate some of the potential uses of the materials.

5.10 CONCLUSION

As in chapter four, this chapter of the thesis discussed the context, roles and processes emerging from the participatory materials development processes in the context of developing pamphlets in Nalusanga community. The pamphlets were developed on the basis of community members' experience of working on community micro projects. These were developed in response to environmental degradation that had had an effect on the livelihood of the people of Nalusanga (as discussed in the community context profile of this chapter). The participants narrated stories about their experiences of working in these community projects. Their stories resulted in text in the form of pamphlets and were enhanced through dialogue and critical reflection, seeking ways to improve.

Different people played different roles in the materials development processes. Some had specialised roles that were vital to the development of pamphlets. The process of developing the materials become a learning process for many of the participants as the exchange of ideas through discussions and storytelling provided an opportunity for people to acquire knew knowledge. The cultural and language diversity and the realities of the context forced us to develop the materials in the English language. This may be contested by those who view a community as a homogeneous entity.

In the next chapter, I discuss the findings reported in chapter 4 and 5 in more detail, particularly as these relate to the research questions (see section 1.3). I also provide a reflexive review of my methodology and a critical perspective on the ideologically framed orientation of this study. While I am unable to generalise from these two cases, I point out some issues that may be considered by other researchers wishing to undertake participatory materials development in community contexts.

CHAPTER SIX

REFLECTIONS, RECOMMENDATIONS AND CONCLUSION

6.1 INTRODUCTION

As I end my story of two action research case studies of participatory materials development in Chiawa and Nalusanga, I reflect on the findings of this research as presented in chapters 4 and 5. I reflect on these findings from the point of view of the methodology and associated theoretical underpinnings used. These reflections open up suggestions for further inquiries into participatory materials development processes in community contexts, articulated in section 6.6 on recommendations. The discussion in this chapter is based on the research objectives which were: to build on previous participatory materials development processes in WWF ZEP in response to local environmental issues with a view of:

- Exploring and articulating the relationships between community-based environmental education and participatory materials development in the WWF Zambia Education Project context;
- Clarifying the participatory materials development processes by identifying the roles of different 'actors' in these processes; and
- Identifying and analysing the contextual and other factors that may influence the development and use of environmental education materials in communities.

6.3 PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES IN THE WWF ZEP CONTEXT

This section tries to clarify the relationships between community environmental education and participatory materials development processes in the WWF ZEP context. Although the study did not initially aim to establish people's perceptions and expectations of the role of the WWF environmental education programmes in the two communities, it became obvious through this study that members from the two communities had their own perceptions of the roles of the WWF ZEP. The participants' expectations were sometimes at variance with those

of the project staff (see sections 4.4 & 5.4). Participants from the two communities viewed WWF ZEP as one of the organisations that provides relief food or agricultural inputs to help farmers. This was particularly evident during the PRA in Chiawa (WWF 2001).

It seems that unless people are clear about the objectives of the project, situations can arise in which high expectations are raised, which may cause the project to fail if not handled sensitively. I was clear about the action research process and told the community members in this study that the benefits might not be realised in the short term. When everyone knew what was at stake they made their own informed decisions to be part of the process, or not. For example, some teachers who felt it was not worthwhile (in the absence of immediate financial gain) decided to stay away from the workshops even after assuring me that they would attend.

On the other hand, WWF ZEP members of staff have their own perception of the role of the project's environmental education programme in the communities. Their perceptions are informed by the project goal (see section 2.5.1), global trends in conservation (mainly derived from WWF's global mission and vision) and development issues as articulated by international conferences, debates and publications (see section 2.6).

The next section explores lessons I have learned, in participatory materials development processes in the WWF ZEP context, through this study. They include the fact that participatory materials development deliberations became learning processes for the community members, technical experts, WWF ZEP staff and myself. I also draw on WWF ZEP materials development initiatives as I explore trends in materials development processes in recent years (see section 2.8.1). I particularly discuss materials development as a process of learning; trends in the development of resource materials and global influences on the local context.

6.2.1 Materials development deliberations as a process of learning

Lovett (1997) notes that community education can enhance community development when the process of learning enables the adult learners to tackle real issues, as was the case in Chiawa and Nalusanga (see section 2.7). Usher *et al.*,(1997) observe that there are many possibilities for adult learning. As stated in sections 4.8.4 and 5.8.4, I worked with a flexible open process to materials development in Chiawa and Nalusanga. In this way, materials

development workshops provided learning opportunities, based on deliberations and critical reviews (Lotz, 1999). Participants discussed and shared ideas around the focal point of materials development in each of the communities. Through the participatory materials development processes, the community members who participated in the workshops acknowledged the fact that they were able to share knowledge and skills through dialogue and reflections (see Table 4.2).

A departure from the open process of materials development deliberations to a situation where materials are developed by outsiders and delivered for use by the community (see section 2.8.1) might not have provided the same learning opportunities in Chiawa and Nalusanga, as Fuglesang, as cited in Dudley, 1993:85) discovered when trying to use a ready-made poster to teach about breast feeding:

> To an old woman in Luapula, Zambia, I gave a picture handout of a woman breast – feeding her baby. The handout was A4 in size and printed on glossy art paper. We asked the old woman what she saw on the paper. She seemed not to understand the question. Instead, she lifted the picture to her nose, smelling it and feeling its smooth surface with her fingers. It was the intense whiteness of the paper, its straight edges and sharp corners which attracted her.

Unlike the materials development processes in Chiawa and Nalusanga, where the participants engaged in deliberations before the final products were produced, the above example suggests that the Luapula woman (or those from her area) had no opportunity to contribute to the development of the poster. Perhaps if she or someone from her area had participated in the development of the poster, the understanding would have been different as the poster would have included aspects of the learners' perspectives about the issue at hand.

Dudley (1993:86) notes problems associated with booklets and visual messages when he writes "… the illiterate villager cannot use the booklet without the assistance of a literate friend". Perhaps materials development deliberation processes would provide more opportunities for learning than when the process of learning only starts when the final product (materials) has been produced.

In both communities materials development deliberations seemed to be the likely ways of enhancing learning, considering the literacy levels (see sections 4.2.2 and 5.2.2) and lack of

fora for learning sessions in the communities (see section 4.9; Lupele, 2002b). The story of learning from the posters and pamphlets would be different if I had developed them without the involvement of the end-users. The processes involved the participants in critical thinking that developed and became formulated as an essential activity of learning (Freire & Macedo, 1987).

6.2.2 Trends in the development of resource materials

For some time, materials development has been the preserve of the 'experts' who decide how and what resource materials should be developed in a given situation to support learning. Thus the early methods of resource materials development can be summarised as being 'top down', 'expert driven' and 'package centred'. These approaches assume that materials development is an activity conducted by the 'experts' and is based on a view of what counts as valid 'expertise' in materials development. For example, during its early years WWF ZEP staff developed materials that were trialled with teachers (in some cases). In later years the materials that were developed by commissioned authors or project staff were taken to the curriculum development centre for evaluation with a view to approving them for use in schools (see section 2.8.1). This method is similar to the RDDA (Research-Design-Disseminate-Adopt) approach (see section 2.8.1).

The RDDA approach to materials development proposes that materials should be developed by experts and disseminated to schools, educational centres and communities. Although RDDA is criticised for social engineering (see section 2.8.1), Russo and Lotz-Sisitka (2002) note that it is often the most cost effective, or time-effective approach to materials development. Our experience of using this approach to develop materials in WWF ZEP shows that though it is cost-effective and efficient, the cost of producing contextually irrelevant materials is even higher. For example, we had situations where in the quest for speedy and cost effective production of materials to meet the dire need for materials in schools, materials were developed and sent to schools, but no one used them. One particular example was when a large number of copies of a publication *'Songs of the Savannah'* were printed with many typographical and other technical errors and could not be distributed to schools.

In response to some of the short-comings of RDDA materials development, WWF ZEP, like many other educators in southern Africa started exploring more participatory materials development initiatives (see for example, O'Donoghue & McNaught, 1991; Lotz, 1996; Taylor, 1997; Lupele, 2000a). The rationale for this re-orientation to more participatory methods was based on the fact that prevailing approaches to materials development showed a lack of consultation and often imposed a 'recipe' that was not sufficiently responsive to context or learners' needs (Russo & Lotz-Sisitka, 2002).

In this study, participatory materials development in both Chiawa and Nalusanga involved many people in establishing a focus for learning. This enabled materials development processes to become more deliberative, interactive and action oriented (see sections 3.9.2; 4.7 & 5.7). In this way materials development became more relevant to learners and more responsive to the context.

Russo and Lotz-Sisitka (2002) note that problems appear to occur in materials development when participation is overemphasised as an end in itself. In the case of this study, the original concept of participatory materials development point of view of WWF ZEP (see section 1.2), exhibited the ideal situation where the participants were going to develop the materials in their own language and the final product would be produced on a simple desk-top programme by WWF ZEP staff for distribution. Realities in the field forced me to draw on some aspects of the RDDA approaches in which the different roles and different kinds of expertise of diverse participants was recognised. I, for example, worked with technical experts such as the language editor, the artist and extension officers (see sections 3.10; 4.5; & 5.5). Instead of the original idea of simple desk-top publishing, we had to seek the colour separation expertise of commercial printers to have the Chiawa posters printed in full colour (see Table 6.1). This illustrates that participatory materials development initiatives involve a 'merging' (see previous section) or 'balance' of different kinds of expertise (including local and specialised knowledge), as revealed in sections 4.5 and 5.5 of this study.

6.2.3 Global influences on the local context

This study has been shaped by global influences on the local level. These influences have had both negative and positive effects on materials development processes (see Lupele, 2002a for more insights into the ambivalent nature of global influences). Global factors play an

important role in shaping what happens in the local context (*ibid*). In the two case studies of participatory materials development processes I drew on, the local knowledge and practices also influence and shape global forces as they affect the local context. Such global influences include the role of education as viewed by WWF's global framework for environmental education and as expressed in the WWF ZEP (2000) project document:

> Education contributes to the achievement of conservation, sustainable development and poverty alleviation goals. However, education by itself cannot attain these goals. Instead, it is a basic and indispensable catalyst that can move the social context in order to provide an essential basis for their achievement and sustainability. Without an approach to education which enables people to take part in ownership of the decision-making processes relating to their environment and development (lives and livelihood) concerns, then there is very little chance that any conservation or development project can be sustainable in the long term. Environmental education methodologies specifically, and in many cases uniquely, by taking account of indigenous knowledge and realities, constitute such an approach (WWF ZEP, 2000: 2).

WWF (2002) emphasises process-oriented, participatory life-long learning that is incorporated into all experiences, rather than teaching that is content-oriented and top-down. It is envisioned that the impacts of this approach are iterative and build on each other to achieve environmental conservation, and development results by means of a shift in the social context (*ibid*). These principles are underpinned by internationally accepted policy statements such as Agenda 21, Chapter 36 of the United Nations Conference on Environment and Development (see section 2.6; UNCED, 1992). The role of education in fostering sustainable development was reaffirmed during the 2002 World Summit on Sustainable Development (see sections 2.6 & 6.2.1).

The above internationally acclaimed statements would remain mere environmental slogans if they are not applied in the local context (Jickling & Spork, 1998). However, application of some of the emerging international policy statements may prove difficult due to some of the more rigid management influences, such as the use of the logical framework as a planning tool. WWF ZEP like most ODA projects (due to global influences) uses the logical framework as a management and monitoring tool (see section 2.9). Logical frameworks incorporate assumptions and risks into the planning process. According to Mikkelsen (1995), as an objectives-oriented project planning tool, the logical framework was developed to respond to some problems in planning associated with lack of assessment criterion of many ODA projects.

As much as the logical framework has gained global popularity as a planning tool, using it rigidly may cause problems in achieving what the project set out to achieve at the local level as it does not account for the changing *status quo* in the project milieu (Lotz–Sisitka & Janse van Rensburg, 2000). Mikkelsen (1995) claims that logical frameworks improve planning by highlighting linkages between project elements and external factors, however the reality may not be as planned. For example, in this study I planned to work with the departments of agriculture, forestry and fisheries in Chiawa, as identified by the project logical framework, but when I got to the area I discovered that these departments were not functional as there were no staff to man them. Through this study, I have learned that one of the best ways of working with global factors such as the logical framework is to apply slight variation and flexibility in contextually significant ways. I found the contextual profile particularly useful in this process.

In the case of the two case studies, I had (with the help with colleagues) to make a number of variations to the indicators and objectives as expressed in the WWF ZEP project document. Table 6.1 shows some of the planned activities (in materials development) during the WWF ZEP planning phase and what actually happened during the implementation process, through this research.

Planned activities at proposal stage	**Changes to planned activities at implementation stage**
There will be a need to develop the Environmental Action Book from its present stage (Camera Ready Copy) to the final stage. The book carries a rich resource of innovative activities that will help consolidate the community environmental education which was started in Phase 2 …	During this research it became apparent that the local people in Nalusanga wanted to develop resource materials as a record of their community activities. Instead of developing the Environmental Action Book further, the manuscript was used as reference material to supplement the community members' knowledge and experience in developing the pamphlets (see section 3.9.2).
Since the Fish Conservation Book proved effective in realising impacts in the last quarter of Year 5 of Phase 2, it will form the key resource book in consolidating the training programmes for those communities wishing to engage in fish farming as a micro enterprise initiative and as a way of conserving fish in the wild waters.	When the Fish Conservation Book was first published it was meant for primary school pupils. After revising it, we included a section on fish farming. This section became popular amongst communities. In this study, we found out that sections of the book that looked at the science of fish were contextually irrelevant to rural communities whose interest was only in fish farming. In Nalusanga I used this section as reference material in the development of a pamphlet on fish farming.
Development of appropriate and specific training/learning materials in the form of	In the case of Chiawa, the posters could not be produced by simple DTP, as planned. The

Planned activities at proposal stage	Changes to planned activities at implementation stage
pamphlets, brochures, fliers and-few posters will be ongoing as training programmes for each year are planned. These will be developed through popular publishing and using lessons learnt in developing the publications … Supplementary materials will be developed locally by the local training teams, project partners and trainees. The final products will be done on a simple Desk Top Publishing Unit (DTP) by WWF ZEP staff.	arguments from the artist and the project staff points of view were that they should be done in full colour in order for them to be appealing to the community members and to have an impact on the reality. This forced us to seek the expertise of commercial printers in colour separation and printing on A1 (see sections 3.12.1; 6.4.3)

Table 6.1 Planned activities at proposal stage and actual activities implemented at the implementation stage.

In addition to the changes as shown in Table 6.1, I developed contextual profiles of the two study communities to better understand the dynamic nature of the local context (Lotz-Sisitka & Janse van Rensburg, 2000). Contextual profiles provided insights into the ongoing changes in the two study areas, for example, the changing trends in resource management and utilisation (Lupele, 2002a). The contextual profiles also supplemented the logical framework as they enabled me to weave the local and global influences to together, to shape this research. In the next section I reflect on how the chosen research methodology shaped this study.

6.3 ROLES OF DIFFERENT ACTORS IN MATERIALS DEVELOPMENT PROCESSES

At the research proposal stage, I set out to gain more insight into participatory materials development in community contexts (see section 1.3). One of the aims I had in mind was to clarify participatory materials development processes by identifying the roles of different 'actors' in these processes. The clarification of roles also includes clarifying the different kinds of expertise required in materials development processes.

As noted in sections 4.5 and 5.5, there were many actors in the action research case studies of participatory materials development in Chiawa and Nalusanga. The different roles participants played in the two case studies included specialised skills such as artistic work; technical skills in natural resource management; agriculture; organisation and coordination; editing; note taking; facilitation; verbal and written communication; and storytelling skills

based on own experience (see sections 4.5 & 5.5). I also played many roles, such as facilitator; storyteller, participant observer, interviewer, counsellor and so forth (see section 4.5.4 for details of my roles). Each of the actors played an important role in the research process. Some actors, like the two chieftainesses in each community never attended a single materials development workshop, yet their roles cannot be ignored. In the process of role distributions which in most cases happened naturally, some actors felt that their roles or their presence were more important than those of others and so they would want to dictate who should be allowed speak and for how long. Other actors felt inferior or too intimidated to say anything in the bigger groups, but became active when they worked in smaller groups. With time, even those who were shy in the first instance opened up and contributed to the ongoing deliberations of the materials development processes. Sometimes we had role conflicts, where one actor took up many roles and failed to perform efficiently. I was mindful that those who wanted to over participate appear 'good' to impress me to the extent that other actors' roles and efforts were overshadowed.

In the materials development process, I often found that the roles of local people merged with those of the technical experts such as the artist (as in the case of Chiawa). The artist worked closely with the community members during the trialling workshops. This helped to build a strong relationship between the two in as far as materials development was concerned (see section 4.5.3). In Nalusanga the technical experts included the language editor and extension officers from ZAWA and agricultural, and forestry departments. The expertise of these actors supplemented the local knowledge provided by the community members, as explained in section 5.5.1.

Other actors' roles, such as those of the project driver, could easily be overlooked, yet they played important roles to ensure that the process succeeded. For example, he ensured that people from far flung areas were brought in good time for the workshops or meetings. This meant that he had to fetch them as early as 4:00 A.M. During the workshop, he became an active participant and helped in putting up posters. This point illustrates the fact that every actor is important in achieving a goal and that some actors' roles can be easily overlooked, unless one pays particular attention to the finer details of who is doing what.

6.4 CONTEXTUAL FACTORS INFLUENCING PARTICIPATORY MATERIALS DEVELOPMENT PROCESSES

In order to gain insight into the social, historical, economical and political context of the two study areas, I started materials development processes in each of the two cases by compiling a contextual profile (see section 3.8). The contextual profiles helped me to better understand the dynamic nature of the local context in the two study areas. For example, I developed a clearer understanding of changing trends in local resource management and utilisation and insight into the local people's view of their practice and ways of improving their wellbeing (see Lupele, 2002a).

I look at context and how this influenced this study at three levels. First, I examine the broader context of Zambia and the socio-economic factors that shape the practice of environmental educators, including both the local and global influences. I also look at the theoretical ideology underpinning this research and how it influenced the choice of the methodology. Finally I describe the local community contexts, by drawing on the community contextual profiles and how these influenced the roles and processes in participatory materials development.

6.4.1 The broader context

Zambia played a major role in the liberation of the southern African sub-region from discriminatory and oppressive minority rule (see section 2.2). In the process of playing this important role, the Zambian government harboured freedom fighters in many parts of the country. This role has left some telling effects on some of the communities such as Chiawa which are still coping with the effects of the armed conflict twenty-two years after the Zimbabwean liberation war. The war affected the wildlife in the area. For example, during the war, no one was allowed to fish in the Zambezi River and for seven years fish multiplied in numbers (see section 4.2.6). In some cases, the war brought about the rapid depletion of game as this became the major source of food for the combatants, who had more sophisticated weapons than previously used by local people. Agricultural activities were restricted to the river banks as community members were scared of landmines that were believed to have been planted on the upland. The other factor that influenced the shift in agricultural practice is the construction of the Kariba Dam.

The desire for economic expansion of the then Northern and Southern Rhodesia forced the federal government of Rhodesia to construct the Kariba Dam in order to generate electricity for the two countries. This was done without considering the social impact the dam would have on the people living along the Zambezi River, such as those of Chiawa (Lupele, 2000b). For many generations the Chiawa community had cultivated the Zambezi and Kafue River banks. With the construction of the Kariba Dam on the Zambezi River and the Itezhi Tezhi Dam on the Kafue River, the crops are swept away by water whenever the spillway gates at the two dams are opened, often at short notice or without notice. The Chiawa community which has been subjected to abject poverty as a result of these problems, has been working with different organisations (including WWF ZEP) to seek ways of addressing hunger and poverty in the area.

In the case of Nalusanga, the Ila-speaking people's tradition of shifting cattle from the villages to the Kafue flats, which used to have greener pastures during the dry season (see section 2.2.3) has been affected by the construction of the Itezhi Tezhi Dam on the Kafue River. This has affected the Kafue wetlands natural water regime. The situation has been exacerbated by poor agricultural input delivery systems coupled with drought. These changes have contributed to the prevailing poverty levels in the community. Like their counterparts in Chiawa, the Nalusanga community has been seeking ways of improving their livelihood.

Drawing on global and national views of sustainable (community) development through education (see section 2.6), WWF Zambia Education Project embarked on community environmental education activities in the two areas (among others) to assist the two communities to improve their livelihood. The role of education as a strategy for social transformation has for a long time been debated in international conferences. For example, the World Summit on Sustainable Development held in September 2002, in Johannesburg, reaffirmed the role of education in helping to eradicate poverty through sustainable development by supporting the development of education programmes at national and local levels (UNWSSD, 2002; see section 2.6). At a national level the Zambian government has embarked on a number of sectoral reform programmes such as the Environmental Support Programmes (ESP) to address poverty and environmental degradation. As already stated, the development of resource materials in this study was influenced by the above factors. For example, the community members in the two study areas identified themes based on these

contextual factors as focus for materials development. These themes were identified with a view to improving their livelihood.

6.4.2 Local context

As explained in sections 4.1 and 5.1, I started the process of materials development in the two communities by compiling a contextual profile of the two communities. These profiles illuminated some socio-historical and ecological factors and I had to consider the ambivalent nature of some of the contextual factors as they affected participatory materials development processes. The history of the people, their customs and culture played an important role in the planning and implementation of resource materials development processes. The contextual profiles were developed by means of data collected through a questionnaire I developed for the purpose (see section 3.8.2). In the next section, I look at the contextual factors in more detail and why they were important to consider. These include: the focus for materials development processes; existing social and political structures; ethnicity, language and literacy and local knowledge.

- **Focus for materials development**

The focus for materials development was made through collaborative deliberations with the participants. In both Chiawa and Nalusanga, the choice of themes as focus for materials development was influenced by contextual factors. The themes were meant to respond to the issues of hunger, deforestation and alternative ways of using natural resources occurring in each of the two areas. In short, the choice of themes was based on reality and real problems as they affected the community. In Chiawa, the participants identified twelve environmental issues as themes upon which materials were developed. In the case of Nalusanga, the themes were drawn from the community micro-projects. The participants decided to develop learning support materials based on their practice (see section 3.9.2). The focus material was meant to respond to contextual issues. For example, vegetation and how the local communities utilised it formed a basis for livelihoods in the two areas as most social and economic activities depended on nature in general and vegetation in particular. In developing themes that would respond to issues of river bank erosion, for example, the community members in Chiawa decided to develop a poster on river gardens. The poster emphasised the idea of leaving a strip of land between the gardens and the river, in order to prevent erosion from running water and protect the crops from being washed away. Their counterparts in Nalusanga developed a pamphlet on modern beekeeping as an alternative to the traditional honey

hunting, which depended on the uncontrolled use of fire and cutting down of trees for their bark, significantly contributing to deforestation. In both cases, what was central to materials development was that it responded to environmental problems including issues associated with hunger and poverty. The participants were seeking ways of addressing these problems through the materials development processes.

As far as participatory materials development was concerned, the decision about the type of materials to be developed was left in the hands of the participants. However, this does not imply that WWF ZEP had left everything to the participants to decide. The project (WWF ZEP) had the agenda of developing an education programme and solicited the details of how this could be done through consultations with community members. In many participatory processes in rural community contexts, 'participation' becomes a priority and a key focus (Russo & Lotz-Sisitka, 2002). This view of participation can often lead to situations where a lot of time and energy is wasted as people consider all views. In this research, I have learned to have a framework (in mind) of what is to be done so that the process of materials development could be deliberated efficiently.

- **Existing social and political structures**

One of the crucial issues associated with working with the Chiawa and Nalusanga communities (this may be true with any other rural community in Zambia) was the importance of being accepted by the group (see section 4.6). As explained in section 4.6, we went to Chiawa a few months after a named NGO had been chased away by the local people. This revelation made me and my colleagues uneasy about the materials development processes we were about to start in the area. The first thing I did was to identify some of the key institutions and individuals who could provide the required support. The institution of the chieftainess and the traditional royal establishment were two of the institutions that supported the activities we were planning to do in the area. There was also the political leadership constituted by the civic leaders, who wanted to know everything about what I was doing. Crucial to those whose support I needed were the local people themselves. The ordinary community members could have made my work difficult if they did not support WWF ZEP activities in the area. In Nalusanga the support, besides coming from the above listed institutions and individuals, also came from the government workers. They were instrumental in ensuring that the materials development processes were smoothly conducted.

In this study, I learned that one needs support from nearly all the potential participants in participatory materials development processes. Often, NGOs working in rural communities concentrate on soliciting support from the traditional leadership. While these could easily give anyone permission to work in particular communities, they have limited powers to control how individuals participated in environmental education processes (or development programmes).

- **Ethnicity, language and literacy**

Zambia has 73 tribes each with its own dialect. For political and administrative purposes, these have been grouped into seven principle languages (see section 2.2). Materials development in Nalusanga and Chiawa faced the challenge of which language to use. Common sense dictated that I would work in any of the seven official vernaculars, but this research shows that people are proud of their own languages and would like to pass them to their children through some form of education process (see sections, 4.8.2 & 5.8.2)

Freire (1970) describes language and power as being intertwined and providing a fundamental role in human social transformation. Giroux (1987) observes that language plays an active role in constructing experience and in organising and legitimating the social practices available to various groups in society. In both Chiawa and Nalusanga, the community members would not have participated in the experience as well as they did if I had insisted that they used a particular language. In order to enable the participants to generate information based on their experiences, I encouraged them to use any language they were comfortable with. During the materials development and trialling workshops, the community members discussed issues in their own preferred language (see sections 3.9.2; 4.8.2 & 5.8.2). This helped them to bring forth and share their experiences which were used in the development of the materials.

The few people in Chiawa who were privileged to speak and write Goba wanted to dominate those who could not. For example, those who were not indigenous language speakers were ordered to keep quiet during the translation session (see section 3.11.2). Used in this way, literacy and language becomes a condition for engaging in struggles around relations of power (Giroux, 1987). Literacy also provided a precondition for organising and understanding the socially constructed nature and experience of assessing how knowledge, power and social practice help in materials development (in my case as a researcher).

Giroux (1987) describes language as:

> … the 'real stuff ' of culture and constitutes both the terrain of domination and field of possibility. Language in Gramsci's terms, was … instrumental in both silencing the voices of the oppressed and legitimating oppressive social relations … but at the same time language is also viewed as the terrain upon which radical desires, aspirations, dreams and hopes were given meaning through a merging of the discourse of critique and possibility (Giroux 1987:8).

In this study, those who strongly advocated for the use of Goba in Chiawa were preoccupied with preserving their cultural identity (see section 4.8.2). They envisioned that if the materials were developed in Goba, they would help their children learn the language (DF 3), since it is not one of the official vernaculars and thus not taught in schools.

Freire and Macedo (1998) warn that those who wish to develop plans for literacy should not ignore the importance of the political, economic, cultural and linguistic factors that shape the reality of the people. In my case, I developed contextual profiles that helped me to gain insight into the above mentioned factors. From the contextual profiles of both communities, I was able to make an informed judgement on the language to use during workshops and in the final products. This in most cases did not follow popular belief that materials for communities should be developed in local languages (see Tilley, 1995; section 5.8.2). This belief was also shared by WWF ZEP (2000) when we started producing materials in the local languages based on some of the seven official vernaculars. However my findings through contextual data analysis show that although many people would verbally communicate in a given language they may not be literate in the same language. This study further shows that 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 many people in Chiawa and Nalusanga could speak Goba and Chitonga respectively, very few could read and write the languages (see sections 4.2.2 & 5.2.2). This study has illuminated the need to consider the complex dynamics of language, ethnicity and literacy in community-based materials development.

In the section that follows I consider how local knowledge and expert knowledge merged during the participatory materials development processes in Chiawa and Nalusanga as local

people shared ideas and knowledge amongst themselves and with the technical experts, through the different roles they played (see sections 4.5 & 5.5).

- **Local knowledge**

The notion of local knowledge has gained popularity in recent years (Van Vlaenderen, undated). The interest in local knowledge is based on the assumption that in order for development programmes to be sustainable they need to be built on the local knowledge and capacities of the target populations. Van Vlaenderen (undated) describes local knowledge as a collection of ideas and assumptions that are used to guide, control and explain actions within a specific setting, based on a particular value system (religious and mythical beliefs).

> … rural people in developing countries have intimate knowledge of their natural environment and of environmental processes. They make rational resource management decisions based on that knowledge. They have well-established systems and carefully developed techniques which, over many years, allowed them to survive in harsh conditions (Van Vlaenderen & Nkwinti, 1993:14).

In both Chiawa and Nalusanga, the community members had wide-ranging knowledge of the environmental concerns. Their knowledge became the starting point for materials development. This approach is congruent with Korten's view, as cited in Pretty (2002) that using local knowledge as the basis for development empowers local people by increasing their self-reliance, confidence and their capacity to utilise and manage their own resources.

Pretty (2002) notes that when community members are asked to state what is special to them with regard to their own communities, they would mention things like neighbourliness, friends, land, nature and so forth. However, looking back to how I elicited the local knowledge of the participants in Chiawa for the purpose of developing themes for participatory materials development, I realise that the participates would have brought out many dimensions of the valued features of their community and life had I used an open-ended question. Influenced by the WWF ZEP logical framework of outputs and activities of engaging with the local communities to identify problems and solutions, I asked the participants to identify environmental problems and possible solutions (see section 3.9.2). Pretty (2002) notes that the conventional ways of asking people to state their problems and likely solutions often results in missing the finer details about their connectedness to a place, as they concentrate on looking at the problems:

> All too often, outside professionals (whether planners, developers or scientists) begin by asking about problems, and then identify solutions to these problems. As a result, they miss the fine–grained detail about people's connectedness to a place. We find that people focus on two main themes-special things about the community, such as neighbourliness, friends and family, and special aspects of the land, nature and environment (Pretty, 2002:148).

In the case of Nalusanga, the process of drawing on the local knowledge was a bit different because the participants told stories about what they were doing. In this way, they discussed the finer details about themselves and their projects. They discussed both the problems and successes. It is important to note that, in both Chiawa and Nalusanga, some of the local knowledge was subject to contestation as the community members discussed and debated the unfolding body of knowledge (see section 3.9.3). The fact that community members differed on some of the local knowledge provides evidence that local knowledge has its own shortcomings. Van Vlaenderen (undated) suggests that the way forward is to integrate local knowledge with scientific knowledge (I shall call it '*expert knowledge'* to encompass all knowledge that comes from outside the community members' knowledge).

6.5 REFLECTIONS ON THE METHODOLOGY

6.5.1 The socially critical orientation

This research was framed within a socially critical orientation to education and research (see sections 2.8 & 3.2.1). The reader is reminded that my choice of this orientation is based on Kemmis *et al.,'s* (1983) classification of educational orientations. As explained in section 2.8, these include; the vocational/neo classical orientation, the liberal/progressive orientation and the socially critical orientation.

Although I chose to work within the socially critical orientation to education, I found myself drawing on the principles and characteristics of the other two orientations as well. For example, the participatory materials development processes provided opportunities for socialisation through workshops, an attribute of the neo-classical orientation to education. The participants were able to interact and shared knowledge and skills through materials development deliberations. The characteristic that I drew on from the liberal orientation was the idea of applying an open-ended enquiry process to teaching as the participants engaged in

materials development deliberations (see section 3.9). The other characteristic drawn from this orientation was the fact that the community members in Chiawa and Nalusanga negotiated the content for the focus of the materials development (see sections 3.9).

Fien (1993) notes that a liberal orientation to education recognises the need to address social problems through existing social structures. I found this characteristic to be congruent with the WWF ZEP goal of working with rural communities, which is informed by the desire to alleviate poverty as a social problem, through education and capacity-building processes (see section 2.5.1). WWF ZEP (2000:2) views poverty "… as not just poverty of incomes, but from a human development perspective-poverty as a denial of choices and opportunities for living a tolerable life."

In section 2.8, I explored a number of arguments made by environmental educators who support the position of socially critical environmental education *for* the environment (Huckle, 1983; Robottom, 1987; Fien, 1993; Greenall Gough & Robottom, 1993) and those who challenge the idea of education *for* the environment (Lather, 1991; Lotz, 1996; Walker, 1997; Jickling & Spork, 1998). However, as explained above, I found myself drawing on different attributes from across the three orientations to education and research. The overlap among the three orientations shows that it is not possible to restrict oneself to a particular orientation to research and education in participatory materials development as noted by Lotz (1996:274).

Having said this, I sum up the reflections in this section according to the principles of socially critical orientation to research that became relevant during this study, drawing on Tripp's (1992:13) outline of methodological principles of socially critical research, as used in section 3.2.1 of this thesis:

- **Participation**

Tripp (1992) notes that a socially critical orientation to research is most effective when undertaken by mutually supporting groups. However, through this study I learned that the conventional way of thinking about participation might not be applicable in all communities. This is because, as Barrow and Murphree (2001) argue, a community is not homogenous and neither are its members. There is often the perception that the 'community' participates at the same level, does the same things and contributes to the process at the same time. This study shows that central to the idea of participation are the different roles people play in the process (see sections 4.5 and 5.5). Each community member who participated in the materials

development processes in Chiawa and Nalusanga had a role to play. The traditional leadership possess power and authority, which is not put to a vote, but passed on through the family lineage. This power and authority, if not considered in a programme with the community, may affect participation. I had to make compromises to ensure that work proceeded in a participatory manner, without infringing upon the set cultural norms. I tactfully expanded the number and level of participating individuals and villages by extending the trialling workshops to other parts of the community, some of which have been ignored as too remote for many years (see section 3.11.1).

The tradition and culture of the participants in Chiawa and Nalusanga played a major role in how different members of the community participated in materials development processes (see sections 4.8.1 and 5.8.1). For example, some women would not freely contribute to open discussion because there were in-laws in the group. Tradition demands that they should not engage in a discussion in the presence of their father-or mother-in-law. In both Nalusanga and Chiawa, I noticed in some instances, when I called for group work that some participants avoided participating in groups that would inhibit them from full participation, due to the presence of family members they cannot freely express themselves. Nevertheless nearly all the participating groups supported the materials development processes.

- **Direction**

Tripp (1992) notes that whether group or individual, socially critical research is self-directed because the emancipatory interest of the participants will inform the way they themselves work as well as inform what they aim to achieve. In this study, I have highlighted a number of findings that hopefully will be used by WWF ZEP in informing community environmental education activities in general and materials development in the community context in particular. The use of some of the preliminary findings and sharing of the research process has already led to enthusiasm amongst the project's education officers. In the case of the participants I worked with in the two case studies, signs of self-directions were emerging during the participatory materials development process, particularly when they started seeing the products (see Table 4.2). Hopefully, the community members who participated in this research will use their acquired knowledge to direct the activities of the larger community. While the study did not research the use of the materials, the snap survey (see Lupele, 2002b) in Chiawa community indicates that community members are 'self directing' the way they plan to use the materials.

- **Outcomes**

According to Tripp (1992), socially critical research tends to seek to develop quite new practices, rather than simply making existing ones more efficient. Outcomes will often be incorporated into the political action, as well as into the development of academic knowledge. In this study, I have come up with a number of insights that would contribute to the materials development processes in WWF ZEP and the academic work of those who will read this thesis. The expected practical outcome of using these materials in Chiawa and Nalusanga includes the improved management of existing community projects (in the case of Nalusanga) and development of micro-projects in the case of Chiawa. Some of the findings of this research have already been used to inform a SADC document on the development and use of learning support materials (Russo & Lotz-Sisitka, 2002).

- **Meaning**

As already stated in section 1.3, it was never my intention to discover new knowledge as would be the preoccupation of a positivist researcher. Tripp (1992:13) argues that rather than regarding knowledge as the culmination of subjectively neutral and objectively verified facts, socially critical research sees knowledge as socially constructed and held differently by different groups. It aims at understanding people's values and uses of their meanings rather than 'finding "the" truth'. Following this argument, my findings in Chiawa and Nalusanga may not be verified in other contexts, but may provide a valuable vantage point from which other researchers can draw ideas on how to conduct similar inquiries in different contexts. The knowledge gained through this study was socially constructed in interaction with the two community groups and other role players I worked with and may not work in other contexts.

- **Audience**

Tripp (1992) notes that the primary audience for the research 'findings' are the participants themselves. In this study, the participants of the research include WWF ZEP staff, the community members who were part of the research process and myself as a lead researcher. It is therefore my hope that all the participants will find the findings in this research useful. In the case of the community members from Chiawa and Nalusanga who worked with me, they started using the learning support materials long before I wrote this thesis. Other audiences that have found the research process and findings useful so far include environmental education practitioners interested in learning support materials development in the 2002 Rhodes University /SADC course, the 2002 Rhodes University Master of Education students, the 2002 Rhodes University CBNRM course and the WWF Africa/Madagascar

Educators' Network, where I presented the research in progress. The research has also been presented at the SADC workshop on learning support materials development by a WWF ZEP colleague.

In this section I have looked at the socially critical orientation to research as it shaped this study. I have also illustrated the fact that it was not easy to follow this orientation strictly as I drew on the other two research orientations as outlined by Kemmis *et al.,*(1983). I found the socially critical orientation to education and research suitable for this study as it is congruent with WWF ZEP ideals of promoting democracy, social justice and equity in the management and utilisation of natural resources amongst community members. In the next section, I reflect on the action research as it influenced participatory materials development processes in Chiawa and Nalusanga.

6.5.2 Action Research

Drawing on the socially critical orientation to research, this study was informed by an emancipatory action research approach, with the aim of contributing to the empowerment of people in Chiawa and Nalusanga in the context of participatory materials development processes (see section 3.6.2). Action Research provided me with a means to investigate and gain insight into participatory materials development processes in the two communities (Elvey, 1996).

I used a flexible open structure with the aim of developing resource materials with the community through participatory processes. This structure remained open to change; for example, I initially knew that I would need to work with technical people such as the artist and the language editor, but was not sure of the extent of their involvement in the process. As I worked with these technical experts, new roles emerged and due to the flexible open-ended nature of my approach, I was able to respond to these new roles. Observations and reflections on each cycle determined the next action (Elvey, 1996; see section 3.7).

Through action research, I developed a wealth of information, not only about the problems that befell the communities in each case, but also about individual members and each research group (*ibid*). The research not only assisted me to understand my practice, but seemingly supported the community members in exploring their perceptions about

themselves. They realised how much knowledge they had and that they were able to contribute to their own learning process.

While I would have liked to follow more action research cycles than I did, the practical reality made it impossible. Firstly I was faced with the problem of finding time to go to the two communities as often as I could because I was obliged by my job responsibility to work in other project sites and other project demands on me were high. I was expected to work towards meeting the WWF ZEP objectives, as laid down in the logical framework.

Secondly, although all my colleagues in the project were aware of the fact that I was carrying out the action research in the two communities in the context of my job description, as a resource materials developer (see section 1.1), I was sensitive to the fact that in some instances I was viewed as 'wasting time' with the action research instead of just developing the materials for delivery to the communities as we had done for years. When in the company of my colleagues, I sometimes had difficulties interviewing community members, as my colleagues seemed to be in a hurry to move on and meet the project objectives. I noticed that I was more able to work freely whenever I was alone in the field.

During the data collection phase of this research (see section 3.3), action research presented me with the 'realities' of the two communities but I often had difficulties in capturing this data as I was also involved in the materials development processes. I relied on notes I took during the action research processes. These were supplemented by records of proceedings taken by some teachers (see section 4.5.2). Although I was fully aware of the notion of action research, it did not have any meaning to the community members and I found it unnecessary to explain the process as I thought the explanation would just confuse them. The community members' interest was in producing the materials to support their learning processes. Data collection become more difficult and demanding on my part since the participants did not independently collect their own data. This may be explained by their humble literacy and educational levels (see sections 4.2.1 & 5.2.1). This meant that I had to collect most of the data and at the same time play my role as a participant observer.

However, through the materials development processes and enabling conditions, opportunities for reflective practice were created and the community members seemed to be reflecting on their practice as was made evident during discussions and plenary sessions (see

sections 3.9.3 & 3.11.2). Emancipatory action research was seen as a means of promoting participation in the materials developing processes in Chiawa and Nalusanga as community members, technical experts and I shared roles and exchanged ideas (see section 4.5 & 5.4). The use of emancipatory action research was based on the assumption that it was a vehicle for community members' empowerment, to increase their understanding of their own practice in community developmental projects and conservation work (Lotz, 1996), in line with the WWF ZEP goal. Based on the findings in these action research case studies of participatory materials development processes in Chiawa and Nalusanga, I make some recommendations to WWF ZEP in the next section.

6.6 RECOMMENDATIONS

In this section I make recommendations to WWF ZEP and those wishing to work or already working with rural communities in environmental education processes in general and participatory materials development in particular, to address social environmental problems through materials development. These recommendations should not be seen as hard and fast rules but rather as suggestions that may or may not work in contexts different from the two case studies. However, my recommendations are based on the assumption that participatory materials development processes and the foregoing findings of this study may be explored and adapted in different rural communities and settings. I make these recommendations around the research objective and goals (see section 6.1).

6.6.1 Contextual factors influencing participatory materials development processes in the community context

Participatory materials development processes in the local context, like environmental education, are influenced through global and national policy and changes, educational ideas and concepts that influence the way we think about our practice, funding demands, models and approaches to development. Although global influences are ambivalent and uncertain, local voices and practices are able to influence and shape these global forces in contextually significant ways. For those wishing to develop materials with groups of people, there is a need to take time to better understand the dynamic nature of the local context. This will help educators to develop an understanding of how the broader context with all its ambivalences and uncertainties may be considered in relation to local contexts. The local contextual factors may also help to shape how materials development processes can be carried out. These may

include consideration of contextual factors such as language and literacy; social structures and establishments, power relationships; the existing local knowledge and historical factors, all which are significant in developing materials that aim to be relevant and useful in the context. I therefore recommend the development and use of contextual profiles of the project working sites.

6.6.2 Roles of different actors in materials development processes

The study shows that many people were involved in participatory materials development in Chiawa and Nalusanga. The processes of materials development deliberations need to be as democratic as possible so that every participant feels their contributions are important. This calls for patience on the part of the facilitator. However, there is need to observe time so that a lot of time is not spent on deliberations and trying to incorporate everyone's ideas. Russo and Lotz-Sisitka (2002) caution that participatory processes should not be over-emphasised to the point of marginalising other aspects of resource materials development. These aspects include the use of the materials and how the materials produced would enhance learning. Thought must be given to the learning processes, as well as to the participation aspects (Russo & Lotz–Sisitka, 2002)

Apart from the roles of the community members or end users, the roles of the technical people such as artists, editors and scientists should also be considered at the planning stage. These 'experts' should be given leeway to make contributions to the process, but should not dominate or silence the voice of the community members. It must be emphasised that producing materials with a group of people in a participatory manner is not the end point in the materials development processes, there is a need for someone to finally look through the materials and bring the different ideas together so that the writing or illustrations are harmonised. In the case of this study, I fulfilled this 'finalising' role as a coordinator of the whole process.

There are also some actors who do not physically participate in the materials development processes, yet their roles are as important as those who attend the deliberation processes. Good examples in this study were the roles played by the cheftainesses in Nalusanga and Chiawa (see section 6.3). The other actor who does not seem to participate in the actual materials development process is the printer. Printing cost quotations should be obtained well

in advance to have a rough idea of the real cost. This can be done at budgeting stage so that the project works with real figures, rather than depending on guesswork. In the case of the posters in Chiawa, I could not print all the ten posters because the cost of printing went well over the project budget allocation. Besides the cost of printing, there is also need to consult printers for technical specifications and possibilities in terms of colour separation and paper size early in the process.

This study has pointed to the need to consider these different roles at the start of the materials development process. It has also indicated the need to 'keep open' the process, so that new roles can emerge.

6.6.3 Participatory materials development in the WWF ZEP context

Community members' expectations of donor-funded organisations is often high. In most cases, the expectations are beyond the objectives and ideals of the organisation in question. There is need to clarify the focus of the organisation early in deliberations with the community. The mission and vision of the organisation need to be shared with the local communities in which the project operates, and all should be clear on the objectives of the specific project.

An open process of deliberation in materials development provided the Chiawa and Nalusanga communities with learning opportunities long before the end-products were produced. Where possible, WWF ZEP needs to give the community members, with whom the materials are developed, an opportunity to have a say in what is being produced. This would avoid situations where the project outputs are recorded, in respect to the logical framework as successful without a corresponding impact on the end-users in the field.

In this study, I describe the trends and shifts in materials development (see sections 2.8.1 & 6.4.2). Examples in these two sections of the thesis show that materials development, like environmental education and development issues are dynamic. New ways of encouraging social democracy, justice, equity and fair play in the process of empowering local communities with skills and knowledge that would foster development in the local context are being discovered. I recommend that WWF ZEP undertakes research not only into

participatory materials development processes, but in all its programmes as an ongoing exercise to inform practice. This can be done by project staff or consultants working with the project staff (as is common with most ODA funded projects).

As illustrated in this study, ongoing research can enable the project to grapple with the changing global and national perspectives in the arena of environmental education. These can then be used to change the social contexts of the communities in which the project works in and can help WWF ZEP to realise its objectives of eradicating poverty. However, unless the project has deeper understanding of the socio political, economical, historical and ecological aspects of the community, most of the global ideas will be applied at a superficial level. Most NGOs have fallen into the trap of concentrating on 'practical activities', without, engaging with the ideologies and how history and context of the given area may shape the intended action (Giroux, 1987). To this end and as recommended earlier (see section 6.6.2), I re-emphasise the need for a deliberate move to develop contextual profiles of the project sites to be developed (Lupele, 2002b). These will supplement and provide perspectives on the logical framework and support the project to achieve the project objectives in contextually meaningful ways. Where consultants are engaged, WWF ZEP staff should work closely with them throughout the process, not as supervisors, but as co-researchers. This will help to build capacities in the project staff for future related undertakings.

6.7 CONCLUDING COMMENTS

> The term 'storytelling' seems demeaning and grossly insufficient for describing the tireless efforts of scientists who ferreted out true facts about the functioning of the world. In reality, scientists and historians are observers and recorders of phenomena, from which they extract data, which in turn they synthesised into amazing and often very beautiful stories. Such professionals should feel that their work is no less important for being storytelling. If their stories are told with love, wisdom and devotion to the truth, they can inspire in their audience a lifelong interest in the subject (Strauss, 1996).

Throughout this thesis I have told a story of the two action research case studies of participatory materials development in Chiawa and Nalusanga, based on my observations, records and data analysis. This story has been told in relation to the broader context of the study, highlighting some global, national and local influences that shaped the research. I have described the ambivalent nature of these influences in the local context, as they affected this

study and the work of WWF ZEP. I have also discussed the socially critical orientation to research as it informed this study and influenced the choice of methodology. I have attempted to show that central to the socially critical orientation to education are the ideas of social justice, democracy and equity and I have illustrated how these resonate with the WWF ZEP goal of working with rural communities.

I have endeavoured to seek an in-depth understanding of the two community contexts through contextual data analysis. The community contextual profiles provided me with insights into the community dynamics and how these dynamics are shaped by history, culture, socio-political and ecological factors. I also explored the meaning of participation in an African context by looking at the different roles people play in a participatory materials development. By looking at the different roles people played, I have (hopefully) highlighted some of the complexities of participation and how local knowledge can 'merge' with 'expert' knowledge in responding to local environmental issues and risks. The two stories of participatory materials development, conducted in the local contexts, within the project objectives of an international NGO, have also demonstrated that local knowledge can contribute to and shape global intentions and ideas.

Like every other story, this story may be told differently by another storyteller, I have no doubt that the community members I worked with have a slightly different story from mine.

> Stories that might be true are just as valuable as stories that are not true. The fine difference between these two is apparent only to the tuned ear (Strauss, 1996:13).

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APPENDIX 1

LIST OF DATA FILES USED IN DATA ANALYSIS

DF 1 Field Notes

DF 2 Research Assistants (RA)

a. contextual questionnaire administration report – Charles Mandika (RA 4)
b. contextual questionnaire report- Isaiah Museto (RA 3)
c. contextual questionnaire report – Wambulawae Mubita (RA 2)
d. contextual questionnaire report-Prince Muhaswa (RA 1)
e. Appointment letter RA 1
f. Appointment letter RA 2

DF 3 Personal Interviewees (PI 1 – PI 15

a. Andrew Mwiba, farmer-NA
b. Councillor Kajiwa-CH
c. Isaac Kapesa –CH
d. Isaiah Museto, Court clerk-CH
e. Jones Katiyo-CH
f. Kabona – CH
g. Kenneth Namayunda-NA
h. Michelo deputy head Nalusanga Basic School\ NA
i. Ms Chola Headteacher Chiawa Basic-CH
j. Mwenya Lamba –Artist
k. Pearson Musoboya-CH
l. Peter Sam Katiyo, Chief's advisor-CH
m. Phyllis Simasiku-NA
n. Senior headman Kadjonko-NA
o. Standford Mugurameno-CH

DF 4 Journal Entries

a. general comments from contextual questionnaires-CH
b. general comments from contextual questionnaires-NA
c. Minutes of ZEP staff meeting
d. Meeting with Director, WWF Africa Madagascar
e. 2002 WWF ZEP EE Course comments on the posters
f. CRB/Chiawa constitution conflict
g. Snap survey on the use of posters in Chiawa
h. Trip reports.

DF 5 Editorial Notes

a. Report by the Editor for Nalusanga pamphlets

b. Report by the Artist for Chiawa posters

DF 6 Samples of interviews/questionnaire schedules

a. contextual profile questionnaires
b. semi structured interviews
c. trialling WS questionnaires

DF 7 Workshop Reports (WR 1 to WR2)

a. Chiawa materials development WS report
b. Nalusanga materials development WS report
c. Nalusanga materials trialling workshop report
d. Chiawa materials trialling workshop report
e. Chiawa materials induction workshop report

DF 8: Materials (M)

a. Chiawa Posters.
b.. Nalusanga Pamphlets

DF 9: Study Correspondence (SC)

a. Letter from a Rhodes Scholar about effectiveness of posters in learning
b. Supervisor's comments on the study proposal
c. Field work update for the supervisor
d. Supervisor's comments on issues associated with materials development

DF 10: Documents used in data analysis.

a. Fish conservation trialling WS report
b. WWF ZEP Document 2000-2005
c. WWF ZEP annual reports 1995;1996;1997;1998; - 2000.
d. Special Study on the Community Benefit in ADMADE
e. Nalusanga (Mumbwa) PRA report
f. Chiawa PRA report
g. Chiawa Baseline Survey report
h. ADMADE Policy, Background paper
i. DFID Strategy paper for Zambia.

APPENDIX 2A

LIST OF ENVIRONMENTAL ISSUES IN CHIAWA AS IDENTIFIED BY WORKSHOP PARTICIPANTS

- Hunger
- Bush fires
- Poor sanitation
- Poor Housing
- Land disputes
- Loss of respect for shrines
- Vandalism
- Garbage
- Witch craft
- Lack of clean safe drinking water
- Poor distribution of water points
- Liberation War
- Drunkenness
- Poverty
- Soil Erosion-.
- Overgrazing
- Poaching
- Poor rainfall
- Artificial floods
- Pollution
- Illiteracy
- Destructive methods of fishing
- Poor methods of farming
- High Temperatures
- Deforestation
- Problem animals
- Early marriages
- HIV/ AIDS
- Malaria
- Land shortages
- Poor road infrastructure
- Kariba Floods
- Waste disposal
- Depletion of fish resources
- Encroachment
- Prostitution
- Broken Homes

APPENDIX 2B

LIST OF TWELVE ENVIRONMENTAL ISSUES IN CHIAWA: THE FOCUS FOR THE TEN DRAFT POSTERS.

- Artificial floods
- Destructive methods of fishing
- Early marriages
- Garbage
- Hunger
- Poaching
- Pollution
- Poor methods of farming
- Poor rainfall
- Poor sanitation
- Poverty
- Vandalism

APPENDIX 2C

LIST OF PARTICIPANTS TO WORKSHOPS

24 -27 April 2001: Materials Development Workshop in Nalusanga.

1. Albetina Kamboyi	Lungamana
2. Andrew Mwiba	Community Educator
3. Beatrice Katanya	Community educator.
4. Charles Siame	Forestry
5. Clement Sililo	ZAWA
6. Ellie Mwiba	Nalusanga
7. Fly Katanya	Lungamana Club
8. George Muwowo	Education Officer
9. Harriet Chipi	Lungamana
10. Jones Michel	Deputy Headteacher-Nalusanga
11. Jope Nswere	Buchete Kuyanda
12. Justin Lupele	Education Officer
13. Killian Takawira	Buchete Kuyanda
14. Lusiya Mudondilo	Rufaro Club Member
15. Mary Sikapa	Headteacher Nalusanga School
16. Mike Mpofu	Rufaro
17. Mubita Njekwa	Nalusanga Women
18. Rodgers Mwanankuku	Forestry
19. Ruth Chemi	Nalusanga
20. Seliya Mulowa	Nalusanga
21. Sylvia Chifunda	Fisheries Officer
22. Thomas Mukobeko	Teacher/Nalusanga
23. Victor Mulyata	Lungamana/club

1 -4 June 2001: Materials Development Workshop-Chiawa.

1. Justin Lupele-	Facilitator
2. Elias Tembo-	Headteacher-Kabwadu
3. Jones Katiyo –	ZAWA Community Laison Officer
4. James Hachoongo –	Teacher, Kabwadu
5. Ms Lizznet Mukamba	Businesswoman
6. Ms Febby Musoboya –	Businesswoman
7. Steward Chilumezani –	Community health worker
8. Isaiah Muzeto -	Judiciary Department
9. Clement Kapesa –	Farmer.
10. Lackson Kabona –	Secretary for Chilimanga Village
11. Sam Katiyo –	Chief Advisor
12. Ms Angela Mutesame –	Farmer
13. Ms Patricia Samende –	Community Development Officer
14. Ms Lydia Chimaungila	Businesswoman
15. Sandford Mgurameno –	Headman-Mgurameno

8 – 9 November 2001 Trialing workshops in Chiawa.

8 November 2001: Muguramano Village

Mr. Wilfred Kakubo
Mr. Enerst Shikalomo
Mr. Gibson Mambo
Mr. Soda Nyatsanga
Mr. Arizona Kamtatali
Mr. Clement Kapesa
Mrs Rydia Chimaongila
Mr Steven Sinkala

8 November 2001: Chiawa Central
Mr. Lackson Kabona
Mrs Liznet Katiyo
Mr. Samson Peter Katiyo
Mr. Isaiah Museto
Mr. Zulu Maunda
Mrs Doreen M. Kafusu
Mr Phiri Gibson
Mr. Moffat Katiyo
Mr. Samson Chilekeni
Mrs Katiyo
Mr Pearson Chinzi

9 November 2001: Gota Gota

Mr. Joseph Chinaka
Mr. Mutale
Mr. Nyamahalo Mapulanga
Mr. Tapson Berejena

9 November 2001: Kabwadu

Mr Konwell Funga
Mr Ostern M. Makai
Mr Zakalia Tembo
Mr. Gift Mulambwa
Mr. Iwell Kapomba
Mr. Jeremia Tembo

Facilitators
Crispin Mutambo
Mwenya Lamba
Justin Lupele
Jones D. Katiyo
17 -21 January 2002; Trialing Workshop in Nalusanga

1	Albetina Kamboyi	Lungamana
2.	Andrew Mwiba	Community Educator
3.	Beatrice Katanya	Community educator.
4.	Clement Sililo (replaced)	ZAWA
5.	Crispin Mutambo	Project Driver.
6.	Ellie Mwiba	Nalusanga
7.	Fly Katanya	Lungamana Club
8.	Harriet Chipi	Lungamana
9.	Jonathan Chisaka	Education Officer
10.	Jones Michelo	Deputy Headteacher-Nalusanga
11.	Jope Nswere	Buchete Kuyanda
12.	Justin Lupele	Education Officer
13.	Killian Takawira	Buchete Kuyanda
14.	Lusiya Mudondilo	Rufaro Club Member
15.	Mike Mpofu	Rufaro
16.	Mubita Njekwa	Nalusanga Women
17.	Ruth Chemi	Nalusanga
18.	Seliya Mulowa	Nalusanga
19.	Thomas Mukobeko	Teacher/Nalusanga
20.	Victor Mulyata	Lungamana/club

28 March 2002 **Induction Workshop - Chiawa**

Name	**Village/Inst.**	**Occupation**
Ms. Anastazia Mambo	-	Community Educator
Mr.Austin Musaibale	Makayi	V/Chairperson IMC
Mr.Boniface Chiawa	Chilimanga	Chiawa Ward Councillor
Ms.Carol Mambo	Chiawa	farmer
Mr.Charles Mandika	Mufulutsa	Kambale Ward Councillor
Mr.Elias Tembo	Kabwadu	Head teacher
Mr.Eugene M. Kapaya	Chiawa	Deputy Head teacher
Mr.Isaiah Museto	Chiawa	Court Clerk
Mr.Jacob Katiyo	Chiawa	VAG Member
Mr.James Hachoongo	Kabwadu	Teacher
Mr.Jonathan Chisaka	WWF	Education Officer
Mr.Jones Katiyo	Chiawa	C/L officer (ZAWA)
Mr.Jones Ndhlovu	Mugurameno	Teacher
Mr.Josgaty Muselo	Kanyenze	Fisher
Mr.Justin Lupele	WWF	Education Officer
Mr.Kesia Sakala	GotaGota	CRB Chairperson
Mr.Lackson S. Kabona	Chilimanga	A/Headman
Mr.Liznet M. Katiyo	Chiawa	Pre/School Teacher
Mr.Maurice Kakusa	Mafungautsi	VegeTable farmer
Ms Chaala	Chiawa	Teacher
Ms Felly Chenda	Marambanyika	Farmer
Ms Kajiwa	Chiawa	Social & Dev. Officer
Ms MB Chola	Chiawa	Head teacher
Ms T Mwendabai	Mugurameno	Teacher

Mr. Mutale Dickson	GotaGota	Teacher
Mr.Nyamaharo Mutanga	Charedzela	Farmer
Mr. Nzima Kennedy	Mungurameno	Teacher
Mr. Pearson Musoboya	Chiawa	Revenue Collector
Mr. Peter Sam Katiyo	Chiawa	Chief's Advisor
Mr. Shadreck Gorafa	Charedzela	Farmer
Mr. Steward Chirumazani	Chilimanga	Community Educator

APPENDIX 3 A

CONTEXTUAL DATA SEMI STRUCTURED INTERVIEW SCHEDULE.

1. What are your full names?

2. How old are you?

3. When did you first come to this area?

4. Briefly explain the history of this community?

   - where did the people come from

   - the changes in natural resources in terms of wildlife and forestry since you have been in the area.

   - the traditional leadership

   - Which tribe or group of people lived in the area before the present tribe(s)?

5. What are the main environmental issues/problems

APPENDIX 3 B

CONTEXTUAL PROFILE QUESTIONNAIRE (SEMI CODED)

WWF Zambia Education Project

Questionnaire number CPQ1-_____

Name of Enumerator_____

Date_____

This questionnaire is aimed at collecting historical, economical, social and environmental data on Nalusanga and Chiawa communities where WWF Zambia Education Project is currently working. The data collected by means of this questionnaire will help the project and the researcher understand the two communities better. Your participation in answering this questionnaire will be highly appreciated.

LOCATION DETAILS

1. District ……
2. Chiefdom ……
3. Village ……
4. Distance from the main road ……..
5. Common physical features (i.e names of nearby rivers/stream, mountains/hills etc.)

……
……

HOUSEHOLD PARTICULARS.

6. Name of respondent ……

7. Sex of respondent
   Male (1)
   Female (2) ☐

8. Age of respondent ☐

9. Number of people residing at this homestead

	0-10yrs	11-18yrs	19-30yrs	31-45yrs	46-65yrs	Over 65yrs
Males						
Females						

ETHNIC, CULTURAL AND RELIGIOUS

10. What tribe are you?

_____

11. What language(s) are you able to speak fluently?

_____

12. What language(s) are you able to write and read fluently?

_____

13. What is your religious denomination?

_____

14. What nationality are you?

_____

15. How long have you been living in this village?

_____

D. EDUCATIONAL LEVEL

16.What are the educational levels of the parents?

	Male	Female
No formal education		
Primary education		
Secondary education		
Post secondary education		

17.What are the educational levels of the children?

	Number of Males	Number of Females
No formal education		
Primary education		
Secondary education		
Post secondary education		

E. SOCIAL –ECONOMIC INFORMATION

18.What is your occupation?

Farming field crops (e.g. maize, cotton, sorghum, millet etc.) (1)
VegeTable growing (tomatoes, cabbage, rape, onions etc.) (2)
Employee (3)
Fishing (4)
Trading (e.g. s/hand cloths, fertilisers, seeds, groceries etc.) (5)
Other , Please specify _____

19. What is the household income (per year) from different sources?

Under K100,000 (1)
Between K100,000 and K 300,000 (2)
Between K300,000 and K 500,000 (3)
Between K500,000 and K 700, 000 (4)

Between K 700,000 and K 900,000 (5)
Above K 900,000 (6)

20. What is the household expenditure (per year) from different sources?

Under K100,000 (1)
Between K100,000 and K 300,000 (2)
Between K300,000 and K 500,000 (3)
Between K500,000 and K 700, 000 (4)
Between K 700,000 and K 900,000 (5)
Above K 900,000 (6)

21. What is the household main source of income?

Agriculture (1)
Labour (piece works) (2)
Gifts(including from relatives) (3)
Employment (full time) (4)
Seasonal employment (5)
Fishing

Other, Please specify_____

22. How have you as a family or community benefited from wildlife resources in the area?

_____

F. SOURCES OF DOMESTIC WATER AND ENERGY

24. What is the main source of drinking water?

_____

25. Who draws household water most of the time?

_____

26. How does the household ensure that water is safe for drinking?

_____

27. What is the household's main source of energy?

Firewood (1)
Charcoal (2)
Kerosene/paraffin (3)
Electricity (4)

Other, please specify_____

28. If you use firewood, who is the main collector?

Father (1)
Mother (2)
Female children (4)
Male children (5)

29. How do you transport firewood?

Headload		(1)	
Wheelbarrow		(2)	
Ox-cart	(3)		
Bicycle	(4)		
Other		(5)	

30. How do you dispose off garbage (waste)?

_____

31. How many pit latrines / toilets does the household has?

_____

32. Where does the household go to answer the call of nature (toilet)?

_____

G. AGRICULTURE

33. What is the household main agriculture activity?

_____

34. How big is your cultivation field?(in acres or hectares)

_____

35. The household land is mainly cultivated by…..

Ox-drawn plough	(1)	
Hoe		(2)
Tractor		(3)

Other, please specify_____

36. List five main problems that you face in agriculture in this area.

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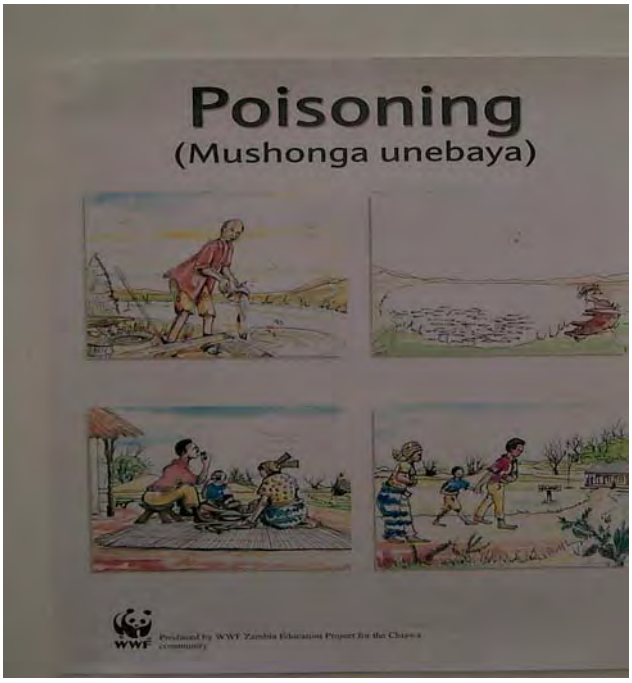
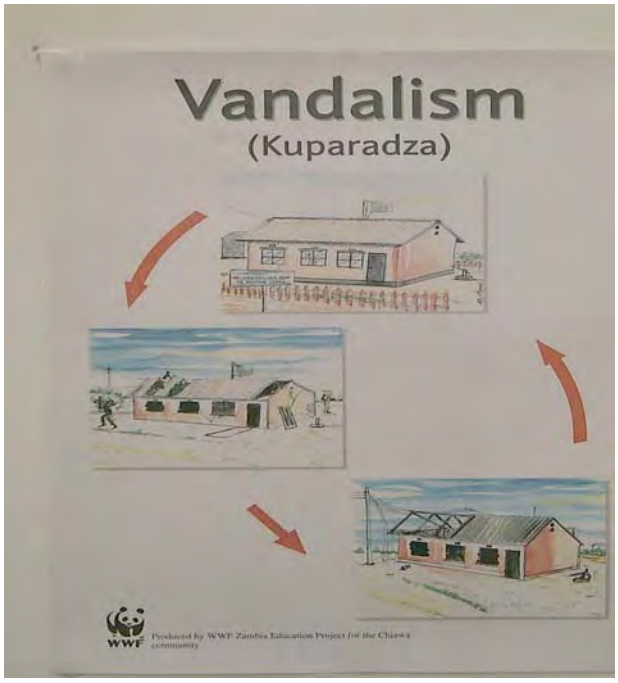
36. Any general comment that you think will help WWF Zambia Education Project understand the community better as it works in the area in environmental education.

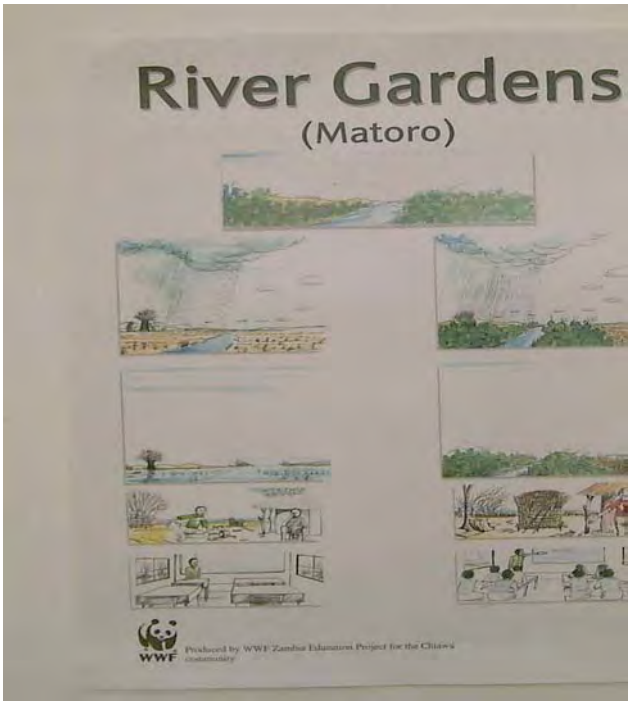
Thank you for answering this questionnaire.

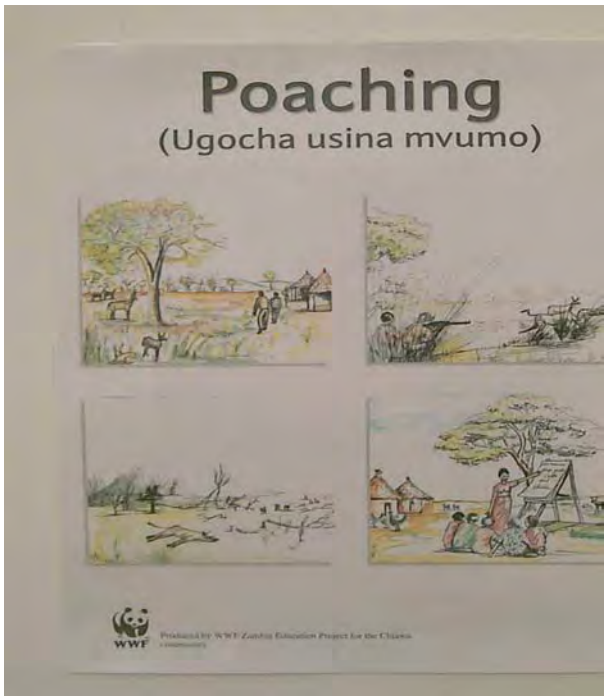
APPENDIX 4

POSTERS PRODUCED BY CHIAWA COMMUNITY









APPENDIX 5

UNEDITED DRAFT SAMPLE PAMPHLET PRODUCED BY THE NALUSANGA COMMUNITY

AGROFORESTRY

Introduction

Agroforestry is a farming system where a farmer grows trees, crops and keeps livestock on the same piece of land over time. This is done in order to make the best use of the land. By growing trees, crops and keeping animals, a farmer is able to get the best out of farming because the mix help each other grow better. The farmer can produce, for example, more crops by growing trees that increase the soil's ability to produce more.

Types of Agroforestry Practices

There are four main types of agroforestry practices that a farmer can choose from. These are:
Growing trees with crops;
Growing trees with grazing pastures and livestock (animals);
Growing trees only;
Growing trees for Beekeeping;
Growing trees with near fishponds.

2. **Trees and shrubs in agroforestry (intercropping)**

The major groups of agroforestry are the trees and shrubs.

[Diagram of trees and shrubs, source: The agroforestry manure in ZEP library.]

What do we get from trees? *What do we get from shrubs?*

Remember that not all trees and shrubs can be used in agroforestry systems. A good agroforestry plot should provide us with our needs. For example, the following types of trees would be helpful in an agroforestry plot:
Trees for fuel wood, fodder (animal food), provide poles, timber and leave for manure;
The trees should be fast growing and have roots that grow deeper into the soil;
The trees should not compete with the crops;
The trees should have the ability to grow back after cutting;
The leaves should be nutritious and can be used as livestock feed;
The trees should have the ability to fix nitrogen in the soils (this is true for legumes);
The trees should produce products such as fruits, poles and others, which can be used or sold;

3. How crops benefit from trees when grown together (intercropping)

Nutrients

Nutrients (plant food) are added to the soil by trees through the addition of nitrogen and manure.

Nitrogen fixation

Micro organism (bacteria or fungi) in root nodules of trees/shrubs fix nitrogen into a form that crops can use.

Manure

Manure from trees provides nutrients for the soil. When the leaves fall from the trees or are cut and buried in the soil, they decompose and add nutrients to the soil.

b. Conserving water

Trees increase soil water through:

Organic matter (dead and decomposed plant or animal material)

Like a sponge, organic matter when added to the soil by the trees increases the soil's ability to keep water.

Windbreaks

Trees act as windbreaks by reducing the rate of loss of water by trees, mainly, through leaves (evaporation). This is common during high temperatures and dry windy days.

Shade

They add beauty to our surroundings.

Leaves from the trees shade the bare soil. This helps in lowering the surface temperature and evaporation.

c. Preventing soil erosion

Trees reduce the rate of soil erosion. The leaves cover the soil and reduce the force of raindrops and wind from washing away the top soil.

This results in :

Large amounts of water soaking into the ground; and

Less soil being carried away by runoff water.

Trees also form a windbreak around crops. This helps in preventing strong winds fro across the crop field.

d. Weed Reduction

As the trees are allowed to grow between cropping seasons, the shade formed from the leaves prevent sunlight from reaching the weed, which eventually die.

4. How do trees benefit from growing alongside (intercropping) with crops?

When tree seedlings are planted with crops on the same piece of land, they are likely to grow well because they would receive the same attention as the crops. For example:

a. They are weeded along with the crops

b. They make use of fertiliser that is applied to the crops.
c. The young tree seedling is protected from strong wind by crops such as maize, cassava and sunflower, which act as windbreaks.

How does livestock benefit from agroforestry?
Many agroforestry tree species provide protein rich fodder for livestock. Small scale farmers with few livestock can use the leaves, twigs (small branches of trees) from agroforestry trees to increase production from their animals.

During dry periods, when there is little feed for livestock, trees continue to produce fodder. A farmer who has trees for fodder is likely to have healthy animals throughout the year.

Animals may be provided with fodder from intercropped agroforestry in two ways. These are: **"Cut and carry" or zero grazing.** This is when fodder from the trees/shrubs is harvested elsewhere and brought to the livestock as feed. Although zero grazing is not a common practice in Zambia it should be encouraged especially in the dry season.
The other way is to let animals graze in the agroforestry field after harvesting the crops. As animals walk graze in the field, their droppings provide manure for the soil.

How to start an Agroforestry system
Prepare land for farming, normally.
Plant the crops as recommended
Finally plant the seedlings of the agroforestry trees of your choice.
Trees can be grown from seeds, or nursery seedlings or cuttings.

A. Direct sowing of seeds
This can be done in areas where the farmer is sure of the germination. Usually agricultural extension officers would advise when contacted.

Advantages of direct sowing
It is needs less labour as no seedlings are raised in a nursery bed.
It increases the number of nitrogen fixing nodules on nitrogen fixing trees and shrubs.
Since there is no need for a nursery, all the land is used for growing the agroforestry trees.

Disadvantages of direct sowing
Seeds being buried deep or washed away by rain;
Insects and animals feeding on the seeds
Poor seed may fail to germinate;

> *What are the other advantages and disadvantages of direct sowing? What are some of the seeds that you sow directly? Discuss with friends.*

B. How to grow seeds directly.
Before sowing the seeds, the following points should be considered:
Seeds should be clean, free of dirt and disease, unbroken and from a reliable source;

Pre-treatment of some seeds is necessary. Hot water treatment can be used. Seeds are ready for sowing after the hot water is poured out.
Seeds should be sowed at the beginning of the rains, if good results are to be achieved.

Direct sowing
Plant 2 seeds per station (hole) if germination rate is known to be good;
Plant 3 – 4 seeds per station if germination rate is not known or poor; and If more than one seed germinates, the extra seedlings can be transplanted for gapping (fill in spaces where germination failed) elsewhere.

Growing trees from seedlings
Seedlings have an advantage over direct sowing because of the care they receive in the nursery. Their production needs more labour than direct sowing. However, they have higher initial growth rates in the field.
The making of the nursery should start at least four months before transplanting. The seedlings can be planted in containers.

How to raise seedlings
There are two stages in raising seedlings. These are:
1. Planting seeds
Water seedbeds before planting and after putting manure in the plot.
Plant at the spacing of 8cm between seeds.

2. Removing the seedlings from the nursery for planting (transplanting)
Water the seedbed;
Dig each seedling out of the soil;
Never remove seedlings by just pulling them out; and
Wrap seedlings and soil in leaves, grass or paper for transporting

Advantages of raising seedlings
The cost, time and labour required is less than that required when growing seedlings in a container.
Many seedlings can be transported easily in a small space.

Disadvantages of raising seedlings
Roots may be damaged easily during transplanting
Survival rates are lower than in container seedlings
Nursery location take up space

What are the other advantages and disadvantages of growing trees from seedlings? *What trees do you grow from seedlings?*

8. How to grow seedlings in containers
This method can be used successfully in all areas of Zambia and is the best method for low rainfall areas.

Some of the container that can be used may include milk packs (opened at both ends), tied banana leaves, maize covers, tin cans or polythene bags. The seeds can either be sown in seedbeds, and later transferred to containers or sown directly into containers.

Here are some steps to be followed when sowing directly into containers.

Fill container with a mixture of forest and sand soil;
Put the containers under a shade;
Water the soil before planting the seeds;
Dig a shallow hole in the soil and plant the seed
Put at least two seeds per container. If both germinate, one should be transferred to another container;
Water the seeds daily if there is no rain, gradually reducing the amount of water as the time for planting in the field nears; and
When planting in the field, always remove the container unless it is made of leaves, grass etc., or unless its retention is recommended to control termite damages especially in drier areas.

Advantages of container seedlings

High survival rates of seedlings;
Seedlings develop well-formed root systems;
Seedlings can be transport to the main bed well in advance;
Spread of disease in the nursery is easier control than in nursery seedlings;
It saves labour in terms of transporting;

Disadvantages of container seedlings

Containers can be difficult or expensive to obtain;
The containers can suppress growth of nitrogen fixing nodules on roots of leguminous tree types;
Forest soil can be costly to obtain;
Containers are usually bulky (and heavy) to transport; and
It is labour intensive in the nursery

Growing trees from cuttings

Some trees and shrubs area able to reproduce from sections of stems/roots which when placed in the soil, grow roots.

How to grow trees from cuttings

The mother tree must be healthy and of good agroforestry type;
Cuttings should be made from young, healthy branches, usually 1 to 2 cm in diameter;
The cutting should contain several points from which branches and roots would grow;
Place the cutting right side up in the soil;
They should be grown in sand soul or sandbox and then transplanted to the permanent growing site;
They should be grown directly where the trees are needed, if the soil is sandy;

Advantages of using cuttings

Good for growing identical trees with desired characteristics;

They have faster initial growthrates than seedlings and can start with a 2m long cutting , thus escaping grazing damages;
It can save the cost of buying seeds and the labour of collecting seeds;
Reduces the costs of raising seedlings in the nursery;

Disadvantages of using cuttings
Cutting are bulky to carry or to transport; and
Not a very well know practice and so great care must be taken to do it correctly
Not all cuttings can do well in the all parts of Zambia areas.

What are the other advantages and disadvantages of growing trees from cuttings?
What are some of the trees and crops you grow from cuttings?

10. Field Management

When the trees/shrubs are established and growing in the field, they must be properly managed to maximise production of desired products. The three most commonly used management practices are: Coppicing, pollarding; and side pruning.

a. Coppice management

Coppicing is when trees grow back after they have been cut. It differs from side pruning and pollarding in that the entire tree is cut usually at the height of 10 to 50cm from the ground as shown below.

[Diagram suggested source: see cutting down trees? Plant more…ZEEP poster]

How to carry out coppicing
The tree must be cut at an angle, usually 10 to 50 cm from the ground;
The cut branches are laid on the ground and, after 5 to 7 days are shaken to remove dried leaves and small twigs. The larger sticks are then stacked to dry;
The leaves and small twigs are incorporated into the soil, often during weeding to save labour.
Generally, there will be many coppices that grow, 2 to 3 of the largest should be left and the rest removed if the desired products are poles.

b. Pollarding

Pollarding is the extensive cutting back of the crown of a tree (at least up to 2 meters from the ground level). The branches and leaves are harvested to encourage growth a new, better formed and productive crown.
Pollarding differs from side pruning in that more of the crown is removed and sometimes the top of a tree is cut off.

[Diagram suggested source: see cutting down trees? Plant more ZEEP poster]

c. Side Pruning

Side pruning is done in order to:
Maximise shade on the intercrop and provide more room for the movement of farm equipment;
Harvest branches for mulch, fodder, fuel wood or shape the trees into straight poles or for budding purposes.

All agroforestry tree species can be side pruned whenever necessary.

Should you want to start an agroforestry project, contact your local forestry or agricultural offices for information on the recommended tree species for your area.