Fly fishing and Tourism:
A Sustainable Rural Community Development Strategy for Nsikeni?

By

Sithembiso Hlatshwako

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PREFACE

In a bid to assist rural communities to gain more from the use of natural resources that they have in their custody, Mondi Forests initiated a joint venture with the Mabandla Tribal Authoriy (MTA), a traditional administration body for the Nsikeni area of the Eastern Cape (former Transkei), to establish a community afforestation project. Before implementation of the community afforestation project, the Department of Water Affairs and Forestry (DWAF) requested an Environment Impact Assessment (EIA) as required by the National Environmental Management Act (NEMA). The assessment was carried out by Bainbridge Resource Management with Messrs Venter Forestry Services and Associates. One of the consultants for the assessment was Mr W. R. Bainbridge, fly fishing guide and a member of the Federation of South African Fly-fishers (FOSAF). The assessment survey identified that the Nsikeni community have among their assets, rivers with high potential for fly fishing, namely the Ngwagwane and Ngungununu. FOSAF, to extend its involvement in social responsibility, together with the Centre for Environment and Development (CEAD), University of Natal, Pietermaritzburg, supported an initiative to identify the potential of the Nsikeni area's rivers. This investigation formed the basis of this research project.

The work has been done under the supervision of Mr. Malcolm Draper from the School of Human Sciences and Social Studies, University of Natal, Pietermaritzburg, and Mr. W. R. Bainbridge and Mr I. Lax, representatives from the FOSAF organisation. The study is comprised of original work by the author, and has not been otherwise submitted in any form to another tertiary institution. Where use has been made of the work of others, it is duly acknowledged in the text.

ABSTRACT

Most rural communities, such as Nsikeni area under the Mabandla Tribal Authority (MTA) in the Eastern Cape (former Transkei), are located in apartheid-created 'homelands'. These rural areas have large human populations that depend on natural resources, but, they do not derive full benefits from natural resource use. This research study examines the socio-economic status and the Nsikeni community people's perceptions on developing the potential for fly fishing under the concept of community-based resource management (CBRM) strategies. The research attempts to assess the Nsikeni community's resource assets in the form of rivers and related infrastructure together with their human resource and to obtain knowledge and perceptions of available potential in relation to fly fishing. Attention is drawn to socio-economic needs which could challenge the sustainability of a community-based project, land use activities and associated impacts for the Ngwagwane River catchment area, and lastly, based on the Nsikeni community's opinion, a proposed model for a community-based strategy.

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LIST OF ACRONYMS

ANC	African National Congress
APS	Afforestation Permit System
CAMPFIRE	Communal Area Management Plan For Indigenous Resources
CAR	Catch and Release
CBCD	Conservation Based Community Development
CBRM	Community-Based Resource Management
CDC	Community Development Committee
CEA	Cumulative Effects Assessment
CMA	Catchment Management Agency
CNR	Coleford Nature Reserve
CPAC	Community Property Act Constitution
CPA	Community Property Association Act No 28 of 1996
CWSS	Community Water Supply Sanitation
DSI	Decision Survey International
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
DWPS	Delam'zi Water Project Scheme
EIA	Environmental Impact Assessment
FOSAF	Federation of Southern African Fly-fishers
ICPD	Integrated Conservation and Development Project
IEM	Integrated Environmental Management
IEPC	Indigenous Environmental Policy Centre
IPPMC	Integrated Project Planning and Management Cycle
IUCN	International Union for Conservation of Natural Resources
HDR	Human Development Report
KZN	KwaZulu-Natal
KZNNCS	Kwazulu Natal Nature Conservation Services
MCPA	Mabandla Communal Property Association

M-DCA	Maluti-Drakensberg Conservation Area
MF	Mondi Forests
MTA	Mabandla Tribal Authority
NDC	Ntlangwini Development Committee
NECF	North East Cape Forests
NEMA	National Environmental Management Act
NGO	Non Governmental Organisation
NPB	Natal Parks Board
NWA	National Water Act
PIR	Poverty Inequality Report
PRA	Participatory Rural Appraisal
RDC	Rural District Council
RDP	Reconstruction and Development Programme
TFCA	Transfrontier Conservation Area
SAWCP	South African Wetland Conservation Programme
SFRA	Stream Flow Reduction Activity
SLAG	Settlement Land Acquisition Grant
SCPP	Soil Conservation Planning Programme
UDP	Ukhahlamba Drakensberg Park
U/HTFC	Underberg/Himeville Trout Fishing Club
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UT	Umvula Trust
WCED	World Commission of environmental and Development
WfW	Working for Water
WWW	World Wildlife Fund for Nature
ZWA	Zenzele Womens Association

GLOSSARY

'Amadoda ayisikhombisa'	The council of seven men who support the Chief during meetings such as those pertaining to development progress in the community and resolving of conflicts amongst community members.
AmaBhaca	An Nguni word for the Xhosa tribe.
AbaNzansi	An Nguni word given to the people who practise customs that mix both Zulu and Xhosa cultures such as language and traditional activities.
Idobo	Native name for unpalatable grass, Cympopogum validus, used for thatching hut dwellings.
Isigwamba	A traditional dish cooked from a mixture of wild leafy vegetables collected from indigenous forests.
Inkonka	Native name for a Bushbuck.
Umthathi	An indigenous tree, Ptaeroxylon obliquum ,used for medicinal, fuel, fencing, building and carving collected from the indigenous forests.
Umsonti	An indigenous tree, Podocarpus africana ,used for medicinal, fuel, fencing and building, collected from the indigenous forests.
Sancothi	Native name for the male rainbow trout, Oncorhynchus mykiss.
Inkhenke	Native name for the female rainbow trout, Oncorhynchus mykiss.
Inkosi	Chief.

Izinduna	Headmen.
Lobola	Property (cattle) paid by the groom to the family of the bride as a symbol of taking the woman as a traditional lawful wife (Dowry).
Tshalibeke	Native name for the yellowfish commonly known as the Scaly, Barbus natalensis.
Sifumba	Native name for the carp, Cyprinus carpio.
Mbokwana	Native name for the eels that belong to the Family Anguillidae.

CHAPTER 1: INTRODUCTION

1.1 Background

In their quest for development people contribute either positively or negatively to the environment. Calvert and Calvert (1999) discuss development, or the improvement of the quality of life, as a result of what everyone does in his/her social, cultural, economical and geographical sub-contexts. In all the sub-contexts the environment exists as both 'a resource and a consequence of the international system of resource production and use', which is evident in all levels of development (Calvert and Calvert, 1999: 16). In addition, in the same quest for development, unequal economic distribution within these sub-contexts remains one of the challenges for many countries, localities and communities worldwide. According to Breen, Dent and Mander (1998) industrialisation, in its attempt to address the economic needs of world communities failed to develop the third World countries. In contrast to improving the economic growth of the people, industrialisation led to some people becoming poorer, especially those in the rural areas, and environmental deterioration as an 'inevitable consequence of industrial development' (Elliot, 1999: 22).

In South Africa the failure of industrialisation combined with apartheid policies resulted in the isolation of different communities economically, social and geographically. Unequal distribution of wealth led to the democratic rights for indigenous people being advocated by the human rights movement which has been concurrent with the 'green' movement lobbying for a less degraded environment (Gupta, 1998). As a result of these movements' efforts, a shift from centralized conservation methods of natural resources to decentralized methods has been observed. As Gupta (1998) recalls, discussion at the Stockholm Conference in 1972 extended environment conservation awareness to both national government and local communities, emphasising a shift from the central bureaucratic control of environment conservation to decentralised control by Non-Governmental Organisations (NGO) and local communities. Decentralisation has given rise to different types of project implementation programmes which are community-based. At the same time, decentralisation has developed a culture of

empowering the communities[1] with the responsibility of sustainable management of natural resources based on the assumption that the community will benefit from managing the natural resources. However, the IUCN, UNEP and WWF (1991) document on '*Caring for the Earth*' advises that, local communities as human resources are the focus of what and how a change for sustainable living can be achieved. The challenge is that poor communities lack resources such as information and finances that are required to manage the natural resources on which they depend, and from which they can benefit.

Tourism has been recognised as an industry that will contribute to the improvement of the quality of life for many rural South Africans in the future (Koch, 1997). The South African White Paper on Development and Promotion of Tourism, (1996) points out that, there is unlimited potential for tourism as opposed to other industries, such as, agriculture and manufacturing as the top earner of foreign currency for South Africa. Creemers (1997) suggests that, if utilised efficiently, tourism, as an industry, could contribute to redistribution of wealth from the rich, who usually make up the tourist population, to the relatively poor who have assets, such as, land, water, culture/traditions and skills. In 1976 the Natal Town and Regional Planning Commission developed a vision for a recreation plan for Natal. In this vision, the commission had a primary aim to provide as wide a choice of recreation activities as possible. The condition though, was to implement a particular activity in an area suitable for that locality's environment (Pickles, 1982). The southern Drakensberg was identified as suitable for a component of tourism, ecotourism, to cater for activities such as mountain climbing, hiking and fly fishing amongst others (Pickles, 1982; Liebenberg, 1974). According to Bainbridge Resource Management and Messers Venter Forestry Services and Associates (1997), a fly fishing component of ecotourism has been identified as being of high potential at Nsikeni, a rural area which falls under the southern Drakensberg region in the Eastern Cape Province (former Transkei). Fly fishing on its own has contributed to South Africa's revenue (O' Grady, 1998), and this contribution can be extended for ecodevelopment[2] in rural areas

[1]A community has been defined as local administrative unit such as a tribal area that has a group of individuals that share the same culture (IUCN, 1991) and according to Peck (1987) cited by Winter (1999) have established a reliable way of communicating with each other.

[2]Ecodevelopment can be defined as a type of development that addresses social needs and natural resource needs within ecological capacity of that region (Burkey, 1998: 32)

such as Nsikeni.

Ecodevelopment can be achieved through the international trend of implementing community-based projects. However, in the analysis of this trend, what have the different communities gained? This highlights an observation by Burkey (1998) that one of the consequences of the implementation of projects has been the creation of employment opportunities, but even more so has enabled the marketing of agencies such non-governmental organisations (NGO) that implement community projects. According to Burkey (1998), issues such as marketing of agencies and creation of job opportunities have to be overridden by capacity building for ownership and decision-making power within target communities. The alleviation of a community's poverty and the shift from a lower to a higher standard of living should be the foremost priority. While addressing community needs such as poverty, Lewis (1997) and Burkey (1998) note that capacity building and empowerment[3] of the community to sustain an on-going development process has to be considered for a project's sustainability. The Poverty Inequality Report (PIR) (1998) advises that, sustainability of projects can be developed through concepts that are community-based. These concept are programmes such as, Community-Based Resource Management (CBRM), Community-Based Natural Resource Management (CBNRM), Conservation Based Community Development (CBCD) and Integrated Conservation and Development Project (ICDP) that have an underlying principle to strike a balance between the extensive development needs of the rural communities and the limited natural resources. Community-Based Resource Management (CBRM) is the concept within which this study has been undertaken.

1.2 The CBRM concept

Generally, African countries have socio-economic, political and developmental problems. These problems have contributed to environmental degradation. However, to protect the environment in light of these problems Anderson and Grove (1987) highlight that, conservation has prioritised preservation of species and their habitats. Furthermore, conservation measures

[3] Empowerment means a process whereby a particular community or marginalised group becomes the agent of development (Elliot, 1999: 188)

have resulted in conflicts between management of the protected areas and the local communities (Beinart, 1989). These conflicts are a result of:

- exclusion of local communities from the management of the natural resources. This exclusion meant that the scientific approach used for the management of the protected areas could not be complemented with the traditional practices which have been used sustainably over the years by the indigenous people.

- exclusion of local communities from these protected areas (in some cases to be resettled in other areas) and from the use of natural resources. Exclusion in this case represents both an economic loss, as these natural resources are used for thatching huts, medicinal purposes, firewood, water supply, food; and, a social loss since the resources are an integral part of the people's social fabric (Clarke, Cavendish and Coote, 1996).

These conflicts have led to alienation of the communities from the intentions to conserve natural resources. Furthermore, it has resulted in local communities resorting to exploitation of the natural resources in acts such as poaching of medicinal plants and game from the protected areas (Khan, 1989). These acts result from the perception that any conservation measures that the people could adopt would not benefit them in meeting their socio-economic needs. In the analysis of the above, conservation has not addressed the political conflicts, environmental degradation and more importantly the, development needs of the local communities in South Africa.

Beinart (1989) and O'Donoghue (1999) argue that ideas for conservation of the environment are embedded in complex social worlds. On the same note, Brown (1998) citing Venter, Marais and Breen (1994) argues that an integrated approach to conservation management has to be extended beyond the protected areas into the surrounding communities. Beinart (1989) and O'Donoghue (1999) argue for participation of communities in resource management because of their extensive knowledge of their environment. On the other hand, Venter *et. al.* in Brown (1998) advocates that both conservation managers as well as the communities complement each other in conservation of natural resources and address the African problems and conflicts as mentioned above. Therefore, a change in attitude that was created by the exclusion of the African communities is needed:

- from not partaking in conservation of natural resources, to conservation of natural resources; and,
- from not attaching value to conservation of natural resources and therefore resorting to exploitation of the natural resources, to attaching value and in the process deriving benefits from the action of conserving natural resources.

This shift in approach, forms the basis of CBRM. The CBRM strategy recognises that local rural communities have an important role to play in management of natural resources. Furthermore, the strategy recognises that a natural resource can potentially be an instrument for rural development once the communities attach value to the resource (Blake, 1998). As defined by Dr Rob O'Donoghue at the KwaZulu-Natal Nature Conservation Services (KZNNCS) Annual Research Symposium on community-based projects, the CBRM strategy is an arrangement to manage resources productively and sustainably 'by' local people and 'for' the benefit of the local people. In South Africa the CBRM concept has been adopted in the 'neighbour policy' by Ukhahlamba Drakensberg Park (UDP) (Nomtshongwana, 1999). In a presentation at the KZNNCS Annual Research Symposium, Stephen Roberts, a community training officer with the UDP, presented that in the context of the 'neighbour policy' the CBRM principle serves to:

- bridge the tension between the managers of protected areas and the surrounding communities;
- draw expertise from both indigenous knowledge, that over the years has enabled people to use the natural resources sustainably, and scientific techniques, used in conservation of natural resources in protected areas, for a holistic management of natural resources; and
- address the socio-economic needs for the people.

In this light, the CBRM strategy has been developed in response to apparent inadequacies in past conservation and development practices. Furthermore, the CBRM strategy has been developed to build the capacity of the people in terms of skills, techniques and information to manage the conservation of natural resources while deriving benefits sustainably.

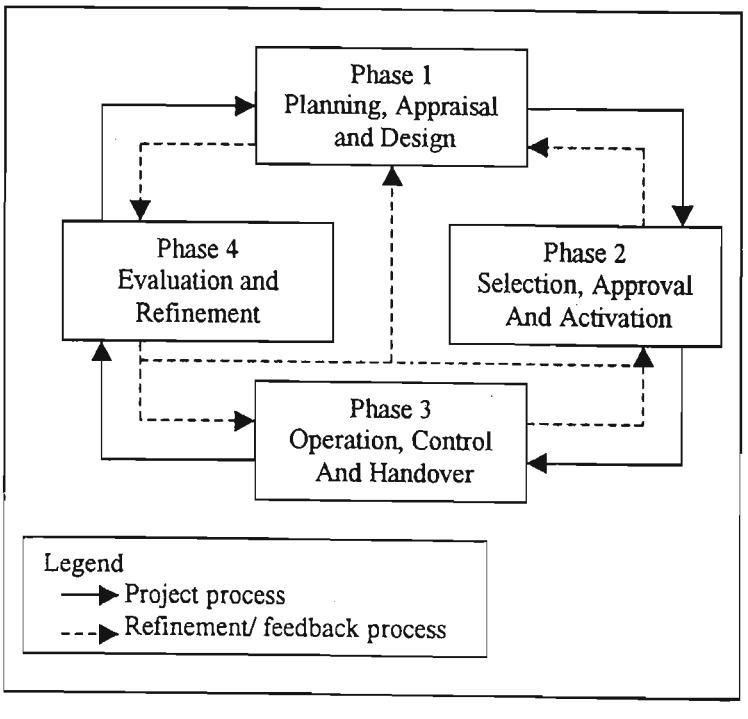
Sustainable development has been defined as, 'development that meets the needs of the present generation without compromising the ability of the future generations to meet their needs' (WCED, 1987: 43). However, Patel and Peart (1999) suggest that, sustainable development seeks to address the needs of the environment, society and economy of all the people without threatening the viability of natural resources on which the social system depends. The first definition by WCED (1987) brings into light two factors: futurity and social needs. The second definition by Patel and Peart (1999) highlights factors such as: socio-economic needs; public participation; equal accessibility to use of natural resource; and, a society's economic growth limited by environmental integrity. Futurity includes the idea of enabling the future generations to inherit continuous benefits from the use of natural resources, while socio-economic needs involves addressing the people's basic needs through the sustainable use of natural resources. On the other hand, public participation means enabling the people to make their own decisions about their natural resources which should result in equal access and benefit from natural resources. Economic growth within environmental integrity means increasing productivity in the generative capacity of the natural resources. These factors are fundamental to the issues addressed in the study for development of fly fishing at Nsikeni. Although in this study the target population is not associated with a protected area, fly fishing as beneficial ecotourism activity is assessed with a focus on adopting the CBRM concept and within the sustainable development context.

1.3 Research approach

For introduction of CBRM strategies in a community like Nsikeni, a project implementation process has to be undertaken. Goodman and Love (1979) consider a project implementation process as a cycle which they refer to as an Integrated Project Planning and Management Cycle (IPPMC). According to Goodman and Love (1979: 2) the IPPMC is a conceptual framework defined as,'a tool for observing and analysing the single process that constitutes the life of a development project'. However Goodman and Love acknowledge that each and every project has an unique mode of action adopted for its implementation.

The IPPMC has basic principles which are, in one way or another, taken into consideration during each particular project process (Goodman and Love, 1979). The IPPMC (see Figure 1.1) has four phases: phase one, is the planning, appraisal and designing stage; phase two, the selection, approval and activation stage; phase three, operation, control and handover stage; and phase four, evaluation and refinement stage. Activities that take place in the different phases of the IPPMC affect each other, meaning there is no phase that is isolated from another phase.

Figure 1.1: The Integrated Project Planning and Management Cycle (IPPMC). (After Goodman and Love, 1979).



1.3.1 Focus of the study

Although all the phases are important, the research study is focussed on phase one of the IPPMC, that is, the planning, appraisal and designing of the project. In this phase two aspects are addressed: identification and formulation of a project; and, feasibility analysis and appraisal of a project strategy.

(i) Identification and formulation of the study

Any project should be initiated to meet the basic needs[4] of the people (Goodman and Love, 1979; Chamber, 1983; Lienenberg, 1994; Burkey, 1998). In addition, Lewis (1997) points out that it is not just the basic needs that should be addressed, but issues around political, social, economic and environmental contexts that have to be considered too. This implies that the basics of sustainable development should be addressed as discussed above in Section 1.2. The community, through decision-making procedures, should opt for practices that will address their needs while acknowledging limits on what the environment can sustainably provide. These issues should ideally fall in line with the development potential for that particular sub-region (Lewis, 1997; Burkey, 1998). Therefore the formulation of a project for the Nsikeni community should be compatible with the southern Drakensberg region's potential. The potential for the region according to Liebenberg (1974) is fly fishing and other ecotourism activities. However, in addition to Liebenberg's opinion the formulation of this study is informed by an Environmental Impact Assessment (EIA) report by Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997). The EIA[5] study was carried out for the community afforestation programme by Mondi Forest (MF) in a joint venture with the Mabandla Tribal Authority (MTA), the traditional governing body of Nsikeni. The EIA assessment of the Ngwagwane and Ngungununu Rivers identified the potential for fly fishing. It is the potential for fly fishing that this study attempts to assess, with an emphasis on the human and natural resource capacity of the Nsikeni area (mainly the rivers) and the people's perceptions of the potential of the water bodies, which form the basis for developing a CBRM strategy. However, the study is more social than biological. A proper piscatorial investigation is not among the aims set out in Section 1.3.3 below.

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[4]Basic needs, means those things that an individual or a community must have for survival. These include clean water, adequate balanced food, shelter, appropriate cultural conditions and physical and emotional security (Burkey, 1998:27).

[5]An Environmental Impact Assessment (EIA) is a procedure carried out as per requirement as provided for by the National Environmental Management Act No 107 of 1998 (NEMA) of the assessment of a project that has potential of impacting on natural resources and devise mitigatory measures that could be used to minimise the identified potential impacts.

(ii) Feasibility analysis and appraisal of a project

Feasibility analysis examines the capacity that the community has to run a project sustainably. The analysis considers factors such as: location of the area and its potential for the intended project, size or magnitude of the project, the technology or expertise available in the community to run the project, and efficient administration structures, traditional or modern. This phase also seeks to identify all the skills in the target population which could be developed so as to enable them to cope with the future demands of operating, controlling and managing the project either partially or completely (Goodman and Love, 1979). Creemers (1997) identifies the following conditions to be satisfied for sustainability of a project: first, the project should have merits of being endogenously initiated; secondly, the community has to run the management operations of the project; and, lastly, the community has to own the project. The key issue brought up by Creemers' conditions is that community has to participate in decision-making on issues around the project.

Therefore to aid the identification and analysis of all factors, an appraisal of the community has to be carried out with active participation of community members. Through the process of participation, the community takes the opportunity to voice opinions about the project, and their capacity to manage the natural resources such as the rivers. An analysis of such a nature is aimed at empowering the community so as to minimise the dependency of the community on outside agencies for the duration of the project (Burkey, 1998). Further more, this stage includes the identification of land tenure issues where the beneficial natural resource (river) is located, the governing structures of the community and factors which could determine power relations within the community and with external organisations and communities, such as riparian land owners upstream in the Ngwagwane River catchment for integrated catchment management.

1.3.2 Research hypotheses and question

Unlike most projects which involve protection of the natural resources being in protected areas, this research project focusses on land owned by the Nsikeni community. Fly fishing, as an ecotourism activity, would utilise the river, which is a natural resource in the custody of Mabandla Tribal Authority (MTA). It is important to recognise that the community's needs, perceptions, communication structures and institutions, determine the strategies that could be

put in place for implementation of a community-based project. However it is also of concern that, although a community may have beneficial assets such as natural resources in their custody, they may not be aware of the benefits that could be derived from such assets, then the incentive created in managing the asset would not exist and neither would the sustainability of the beneficial process. In light of the facts discussed above, two hypotheses were devised as follows:

- A number of riparian owners in the southern Drakensberg, are on average not well informed of the potential of fly fishing resources at their disposal; and
- The water resources of Nsikeni have the capacity to sustain a greater level of ecotourism through fly fishing.

The community's views and perceptions about the river and its potential are determined by their socio-cultural needs and controlling institutions such as traditional structures within the community. Fly fishing is an activity originating in European culture (Liversage, 1996; Avni, 1997; Hopkins, 1998; Venter, 1998), therefore the rural Nsikeni people's customary practices together with the requirements to fulfill basic needs, is a challenge for the development of a CBRM strategy based on fly fishing (as would be discussed in Chapters 3 and 4 respectively). Despite such constraints, the people need to understand the activity and appreciate that they could derive benefits from its practice, if, in fact they can. The research question then becomes, how could fly fishing as an ecotourism option provide a model for sustainable development for the Nsikeni community in the southern Drakensberg?

1.3.3 Aim

The aim of the study is to develop strategies for sustainable use of an ecotourism activity, fly fishing, through a programme that is people-centred. To have a product or findings that will serve as primary recommendations to help develop fisheries in areas of high potential, but possibly underutilised, such as in Nsikeni, as a means of contributing to the improvement of the local economy and job creation. In addition, the product could serve as a means of enhancing local rural economies through local development of ecotourism opportunities, including fly fishing, and identifying and developing information that will assist the formation of accessible management guidelines to all stakeholders. These guidelines could further be used in decision-making in the implementation of management strategies within the community-based context,

as well as within broader umbrella structures such as the catchment management agencies (CMAs). The aim of the study is sub-divided into several objectives namely;

- to assess the Nsikeni community's socio-economic and socio-cultural status;
- to identify the community's land use practices in relation to the river system;
- identify the location, quality and status of fishable water within the Nsikeni community water;
- to investigate the perceptions of the community as communal land owners/holders towards fly fishing as a resource;
- to consider internal and external institutional structures in the Nsikeni community which could influence management options that could ensure sustained development of fly fishing as a beneficial resource and identify those management options;
- to identify stakeholders such as non-governmental organisation, fishermen, farmers and local communities who will need to be considered in implementing and supporting management strategies for sustainable fishing;
- to formulate integrated catchment management guidelines that could be adopted for protecting the integrity of the Ngwagwane River and its potential for fly fishing; and
- to identify potential local and international sources of funding for future recommended activities based on these research findings.

1.4 Study outline

Chapter One provides a introductory overview of the research background, the CBRM concept, hypotheses and questions that guide the undertaking of the study. Chapter Two is background information and pertinent characteristics of the study area, together with the research methodology used to obtain information analysed in this text. Chapter Three attempts to bring into light the existing potential of ecotourism with a focus of fly fishing at Nsikeni based on people's perceptions, while Chapter Four adopts sustainable development as a guiding principle in natural resource management. This chapter attempts to examine issues pertaining the on-going challenges of the interdependence of social development and the environment. In Chapter Five, the impacts of land use activities along the Ngwagwane River ecosystem are

discussed in an attempt to provide an insight into the possible deterioration of the river ecosystem due to diverse land use practices. Chapter Six, based on the Nsikeni people's opinion, attempts to formulate a community-based model strategy, a possible solution that could be adopted for a CBRM. Chapter Seven discusses issues that were identified in previous chapters and reflects by drawing up conclusions and recommendations.

CHAPTER 2: BACKGROUND AND RESEARCH METHODOLOGY

2.1 Description of study area: The people and their land

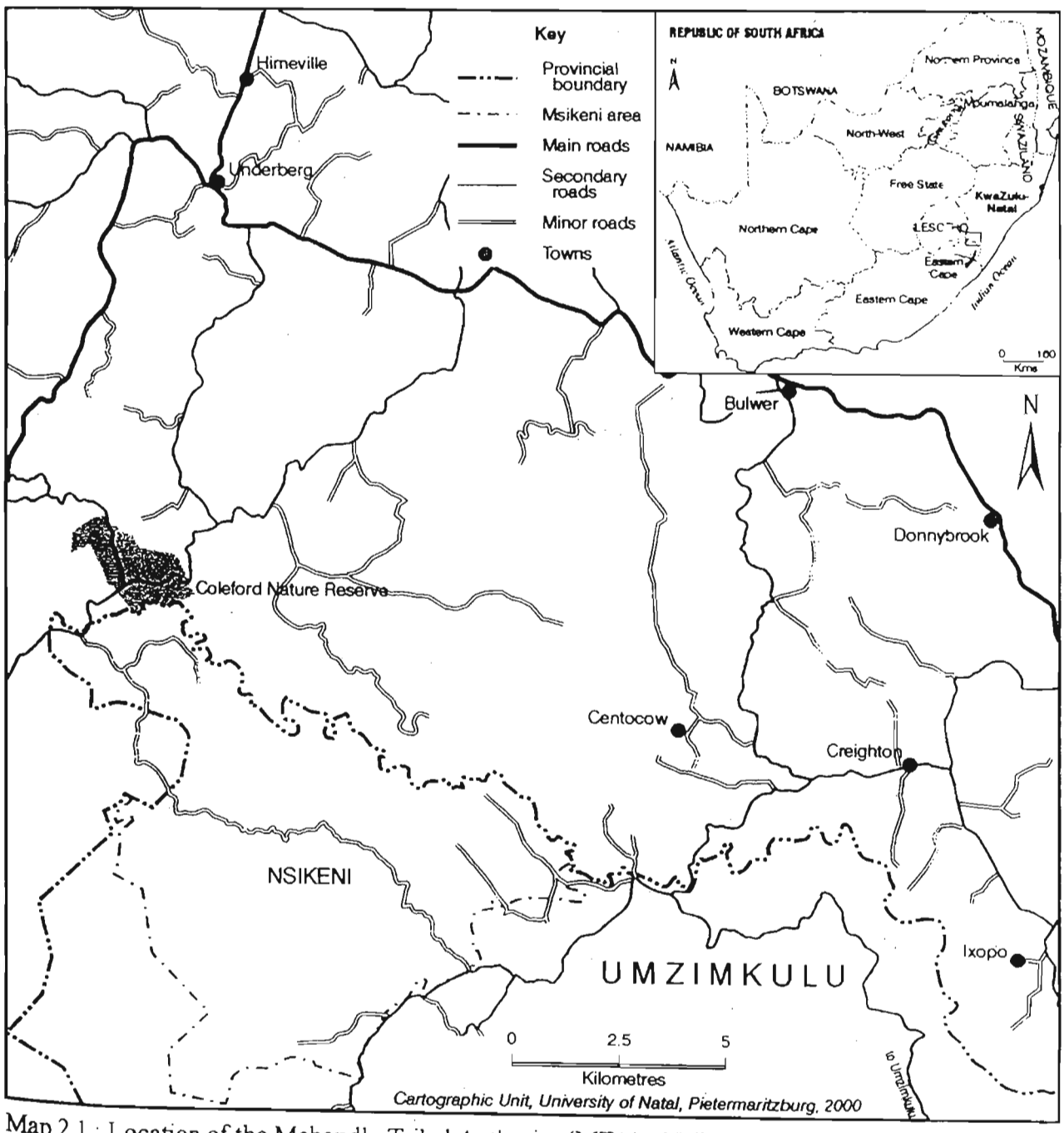
Nsikeni is part of the rural communal areas of the Eastern Cape, the former Transkei. This is part of the Eastern Cape Province that is bounded by the KwaZulu-Natal (KZN) Province known as Umzimkulu district (see Map 2.1). Nsikeni is located on the southern part of the Drakensberg mountain at 30^0 15′ South and $29^0$15′ East. It lies on the North-West corner of the Umzimkulu district approximately, 30km south of 'fly fishing town,' Underberg. According to the business plan for the Mabandla Communal Property Association (MCPA), the Mabandla Tribal Authority (a traditional governing body for Nsikeni) area is approximately 10 000 hectares in extent.

2.1.1 The study area and historical context

Nsikeni people are part of the clique that left northern Natal, below the Lebombo hills and emigrated to the Embondeni Great Place in Mount Frere in the Cape colony during the blight of the Shaka Zulu wars (Makaula, 1988; Chief Sidoi pers.comm.). Sidoi[1], fled with his people from colonial forces in 1857 to the Mzimkulu District which later fell under the Transkei. During the flight from the colonial forces Sidoi, and his people mixed with the *Bhacas* and in the process Sidoi married the daughter to Chief Ncaphayi the leader of the *amaBhaca,* the Xhosa tribe (Ross, 1974). With this exposure to the Zulu and Xhosa practices, an explanation of why the Nsikeni people are referred to as the *Ntlangwini* could be possible. The *Ntlangwini* or *abaNzansi* is a tribal group of Nguni people of diverse ethic origin. According to MaMbhele, an elderly member of the Nsikeni community *abaNzansi* show a mixture of Zulu and Xhosa customs evident in practices such as, their ritual and ceremonial activities, housing construction style and language.

[1] The leader of the Ntlangwini who led the people form the colonial forces in the Cape to the Umzimkulu district, a great grand parent to the current Chief Sidoi of the Nsikeni area. The two Chiefs share the same Chieftaincy name.

Map 2.1: The location of the Mabandla Tribal Authority (MTA) - Nsikeni



Map 2.1 : Location of the Mabandla Tribal Authority (MTA) - Nsikeni

In 1878 the Eastern Cape province came under the Cape magisterial rule. In 1879 there was a move by the Cape colony administrators to implement a separate status of a reserve for areas that are highly populated with Africans such as the former Transkei (Saunders, 1974). This move eventually saw the highly African populated areas obtaining the status of a 'homeland' (Hawkins, 1980; Saunders, 1974). In 1963 the 'homeland' areas were declared self-governing. However, in 1971, the Bantu Homelands Constitutional Act empowered the South African government to grant independence to the 'homelands'. By 1976 the 'homelands' were independent states that were self governing. Transkei (former Eastern Cape) came under the leadership of K. D. Matanzima (Thompson, 1990; McAllister, 1989).

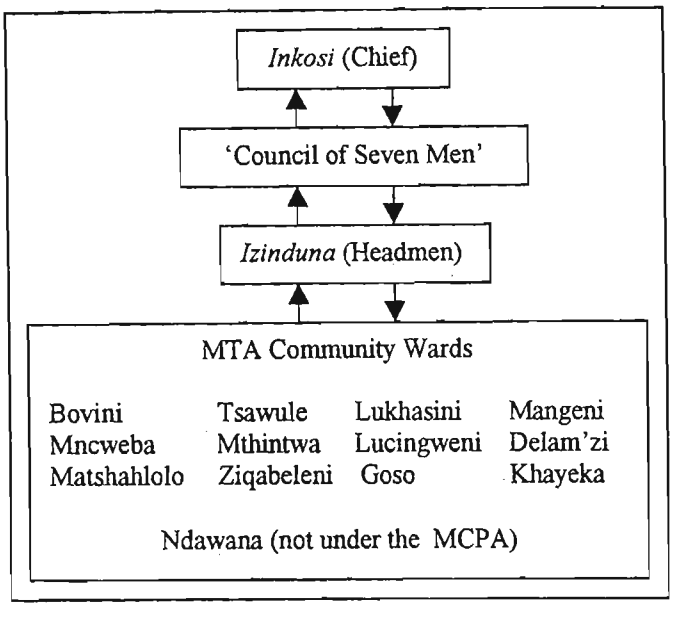
The policies that were enforced to create the Transkei and other 'homelands' had an impact on the productivity of the people and their land. At first the 'homelands' depended on subsidies from the government in Pretoria. As time progressed these subsidies declined. Without the subsidise, the people were forced to become migrant labour on surrounding white farms and in mines as far as Johannesburg (Thompson, 1990). Saunders (1974) contends that these 'homeland' areas turned into a labour pool for the surrounding white farms. However, when white farming became largely commercial, Africans lost the right to live on the farms and could not enter the urban areas because of the pass laws and therefore opted to resettle in homelands (Thompson, 1990). At the same time, when the people lost their jobs in the mines they resettled in the rural areas. According to Wilson (1999), resettlement of the people increased the population in the homeland and other rural areas in South Africa. Population pressures in turn increased pressure on natural resources available in these areas. In this light, the past apartheid legislation, although partially could accounted for the impact on the environment of the former 'homeland' areas. It created settlement on areas with poor land productivity because of their location in steep and rocky topography with often poor soils, over population of the areas on a fragile environment, little or no opportunities for creation of employment, and as a result of the above, poverty.

2.1.2 Administration of the study area

The Nsikeni area falls under the jurisdiction of the magistrate based at Umzimkulu, located about 40km South-East of the study area. The study area is administered by the Umzimkulu

Transitional Local Council (TLC) which is the institution responsible for providing services from the government. However, most administration and development procedures are carried out through traditional structures of the Mabandla Tribal Authority (MTA) under the leadership of the *Inkosi*. As explained by Mr Zulu, a member of the MCPA development committee and community member, illustrated in Figure 2.1 below, the *Inkosi* is supported by the council of *'amadoda ayisikhombisa'* which when literally translated means 'the council of seven men'.

Figure 2.1: Traditional structures under the Mabandla Tribal Authority (MTA)



The council members are choosen by *Izinduna* or Headmen, each of whom oversees a ward in the community. The group of councillors have the authority to make decisions associated with conflicts amongsts community members, however in such instances the *Inkosi* is a *primus inter pares*[2] (Hawkins Associates, 1980). The role of the *Izinduna* or headmen is to monitor the development progress in each ward and solve minor conflicts that can exist between individuals in the community (Nomtshongwana, 1999). The headmen also serve as a communication bridge between the *inkosi,* councillors and the people. In an analysis

[2] *Primus inter pares* means a seniority status that the Chief assumes in discussions and decision-making on issues raised with the 'council of seven men'

of the existing traditional hierarchical structure of the Nsikeni community, it is evident that it cannot be ignored in decision-making for any development project. The traditional structures form the communication protocols in the community, an important factor in the establishment of sustainable management strategies 'with' the Nsikeni community, as will be discussed in Chapter Six.

2.1.3 Land tenure

Land ownership in many rural areas is through communal land tenure which is community of property. In the '*Tragedy of the Commons*', Hardin (1968) emphasised the potential of unlimited access to a resource thereby destroying the incentive to conserve that resource. He further argue that group management for the common good will invariably lead to resource degradation since the private benefit of maximising returns exceeds the private cost. This is because the costs of maintaining the commonage are shifted onto the group as a whole. However, De Wit (1998) argues differently, maintaining that a resource as a common property can be managed as a private property if certain conditions are met. Particularly, the user rights of the property have to be defined and limited to prevent exploitation of the common resource base. In this sense the membership is known, rules are developed and enforced, incentives exist for co-owners to conform to the institutional arrangement and sanctions are imposed to enforce compliance with the rules.

However, at Nsikeni through the Communal Property Association Act 28 of 1996, the MTA established the Mabandla Communal Property Association (MCPA). The MCPA was established for the implementation of a community afforestation project, in a joint venture between the Nsikeni community and Mondi Forests (MCPA Business Plan, 1998). A Community Property Association Constitution (CPAC) has been drawn to ensure that property rights for the MTA are legal. The formation of the MCPA enables the membership (Nsikeni community) to jointly acquire and manage property such as land by facilitating the transfer of state owned land to the community. According to the CPAC for establishing the MCPA, qualification for membership is defined in section 5 as, '...any household residing permanently within the Mabandla tribal area shall be eligible for membership as an individual member of the Association...'. According to section 3.1 of the same document the main

objective of the MCPA is to '... hold such property on behalf of and for the benefit of all its individuals members'. The establishment of the MCPA at Nsikeni excluded other communities from benefits that could be obtained through use of the natural resources within the MTA area. The Nsikeni people have control the use of land or property through participation by making decisions and plans on how to implement projects in the community. The exclusive right by the community over the MTA is managed as a 'common-private property' (De Wit, 1998). Besides the implementation of the afforestation project in the community the MCPA has to execute any action that may serve to address poverty, unemployment, socio-economic needs and historical disadvantage amongst its members through the establishment of community-based projects (CPAC establishing the MCPA, 1998). However, it has to be noted that the MTA shares the Ngwagwane River riparian ownership with other African communities in the KwaZulu-Natal (KZN) Province therefore these communities cannot be excluded from deriving benefits from a resource (the river) which they have in their custody too.

To facilitate resource (land) redistribution a Settlement Land Acquisition Grant (SLAG) of R15000 per rural applicant has been offered by the government for economic development (Rural Development Framework, 1997). The same offer has been applied for by the Nsikeni community however, the land acquisition process has not been fully achieved because: it seems people were not well informed about the SLAG fund; most of the head of households who are supposed to apply for the SLAG, work outside the study area and for some they only come home during the festive season; however, some have not applied because they claim they do not have official documents such as, birth certificates, passports, and ID numbers. As a result the community has not been able to secure money (approximately R7 million for the 2349 households) through SLAG funding [3].

[3] In relation to SLAG funding the situation at Nsikeni is as follows: with a household population of 2349 (figure given to the Eastern Cape, Department of Land Affairs) each household applicant would receive R3 000 bringing the total to approximately R7 million for the whole community. This money would be utilised for the repayment of the loan used to fund the community afforestation project. However, other development initiatives have also been identified for funding through money obtained from the SLAG. These development initiatives are such as shopping complex, poultry, piggery, tourism etc. However, by the time of compiling the report the payment plan for the community afforestation project and other development initiatives was outlined. The information was obtained through a meeting between the MCPA development committee and the Department of Land Affairs (East London) held on the 7th November, 1999 at the Tribal Court (see Map 2.1) at Nsikeni.

2.1.4 Settlement pattern

When the people settled in the area, the pattern adopted was like in any other typical rural settlement pattern sparsely populated households in locations allocated by the *Inkosi*. However, it was through the Soil Conservation Planning Programme (SCPP) that the people were resettled in nucleated villages called wards (Hawkins Associates, 1980). McAllister (1989) refers to the SCPP as the 'betterment' policy. According to McAllister, the 'betterment' policy, was to a large extent, provided for by the 1936 Native Trust and Land Act, although other legislation contributed. The intention of the policy was to change the pattern of land use by dividing the rural areas into different zones, such as for, settlement, agriculture and livestock grazing. The zonation of the rural areas was to provide for plans to conserve soil, manage the veld and establish afforestation schemes, agricultural extension services and other small scale development projects (McAllister, 1989 citing De Wit, 1985). With the Nsikeni community, the 'betterment' scheme resulted in the people being resettled in thirteen wards namely, Bovini, Khayeka, Delam'zi, Matshahlolo, Lucingweni, Mangeni, Tsawule, Ziqabeleni, Lukhasini, Goso, Mtintwa, Mncweba and Ndawana (see Map 3.1). All the wards as illustrated in Map 3.1, are next to the main road and close to the Ngungununu River which as indicated in Section 3.3 is highly utilised for various purposes such as fishing and domestic requirements.

McAllister (1989) argues that although the SCPP had intentions of conserving natural resources and creating room for development projects the opposite was observed. The author contends that the 'betterment' scheme rarely brought about any economic development and was 'usually associated with a decline in living standards' (McAllister, 1989: 363). The SCPP or 'betterment' policy was resisted in some sectors such as the Willowvale district on the coastal part of the Eastern Cape by the Shixini people. The resistance was borne from the realisation that, there would be limited land for grazing livestock, a requirement for the people to decrease livestock numbers so as to conform with reduction of grazing land and reduction in availability of arable land. Although there was resistance with the Nsikeni community, like with the Shixini people, they succumbed because of a perception that the scheme is what the government requested (MaMbhele, pers.comm). However, in relation to use of natural resources the scheme changed the

scattered residential pattern of Nguni people to concentrated households. This process contributes to destabilising the soil structure and promoted soil erosion in the settlement areas. The SCPP scheme also led to a decrease of arable and livestock grazing land which increased the potential for degradation of the environment in processes such as soil erosion and overgrazing. These impacts that resulted from the adoption of the scheme are discussed further in Chapter Five. However, as will be seen, this policy has had the consequence of making large tracts of land available for afforestation, ecotourism and other possible developmental initiatives.

2.2 The geo-physical characteristics of the study area

The Nsikeni area is largely mountainous. The highest point is 2 045m and the lowest point about 1 260m (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). The landscape is of steep slopes leading to flat land near the river system. The climate of the Nsikeni is typical of the Drakensberg Mountain, showing a variety of weather patterns. According to Acocks (1988) annual rainfall ranges from 750mm to 1500mm with average rainfall at 1122mm for the Umzimkulu District in which the area is located (Hawkins Associates, 1980). Fog contributes to the precipitation of the area and could account for up to one-third of the moisture (Bainbridge Resource Management and Messrs Venter and Associates citing Schulze, 1997). The summer rainfall which makes up most of the rainfall that occurs in the area comes between October and March (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). While the summer precipitation, which is mainly from downpours, accounts for most of the annual precipitation, winter precipitation is made up of little rainfall (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates citing Schulze, 1997). The little winter rainfall is usually accompanied by snow which melts from the Drakensberg escarpment into river systems. The relatively high mean annual rainfall (1122mm) accounts for the abundant natural water supply that the study area has. However, the area does experience periods of drought like the rest of South Africa.

Sedimentation during the formation of sub-group Adelaide resulted in the mud-stones from which the study area soils are derived (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). Dolerites outcrops (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997 citing Synman, 1997) are common and these have intruded the shale and sandstone (Hawkins Associates, 1980). The existence of the dolerites indicates the presents of kaolinitic clays suitable for brick-making for dwelling construction (Hawkins Associates, 1980; Dodds, 1975).

When rainfall range exceeds of 800mm per year there is likelihood of the soils to be deep and highly leached. This character is a precedence for acidic and low nutrient soils (Hawkins, 1980). With the relatively steep terrain there are sites of localised gully systems which contribute to sheet erosion. In some areas erosion is promoted by ox-drawn sleigh pathways from the indigenous forests or the river where the people collect wood and building sand.

2.3 Natural resources and their use

The physical structure of an area determines the natural resources that are found in an area and so determines the type of land use that could be practised in the area without threatening the natural resource's integrity. These natural resources are water, land and soil, vegetation and forests. Over the centuries these communities have relied on the natural resources which they used in a relatively sustainable way. However, with the previous regimes and establishment of 'homeland' policies as discussed in Section 2.1.4 there has been significant pressures on areas such as Nsikeni. Natural resources at Nsikeni are mainly used mainly for subsistence as will be discussed below for each particular natural resource.

2.3.1 Water

Water in the study area as mentioned in Section 2.2 above is in abundance and of relatively good quality. The river system which rises in the Drakensberg escarpment, is made up of the Ndawana River, Mangeni River, Nongiqa River, Ngungununu River, all tributaries of the larger Ngwagwane River, which is a tributary of the Umzimkulu River. Both the

mentioned rivers and natural springs (numerous in the study area) are important for water supply. The natural springs are mainly used for domestic water supply such as, drinking and cooking. However, in the event of failure of the springs during drought periods, river water becomes an important source for domestic water supply (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). On the other hand, the rivers system is used for watering livestock, religious and ritual purposes, sand mining (construction of household) and subsistence fishing. The subsistence use of fishing will be discussed in Section 3.3.

In addition, water bodies are also used for cultural/ritual purposes such as washing clothes of the dead people in running river water. Other activities such as baptism and religious activities are also carried out in the water bodies (Mgilane, pers. comm.).

2.3.2 Vegetation

According to Derricourt (1988), Highland Sourveld largely constitutes the study area's vegetation. Acocks (1988) lists Nsikeni's vegetation as Veld Type 44a which is Moist Highveld Grassland. The principal land use for grasslands in the study area is for grazing livestock. The animals that are kept in the area include goats, sheep, donkeys, horses, chickens, pigs and cattle, with the latter being dominant in numbers.

Livestock, like in many African countries has many uses. The animals are used as source of food, to provide hides and kraal manure, as draught for ploughing and transport. Livestock also serves as a capital investment and also as a symbol for ancestral spirits, ceremonial activities and marriage (Hawkins, 1980; McAllister, 1989). More importantly, livestock plays a role in determining the social status of a household head. The cultural and socio-economic requirement described above often leads to relatively high stocking rates[4], which usually exceed the veld's carrying capacity (Abel, 1992)[5]. With a high number of animals (mainly cattle) as a result of socio-cultural pressures, the intensity of livestock grazing becomes relatively high. Intense livestock grazing is associated with impacts such

[4]Stocking rate is the area allocated to each animal unit (au) in the veld per given period.

[5]Carrying capacity means area of the veld that can supply sufficient nutrition to an animal unit.

as degradation of the vegetation because of overgrazing and trampling of the animals on land covering vegetation. As a result the top-soil is exposed making it easy for the rain and wind to erode it into river systems. Overgrazing also results in a change in the grassveld species composition. This is caused by the fact that grazing animals tend to graze selectively with a preference for the sweet, palatable veld grasses (decreasers) rather than the sour unpalatable veld grasses (increasers). This leads to preferred species being out grazed from the veld and being replaced by less preferred grasses which consists of increasers and invader species. According to Abel (1993) a mixture of increasers, decreasers and invader species is a sign of mismanagement. This is the case in the study area where increaser grasses such as Eragrostis plana and Aristida junciformis have replaced the decreaser grass species in formerly cultivated areas.

To manage the veld the people use fire. However, there is uncontrolled use of fire to produce fresh spring grazing (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). The people burn the grass earlier than required, usually during winter which coincides with the 'berg' winds which are experienced in the area. In such instances either the veld is extensively burned or the woody communities such as the indigenous forests are burnt (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). However, Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997) maintain that, at present grassland cover is still relatively good and is directly proportional to the state of soil erosion which is minimal, despite the issues raised above.

In addition to grazing, grasses are also used for other purposes such as thatching. Hyperrinea grasses and *idobo,* Cympopogum validus arae used for thatching mud huts (Hawkins Associates, 1980; McAllister, 1989). These grasses are collected on previously cultivated land. Other type of grasses are used for making handicrafts such as mats, floor brooms and decorative ornaments.

2.3.3 Forests

Forests in the study area can be differentiated into two types. The indigenous forests mainly made up of the rare Yellowood (Podocarpus) forests, and the 'exotic' Acacia, wattle forests. These forests are used for several purposes. There are several indigenous forests located in the area, but the main three are the Hoha, Mgano and Goso forests (see Map 3.1). These forests are part of the 140 000 hectares of indigenous forests in the Eastern Cape (Nomtshongwana, 1999). Indigenous forests are used for harvesting building material, such as the Podocarpus africana (*umsonti*) which is used for roofing, and for the collection of firewood, grazing of animals, and extensively for collection of medicinal plants (Nomtshongwana, 1999; MaMbhele, pers. comm.). These practices have led to extinction of some species in parts of the forests such as *umthathi,* Ptaeroxylon obliquum used for medicinal purposes, fuel, fencing, building and carving (Nomtshongwana, 1999). However, it is of concern that if part of the forest is removed, there is a threat posed to the function of the forests in maintaining the surrounding rivers ecosystem's integrity. These issues will be examined further in Chapter Five.

The indigenous forests are also used for collection of food such as wild vegetables to cook traditional dishes such as *isigwamba* (MaMbhele, pers. comm.). The indigenous forests also have game such as *inkonka* (Bushbuck) which the people hunt for subsistence and sport.

Acacia, wattle forests as mentioned above are also found in the community area. These forests are scattered along the river bank system and wetland areas. However, according to the community afforestation programme there is a plan to remove all the wattle trees along the riparian and the wetland areas and establish woodlots for community use. The community uses the wattle trees for collection of building material, fencing and also for domestic fuel (MaMbhele pers. comm.). The issues raised by the resultant impacts are discussed in Chapter Five.

2.3.4 Land and soil

The land is mainly utilised for food production through agricultural land use activities. For food production the people have vegetable gardens (75 metres by 25 metres) in their

household compounds and large crop fields close to the river system. In the home-situated gardens, the people grow vegetables such as cabbages, carrots, spinach and some maize and potatoes, while in the fields they grow crops such as maize, sorghum and beans. Because of the high rainfall and steep terrain, Nsikeni soils are highly leached which is a limiting factor for food production. Therefore, to enhance soil fertility for better food production, the people use NPK fertilizers, kraal manure and pesticides. According to Hawkins Associates (1980) there is, however, poor land production and failure to provide for basic food supply because of the high reliance on subsistence agricultural practices. As a result, to supplement for food the people import from outside areas such as Ixopo and Creighton (B. Dlamini, pers.comm.).

2.4 Infrastructure

'Infrastructure refers to the forms of existing development such as roads, education facilities and clinics which provides for essential physical services to the community and thus enable other forms of development to take place' (Hawkins Associates, 1980: p115). A well-established infrastructure supports development especially in ecotourism where it completes the destinations package quality. Therefore a well established infrastructure, or if purposefully managed can reflect on how the people can advance themselves. Generally the Nsikeni area has poor infrastructure inherited from the former Transkei government. However, there has been little change since the 1994 elections.

2.4.1 Health facilities

There are no health facilities at Nsikeni except for a mobile clinic that comes into the area from Rietvlei hospital once a month. The mobile clinic is located at Matshahlolo ward which is perceived to be the centre of the MTA area (see Map 3.1) The closest clinic is at Nsikeni 4 which is 30km from Nsikeni and is only maintained by a nurse with no doctor available. In referral or emergency, cases the people go to other hospitals such as Christ the King at Ixopo about 74 km away or Centocow about 37 km away from Nsikeni. When asked about any water related diseases affecting the community members, the mobile clinic attendants highlighted gastro-infections and bilharzia. However, there have also been AIDS cases

reported in the community.

2.4.2 Education facilities

In the late 1970's, only 22% of the Eastern Cape (former Transkei) population was literate (Hawkins Associates, 1980). The low level of literacy could be an indication of the low level of education facilities in the province as well as Nsikeni. Noor (1981) argues that there is an interrelationship between learning and development. The author contends that learning through an education system empowers the people with basic knowledge, skills, values, change of attitudes in tackling life's challenges. In so doing, it creates an awareness and so improves problem-solving skills because of enhanced capacity and willingness to accept new ideas. With good education the people tend to have a better understanding of the benefits that are associated with or are derived from a particular change (Noor, 1981; IUCN, 1991). Skills such as communication and management ability are attained in any form of learning. This enhances the ethos of easy understanding of project policies and an appreciation of potential benefits that can be derived from a project (IUCN, 1991).

At Nsikeni there are seven primary schools and only one high school catering for the whole Nsikeni population. The only high school and a primary school were built by the government after the 1994 elections which also saw the introduction of the government providing of books and food (in some schools) to school-going children (Mgilane, pers, comm.). These schools are distributed in the different community wards (see Map 3.1). There are no tertiary education facilities, trade or industrial schools at Nsikeni or in the surrounding communities. According to Delam'zi Juniour Secondary School Principal Mrs C. Mgilane, most of the teachers live outside the area and with transport problems when the roads are inaccessible during the rainy season there is poor class attendance. In addition, there is a high rate of school drop-outs either because of pregnancy or inability to pay for school fees by parents. With these circumstances existing in the community's education system, a less educated community results as discussed in Section 4.2.1.

2.4.3 Communication facilities

There are no telephone connections, electricity or reception for cell phones. The only communication is through the road. The Nsikeni area has one secondary road, that passes through the area, managed by the government. However, the road is of poor quality. There are other minor roads diverting into the wards from the main road (see Map 3.1) which are eroded and damaged to the extent that they are impassable by cars, especially during the rainy season (see Plate 3.1). According to the Chairman of the Mabandla Communal Property Association (MCPA), Bhekani Dlamini, the poor road quality is a limiting factor to accessibility to the area. This limiting factor brings into light of the constrains of accessibility to the area for fly-fishers which will be later discussed in the text. The main mode of transport is by buses, combis and vans using only the main road because some areas are not accessible except by foot.

In addition, there is a train line that passes about 10 km South of the study area. The line has been used in previous years for transporting people from Umzimkulu district, mainly the migrant labourers from the mines in Johannesburg and workers from other areas. However, the train line is not used for such purposes because of politically related train violence that occurred in the trains prior the 1994 democratic elections (B. Dlamini pers. comm).

2.5 Socio-Economics

The population of Nsikeni is estimated at 16 566. This is based on the outcome of this study, by multiplying the total number (2761 of dwellings (see Appendix A) with the average number of people (6) per household. The employment rate for Nsikeni is very low at 25%of the Nsikeni population (MCPA Business Plan, 1998). Most of the employed adults are migrant workers. They work in large cities away from the Umzimkulu district such as Durban and Pietermaritzburg (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997; MCPA Business Plan, 1998). Some individuals (mainly men) are employed as far as Johannesburg in the mines and industrial areas. A very low number of people are employed within the study area because of few job

opportunities.

The economic activity in the area is comprised of a number of formal shops and informal trading in the form of spaza shops and shebeens[6]. The people mainly depend on income from the migrant workers, subsistence agriculture for food supply and the utilization of resources such as, pension funds and disability grants (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997; MCPA Business Plan, 1998). To create self employment opportunities the Zenzele Women's Association (ZWA) was established throughout the former Transkei in the late 1970s. The programme involved teaching women domestic skills such as sewing, knitting, baking. The ZWA programme also created opportunities for marketing of these home industries (Hawkins Associates, 1980). A few people have established poultry and piggery schemes, others grow vegetables others crops, and sell the produce to community members. However, the Nsikeni community exhibits low socio-economic status which is a typical characteristic of the former homelands. Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997: 41) in summation contend that, 'no welfare projects appear to have been offered to the Nsikeni community'.

2.6 Constraints on sustainable development

Hawkins Associates (1980) maintains that typical characteristics of rural tribal areas such as Nsikeni are marked by environmental degradation and low economies that are founded on unsustainable land use practices. As discussed in Section 1.2, social, economic and environmental issues are joint aspects which have to be addressed congruently for a sustainable CBRM strategy. However, rigid adherence to subsistence practices in use of the natural resources is observed. As is the case in other tribal areas, there are reasons that compel the Nsikeni people not to implement new and better methods to cater for social

[6]Spaza shops are informal (in urban areas they can be formal enterprises) mini groceries run by individuals in a community. They cater for food and grocery item supplies in small scales. On the other hand, shebeens are also informal outlets that sell alcoholic beverages both modern and traditional to community members. Both spaza shops and shebeens are usually located in busy areas such as tribal court, clinics and schools or in homesteads.

development and the environment. These reasons are:

- land pressures that have been aggravated by the increase in population, therefore people have to rely on subsistence practices such as agriculture to support their large families. This factor is a result of both political and conservation approach methods that the Nsikeni people have been subjected to including apartheid legislation and the application of the 'betterment' policy;
- lack of financial and other resources which is due to the non-existent or limited money generating activities in the area and few or no employment opportunities;
- poor infrastructure facilities which limits development opportunities for the area;
- a low level of education and social development within community members; and
- cultural influence especially on livestock keeping.

All these issues are associated with poverty. Poverty could be defined as the inability of an individual or a household to command enough resources to fulfill a minimum standard of living. An increase in poverty results in increased pressure on the natural resources as more people are forced to rely directly on them. In the document '*Caring for the Earth*' the IUCN, UNEP and WWF (1991) advises that conservation cannot be achieved without a move to alleviate the poverty of the people. As Indira Gandhi stated at the Stockhlom Conference in 1972, 'Poverty is the greatest polluter' (Gupta, 1998: 96). In relation to the statement by Indira Gandhi one can conclude that the potential for the Nsikeni community to conserve natural resources is low, in the light of the issues discussed in this introductory chapter. However, Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997) identified the potential for fly fishing in the Nsikeni area. Exploring this potential, facilitated by the social responsibility undertaken by the Federation of Southern African Fly-fisher's (FOSAF's), in a vision to create more fly fishing opportunities for the fly fishing community and establish sustainable benefits from fly fishing for the rural communities, is the intention of the study. Burkey (1998) advises that development as a process of improving the quality of life should exploit each and every level of socio-economic activity in a community, be it poverty or richness. Therefore an attempt is made in this study to access information about the Nsikeni community which would in form a CBRM strategy. Access to information was carried out through the research methodology

described in the rest of this chapter.

2.7 Research methodology

According to Holstein and Gubrium (1995) access to information relies on the action taken to obtain it. For the research study three types of research procedures were adopted to obtain information. These were secondary sources of information, triangulated research methods and an assessment of the location and status (in relation to associated land use) of fishable waters and the Ngwagwane River catchment.

2.7.1 Secondary sources of information

The secondary sources of information or literature review focussed on ecotourism as development opportunities within the concept of sustainable development through community-based resource management (CBRM) strategies. The literature review also looked at the challenges faced by CBRM's. The information gathered was to ensure a comparative analyses between other studies in different countries and this case study. Information on the study area's background information and pertinent issues about the community were also obtained through the literature review. Information about the community included the socio-economic and socio-cultural issues and how these relate to sustainable development. Since the research study included the interface between the human resource (the Nsikeni community) and the natural resource (the river ecosystem), information from literature sources included: the importance of the southern Drakensberg as both a catchment area and an ecotourism destination; land use activities as contributing factors to the quality of river ecology; fish populations as a fly fishing resource; and fly fishing as an ecotourism activity that could benefit the Nsikeni community, so as to address the issues raised in the hypotheses of the research study while contexualising the research findings obtained through the other procedures described below.

Information for the literature review was sourced from secondary data which directed the researcher to aspects and key issues that were considered during the research procedures mainly, the construction of the questionnaire used in the quantitative procedures.

2.7.2 Triangulation research methods

Information obtained from primary and secondary data has short comings in that it is usually constructed with a specific agenda. In addition, the information is obtained without interaction with people who, because of the nature of this study, have an important role. Therefore, to address the short coming of the primary and secondary data, a triangulation of research methodologies was used. Triangulation is the use of more than one research method of data collection to yield similar findings (Babbie, 1992; Bloor, 1997). According to Bloor, (1997) the use of different research methods minimises the bias that could arise when only one research method is applied. Van Vlanderen and Nkwinti (1993) assume that people have indigenous knowledge which, when collected and refined, can be effectively used in formulating, planning and implementing development processes, which as described in Section 1.3 are the basis of the study approach. It is on the basis of the assumption by Van Vlanderen and Kwinti that the use of the triangulation research method was adopted so as to 'tap' into the indigenous knowledge and access information from community members. Two research methods were used under the triangulation method. These research procedures were the qualitative and quantitative research methods.

(i) Qualitative research

Miller (1997: 2) defines qualitative research as, 'a window through which we might see and comment on significant social issues' and verify the reliability of data collected. According to Babbie (1992), reliability refers to the possibility that research findings are the same under similar circumstances taken for their production. Reliability for the study was necessary to analyse social realities and relationships through which the Nsikeni people are connected to one another in their everyday life which is critical for the study. Information obtained from the qualitative data also strengthened validity of the data collected from the quantitative research methodology. According to Babbie (1992) validity is the preciseness in the data collected, that reflects the real meaning of the concept(s) examined. The information was collected through informal interviews, formal interviews as well as in-depth formal interviews and focus group sessions.

- **Informal interviews**

Informal interviews with identified members of the community were conducted with the intention of refining topics covered during the literature review and gathering facts about the community respectively. Informal interviews were used identify key informants, who are individuals that can provide an insight to different aspects of the research study. The key informants were identified through 'snow-ball sampling'. Snow-ball sampling occurs when an informant identifies a list of individuals who are in most cases directly involved in community development therefore were able to provide insights into particular aspect about life in the Nsikeni community (Bilton *et al*, 1996; Nichols, 1991). The key informants included, Mondi Forest extension programme officer, the Chief of the area, Mabandla Community Property Association (MCPA) development committee chairman, two ward representatives from the MCPA committee, the headmistress, the community's fishermen, two elderly community members and youth members.

- **In-depth formal interviews**

In-depth formal interviews[7] were held with the key informants on a one to one basis. The researcher used the format of semi-structured questions[8] constructed with a focus on relevant key issues and in relation to that particular key informant's role in the community. Because of the manner of the questions, several probing questions arose from each interview which led the study to other points of interest which were further investigated (Feuerstein, 1990). The information obtained clarified certain issues by providing contextual information which was used to analyse the quantitative data. A pertinent example of the validation of constructs was distinguishing among fish species with fishermen by referring to pictures in fish books (Skelton, 1993). This enabled the species categories gathered in the questionnaire schedule to be meaningful to the respondents. Even after this procedure, the categories had to be revisited since a confusion arose between the brown trout and the male rainbow trout.

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[7]In-depth formal interviews are those conducted with a pre-arrangement between the interviewer and interviewee and had a pre-designed guide in issues to be covered for a particular key informant

[8]Semi-structured questions are those that have been constructed by the researcher with particular topics that have been identified either through literature review or during informal interviews. These questions have few answers that confirm specifics such as yes or no. They, rather, elicit open-ended answers.

- **Focus group discussion**

A focus group[9] discussion which adopted the Participatory Rural Appraisal (PRA) format was assembled with the community's communal vegetable garden ward representatives. Elliot (1999: 188) defines a PRA as a tool which can be used to analyse the planning of a project which has as its basis, giving people the opportunity to fully participate 'in development projects including setting objectives, planning, execution and evaluation'. PRAs give the people an opportunity to be active players in the formulation of plans for a project cycle. In this study one focus group was selected which comprised seven women. There were similarities amongst the members of the focus group and these were: first, they all belong to the same gender (female); secondly, they all belong to the community's communal vegetable garden association; thirdly, they were all born at Nsikeni and they have stayed in the area for the duration of their lifetime; and finally, they were all unemployed and had taken part in the Zenzele Women Association (ZWA), and therefore had handicraft skills such as, sewing and manufacturing skills, including cake baking. These similar characteristics mentioned above were a prerequisite so as to instill a sense of identity amongst participants which enabled freedom of expression during the discussion (Nichols, 1991).

The discussion with the focus group was unstructured and based on a questionnaire guideline (see Appendix B). Holstein and Gubrium (1995) and Chambers (1983) observed that information obtained from focus group informants tends to centre around people's experience and, as such, information which would not be obtained through quantitative procedures can therefore be accessed through the group discussions. In this light, information from the discussion provided an insight to some of the social activities that take place in the community, and which need to be taken into consideration in the data analysis. In addition, the information allowed the researcher to develop an appreciation of the needs and development plans of the community, as well as the governing structures in place in the community. This activity was also a way to generate information to aid the construction of

[9]A focus group means a group of individuals homogenous in terms of gender, employment status that serves as an information pool for the researcher. There is creation of a forum for debate and expression of ones views and opinions on issues that the researcher presents to the group.

the questionnaire that would be used in the quantitative procedures (Feuerstein, 1990). In the same way, information obtained from the informal and formal interviews, and the information collected from the focus group discussion was used to conceptualise data obtained by other means.

(ii) Quantitative research

The information obtained from qualitative procedures cannot be analysed in a quantified sense. In this light, quantitative procedures were used to get a sense of representativeness in the data collected (Bilton *et al*, 1996). The quantitative research method adds validity to data collected. The activities that were carried out under the quantitative research procedures were: the designing of the research questionnaire; sampling of the target population; and administration of the questionnaire.

- **Questionnaire design**

Identification of key issues during the literature review formed the basis of sub-topics covered in the questionnaire. These sub-topics were then presented as questions to different respondents during the informal interviews, formal interviews and the focus group session after which, questions were formulated from the responses. The process described above was repeated several times and in each case questions were refined. The questionnaire formulated from the sub-topics took the format of both structured and semi-structured questions (see Appendix C).

- **Sampling of the target population**

A sampling frame[11] which had 2761 household units for Nsikeni community was obtained form the Mabandla Community Property Association (MCPA). The sample frame had a list of the twelve wards under the MCPA. The wards had unequal number of household units (see Appendix C). To address the uneven distribution of household numbers from ward to ward, the total number of households (***T***) was divided by the number (***N***) reflected on the sampling scale to obtain the same percentage of sampled household units from each ward.

[11] A sampling frame is a list of all the members of the target population, for this study the list was obtained through the Mabandla Community Property Association (MCPA) which had been constructed for the Mondi Forest community afforestation project.

N was 158 households selected at 99% confidence +/- 10% deviation. A rounded figure S (17) was obtained from the calculation. From the sample frame every seventeenth household unit was selected. The selected household names made up the sample population[12] which is on average 5% of the number of households in each ward (see Appendix A).

$$S = T/N$$

$$S = 2349/158 = 17.47$$

- **Questionnaire administration**

Four matriculants from the Nsikeni community were hired and trained by the researcher on how to administer the questionnaire to the sampled households units. Practice sessions for the administration of the questionnaires were carried out with the respondents being volunteer community members. The practice sessions were done so as to identify unclear questions and relevance of questions to the issues that needs to be addressed, which as Babbie (1992) advises are important issues so as to avoid misleading answers. The questionnaire was administered in face to face interviews with a permanent mature respondent from each household who has knowledge about the household to enable him/her to answer on behalf of the household members.

2.7.3 Data collection for fishable water bodies and the Ngwagwane catchment

1: 50 000, 1986 topocadastral maps together with 1: 50 000 orthophotographs were used to identify the river system for the Ngwagwane River catchment. Information obtained from key informants, such as fishermen, farmers and questionnaire respondents (Appendix B) was used to identify:

- the fishable streams/rivers;
- the type of fish species in the river or streams; and
- the type of land use activity along the Ngwagwane River catchment area.

The information obtained was used to map the fishable water bodies in the custody of the

[12]A sample population is one that is representative of the community population and should reflect aspects such as population distribution, and other characteristics of the community.

Nsikeni community and attach a description to each type of water body in terms of the information that was gathered as described above. Furthermore, an exploration of the Ngwagwane River was undertaken to observe all the land uses from Nsikeni to the source in the protected area of the Ukhahlamba Drakensberg Park (UDP).

2.8 Timing of the research

The breakdown on the procedures was as follows; informal and formal interviews were carried out from the 28th September 1999 to 19th October, 1999; the focus group session was held on the 19th October 1999; and administration of questionnaires from the 12th to 17th, November 1999. Assessing the status of fishable waters was carried out in parallel with the informal and formal interviews, focus groups sessions and the administration of questionnaires. Ground-truthing[13] of land use activities in the Ngwagwane River catchment was carried out from the 29th November 1999 to 1st December 1999.

[13] Ground-truthing is procedure that was carried out to verify whether the landmarks on the 1: 50 000 topocadastral maps and the orthorphotographs on land use activities, settlement areas and river system were a true reflection of what is on the ground.

CHAPTER 3:
ECOTOURISM THROUGH FLY FISHING: AN OPTION FOR NSIKENI?

South Africa has had more than a 50% increase in overseas visitors which, in 1995, was rated the fastest growing tourism sector worldwide (Koch, 1997). A survey by the South African Tourism Board (Satour) in 1996 to investigate why overseas tourists come to South Africa found that conservation of both environment and culture attract visitors to the country (Koch, 1997). Natural resources also ranked high in the reasons that overseas visitors listed as attractions to South Africa (see Table 3.1).

Table 3.1: Reason why overseas tourists come to the Republic of South Africa: Source: Koch, 1997

Reason	Percentage (%)
Scenic beauty	24
Political change	13
Wildlife	12
Climate	10
Business interests	9
South Africa's diverse culture	8
Other	24
Total	**100**

According to Slembrouck (1995) South Africa has the third highest biodiversity index (rich flora and fauna) of all countries worldwide. Considering the effects of development on the natural environment, the value of the Drakensberg is its relatively unspoilt 'wilderness'. It exhibits extensive wild scenic beauty which needs the greatest care. As a result of recent initiatives between the Governments of South Africa and Lesotho, the Maluti-Drakensberg Conservation Area (M-DCA) has been identified for focussed development as a conservation area. This choice is credited to the area's scenic beauty and wilderness made up of unique biota and also, importantly, as a source of water. Seventy percent (70%) of the Maluti-Drakensberg

mountains are in the Kingdom of Lesotho and the rest are in the Free State, KwaZulu-Natal and the Eastern Cape. The Eastern Cape, area includes Nsikeni (Maluti-Drakensberg Transfrontier Project, 1999). The M-DCA programme aims to promote sustainable land use, with ecotourism being identified as an important development option. The Ukhahlamba Drakensberg Park (UDP) administered by the KwaZulu-Natal Nature Conservation Services (KZNNCS) and the Sehlabathebe National Park in Lesotho are also considered for promotion of community development projects and an ecotourism infrastructure. According to the Maluti-Drakensberg Transfrontier Project (1999), funding has been set aside for the promotion of these conservation areas mainly for drafting of the legislation, treaties and the application for the area to be recognised as a Transfrontier Conservation Area (TFCA). In another development, declaring the area as a World Heritage Site in terms of the RAMSAR Convention[1] has been considered. Should this recognition be accorded, as is expected, this high accolade is likely to attract international ecotourists. As the M-DCA and UDP are both close to Nsikeni, their proximity may provide an opportunity to exploit off-site ecotourism benefits, which could be through fly fishing.

According to Hawkins (1995: 261), citing the Ecotourism Society (1992), ecotourism has been defined as the 'purposeful travel to natural areas to understand the cultural and natural history of the environment, taking care not to alter the integrity of the ecosystem, while producing economic opportunities that make the conservation of natural resources financially beneficial to local citizens'. This definition implies that rural communities can derive benefits from the conservation of natural resources thereby increasing the extent of economic production of the people while minimising environmental degradation (Whelan, 1991). The promotion of fly fishing in these rural areas would, if properly managed, be a contributing form of ecotourism.

[1]RAMSAR Convention means the Contracting Parties on the Convention on Wetlands which was established in Iran in 1971. South Africa became the fifth Contracting Party in 1975 which meant that the country's wetlands have to be protected along the guidelines of the Convention. In South Africa protection of wetlands together with its biodiversity is managed through the South African Wetlands Conservation Programme (SAWCP), (Cowan and Dini, 1999).

3.1 Fly fishing: The gentle art or multiplier industry?

Many fly-fishermen perceive fly fishing as an 'art' that is used to fill a missing link in their everyday life activities, rather than as a means of food acquisition. As Crass (1986: 1) observes 'the world is becoming increasingly artificial and townsmen, in particular, need an absorbing hobby as a foil to the strains of urban existence...and angling provides contact with nature'. The fly-fisher derives satisfaction from applying his/her skills in catching a fish. McCafferty (1991: 18) expresses the gentleness of fly fishing, when citing John Gay,

> Around the steel no tortured a worm shall twine,
> No blood of living insect stain the line,
> Let me, less cruel, cast a feather'd hook,
> With pliant rod athwart the pebbled brook,
> Silent along the mazy margin stray,
> And with fur-wrought fly delude the prey.

As well as the gentleness expressed in McCafferty's quotation, the 'art' in the sport is related to the artificial lures fashioned after insects through which fishing tactics can be used to outsmart the fish and trick it into taking the fly. Most fly-fishers perceive the sport as an 'art' which, when efficiently practised, provides a high-quality recreational experience.

One experienced fly-fisherman defining fly fishing states, however, that, "*it is about standing in the water for a long time and going over to a shop to buy a two thousand Rand rod* " (Bainbridge, pers.comm.). This statement by Bainbridge implies that fly fishing is practised by relatively wealthy people. A study carried out through the Department of Economics, University of Stellenbosch, for the Federation of Southern African Fly-fishers (FOSAF) by Venter (1998) on the economic value of fly fishing, reflected that 65% of the respondents who fly fish have an annual income in excess of R75 000 (Venter, 1998). Fly-fishers contribute to the regional and local economy through buying rods and fishing flies, paying expenses for travelling to areas outside the urban areas to fish, paying fishing rod fee, and paying for accommodation in the fly fishing destinations. The study found that an average of R1059 is spent per trip by fly-fishers, which was however, considered an underestimate since the respondents did not include transport costs (Venter, 1998). The expenditure would total between R96 million and R122 million per annum, contributed to the country's revenue. From Venter's study, Croney (1998)

concludes that if an industry is worth more than R100 million to a country's economy then it deserves a higher priority. This is particularly true if opportunities for indirect employment exist, as is the case with the fly fishing industry which is well established and in particular, marketed in the southern Drakensberg through enterprises such as those situated in protected areas, fishing clubs, the Midlands Meander and privately owned lands. These initiatives are briefly discussed below.

(i) Protected areas

As described above protected areas have an underlying principle to conserve natural resources, but also and more importantly to develop the potential of the area through ecotourism. There are two protected areas which are considered in this text the, Ukhahlamba Drakensberg Park (UDP) and the Coleford Nature Reserve (CNR).

- The Ukhahlamba Drakensberg Park (UDP)

The Ukhalamba Drakensberg Park (UDP) is located approximately 70km north of the study area. The UDP is managed by the KwaZulu-Natal Nature Conservation Services (KZNNCS). This protected area offers a wealth of opportunities that matches its scenic splendour, from a gentle self-guided trail to the rigours of rock-climbing and mountain biking for those with a taste for high adventure. A host of other pastimes include hiking, birdwatching, swimming, riding and photography. There are also river systems and dams which offer fly fishing opportunities. Accommodation facilities range from luxury lodges, fully-equipped cottages and chalets to scenic camping sites with well-appreciated picnic and ablution facilities (Eshayamoya Country, 1998).

- Coleford Nature Reserve (CNR)

The Coleford Nature Reserve (CNR) is located about 10km north of the study area (see Map 2.1). It was established in the 1950s as a game breeding farm and for game viewing (Goosen, per comm.) Over the years the CNR has come to offer more, such as game and bird viewing, picnicking, walking and trout fishing from dams or from the Ngwagwane River (Goosen, pers.comm.). Visitors are booked into a self-catering hutted camp and accommodation is provided by a private entrepeneur who leases the camp, although conservation management of

CNR is done by the KZNNCS (Eshayamoya Country, 1998).

(ii) Underberg/Himeville Trout-Fishing Club (U/HTFC)

The Underberg/Himeville Trout-Fishing Club (U/HTFC) is a non-profit making fly fishing club located in Underberg, 50 km North of the study area. The club was formed in 1954 by land owners intending to provide public access to quality fly fishing. The club has grown to become the largest fly fishing club in the country, and today holds fishing rights over more than 160km of six rivers, as well as 60 dams comprising 400 hectares of still water (O' Grady, 1999; Eshayamoya Country, 1998). According to Bill Simson, secretary of the U/HTFC, the club has a membership of approximately one thousand, made up of local private non-riparian land owners, private riparian land owners (from the Underberg region), and the fly fishing community in South Africa and outside the country. The club offers 4000 to 5000 rods per year to about three-quarters of the membership and the rest are visitors to the Underberg district. Simson (pers.comm) reckons that the club could handle more that two to three times its membership. In addition, the U/HTFC carries out booking for the riparian land owners, relief spraying and land management, and plant invader management for the riparian land owners who have fly fishing facilities (Eshayamoya Country, 1998; Simson, pers.comm). More importantly, legal protection of the riparian land owners who are members of the U/HTFC are provided for by the Constitution and Bye-Laws of the Underberg/Himeville Trout Fishing Club.

(iii) Private land owners

Privately owned farmlands in a village-like settlement form the social and commercial pivot for the southern Drakensberg region. The farms form the Bed and Breakfast network, although, there are also numerous self-catering cottages offered by such set-ups. Other areas also offer camping sites or bungalows and cabins. Some of these areas offers fly fishing opportunities in dams and rivers whose management (for fly fishing facilities and river health) is done by the U/HTFC. Some of the farmlands have agro-tourism set-ups, that is as well as running the tourism attractions mentioned above, crops are grown and livestock kept mainly for commercial purposes.

(iv) Midlands Meander

The Midlands Meander is a drive route that takes one through Mid-KwaZulu-Natal (KZN) accessing approximately 120 arts and crafts outlets, 'stretching from Hilton to Mooi River, and from the Dargle Valley in the West to Rietvlei in the East' (Eshayamoya Country, 1998: 6). The enterprise began in the mid 1980s with a handful of potters, painters and weavers who opened studios and workshops to the public (Eshayamoya Country, 1998). Some of the private landowners discussed above form part of the Midlands Meander enterprise stop-overs, and therefore accommodation facilities such as houses, hotels and camping sites for visitors, and fly fishing opportunities are offered at some of the outlets. In addition, the Midlands Meander initiative also promotes Small Micro Medium Enterprises (SMMEs)[2] amongst the rural communities.

3.2 The potential for fly fishing for the southern Drakensberg

Nathal (1947: 11) contends 'You will hear some men maintain that Underberg fishing compares favourably with any in the world, others complain that it is hopeless. The truth is, of course seasons vary, like experience, and anglers come and go with good fortune or bad'. This statement makes clear that although the potential for fly fishing in the Underberg region may be very high, individual experiences will vary according to particular circumstances. A recent study by the KwaZulu-Natal Tourism Authority on behalf of the Decision Surveys International (DSI), which includes data from the southern Drakensberg, shows that of the R1.8 billion from tourism revenue, R36 million was from the Underberg region. In the same study it was reported that R22.5 million per year is from domestic tourism driven by fly fishing (Avni, 1998).

Although detailed market research needs to be done to test this claim, O'Grady (1999) maintains that the Underberg region, 30km North of Nsikeni (see Map 2.1) is reckoned to offer more fly fishing opportunities than any other district in South Africa. The Nsikeni community shares the same rivers with the Underberg region including the Ngwagwane River, which Crass

[2]Small Micro Medium Enterprises (SMMEs) are small business developments that involve an individual or a group of individuals who produce goods such as hand-work (crafts). However the term can also be extended to production of contruction material and enginnering services, such as block-making, carpentry, pane beating, welding and metal work. These wares are produced for small scale money generation.

(1986: 44) considers to be one of South Africa's 'best rainbow trout rivers'. It has to be noted that though the Underberg region shares the same rivers with Nsikeni and is benefitting from entrepreneurship, the latter does not benefit yet it shares the same potential.

3.3 The potential for fly fishing: A Case study of Nsikeni

The natural waters of the Eastern Cape have been rated highly by South African fly-fishers. In a study on the fly-fishing industry the Eastern Cape province was rated second to KwaZulu-Natal as the favourite trout fishing destination (Venter, 1998). Crooney (1998) observes that the Eastern Cape still has further undeveloped potential for fly fishing and suggests that these areas deserve to be promoted through the involvement of rural communities. This study centres on the potential of water bodies in the custody of the Nsikeni (MTA), and considers the potential for the implementation of a participatory programme to promote fly fishing in the area within the context of CBRM strategies, as discussed in Section 1.2.

This section seeks to bring into perspective the people's perception of the potential of the water bodies as a resource for sustainable development. Access to information was obtained from the procedures as described in Section 2.7 which comprised appraisal responses from key community memebers, focus group participants and questionnaire respondents, whose profile is outlined in Appendix D. This section discusses information that was obtained from the research study on fishing at Nsikeni, and concludes with a discussion on the findings and possible contraints associated with the information obtained.

- **Members of the household who fish**

The study found that fishing is predominantly undertaken by males. This follows the African tradition that men ensure food and family security through cultivation of land, gathering of wild herbs and nowadays employment for the family (D. Dlamini pers.comm.). From the questionnaire survey 18% of respondents indicated having a member of the household who fishes regularly. Fifty-seven percent (57%) responded that boys were the fishermen of the household, 18% indicated men were, 21% indicated that a combination of men and boys fished while 4% indicated that a combination of girls and boys fished. On the other hand, none

reported having only girls or women fishing for the household.

- **Fishing method**

The study uncovered that bait-fishing was the main method used by the community for fishing. An unchallenged response for bait-fishing was sourced from all questionnaire respondents (100%) while only 3 % responded positively to using nets in addition to bait-fishing. According to Venter (1998) bait-fishing is fundamentally different from fly fishing. Bait-fishing involves the use of live or dead bait which is attached to a hook. As a youth member of the community found fishing the Nongiqa River, explained, "*We use mealie meal pieces, meat tissues, flying ants and worms to lure the fish to the hook*". Bait fishing is used by both members and other community members[3] who fish in the study area. As another youth member related, " *There are outsiders that come to fish in the area and they use the same method of fishing as we do*". When asked about any knowledge about fly fishing, the focus group participants indicated that they were unfamiliar with the practice or sport. The same view was shared with the community fishermen and youth members of the community found fishing the rivers.

- **The fishing community**

The questionnaire respondents were then asked with whom members of their household fished. The respondents indicated that 54% fish with other members of the community but 29% indicated that they fished with both community members or other community members. Four percent indicated that they fished with other members of their household, while none indicated that they fished only with members from other communities. Fourteen percent did not know with whom members of their families fished.

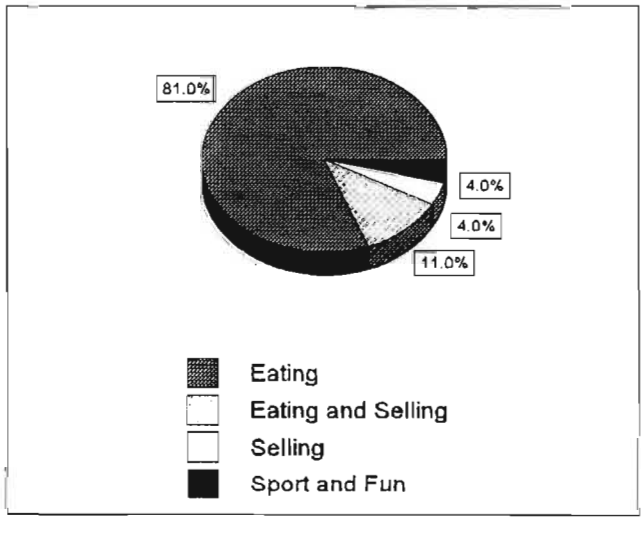
- **The use of fish**

The study revealed that fish caught from community rivers is mainly used for subsistence purposes. According to Skelton (1993) archeologists have found evidence that the San (Bushmen) and the Khoi (Hottentot) fished in the rivers of the Drakensberg. It is possible that these fishing practices could be the origin of the present customary fishing of the region. The

[3]Other community members come from the neighbouring communities such as Nyanisweni, but there are some that come to fish at Nsikeni from as far as Donnybrook (see Map 2.1), (Focus group participant).

respondents were asked why members of their household fished. Seventy-nine percent of the respondents indicated that caught fish was used for consumption, while 11% caught fish for eating and selling (see Figure 3.1). On the other hand, 4% of the respondents indicated that they caught fish to sell and 4% caught fish, for sport and fun. The use of fish as revealed in the study above shows that the value attached to the rivers is for provision of food. Even for those people in the community that catch to sell, the profit is for supporting household needs such as buying food. As Mr Doda Dlamini, a well known man in the community, said , "*Fishing is my way of making a living, I make money to feed myself and my son. I fish and sell for R10-25 per fish depending on the size of the fish to the community members, but I know of someone who fishes and sells the fish at Riverside*". Riverside is a semi-urbanised settlement located between Creighton and Nsikeni about 20km south-east of Nsikeni.

Figure 3.1: The use of fish in the community



Fishing season

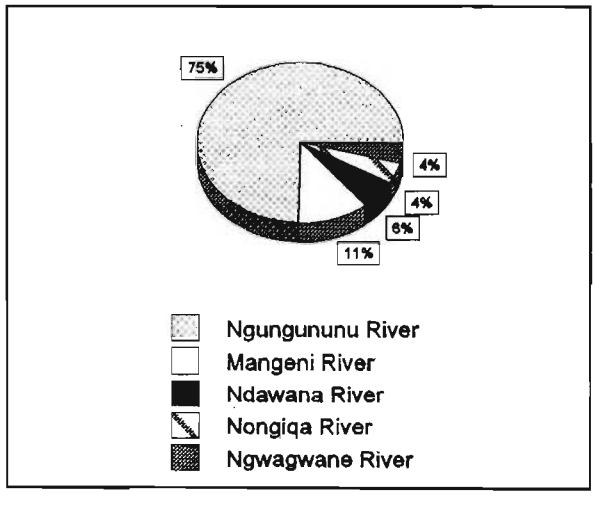
The study established that Nsikeni people have no limit to their fishing season. Through the focus group discussion it was revealed that the rivers are open for fishing throughout the year. As a focus group participant related "*The people fish as long as there are fish in the rivers*". In addition, there is no monitoring of when one fishes, how many fish one takes home and also no permission is required by the people to fish (Youth member, pers.comm). This applies to

both members and members from other communities that come to fish in the area. The reason could be attached to the fact revealed above that the rivers are used for subsistence purposes.

- **The fishable waterbodies**

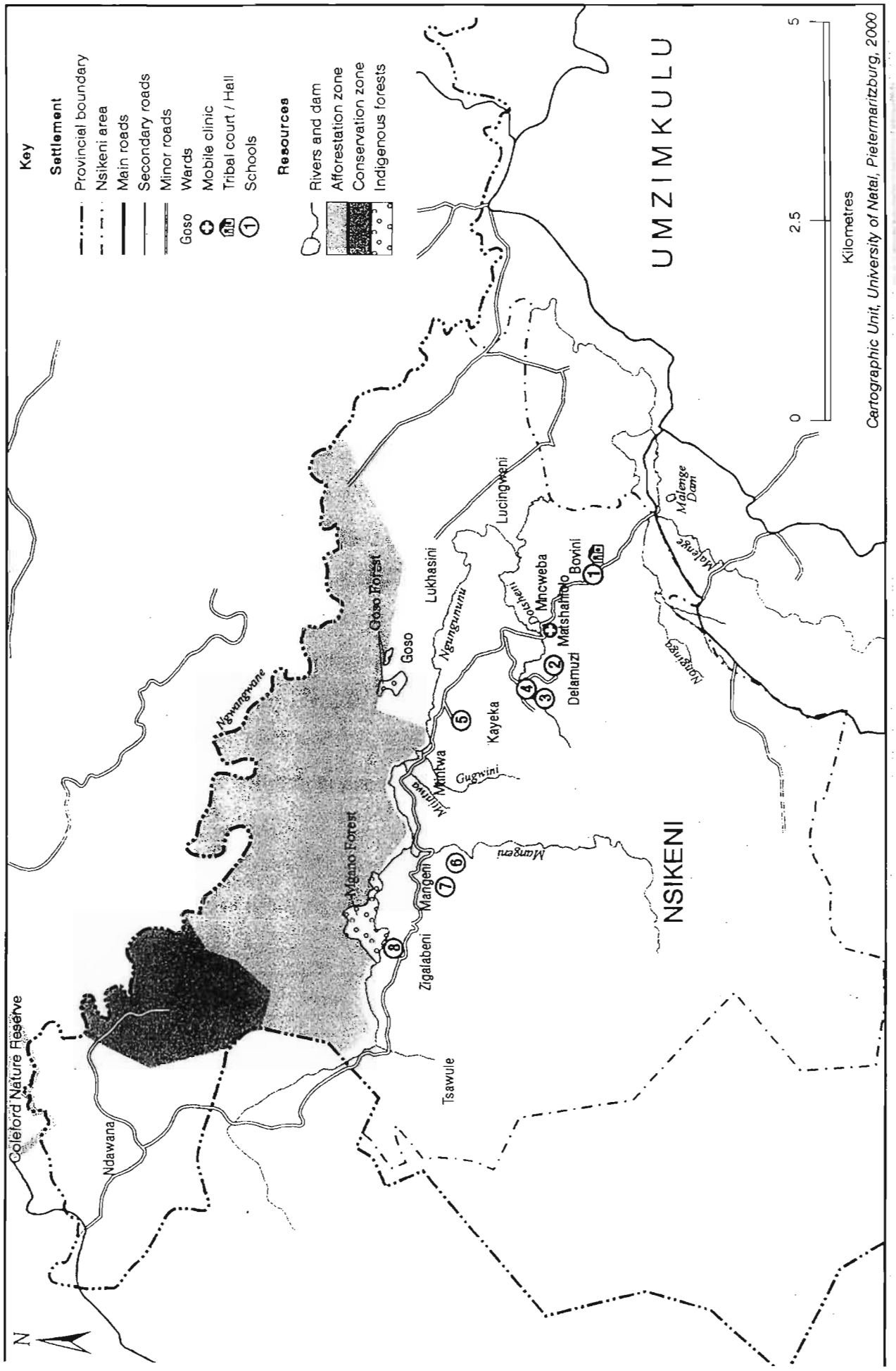
The study found that the rivers in the study area are used for fishing. As shown on Map 3.1 these rivers go through the settlement area except one, the larger, Ngwagwane River which passes the study area on the eastern side between Nsikeni and KwaZulu-Natal. In the questionnaire survey rivers utilised for fishing were named as: Nonginqa River, Mangeni River, Ndawana River, Ngungununu River and Ngwagwane River. The Nonginqa River, Mangeni River and Ndawana River are relatively small rivers compared to the Ngungununu and Ngwagwane Rivers. The river that is used mostly for fishing (see Figure 3.2) is the Ngungununu River (75%), followed by Mangeni River (11%), then Ndawana River (6%) and lastly, Ngwagwane River (4%) and Nongiqa River (4%).

Figure 3.2: Rivers used for fishing in the Nsikeni community



As a focus group participant explained "*The Ngungununu River runs through the community and we use it for many purposes such as washing clothes and our bodies, watering our livestock, especially during drought seasons*". According to Mr. Doda Dlamini, a community fisherman, the Ngwagwane River, although the largest of the five rivers, is not frequently used by community members because it is far away from the people's settlement areas when compared to the other rivers.

Map 3.1: The Mabandla Tribal Authority (MTA) settlement area and resources



- **The fish**

There are four fish species known to be caught in the Nsikeni rivers by community members. The fish are a mixture of indigenous and exotic species constituting South Africa's well known angling species. These fish belong to the Families Salmonidae, Cyprinidae, and Anguillidae. As discussed in Section 2.7.2 information from both community members and fishing books was used to confirm the species that are found in the rivers. Below is a discussion of these species that are caught in the rivers.

1. *Sancothi* and *ikhenke* are the Nguni names by which the male and the female rainbow trout (Oncorhynchus mykiss) are respectively known in the study area. This fish falls under the Family Salmonidae. This 'exotic' was successfully introduced, along with brown trout, into South Africa in the 1890s for food and angling purposes (Crass, 1986; Skelton, 1993; Liversage, 1996; Venter, 1998). Generally salmonid species are highly favoured for angling purposes and, according to Skelton (1993) trout is top-rated game fish. This observation by Skelton is emphasised in Venter's study which revealed that 68% of fly-fishers prefer trout to other angling species. From the questionnaire survey, the study revealed that rainbow trout is the most frequently caught fish in the community rivers (see Table 3.3). This finding confirms Crass (1986) report that the southern Drakensberg rivers are 'the best trout rivers', and those in the study area contain a high frequency of rainbow trout.

Table 3.2: Ranking of fish species caught from Nsikeni rivers

Type of fish	First	Second	Third	Fourth	Points
Rainbow trout	21	1	1	0	**89**
Eel	5	6	9	0	**56**
Scaly/ Natal yellowfish	1	11	1	0	**38**
Carp	0	0	0	1	**1**

Note: Table 3.2 was constructed from a procedure described in Appendix E.

2. According to Skelton (1993) fly fishing is not restricted to trout. *Tshalibeke,* commonly known as scaly (Barbus natalensis) falls under the Family Cyprinidae and is one of the few indigenous species (20%) that are angling fish (Skelton, 1993). The scaly, sometimes referred to as the Natal yellow-fish, has been gaining popularity with fly-fishers as a game fish. According to the rating on Table 3.3 the scaly is the third most frequently caught fish.

3. The eels belonging to Family Anguillidae are known by the Nguni name *mbokwana* in the study area. There are three species belonging to this family caught in the area by community members. These are the Longfin eel, Anguilla mossambica,, Shortfin eel, Anguilla bicolor bicolor and African mottled eel, Anguilla bengalensis labiata. According to Skelton (1993), eels are highly rated angling species. From the ranking of the frequency of catching fish species (see Table 3.3) the eels rated second. As a game species in the fly fishing community eels are not highly sought after (Venter, 1998). Venter (1998) does not include it as a commonly targeted fish by fly-fishers.

4. *Sifumba,* or carp (Cyprinus carpio). According to Skelton (1993) this exotic species was first introduced into South Africa in 1859. It is mainly found in slow flowing, large rivers (Skelton, 1993). Skelton adds that this type of fish species is absent in mountainous areas and it is restricted to warmer tropical areas. This explains the questionnaire response and observation by the community fishermen that carp is not found in the cooler and fast flowing upstream rivers that run through the community, but only downstream in the larger Ngwagwane River where trout occur less frequently. In addition, community members rarely fish the Ngwagwane River owing to its distance. Both factors may explain the low ranking of the species (see Table 3.2). Skelton (1993) argues though that the C. carpio is regarded a pest by conservation authorities because of its destructive feeding habits (it tends to be a bottom feeder thus muddies the water), like the scaly it is also favoured by certain fly-fishers.

The study could not assess the quality (size) of the fish. This shortcoming could be attributed to the community fishermen exaggerating and perhaps the local people were not famililiar with fish weights. There was reliance on hand expression to approximate the size of fish caught and a summary of these estimates is given in Table 3.3.

Table 3.3: Summary of frequency and size of fish caught from each river

River	Type of fish	Common / Nguni name	Size / Frequency
Nongiqa River	Oncorhynchus mykiss, Barbus natalensis Anguilla mossambica Anguilla bicolor bicolor Anguilla bengalensis labiata	Rainbow trout / *Sancothi, Ikhenke* Scaly / *Tshalibeke* Eel / *Mbokwane* Eel / *Mbokwane* Eel / *Mbokwane*	Fish found in this river are medium size. The most frequently caught fish are the eels.
Mangeni River	Oncorhynchus mykiss Barbus natalensis Anguilla mossambica, Anguilla bicolor bicolor Anguilla bengalensis labiata	Rainbow trout / *Sancothi, Ikhenke* Scaly / *Tshalibeke* Eel / *Mbokwane* Eel / *Mbokwane* Eel / *Mbokwane*	Fish found in this river are relatively large. The most frequently caught fish is trout.
Ndawana River	Oncorhynchus mykiss Barbus natalensis Anguilla mossambica, Anguilla bicolor bicolor Anguilla bengalensis labiata	Rainbow trout/ *Sancothi, Ikhenke* Scaly / *Tshalibeke* Eel / *Mbokwane* Eel / *Mbokwane* Eel / *Mbokwane*	Fish found in this river medium to large size. The most frequently caught fish is trout
Ngungunun u River	Oncorhynchus mykiss Barbus natalensis Anguilla mossambica Anguilla bicolor bicolor Anguilla bengalensis labiata	Rainbow trout / *Sancothi, Ikhenke* Scaly / *Tshalibeke* Eel / *Mbokwane* Eel / *Mbokwane* Eel / *Mbokwane*	Fish found in the river are large and many in numbers, especially trout which is the most frequently caught fish.
Ngwagwane River	Oncorhynchus mykiss Barbus natalensis Anguilla mossambica Anguilla bicolor bicolor Anguilla bengalensis labiata Cyprinus carpio	Rainbow trout / *Sancothi, Ikhenke* Scaly / *Tshalibeke* Eel / *Mbokwane* Eel / *Mbokwane* Eel / *Mbokwane* Carp / *Sifumba*	This river has the largest sized fish and has more species when compared to the other rivers. The most frequently caught fish is trout.

Note: Information in the table above is based on information gathered from questionnaire responses and Mr D. Dlamini (community fisherman) with scientific names confirmed from Skelton (1993).

There could be more species, however, which the community members have not been exposed to, such as those in the larger Ngwagwane River. One of the fish species unknown in the community is small mouth bass which, according to the Coleford Nature Reserve (CNR) Conservation Officer, Ed Goosen, have been caught in the CNR waters in the Ngwagwane River, upstream of the Nsikeni community (see Map 2.1). According to Skelton (1993), the first successful introduction of large mouth black bass was in 1928 and small mouth black bass in 1937. The introduction of bass was to complement trout as game fish. The threat they have posed to the indigenous species is contested in many sectors of the fly fishing community and is one of the primary concerns of FOSAF. The same concern is extended to introduced exotic species (Croney, 1987).

The findings of the research cannot be relied on especially for the number of species and frequency of being caught since, as discussed, the Nsikeni people do not fish in all the rivers, especially the Ngwagwane River. A detailed survey has to be carried out to verify the type and population of each species found in each water body.

- **Reliability of fishable waters**

As described in Section 2.2, Nsikeni has climatic conditions similar to those in the Drakensberg mountain range region characterised by storms and heavy downpours and, therefore, the reliability of catching fish in the Nsikeni rivers is of concern. Nathal (1947: 12) retorts that ' the safest times to go trout fishing are at the opening or the close of the season which extends from September to April. I say the 'safest' because 'berg' storms in mid-summer can turn the roads into death traps and the rivers into swelling yellow nightmares that remain unfishable for weeks on end'. Crass (1986) and Skelton (1993) argue that trout are sight feeders. The clearness of the water is therefore very important to enable the fish to see the lure so that they could be attracted to feed on it and unintentionally be snared by the hook. When Nsikeni rivers are subjected to turbid, conditions especially in the weather conditions described above, the chances of catching trout are very low.

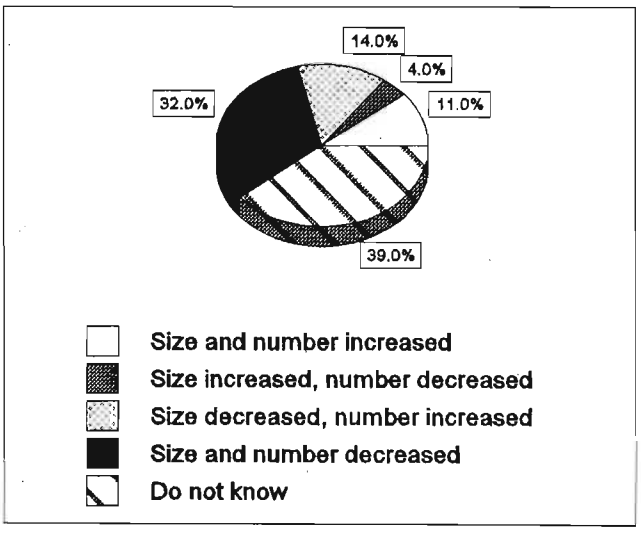
There are however, other species which can be caught even in turbid water conditions, such as the eel which are scent feeders (Skelton, 1993). *"Catching an eel does not rely on the*

clearness of the river water but on the smell of the bait, such as mealie meal, antflies, crab parts and meat tissues" a community youth member found fishing the Nongiqa River related to the researcher. The people also prefer eels to trout because of their palatability (they have few bones when compared to trout). Eels do not however, rate as high as trout with the fly fishing community, as discussed above.

- **Availability of fish**

The respondents were asked in Section 4.8 of Appendix C about their perception of changes in the size or the number of fish. Only the households that had at least one member who fished were asked to respond to the question. As illustrated in Figure 3.3 below in response to the question, 11 % of the respondents thought the size and number of fish had increased, while 4% thought the size had increased, but number decreased. On the other hand, 14% thought the size of the fish had decreased, but numbers increased. A larger percentage (32%) had the perception that both size and number of the fish had decreased. Thirty-nine percent did not know what changes had occurred over the years.

Figure 3.3: Perceptions of the size and number of the fish caught from the rivers



In addition, the respondents were asked why they had such a perception. Thirty-two percent thought the cause was a decrease in the amount of water in the rivers, 21% thought it was nature's course, while 4% thought it was overfishing and 4% the rivers becoming dirty. Thirty-nine percent (39%) did not know. It has to be noted that the respondents do not perceive that inappropriate land use has resulted in a decrease in the size or number of fish.

- **River conditions**

To establish reasons for turbid conditions, respondents were asked to indicate the cause of river contamination/dirtiness. Sixty-seven percent (66%) of the respondents thought that floods made the rivers dirty, while 17% thought it was live animals through trampling. Nine percent indicated that dead animals contaminate the rivers. People were the least perceived contributors to river dirtiness or contamination, with only 8% identifying anthropogenic factors. The responses of key community members and the focus group session cast some doubt on the above results, in that floods, animals and people were perceived as equal agents of the dirtiness/contamination of rivers.

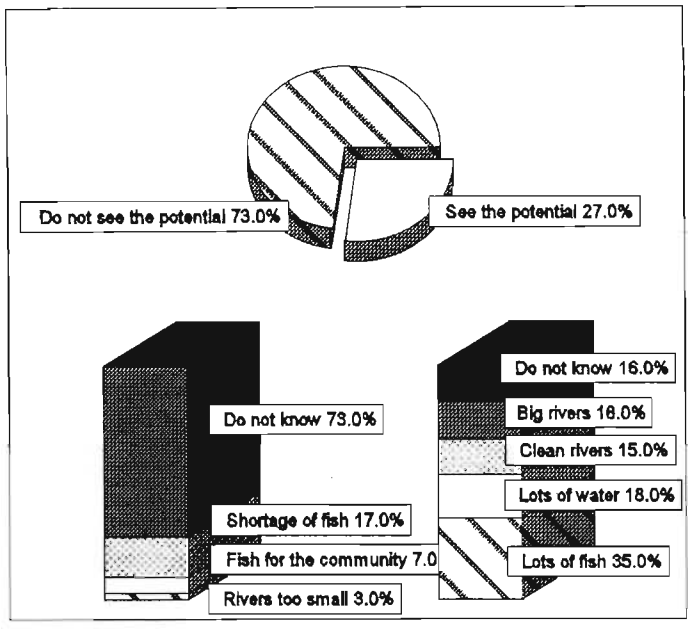
- **Developing the potential**

The value that the people have attached to the river cannot be dissociated from the potential that the people think the river has. From the questionnaire survey, the study found that most respondents (73%) do not see the potential of the rivers accommodating outside fishers. Twenty-seven percent have a different view, seeing the potential of the rivers being fished by those from outside the community. Both perceptions are explained by various reasons as shown in Figure 3.4.

Figure 3.4 illustrates that for the respondents (27 %) who were positive regarding the potential for outsiders to come and fish the community waters, 16% did not know why they saw the potential. The rest of the proponents substantiated their views with reasons such as, the rivers are big (16%), the rivers have clean water (15%), the rivers have lots of water (18%) and a larger percent (35%) think that the rivers have lots of fish. The latter view was shared with the focus group participants. Those uncertain of the opportunity for fly fishing substantiated their reasons with views such as, the rivers are too small (3%), the fish is for the community (7%),

there is a shortage of fish (17%). A large percentage (73%) of these respondents though did not know why they thought the rivers do not have the potential.

Figure 3.4: The community's perception about fly-fishers coming to fish at Nsikeni



3.4 Other ecotourism activities

Although this study is focussed on assessing fly fishing in the area, there are other nature resource use activities that could be generated around the potential of the area. Fly fishing is a seasonal activity and therefore cannot ensure continuous benefit for the community. To cater for this shortcoming there are other ecotourism activities whose potential is evident for promotion in the study area. During the EIA survey by Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997) the Mabandla Tribal Authority (MTA) area was zoned into a conservation zone, afforrestation zone and settlement area (see Map 3.1). The potential for nature conservation exhibited by the study area's natural potential is compatible with fly fishing and may include activities such as bird watching, horse riding and secondary industry associated with this type of recreation. These issues are discussed below.

3.4.1 Nature Conservation

The natural environment in the Nsikeni region is dominated by unique mountainous wilderness sites. The Umgano Mountain located in the northern part of the area forms part of a major Drakensberg mountain chain with diverse flora that is a good surrogate habitat for fauna. This mountain range is part of the conservation zone with the characteristics of:

- pristine plant communities
- diversity of communities
- a number of wetlands
- aesthetic value
- ecotourism potential
- sustainable resource use
- migratory routes for fauna

There are large populations of the cycad, Encephalartos ghellincki in rare dwarf form, and these comprise the largest population in the southern Drakensberg. There is also one of the largest colonies in South Africa of Protea simplex and extensive woodland of Protea roupelliae and P. caffra as well as scrub heathland of Cliffordia, Erica and Passerina species (Bainbridge Resource Management and Messrs Venter Forestry Services and Associates, 1997). These species form a unique collection, often rich in endemic biodiversity which could be developed as a destination for ecotourism as well as a research site for biodiversity conservation.

The study also established that the aesthetic sense of areas surrounding the community rivers is that of a wilderness especially the Ngwagwane River gorge (see Plate 3.1) which exhibits potential as both a fly fishing destination and ecotourists attraction site.

3.4.2 Bird watching

The flora of the study area supports numerous fauna such as birds. Although described as a highveld, Sinclair, Hockey and Tarboton (1993) note that the topography of Nsikeni varies from flat plain to rugged mountains and serves as refuge to many of southern Africa's endemic bird species. According to Bainbridge Resource Management and Messrs Venter Forestry Services and Associates (1997) these birds are found in grasslands, forests and wetlands located in the

Plate 3.1: The Ngwagwane River Gorge

Plate 3.2: Poor road conditions

area. There are a hundred to a hundred and fifty bird species in the ecotype where the study area is located. These bird species range from small species to large bird species some of which are listed in Table 3.4. Field trips to the area found that some of the large bird species listed below are a common sight.

Table 3.4: Some large birds species found at Nsikeni

Birds (common names)	**Scientic names**
Black sparrowhawk	Accipiter melanoleucus
Cape griffon vulture	Gyps coprotheres
Ground hornbill	Bucorvus leadbeateri
Lanner falcon	Falco biarmicus
Martial eagle	Polemaetus bellicosus
Stanleys' bustard	Neotis denhami

3.4.3 Horse riding

As discussed in Section 2.4.3 road infrastructure is poorly developed. The conditions of roads raises inaccessibility issues both within and around the area (see Plate 3.2). The Ngwagwane River, which shows the highest potential for the development of fly fishing, is far from the settlement areas (although this varies at different points) and the terrain is relatively rough, therefore accessibilty could be developed through the use of horses. It should be noted that the Nsikeni people do keep horses in the area, although they are kept primarily for transport purposes. There could be a development of this resource for the benefit of the people.

3.4.4 Secondary industry

As discussed in Section 3.1 above, fly fishing has the advantage of being considered a 'multiplier industry'. It is not only the benefits that could be derived from fly-fishers coming to fish and paying rod fees, but also benefits which could be derived through the initiative such as the Midlands Meander and privately owned lands (described in Section 3.2). As discussed in

Section 2.1.4 the settlement pattern in the area left areas such as the conservation zone (see Map 3.1) which could be developed for accommodation facilities, the area next to the settlement area for shopping facilities, souvenir outlets (curio shops), and fuel and food services could be put in place. The latter will not only serve the needs of the visitors, but also the community members.

The area has potential for providing a unique accomodation site for fly-fishers as well as ecotourists. The Ngwagwane River gorge is isolated from the settlement area as well as from the afforestation activities and therefore would be an ideal site for the construction of accommodation facilities. There are many sites in the community where accommodation facilities could be built. To increase the quality of the package, a cultural input could also be developed. When asked about the experience that people have had working in an ecotourism environment, no-one responded as having a member of the family who had been exposed to such an environment, but the people do have skills in handwork and crafts. Some respondents (16%) indicated that they had a member in their household who earned a living through ecotourism related activities. The household member makes and sells items, or sells services to the community. These include wares such as knitware, crotchet-work, sewn items, woven items or by providing a thatching service. However, the Nsikeni people keep chickens (see Section 2.3.2) and those feathers could be used to promote craftwork in fly-tying for visiting fly-fishers.

3.5 Discussion

Like the rest of the southern Drakensberg the Nsikeni rivers have the potential to be promoted as a renowned fly fishing destination. Croney (1998) observes such assets in parts of the Eastern Cape are relatively unknown and have therefore been underutilised. The study findings, as reported above, reflect certain issues which have to be taken into consideration in confirmation of Croney's observation and the development of such an initiative. For example, the study revealed that the Nsikeni community is not familiar with the practice of fly fishing as the people use bait as their customary practice to catch fish. Non-exposure to fly fishing could result in the people not perceiving the benefit that could be derived from an activity, such as guiding and rod fees. The study also found that the community fishes for subsistence purposes rather than for

sport or recreation. The low economic status of the people (poverty) gives people little choice other than using the resources they have at their disposal for subsistence (food). This could be the underlying reason why then most of the respondents do not see the potential of the rivers being promoted for beneficial purposes other than the overriding priority being fish for the community. This revelation by the study confirms one of the study's hypothesis (see Section 1.3.2) that some riparian land owners have not identified the potential benefits that they could derive from waters in their custody.

The study also found that the only rivers used for fishing are those near the settlement area, such as the Ngungununu River, and therefore the findings on the actual potential of each of the rivers in the study area is not fully exposed by the study results. On the other hand, fish known to be caught by the community members belong to only one of four families. The range of fish in these rivers needs to be verified through future research programs so the fly-fishers would know the exact condition of the fishable water bodies.

There are however, circumstances that result in the community rivers being unreliable, related to the weather conditions existing in the region. The people are aware that floods result in the fish species such as the trout not being caught in the rainy season which verifies Nuttal's (1947) observation of the Drakensberg rivers. In addition, there are anthropogenic effects such as contamination of the rivers by animals which the people report as resulting in deterioration of the river systems. The people do not perceive land use practices as affecting these ecological systems due to being unaware or rather not being previously involved in environment management initiatives which issue is discussed later in Section 5.3, however, the people note that there has been neither decrease of size and number of fish in the rivers.

From the analysis of the area being promoted for ecotourism, there appears to be a natural potential. The development of fly fishing will utilise a natural resource in the custody of people who have basic needs such as subsistence provision, therefore it is essential that the people attach an incentive to management of the resource in spite of the needs which are discussed in Chapter Four as the development challenge.

CHAPTER 4:
THE DEVELOPMENT CHALLENGE

When asked about his perception of the development of fly-fishing as an ecotourism activity for the benefit of the people, the Chief of the Nsikeni community, *Inkosi* Sidoi replied, "*There are rivers running on our land straight to the sea without any help to the people...let us not live as in the olden days. We have to get enlightened and see the fruits of our effort by using the resources we have.*" In making this statement, the Chief identifies that his people have not yet reached their full potential from the utilisation of the human and natural resources in their possession. The Chief brings out issues such as that the people are not aware (enlightened) of their capabilities and strengths which they could use so as to make their standard of living a better one. When asked to comment on what he means by the '*olden days*' the Chief replied that he means *'living in poverty'* The latter clarification from the Chief further emphasises that he acknowledges that poverty is the main barrier to people reaching their potential. As discussed in Chapter One, the former 'homeland' areas such as Nsikeni are evident cases of rural poverty which stems from unemployment and unequal distribution of resources in South Africa. Burkey (1998) advises that in order to nurture the development process, the fundamental principle is first to examine the social, economic and political environment of the community and understand the constraints that could hinder development so as to identify possible actions to remove or lessen these hindrances. Gupta (1998: 96) also who argues that 'development requires the improvement of both economic and environmental conditions'. Both Gupta and Burkey support Breen, Dent and Mander's (1998) observation that sustainable development constitutes a congruent relationship between environment conservation and social development. In Chapter Three it was noted that there are issues such as lack of information and the need to satisfy subsistence provision which prohibit people from linking conservation measures to an economic benefit. Conservation of resources for economic growth cannot be fully achieved without considering that it is a practice that has to be carried out by people, in their social context. This chapter examines poverty as a challenge to social development or sustainable development for the Nsikeni community.

Burkey (1998: 1) argues that 'poverty can be defined in term of basic needs'. In clarification Burkey (1998) further contends that a community's failure to meet its basic needs satisfactorily

can be described as poverty. According to the Poverty Inequality Report (PIR) (1998), meeting basic needs is perceived by most South Africans as addressing issues such as, unemployment or inadequately paying jobs, food insecurity, alienation from the community, crowded homes, unsafe and inefficient forms of energy use, and fragmentation of the family. The Bruntland Commission report advises that basic need challenges have to be satisfied for sustainable development to be eventually achieved (WCED, 1987). This is a challenge not only for Nsikeni, but for South Africa as a whole.

4.1 Social development: The South African challenge

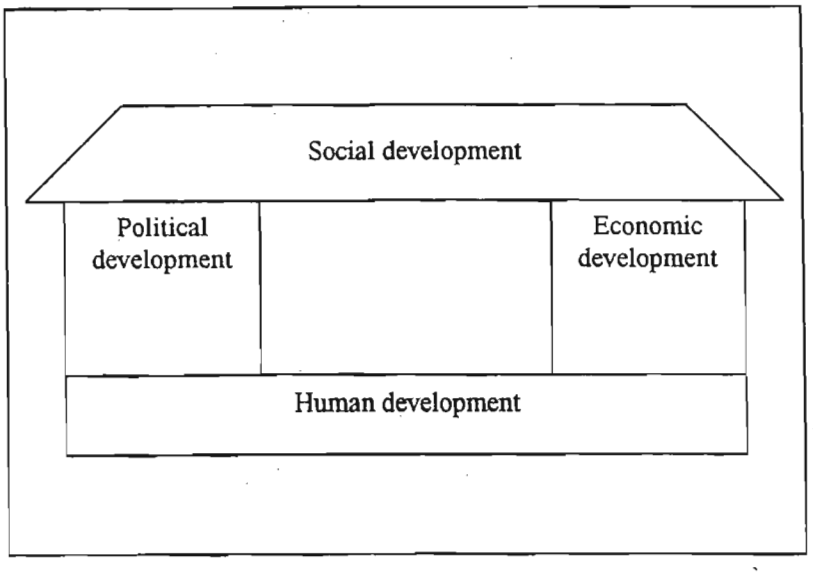
The 1992 Rio Earth Summit emphasized the need to integrate environmental conservation into the process of improving the quality of life or development for the people (Bartelmus, 1994). The real challenge lies in converting the conference rhetoric into action in countries such as South Africa which, though grouped under the middle-income countries, still has 53% of the population (22 million people) living in 'Third world' conditions (World Bank, 1999). The challenge is not only faced by South Africa, but the rest of Africa. The PIR (1998) reports that South Africa is amongst the top countries in the world in unequal distribution of resources, with most rural people subjected to issues of inequality. The Nsikeni community is part of approximately 70% of South Africa's population which, according to the United Nations Development Programme (UNDP) Human Development Report (HDR) live in the rural areas. The UNDP (1994) reports that 80% of the rural residents live below the subsistence level or, in other words, live in poverty. According to the World Bank (1999), the post-apartheid South African government is faced with the challenges of reducing inequality, poverty and unemployment. The African National Congress (ANC) in the mission of Reconstruction and Development Programme (RDP) pledges 'to improve the quality of life for all South Africans and in particular the most poor and marginalised sections of the community', (ANC, 1994: 15). By the same token, the former President of South Africa, Nelson Mandela, in his presidential inaugural address in 1994 suggested that the people of South Africa should find a way to liberate themselves from the bondage of poverty (Williams, 1997).

What strategy can the people adopt to address their situation of poverty, which stems from unemployment and unequal distribution of resources? The PIR (1998) suggests that community-based programmes could be one way of addressing inequality problems. As discussed in Section 1.2, CBRM is a strategy which has been put in place to respond to the inadequacy of past laws and developmental practices such as industrialisation which have not fully recognised the potential of the rural communities' benefiting in economic growth by managing and profiting from resources they have in their custody.

4.2 Examining the South African challenge in the Nsikeni context

According to Burkey (1998) people live in a society that is comprised of social, political and economic structures (see Figure 4.1). The IUCN (1991) suggests that assessing the social, economic, and political factors that influence power relations in a community will reflect a picture of how control on the use of natural resources is set up. Development should utilise all these structures with the intention of increasing productivity so as to cater for the basic needs of the people. Social development has its base for sustainable development considering the human as the centre for development.

Figure 4.1: Building sustainable development: Sources: Slembrouck, 1995; Burkey, 1998



Social development defined by Ugandan rural development workers (Burkey, 1998: 39) is

> a process of gradual change in which people increase their awareness of their own capacities and common interests, and use this knowledge to analyse their needs; decide on solutions; organise themselves for cooperative efforts; and mobilise their own human, financial and natural resources to improve, establish and maintain their own social services and institutions within the context of their own culture and their own political system.

These factors not only determine resource utilisation, but also the sustainability of the development process. The definition in Burkey(1998) of social development implies that development is a dynamic process which results in the community having one goal, that is to establish sustainable use of resources and management institutions within the community structures. Such a process begins with development of the basic unit of a community, the human.

4.2.1. Human development

Human development as defined by a group of rural development workers (Burkey, 1998: 35)

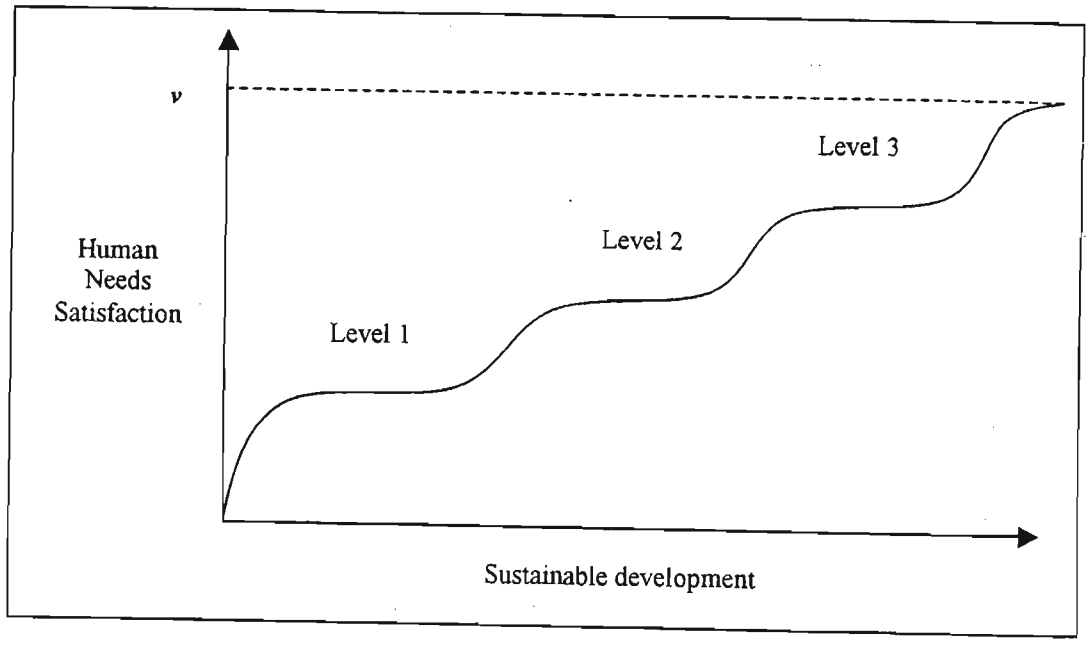
> is a process by which an individual develops self-respect and becomes more confident, self-reliant, cooperative and tolerant of others through becoming aware of his/her shortcoming as well as his/her potential for positive change. This takes place through working with others, acquiring skills and knowledge, and active participation in the economic, social and political development of the community.

To attain self-reliance, skills and communal contribution required for social development, human needs have to be satisfied (Burkey, 1998; Slembrouck, 1995). According to Maslow's hierarchy, there are a number of categories of human needs which for this text are divided into three: level one, the need to satisfy basic needs; level two, the need to have a sense of belonging and level three, the need for self-realisation (SEAD, 1999).

Each level when mirrored against sustainable development occupies a different level (see Figure 4.2). Level one occupies the lowest of development. As the needs for level one are satisfied, the individual moves on to level two which occupies a higher level of development. Similarly, when level two needs become fulfilled then the individual moves to level three. In level three the individual exhibits the highest level of development. In the process of moving from a lower level to a higher level, the rate of development increases, but under ideal conditions it will eventually

reach a point *v* when it becomes constant. At point *v* the measures that have been put in place to achieve that level of development will have to sustain the development process.

Figure 4.2: Maslow's hierarchy of human needs vs sustainable development: Source: Modified from Slembrouck, 1995.



The levels of human development are analysed separately below:

(i) Level one: The need to satisfy basic needs

According to SEAD (1999) basic needs are labelled as the low order needs. These needs are for psychological and physical safety which include clean unpolluted air, adequate water supplies, enough and balanced food diet, physical and emotional security and an appropriate cultural and climatic environment (Burkey 1998; SEAD, 1999). Once the lower order needs have been satisfied and a sense of security is instilled, individuals should understand and predict the present and future events in their lives (SEAD, 1999). According to Hamilton (1992), being able to predict possible

future events provides for better self-esteem and confidence to act independently.

(ii) Level two: The need to have a sense of belonging

Once the individual can cope with the fulfilment of basic needs, the requirement then arises which, if achieved, results in people's behaviour shifting from individualism towards working as a community. The shift in behaviour entails the capacity of an individual to integrate and share ideas with other members in the community. In the integration process the individual learns about other skills that can facilitate development of the community as a whole (Hamilton, 1992). These needs, if achieved, constitute economic and political development. The individual requires an input from others in the community which is a process that could be attained by sharing, as a group, friendship, skills and ideas (SEAD, 1999).

(iii) Level three: The need for self-realisation

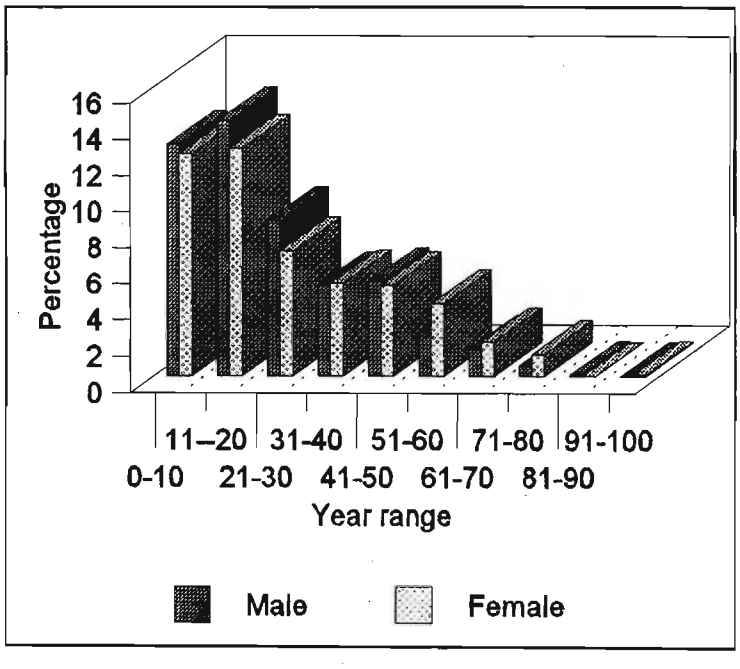
The fulfilment of self-actualization or self-reliance in the process of human development is referred to by Burkey (1998) and the basic requirement of social development. Self-reliance aims at developing the community because the individual carries out duties for the community in the fulfilment of a self-esteem that has been built through levels one and two. SEAD (1999) discusses that at this stage the individual sets an example to other community members so that together they can establish means that would benefit the community as a whole. At this level the individual has to fulfil the need to bring recognition to oneself by serving the community. In a community with combined self-reliant individuals the capacity to derive optimum benefit from the river as a natural resource for example, could be sustainably maximised. According to Burkey (1998) if all the levels of needs are satisfied then human development is achieved. The PIR (1998) reports that an important feature of the White Paper on Social Welfare is that there has to be a shift towards developmental welfare whereby emphasis is on building the capacity for the people to become self-reliant as opposed to the welfare initiatives which simply provide handouts to passive people.

- **Unemployment**

Examination of the human needs discussed above for the Nsikeni community reveals two key issues that are of primary concern namely, unemployment and dependence on natural resources for subsistence provision, both of which are associated with poverty.

Unemployment is not only an issue for Nsikeni but a characteristic of many developing countries (WCED, 1987). As a community, Nsikeni is facing the same need for creation of job opportunities. The people feel that if employment opportunities can be created they would be better off. As a focus group participant pointed out, "*We are in need of employment, just employment would be enough*". The unemployment rate is relatively high in the area. The study found that there are at least two people (rounded from 1.7) unemployed per household which on average has six members. When dividing the number of unemployed (1.7) by the average number of people in the household the percentage of unemployed becomes 29%. This figure (29%) is close to the one reported by Business plan for the MCPA (1998) which states an unemployment rate of 25%.

Figure 4.3: Population distribution at Nsikeni



From the questionnaire survey the study also found that the Nsikeni population is substantially made up of school-going children or under age children (twenty or less in age), accounting for 45% of the surveyed population (see Figure 4.3). Therefore the unemployed 'labour force' is part of the rest (55%) whose employment status was revealed as follows:

1. Eight percent are employed on a full-time basis. Responses from the focus group

participants reflected that there are no full-time job opportunities in the study area. The people (mostly men) have to go to neighbouring farms, towns or the main cities such as Johannesburg and Durban to get employment. There is a serious perception that the availability of jobs in the mines is decreasing, "*People are retrenched every day from the mines*" lamented *Inkosi* Sidoi;

2. One percent are employed on a part-time or seasonal basis in neighbouring privately-owned white farms and forest plantations;
3. Three percent are self employed. These are mostly women who rely on hawking and handicraft skills. There is an indication that the establishment of the Zenzele Women Association (ZWA) in the community as will be described in Section 4.2.2 has achieved the goals of empowering women with skills which they could use for money generation. The products from handicraft work are sold in busy centres such as schools and the tribal court (see Map 3.1) where the pensioners and disabled are paid (Mgilane, pers.comm.). Some of the self-employed rely on selling agricultural produce such as potatoes, maize and sorghum or brew traditional beer sold to members of the community;
4. Six percent are pensioners and disabled people who earn R520 per month from the social welfare department. It has to be noted that pension money and disability grants play a very important role in meeting household needs. They contribute significantly to the household income which, on average, is approximately R400 per month as calculated from the questionnaire survey responses; and
5. Seven percent are housewives, who do everyday household chores such as cleaning the house and preparing food and collecting firewood and water.

Unemployment has been linked to the fragmentation of family structures because of migrancy. Men leave their homes and children to search for jobs in areas outside the community. Wilson (1999) contends that migrancy has contributed to the creation of domestic problems. As a focus group member related on the issue of family fragmentation, "*Our men leave us to work in the mines and some of them remain there and never come home, neither send money home*". This factor could also be contributing to women taking the role of household heads which according to the questionnaire survey accounted for approximately a third (30%) of

the surveyed households. Fifteen percent of the household heads are widows.

In addition, unemployment can result in a high crime rate. As the PIR (1998) reports, South Africa is rated one of the highest countries in the world on crime. According to the report, poverty which sprouts from unemployment, results in people resorting to criminal activities. These criminal activities are survival means for the people to make money. Migrant labour resulting from unavailability of employment opportunities in the community is included as a factor that contributes to crime in the area. As a Nsikeni youth member explained to the researcher, "*Some community members go to urban areas looking for jobs and do not get them, or are retrenched from their working places and after that they stay in the urban areas learning criminal habits which they practise when they come back to the community*". On the same note, when focus group participants were asked what problems they could foresee with an ecotourism development (see Section 4.4 Appendix B), crime and AIDS were indicated as associated social problems that could result. The focus group participants thought that because of lack of employment amongst members of the community some might be attracted by the 'elite' visitors perceived to have lots of money and resort to survival activities such as crime and prostitution.

Further, the PIR (1998) advises that if there is no infrastructure to facilitate crime prevention, then means of combatting the practice are limited. As established during the research study, there are no security facilities at Nsikeni. The closest police station to the study area is at Nsikeni 3 which is about 20km from the study area. With poor roads it takes a long time for the police personnel to reach the area and attend to crime situations. Some stories of crime in the area, however indicated that there is a residual capacity among the community to administer justice.

Unemployment could be a result of a poor education level. According to the PIR (1998) the chances of getting a job in South Africa are related to the level of education achieved. In households where members have a high level of education, it is likely that those members would have higher probabilities of securing jobs (PIR, 1998). Through the questionnaire survey the level of education in the community was established to be generally low. A

substantial proportion (54%) has not reached standard 6. The rest (46%) have achieved a level up to standard ten with only 1% of the respondent household population attaining non-university training, and none attaining university training. With this relatively low level of education, the community members have little chance to compete for jobs in the neighbouring towns, such as Creighton and Ixopo, as well as generally in South Africa. The unemployment situation prevailing at Nsikeni could be attributed to the people relying mostly on subsistence practices which are discussed below.

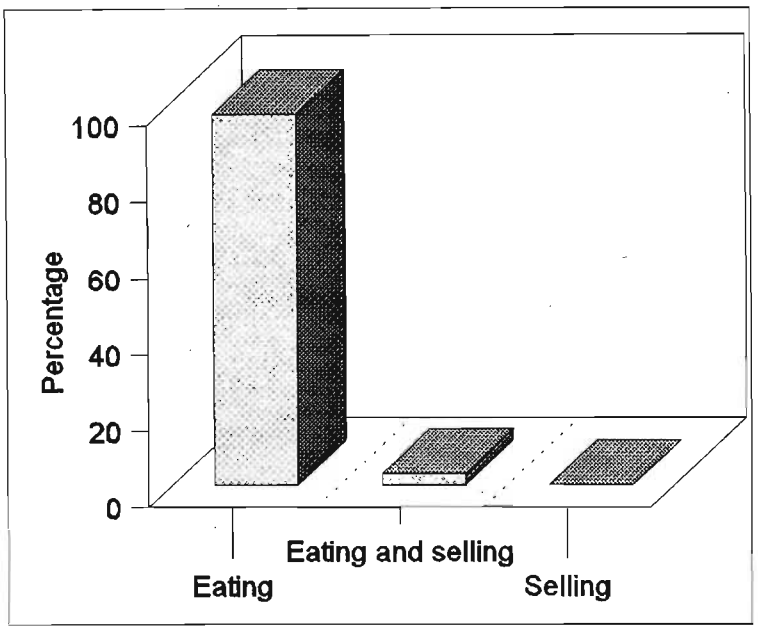
- **Subsistence practices**

According to Lewis (1997) subsistence practices result in production levels which on average produce only enough to meet household consumption needs. Burkey (1998: 7) argues that poor people resort to subsistence practices 'because they have nothing to fall back on, they concentrate on producing adequate quantities of food.... They cannot risk everything on maximising profit'. The Nsikeni people follow this trend by rural communities to address population pressures for food production and security by relying on subsistence practices. Questionnaire responses show there are on average six people per household, but there are some families that have large numbers up to18 members per household. In addition, as shown on Figure 4.3, the Nsikeni population is dominated by young people (under twenty years) reflecting a high birth rate in the community. As the Chairman of the MCPA Bhekani Dlamini, explains, "*We cater for large numbers in the household by either keeping cattle, goats and sheep for milk and meat supply or growing maize*". Homesteads are comprised of extended families with mainly children (55%), grandchildren (13%), parents (1%), other relatives (3%), people outside the family and grandparents (about 1%) living together. All the members of the family rely on the head of household in most cases to provide for food and security. This results in time and energy spent in subsistence activities to provide for the family (PIR, 1998). Both old and young men grow crops in the fields on the other hand, women and girls spend most of their time and energy collecting firewood, cleaning the house, heating water and cooking. These subsistence activities are considered further below.

1. Agricultural practices

The Nsikeni community uses two systems to grow their food produce, that is home gardens and large fields which are close to the rivers where the land is flat and fertile as compared to other parts of the area. In both the systems there is no agricultural extension work that supervises production (B. Dlamini, pers.comm.).

Figure 4.4: The use of crops and vegetables

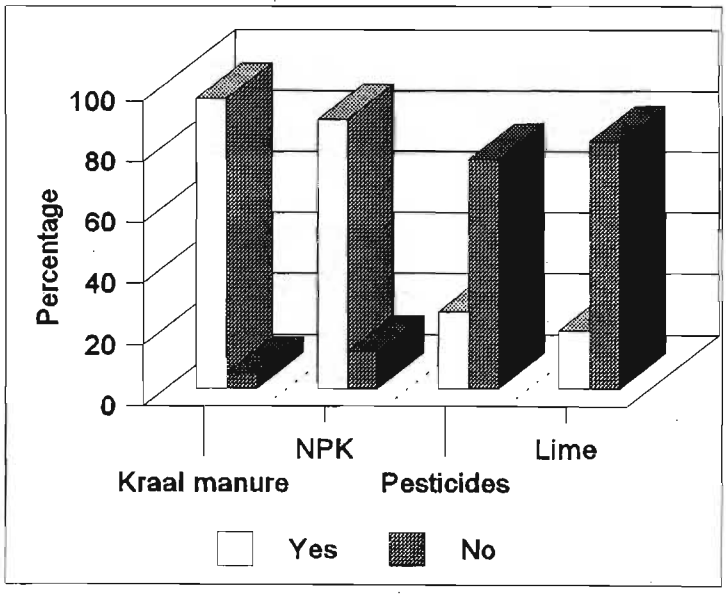


The questionnaire survey showed that a substantial proportion (58%) grew crops and vegetables, while 42% did not. Almost all (97%) respondents who stated that they grow crops and vegetables they do it for household consumption, while 3% grow the produce for eating and selling (see Figure 4.4). In contrast nobody indicated that they grew produce only for selling.

The focus group participants indicated that there is no land where they could grow crops for commercial purposes. The land available for large scale crop production is close to the river valley which currently is utilised for produce for household consumption. As well as lack of land, Mr Zulu, an MCPA development committee member added that they do not have machinery or skills to cater for large scale agricultural production. The study also established

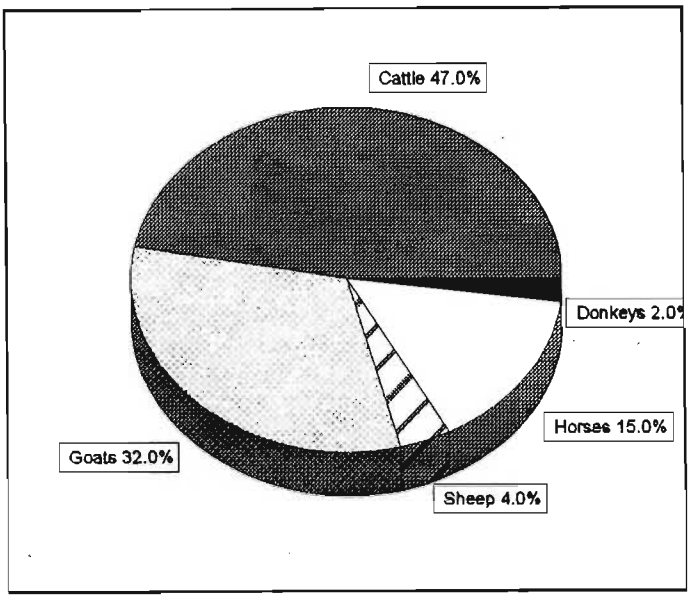
that there is minimal agricultural extension work that has been done in the area, only the building of a dipping tank for livestock which is rarely maintained by the agriculture department from Umzimkulu TLC (Zulu, pers.comm). To enhance land productivity the people use agrochemicals such as kraal manure, NPK fertilizers, lime and pesticides. As illustrated in Figure 4.5 below, 95% stated that they used kraal manure in their crop fields and home gardens, 88% used NPK fertilizers while 25% used pesticides and only 19% used lime.

Figure 4.5: The use of agrochemicals



Besides cultivation, the people keep livestock for several reasons as mentioned in Section 2.3.2. The questionnaire survey indicates a substantial percentage (48%) of households keep livestock. The type of grazing animals that are kept are in the community are cattle, goats, sheep, horses and donkeys at an approximated ratio of 22:15:2:7:1 respectively (see Figure 4.6).

Figure 4.6: The ratio of grazing animals



These animals are used for ploughing the crop fields, provision of meat and milk, transport for the people (horses) and transport for personal loads (donkeys). As reported in the Hawkins Associates report, livestock keeping is also for social status "*A man needs to have lots of cattle, it is part of our culture,*" (Zulu, pers.comm.). For example a typical household had as many as 37 cattle, 16 goats, 7 horses and 3 donkeys. On the other hand, a large number of livestock are kept as security against natural hazards such as drought and the strike of an epidemic disease. Therefore a household head will always prefer to keep a large herd of livestock so that if a natural disaster strikes, a core of the livestock will remain.

2. Collection of wild vegetables and medicinal plants

As discussed in Section 2.3.3 natural resources from the Mgano and the Goso Forests (see Map 2.1) are used. These indigenous Podocarpus forests are used for the collection of building material and collection of firewood, food and medicinal plants. The service provided by the mobile clinic (see Section 2.4.1) tends to cater for pregnancy issues and birth control measures. For curing general ailments, the people collect and prepare medicinal portions from plants collected from indigenous forests. As De Wit (1998) explains, in some cases the people are aware that there is degradation or overexploitation of natural resources, but the

pressure from the requirement to fulfil basic needs exceeds the incentive to conserve the natural resource. The awareness explained by De Wit is expressed by a focus group participant when she relates that, "*Some trees are no longer found in some parts of the forests, but we cannot stop harvesting them because we need them.*"

4.2.2 Economic development

Economic development as part of sustainable development seeks to identify sustainable use of resources such as human, financial and natural resources that could be utilised so as to enhance the productivity of the community. It is a type of development that is perceived a means of alleviating poverty (Brown, 1998). It is a process that occurs as the human component of a society climbs from one level to another (see Figure 4.2). Burkey (1998: 36) citing a group of development workers defines economic development as

> a process by which people through their own individual and joint efforts boost production for direct consumption and to have a surplus to sell for cash. This requires that the people themselves analyse the problems, identify the causes, set their priorities and acquire new knowledge. It also requires them to organise themselves in order to coordinate and mobilise the effective application of all the factors of production at their disposal. This means that they must plan, implement and manage their own economic activities. The higher income that accrues through increased savings and investment can be used to satisfy a wider range of the people's wants enabling them to realise greater well-being. However, continued progress requires the reinvestment of part of this surplus.

In analysis of the definition by Burkey (1998), community people have to be aware of the gains and the losses that can be expected from a particular project. The community has to identify or establish means to manage the resources sustainably so as to further fulfil for their needs.

The study established that little economic development has taken place in the community. As related in Section 2.5, the Nsikeni people rely on migrancy and formal and informal activities to earn money. There is only one community-based project that has shown success in the community, the community afforestation project discussed in Section 4.2.3. Some projects, such as Zenzele Women Association (ZWA) and Delam'zi Water Project Scheme (DWPS), that have been implemented in the community for economic development, and

these are discussed briefly below.

- **Zenzele Women Association (ZWA)**

Most people in the Nsikeni area have resorted to working outside the community, but there are a few opportunities whereby the people use personal skills to generate money for their households needs. These skills were introduced through the Zenzele Women Association (ZWA) in the whole of the former Transkei with the intention of teaching the women skills for generating money including handicraft skills such as knitting, manufacturing skills such as cake baking and creating opportunities to market the produce (Hawkins Associates, 1980). Although the organisation has collapsed at Nsikeni, the former members retained the skills which they still use today to generate money. The women have skills such as sewing, knitting, crochet work and weaving which are the skills that the people could use in an ecotourism project.

- **Delam'zi Water Project Scheme (DWPS)**

The DWPS was set up to establish adequate water supplies in the community. In this water scheme project the community was involved with an Non-Governmental Organisation (NGO) the Umvula Trust (UT) based at Kokstad (Mgilane, pers. comm.). For the DWPS the UT was implementing the Community Water Supply and Sanitation (CWSS) programme's objective which is to provide water to meet people's basic needs. This project did not succeed in supplying water for all the MTA wards. Through the project the Delam'zi, Khayeka and Bovini wards were supplied with five standpipes in total. The people in the other wards also require standpipes, particularly since they paid money to have the same services but did not receive any feedback (key informant). It has to be noted that people therefore use the rivers for many purposes such as washing their clothes and cooking utensils (which activities could be done in their homesteads if all had been supplied with public water supply system), watering their livestock and for ritual purposes.

4.2.3 Political development

Calvert and Calvert, (1999: 2) contend that 'Politics is the concept of power distribution and decision-making in a society'. Political development facilitates economic development

because it is through political development that there is establishment of structures which serve as protocols for running a project. Burkey (1998) argues that rural development takes place in a political context. This implies that for economic growth to occur, it has to be facilitated 'by' and 'within' the political structures that are already in place in the community. Political development, as defined by the Ugandan group of workers in Burkey (1998: 37) is

> a process of gradual change over time in which the people increase their awareness of their own capabilities, their rights and responsibilities; and use this knowledge to organise themselves so as to acquire real political power in order (1) to participate in decision-making at local level and to choose their own leaders and representatives at higher levels of government who are accountable to the people; (2) to plan and share power democratically; and (3) to create and allocate communal resources equitably (fairly and effeciently) among individual groups. Hence it may be possible to avoid corruption and exploitation, realise social and economic development, political stability and peace, and create a politicised population within context of their own culture and their own political system.

For the implementation of a project to be effective it is necessary to understand both the modern and traditional structures that may be in place in a community and to identify the role and effectiveness of particular structures in the community. The modern structure that has been established in the community is the MCPA as discussed in Section 2.1.3. There is a further description on the structure below. The study established that in the case of the Nsikeni community, traditional structures fulfil important functions. These functions are discussed further below.

(i) The role of traditional structures at Nsikeni

The study found that although the Nsikeni community is administered through the Umzimkulu TLC, the traditional structures of the MTA, as described in Section 2.1.2, are significant in the community. The role of these structures is important in serving as a symbol for the unity of the community, solving of conflict amongst community members, decision-making protocol channels, and for communication flow within the community.

- **Symbol of unity**

The *Inkosi* as Head of the community oversees the progress of the community. The *Inkosi* Sidoi has significant authority (power which is seen as legitimate by the ruled) in the

community when compared to other Chiefs from other areas, where the role of a Chief has ceased being effective in liaising for oneness in the community (B. Dlamini, pers.comm.). This is attributed to his *"willingness to see the people progress in their everyday living"* (B. Dlamini, pers.comm.). The Chief is involved in the resolution of conflicts that may arise amongst community members. Prior to the implementation of any type of development, the Chief is briefed and in most cases the people seek his advice in any project that they want to initiate. When described by the people to the researcher, the *Inkosi* is seen to campaign for unity amongst his people.

- **Resolving of conflicts and installing discipline**

The *Inkosi* and his 'council of seven men' play an important role in attending to conflicts that may exist in the community. As long as the conflict does not involve shedding of blood the council will resolve it with the *Inkosi* (B. Dlamini, pers.comm.). This includes cases such as *lobola*(dowry payment), domestic problems, unnecessary burning of the veld as a grazing resource. Some cases have fines attached if found guilty, for example if the veld is burned unnecessarily or a community member fails to assist in putting a fire out, he will pay R50. The fines are used by the community in other projects. There are some cases where if the accused is found guilty and he is not satisfied with the sentence he will appeal through the magistrate at Umzimkulu. Burning of the veld, which is frequent during the winter period, results in destruction of the grass roots and so little vegetation will grow when the rain comes in the next spring, but through the implementation of the fine system this practice has subsided. This system demonstrated the community's ability and willingness to overcome '*The tragedy of the commons*' briefly discussed in Section 2.1.3 and criminal activities. As Headmen of each ward (the *izinduna*) solve minor conflicts that may arise in the community such as cattle grazing in a neighbours maize fields during the planting season (Zulu, pers.comm.).

- **Decision-making protocols**

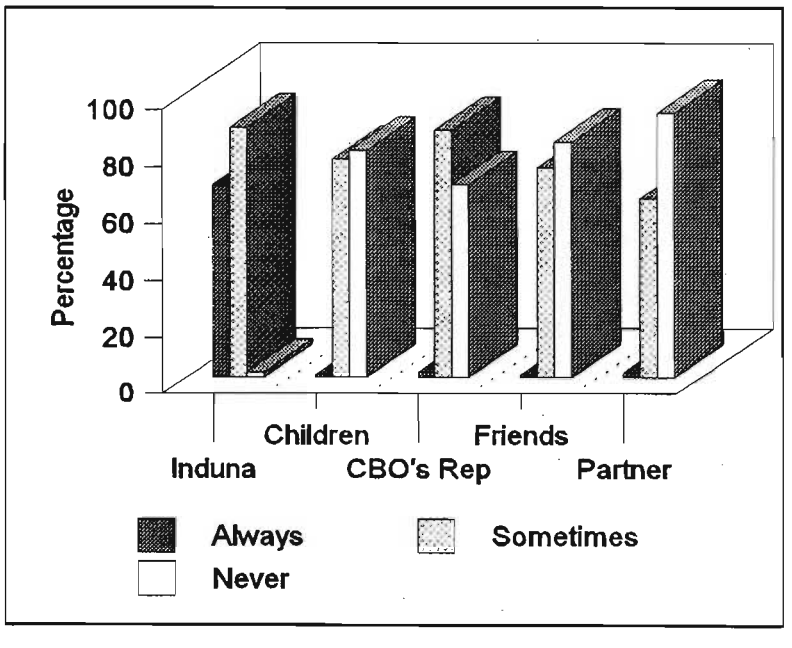
The community takes most of its decisions through the traditional system. In most cases these decisions have to deal with problematic activities that take place in the community such as how to address the issue of burning grass during the 'wrong' season or illegitimate

pregnancies. The power that the traditional system has is evidently legitimate in that the people still rely on the system to attend to their problems. Even the decision to set up community-based projects described above, was taken through the traditional structures (B. Dlamini, pers. comm).

- **Communication**

Communication in the community is mainly through the traditional structures. From the questionnaire responses the *Izinduna* are important figures in the community's communication protocols. Forty-three percent of the questionnaire respondents said that they always get news about the community through the *Izinduna,* while less than 2% said the same for each category such as the children, development committee ward representatives, friends and partners (see Figure 4.7).

Figure 4.7: Individuals responsible for communication



On the other hand, 56% responded that sometimes they get news about the community from *Izinduna* while 49% indicated that they sometimes get news from the children. Fifty-five percent responded sometimes get news from MCPA development committee ward

representatives, 47% sometimes get it from friends and 40% from partners. Only 2% said they never get news from the *Izinduna*, while 43% never from development committee ward representatives, 51% never from the children, 54% never from friends and 59% never from partners. The development committee ward representatives referred to are those elected by the community members for representation in the MCPA. The children that are utilised for communication in the community are the school-going children. In such set-ups information from community authorities or from the development committee ward representatives is passed through the school authorities and the children are given notes to pass to their parents (B. Dlamini, pers.comm).

(ii) The Mabandla Community Property Association (MCPA)

Another community structure at Nsikeni that has been put in place for the development of the community is the Mabandla Community Property Association (MCPA). The formation of the MCPA demonstrates that despite their pressing poverty the people of Nsikeni are aware of their capabilities, which factor has been demonstrated through its formation. The MCPA is a development association for all the MTA wards except the Ndawana ward[1]. As discussed in Section 2.1.3 the MCPA was formed to establish the community afforestation programme. Prior to the establishment of the MCPA, the Ntlangwini Development Committee (NDC) was responsible for establishment of community projects. According to a key informant there were problems that the community faced with the establishment of the NDC, such as:

- the NDC members were not democratically elected;
- there was perceived mismanagement of funds by committee members;
- there was poor delivery in terms of the projects proposed by the community such as, the construction of the bridge from the main road to Lukhasini ward (see Map 3.1);
- the requirement by the community to have members of a community-based organisation (CBO) that has a membership comprised not only of committed

[1]The Ndawana ward is part of the MTA but because of its physical location being far from the other wards the Ndawana community members, together with the other community members from the other wards, decided that since the proposed development activities mainly community afforestation are far from the wards they would rather be excluded. There is, however, a proposal to involve them in future projects since the people are part of the larger community (B. Dlamini, pers.comm.).

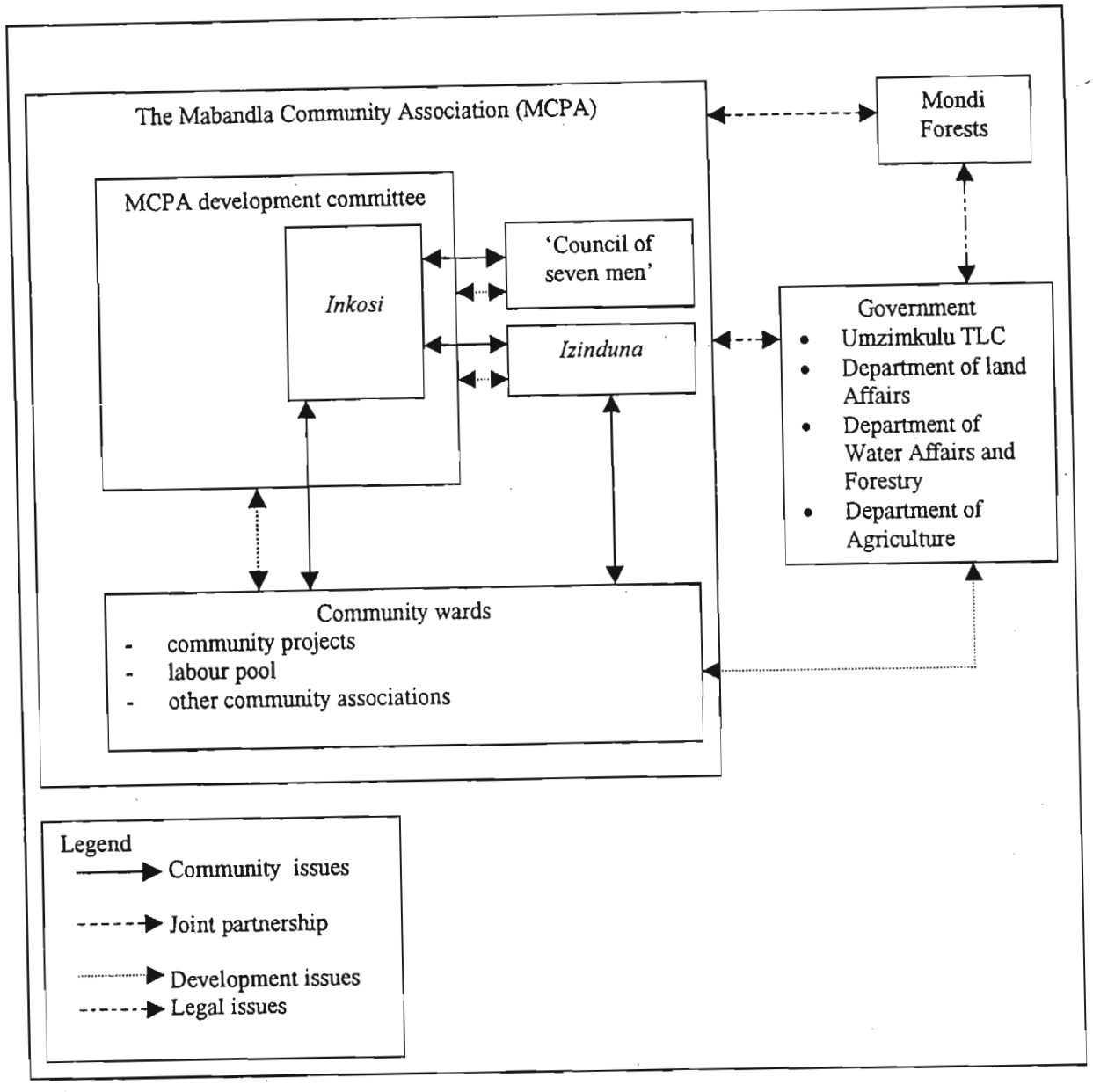
individuals, but people that have at least matriculated; and

- the request to have the development committee made up of people born at Nsikeni.

All the problems were addressed during the establishment of MCPA resulting in each elected ward representative being a matriculant, born in the community, and, a registered member of the MCPA. MCPA committee members are elected by the people within constitutional rights provided by the Community Property Act (CPA) No 28 of 1996. Each ward members elect a representative to sit in the MCPA development committee. The MCPA development committee is made up of fourteen members: eleven are elected by the community from the respective wards, there two other members that are elected from the community and then there is *Inkosi* who sits as an executive member (Constitution establishing the MCPA, 1998). The MCPA was established to enter into joint venture with Mondi Forests (MF). As a result, the people have an exclusive right to use the land for their benefit. The social assets such as community organisation, networks, norms and trust relationships that make people productive must facilitate mutual beneficial cooperation. The joint venture between the MTA and Mondi Forests has as its final aim to build the capacity of the community so that it eventually manages the afforestation project (see Figure 4.8). Capacity building is through training programmes for management, administration, forestry operation and growing of trees (MCPA Business Plan, 1998).

There are other organisations in the community planned for by the MCPA such as communal vegetable gardens (to which the focus group participants belong) although they are not yet functioning. There are also plans to introduce a piggery, poultry and other agricultural production enterprises. The reason behind these plans is to create jobs, decrease importing of food into the community from neighbouring towns and to encourage the community's economic growth.

Figure 4.8: The Mabandla Community Property Association (MCPA) protocol structures



4.3 Discussion

Reflecting on the study findings in this chapter, a society needs to be considered as the element responsible for conservation of the environment. According to Slembrouck (1995), IUCN (1991) and Burkey (1998), people in need have little alternative in terms of resource use other than resorting to exploiting them. Time and energy, including energy obtained from the natural resources is spent on fulfilling basic needs. Burkey (1998) suggests that

development should explore any level of socio-economic potential, be it poverty or richness, and extract from these what the people can achieve to improve their lives, and consequentially elevate themselves from one level to a better one. The situation with the Nsikeni community reflects the international scenario of third world rural communities which rely on subsistence practices owing to high population pressures combined with low standards of education, low infrastructure development, but foremost a high rate of unemployment which results in crime, insecurity, and fragmentation of the family units. As a result of this observation the Nsikeni people's needs include the following:

- improving food security, especially subsistence provisions, and general welfare;
- development of human capacity through literacy and skills because the community includes members with a low level of education and skills training;
- improve infrastructure facilities to cater for accessibility and addressing issues of security; and
- developing the institutional capacity in the community to manage a CBRM programme.

The results show that the Nsikeni community members have not reached the self-realisation level of human development as defined by Burkey. Economic development is not only hindered by the poor availability of employment opportunities, but also by the low level of education. There has, however, been political development in the community through the establishment of the MCPA which has enabled the people of Nsikeni to establish a democratic structure to address community development. In addition, the study revealed that the people have a well established traditional system that addresses conflict issues amongst the membership, as well as land management issues such as burning of grass. For social development to be achieved, as a challenge for both South Africa and the Nsikeni community, three needs have to be satisfied: firstly, the human needs as revealed in the study have to be addressed; secondly, a niche for the beneficial activity such as fly fishing and ecotourism has to be identified in their socio-culture, that is, the traditional structures; thirdly, the community must be empowered through informed decision making in relation to the beneficial activity (IUCN, 1991); and lastly, a strategy of how the community can sustainably manage the beneficial activity in its economic growth. Sustainable management,

however, means that the action taken has to be within the natural capacity of the area, thus land use activity and its associated impacts must be within the generative capacity of the resources (the river). The development of fly fishing in the area will utilise the river, which falls in a catchment area, the Ngwagwane River catchment, which has many land users. It is then imperative that all the impacts associated with the land use activities be considered for sustainability of the project. An attempt to assess the land use impacts will be discussed in Chapter Five in a broader perspective.

CHAPTER 5:
LAND USE AND ASSOCIATED IMPACTS ALONG THE NGWAGWANE RIVER

The discussions in Chapter Three attempted to highlight the potential for fly fishing in the Nsikeni community rivers. The focus of this potential is based on the larger Ngwagwane River for several reasons. Firstly, this river has a high scenic value, secondly, it is a larger river with fly fishing potential, thirdly, it is isolated from afforestation and settlement areas, thereby retaining greater natural wilderness value. In addition, as is discussed in this chapter, the Ngwagwane River has its source in the Drakensberg mountain range, an area whose integrity has to be maintained. Up and downstream of the Nsikeni area, however, the Ngwagwane River has reaches with land users whose diverse development activities in the catchment area are important for economic growth. In the process of economic growth, which results from pressures promulgated by population growth, the river becomes a 'consumptive resource' of organic and sediment overloads, and chemical waste, all of which are products of land use activities (Palmer, 1994: 39). This consumptive function impacts on the river ecosystems. Hunter (1998) advises that the components of a river depend on land use in the watershed, an area which drains the catchment into a water body (river). Hunter (1998: 39) cites Heraclitus, one of the great philosophers who lived C. 510 B.C., who stated, 'No Man can twice enter the same river for water is ever flowing'. The metaphor by Heraclitus illustrates his philosophy that all reality is in flux. In relation to the intentions of this study, the relevance of the quotation is that it implies that water drained from the watershed is always flowing into a river and changing the water body quality and quantity. Changes in the catchment may therefore lead to an imbalance of the river ecosystem with consequent impacts for utilisation.

In a society that has become increasingly urban, and seeks to rejoin simple patterns and natural company of life on Earth by engaging in a type of recreation, the river has offered an alternative through fly fishing. Fly fishing is only possible if the rivers are clear and well stocked. It has to be borne in mind that affording a fly-fisher pleasure is only a small part in the utilization of a river. Indeed as Palmer (1994: 41) puts it, 'to think that only anglers use a river is to think that only the hunter uses the wood'. Rivers, such as the Ngwagwane River, have to provide services such as removal of pollutants, for land use activities. This chapter examines the current land use activities

along the Ngwagwane River, assessing the associated impacts. These impacts are discussed together with the provision by the current legislation in place to conserve the environment.

5.1 The Ngwagwane River catchment

Discussions at the 'Management and Ecology of the River Fisheries Symposium,' which was held at the University of Hull in Northern England in April 1998 brought to light themes in river conservation. Some of the themes discussed were, 'Anthropogenic impacts', 'Habitat requirements' and 'Conservation' (Impson, 1998: 12). The themes from the symposium reveal that both environmental and social factors have to be considered to sustain the Ngwagwane catchment as a water resource for various land use activities. As discussed above, land use practices in various catchments play an important role in that they influence the anthropogenic impacts on river ecology. The success of a fly fishing project under community-based control, or that of any particular stakeholder such as a private enterprise, depends on the health of the Ngwagwane River which, in turn, depends on the health of the catchment. Each type of land use or development activity should be assessed against the potential impacts that it could have on the catchment. The criterion should be continuos and sustainable benefit for the present and future generation from the river ecosystem.

South Africa's legislation provides protection for the environment and for society. The National Water Act 36 of 1998 is based on the principle of people acting within the capacity of the hydrological cycle. As Cheret (1994) contends, water has to be considered as a common heritage which in the process of satisfying users has also to conserve the natural environment. Pearce, Barbier and Markandya (1990: 12), however, point out that natural environments, such as rivers, tend to be 'public goods'. Benefits or rather effects of public goods when supplied to others because of the inability to be excluded results in all users being affected. If then, as Hunter (1998) reports, land use activities in a catchment result in changes in water quality and quantity in rivers, then, based on Pearce *et al*'s (1990) argument of the river being a public good, the Ngwagwane River users are all affected by land use activities in its watershed area.

The study found that along the Ngwagwane River there are different land users or stakeholders with different types of land use practices. These stakeholders are:

- protected areas: these are the Ukhahlamba Drakensberg Park (UDP) where the Ngwagwane River rises, at a place known as Bushman's Nek and Coleford Nature Reserve (CNR) whose land use practices are discussed in Section 3.3;
- private land owners: these are both livestock and crop farmers, some of who run fly fishing enterprises, and a private commercial afforestation company, Mondi Forests; and
- communal land owners: in this study these are represented by the Nsikeni community. There are other African communities adjacent to the Nsikeni community in KwaZulu-Natal who share the riparian 'ownership' of the Ngwagwane River with the Nsikeni community.

It was also noted during the study that some private owners together with the CNR have an organisational structure the Ngwagwane Biosphere, which will be discussed in Section 5.3. The focus of this chapter is to highlight the different land uses in the catchment and how they may impact on the water ecosystems.

5.2. Land use impacts along the Ngwagwane River

The stakeholders listed above use the Ngwagwane River for various purposes. As the IUCN, UNEP, WWF (1991) states, human activities range from those that have direct impact or are consumptive of the natural resources to those that have indirect impact or are non-consumptive of the natural resources. For the Ngwagwane catchment, the consumptive activities are agriculture, afforestation and subsistence activities such as fishing (including fly fishing when one takes bags home), while the non-consumptive activities are nature conservation through ecotourism activities and fly fishing (in the application of the catch and release practice). Both consumptive and non-consumptive land use activities involve the use of the river ecosystem as a resource, which threatens the integrity of the environment. Thompson (1997) citing Thompson (1996) suggests that human activity associated with a specific land unit in terms of utilization and management practices has consequential impacts. Rogers (1994) identifies four major direct impacts on the hydrological cycle as a result of land cover changes. These are: increased effects

of floods and droughts, change in the physical ecosystem of the river, change in ground water regimes and effects on water quality and quantity. Petersen, Petersen and Lacoursiere (1992) report that governments around the world are concerned with the deterioration of water quality and loss of nutrient and sediments to the sea and oceans owing to non-point pollution contributors[1]. These government concerns raised by Petersen *et al* (1992) and other impacts as they relate to the Ngwagwane River catchment are dealt with separately below.

5.2.1 Afforestation

During the ground-truthing survey along the Ngwagwane River the study found that afforestation is one of the major forms of land use in communally owned land, such as Nsikeni, as well as in privately owned land upstream. According to Bainbridge (1999), community afforestation is aimed at creating better financial returns and improvement of the quality for life for the community through commercial initiatives. Likewise, afforestation in privately owned land is for commercial purposes. Commercial afforestation has however, been a contentious issue in South Africa. Van der Zel (1995) reports that since 1876 when the first timber plantations were planted near Worcester, complaints from farmers on decreased water flow in water courses from the afforested areas were noted. As a follow up to these complaints, research has been carried out to verify the association between the 'exotic' timber species such as genus Pinus and Eucalyptus and the consequent reduction of water flow in catchment areas. Preliminary results from hydrological research studies show that planting of 'exotic' tree species does result in reduction in river instream flow because of the demand for rapid growth (Department of Forestry, 1969; Versfeld, 1998; Bainbridge, 1999). The total reduction in water surface in water resources in South Africa as a consequence of commercial plantations was estimated to be 1284 million m^3 per annum in 1980 with an expectation that by the year 2010 the reduction would have increased to 1700 million m^3 per annum (DWA, 1986). (Versfeld (1998), also reports that commercial plantations account for 1399 million m^3 mean annual runoffs.) If the demand for timber and timber products combined with a quest for better gains from commercial afforestation increases, the pressure on the river ecosystem will also increase. In addition, plantation trees are relatively poor in assisting the water retaining and filtering mechanism of the river ecosystem when compared to the

[1] Non-point source pollution is introduction of pollutants to the natural environment at differential points of the ecosystem.

indigenous forests. Alien monocultures lack the built-in balancing mechanism incorporated in more complex natural systems. This is due to the rapid establishment of the root system as well as the high demand for water by 'exotic' species when compared to indigenous species. As a result, the rates of water lost through runoffs is relatively higher in catchment areas with plantations than with indigenous forest.

Bainbridge (1999) refers to another effect of afforestation; the destruction of biodiversity *in situ*. The flora and fauna is lost owing to loss of habitat in grasslands cleared for the establishment of plantations.

In the light of impacts associated with afforestation, mitigatory measures for sustainability of catchment areas such as the Ngwagwane catchment have been established in South Africa. These measures have been established through legislation. Since 1972, afforestation as a Stream Flow Reduction Activity (SFRA) has been subject to control through the Afforestation Permit System (APS) (Steyl, 1999). In addition, according to the Integrated Environmental Management (IEM) guideline procedures, afforestation has been listed as a land use activity that requires assessment on the potential impacts of the ecosystem and how these can be mitigated (DEA, 1992). The APS together with the IEM provided for through the National Environmental Management Act 107 of 1998 (NEMA) are control procedures that have been put in place to protect aquatic ecosystems and mountainous areas, particularly in those plantations located along the eastern seaboard, where rainfall exceeds 750 millilitres per annum (Department of Forestry, 1969).

5.2.2 Agriculture

This study established that, similar to afforestation, agricultural activities are a major form of land use along the Ngwagwane River. The PIR (1998) reports that agriculture is by far the most practised type of land use in South Africa. Both commercial and subsistence agriculture are evident land use practices in the catchment area. During the ground-truthing research procedures of the study, commercialised agricultural practices were noted on privately owned land in the form of livestock and crop farming, while subsistence agricultural practices occur on communally owned land. Both commercial and subsistence agricultural practices have effects on the environment in that they result in soil erosion, abstraction of water from the water bodies, and inflow of nutrients and chemicals into river systems.

(i) Soil erosion

The process of erosion through agents such as rainfall and wind results in transportation of soil together with its nutrients from one place to another. The loss of sediments through erosion results in siltation of water bodies. The UNDP (1991) reports that 300 million tonnes of top soil is lost per annum in South Africa. According to Dickens (pers, comm.), the rate of erosion could be relatively high in the southern Drakensberg area, promoted by the steep terrain and high rainfall which comes down in prolonged downpours. As a result of siltation, sediments from crop fields settle at the bottom of the water body and accumulate, reducing the reservoir storage capacity of the water body. A reduced storage body capacity contributes to increased incidence of severe floods which destroy the river banks. In addition, sedimentation results in inflowing silt burying spawning beds for fish (Palmer, 1994).

When soil erosion occurs, the soil particles with attached nutrients are removed, resulting in decreased soil fertility. If depletion of nutrients in soil continues, the result would be a soil structure that cannot support vegetation. With no vegetation cover or root systems to anchor soil particles, the ground is left bare for extensive soil erosion which can lead to the formation of donga and gully systems. In communally owned land areas, such as Nsikeni, human activities also contribute to the formation of gullies. These gullies result from sleigh pathways from indigenous forests, and next to rivers, where the people collect firewood or building material and soil to construct houses. At Nsikeni the resultant effects of soil erosion are related to subsistence practices taking place in a relatively small area which provides for a large population. These activities include keeping of large herds of livestock and others which, as discussed in Chapters One and Four, are mainly for subsistence purposes. When livestock numbers are high, animals trample on the ground and graze the grass beyond its regenerative capacity. This leads to depletion of land cover and the vegetation root system required to anchor the soil particles. Besides keeping large herds of cattle, the people have their crop fields close to river banks. The closeness of the crop fields to river banks makes it easy for wind and rainfall to transport the loosened soil particles (through tilling) into the water bodies.

(ii) Agrochemicals

According to the Brundtland Commission Report, 1987[2] chemicals are used to control insects, pests, weeds and fungi thus enhancing the productivity of the land. The Commission Report further advises that overuse of such chemicals is not only a threat to human lives, but also to other species as well as the river system through which the chemical eventually flow as pollutants. In the opinion of Ed Goosen, the Conservation Officer with CNR, the use of agrochemicals is the greatest threat to the river ecosystem in the catchment. Along the Ngwagwane River and catchment area, there is extensive commercial farming on privately owned farms. Commercial farming, according to Lumby (1994), is characterised by use of artificial fertilisers, pesticides and herbicides. These chemical are not all used by crop plants for the intended purposes. Some get attached to the soil particles and are transported to water bodies in runoffs. A study carried out by Dyk in 1978 at the Kruger National Park showed that pesticides are no threat to the wildlife but can result in contamination of surrounding water bodies (Skelton 1987).

Polluted runoff draining from cultivated land with phosphates and nitrate fertilizers results in the addition of these nutrients to the water body. An inflow of these nutrients into the water bodies can distort the water ecosystem balance, resulting in eutrophication. Where there is addition of phosphates and nitrates, there is promotion of excessive growth of algae and larger plants, while other species are not able to compete in the eutrophied conditions. The increased growth of the algae and bacteria also results in reduced oxygen levels (Plaistowe, 1997). In addition Palmer (1994) suggests that the excessive growth also increases water temperature. With increased temperatures and decreased levels of oxygen, some aquatic species such as trout are unlikely to survive (Palmer, 1994). Furthermore, agrochemicals can accumulate in animals such as fish (which eventually is consumed by human beings and other animals) and the accumulated chemical agent can affect the health of the human being. Plaistowe (1997) citing the WRC: Working Paper B5 (1993) advises that high levels of nitrates in drinking water can cause methaemoglobiaema in infants.

Section 19 of the National Water Act of 1998, holds the land-user liable for prevention of

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[2] Gro Harlam Brundtland was the Prime Minister of Norway who chaired the Commission in 1987 that came up with the report 'Our Common Future'. The commission was eventually named after the Prime Minister.

pollution of water courses. With the in-flow of agrochemicals entering the river system at different points there are accumulative effects on the water quality as one moves downstream. At present there is no legislation that has been put into effect to cater for the non-point pollution effect in South Africa. However, according to the Directory of Impact Assessment Guidelines there is the Cumulative Effects Assessment (CEA) which caters for small incremental effects caused by multiple land use activities such as inflow of nutrients from different point sources (non-point pollution) (Roe, Dalal-Clayton and Hughes, 1995). However, in South Africa the CEA has not been put into practice.

(iii) Abstraction of water

The study found that abstraction of water from the Ngwagwane River is mainly for irrigation and to a smaller extent for domestic and other purposes. Irrigation of crops such as maize and pasture areas is prevalent on privately owned farms, while water is abstracted for domestic use and construction of houses in communal land areas. Irrigation practices in South Africa utilise 51% of the stored national water resource (Scotcher, 1995; PIR, 1998). The irrigation water demand for state water schemes, irrigation boards and private irrigation was estimated at 8504 million m^3 per annum in 1980. This figure is expected to rise by the year 2010 to 11 885 million m^3 per annum (DWA, 1986) representing an increase of 40 % in water use. The a real extent of irrigation and afforestation in South Africa represent 1.05% and 1.20% of land cover respectively, which is almost the same (Summerton, 1996). Analysis of the figures that have been given above shows that irrigation uses more than six times the amount that is used by afforestation (see Section 5.2.1). Du Toit (1998) reports that 50% of South Africa's water is used for irrigation, while only 8% is used for afforestation.

Irrigation can easily exhaust a water ecosystem especially in times of drought (Skelton, 1987). Some key informants have indicated that this is the case with some rivers in the southern Drakensberg, including the Ngwagwane River. The streams and rivers are depleted of flows by diversion to dams which are utilised for irrigation. The study found that in some instances the water from the Ngwagwane River is pumped straight from the water bodies into commercial crop fields. Irrigation results in decreased water quantities downstream with the water capacity not being able to support the flora and fauna in the river ecosystem. Irrigation can also result in salinisation of the water bodies.

Although the allocation of water rights to irrigate in South Africa is regulated by the present National Water Act (NWA) No 36 of 1998 first promulgated in the 1956 Water Act, irrigation practices has been perceived by competing water users as having developed without the restriction that have been extended to other land uses, such as afforestation. The NWA No 36 of 1998, Sections 16 to 18, allows for water use primarily for basic needs as well as the environment (the Reserve). According to the NWA Section 21 diverting the flow of water for land use has to conform with the 'Reserve' requirements which as provided by the NWA No 36 of 1998 Section 77 are the responsibility of the Catchment Management Agency (CMA).

DWAF is in the process of setting up catchment management measures to represent sectoral land use responsibility. In 1985 integrated management studies were initiated in South Africa to address the water quantity and quality problem that exists in the country. Each study identified the need to incorporate wider community participation in catchment body forums, and the development of catchment management plans that are to be in the stewardship of the communities (DWAF, 1996). In the Ngwagwane River catchment, and many others in South Africa, the CMA bodies have not yet been fully established.

5.2.3 Nature conservation

The southern Drakensberg as discussed in Chapter Three, has a high potential for nature conservation. There are two types of practices associated with nature conservation - the consumptive and the non-consumptive resource use. Both these types of practices are observed in protected areas such as the Ukhahlamba Drakensberg Park (UDP) where the Ngwagwane River rises, Coleford Nature Reserve (CNR) and on privately owned lands.

(i) Non-consumptive practices

Non-consumptive practices are land use activities that do not deplete the ecosystem beyond its regenerative capacity. These land use activities include appreciation of the wilderness/nature which could be through photography, bird watching and fly fishing. The intention of nature conservation is to utilise the environment in a sustainable manner so that there would be very little impact on the ecosystem. Non-consumptive land use practices could result in indirect impacts on the environment such as the ecotourists destroying the environment by trampling on the soil and plants

or fouling the surroundings with refuse. The IUCN, UNEP and WWF (1991) advise that tourism increases pressures in mountainous areas when the influx of visitors is high. The ecotourist or fly-fishers can trample and so destroy the physical structure and aquatic flora and flora of the river system. These impacts can result in an imbalance in the river ecosystem. Studies are currently being carried out on the carrying capacity of the UDP.

Fly fishing becomes non-consumptive when measures such as catch and release (CAR) are applied owing to a demand that exceeds the capabilities of local waters to produce a sufficient number of fish. It is also a way to express that angling is valued high-quality recreational experience, rather than a way to secure food. CAR or zero catch limit is a concept used for fishery management purposes to protect and improve fish populations (Alletson, 1987a). During the CAR practice fish are caught and returned into the water, therefore it is designed for sport fishing. The practice obviously requires a committed angling community.

(ii) Consumptive practices

As opposed to non-consumptive practices, consumptive practices use the natural capital of the environment. The consumptive practice associated with nature conservation or ecotourism discussed in this study is fly-fishing whose potential impacts are assessed below.

- **Fly fishing and its associated impacts**

Fly fishing in the Ngwagwane catchment uses both the river system and the man-made impoundments. Both protected areas such as the Coleford Nature Reserve (CNR) and Ukhahlamba Drakensberg Park (UDP) and privately owned land offer fly fishing. Fly fishing utilises both the indigenous fish species such as the B. natalensis (yellowfish) and the exotic species O. mykiss (rainbow trout) and many others. Until the 1890s the KZN waters were trout-free (Alletson, 1987; Liversage, 1996). The 'exotics' were introduced for food and sport. In South Africa there are two main introduced species. These are the brown and rainbow trout. Only the rainbow trout was introduced in the Ngwagwane River system (Bainbridge, pers. comm.). There are other exotic fish species that have been caught along the Ngwagwane River such as bass and carp (Goosen, pers. comm.). Introduction of 'exotic' fish species to the native river system meant subjecting the river ecosystem to potential impacts. Impacts could be on the fauna and flora of the river ecosystem and also on the physical structure of the river ecosystem.

Studies carried out in the United States, Mexico and New Zealand have shown that the 'exotic' species show high chances of successfully colonizing and having population growth in new environment because of their tolerances for extreme temperatures, fluctuations in water salinity, oxygen fluctuation, diverse effects of drought, feeding habits, reproduction behaviour which encompasses fast growth and maturation; extended or continuous breeding season; and, advanced parental care as compared to their counterpart indigenous species which occupy the same locality (Taylor *et al*, 1984; Salvado and Marco, 1984; McDowall, 1984). According to these authors, there are impacts that were revealed in the studies which result in effects on the river ecosystem and the indigenous species, such as degradation of water quality and quantity, hybridization, trophic alterations and habitat or spatial alteration. For this text, only trophic and habitat alteration will be considered, because they deal with impacts associated with exotic fish species found in the Ngwagwane River system and its tributaries that are in the custody of the Nsikeni community as discussed in Chapter Three.

- Spatial/Habitat alteration.

Exotic species such as rainbow trout are territorial fish species requiring isolation (Crass, 1986) and space to harbour for resting, spawning and refuge (Crass, 1986; Taylor *et al*, 1984). The species exhibit territorial characteristics that may displace the native species from particular locations. The 'exotics' are also capable of breeding in high numbers, resulting in high population densities. The consequential aggressive effects and overcrowding have been observed in bass and carp species which also result in territorial dominance. Domination of the exotics may lead to displacement of the indigenous fishes from the preferred spawning and feeding sites (Taylor *et al*, 1984).

- Trophic alterations

Introduction of species can also result in an increase in the population of a community which means a high demand for food for an individual fish. A result is competition for food especially when the food resource is limited (Liversage, 1996; Taylor *et al*, 1984). When food is in short supply the possibility of overlap in common diet such as competition for the same type of prey, may become prevalent (Taylor *et al*, 1984). Small mouth bass and carp species are mud feeders and therefore tend to change the turbidity of the water which affects other species' feeding habits.

On the other hand, not all the exotics that have been introduced that have survived. The Salvelinus fontinalis, a brook trout introduced into KZN, is thought to have disappeared (Alletson, 1987b). Taylor *et al* (1984) advise that if a species is not capable of adapting to the ecological conditions provided by its new environment then failure to get established is inevitable.

The impacts inherited from the introduction of exotic species led to an attempt by the Cape Department of Nature Conservation to eradicate these species from that province's waters. This was a different view from the Natal Parks Board (NPB), which stocked the water bodies with the exotics (Sutcliffe, 1986; Croney 1987). These issues are of concern to fly fishing organisations such as FOSAF. FOSAF's inception was driven by a commitment to protect the trout as well as conserve the waters of Southern Africa. In the Trout '94 Symposium, impacts resulting from the introduction of trout and other fish species were discussed to identify mitigatory measures that could be adopted to protect both fish species and river ecosystems. It is not only the exotics which need protection but also the indigenous species listed as vulnerable and endangered, such as the yellowfish, B. capensis, B. andrewi and B. kimberlyens in other provinces.

The impacts described above mainly occur in river systems. Not only rivers are utilised for fly fishing along the Ngwagwane catchment, but dams are also used. These dams are on both privately owned lands and protected areas such as the CNR. Dams, as argued by Avni (pers.comm), alter the river ecosystem by creating a new system to which, fauna, flora as well as the physical structure of the river have to adapt. In a symposium initiated by FOSAF, Trout '94, the issues of impacts from trout in farm dams were raised. These impacts included the effects of effluent which contains nutrients such as phosphates and nitrates which, as described above, can lead to eutrophication of the rivers. The impacts are variable depending on the situation. In some situations they can negatively alter the ecology and in others they can be beneficial. The new EIA laws together with the NWA should provide for a mechanism to avert negative aspects.

5.2.4 Riparian zone vegetation

The riparian zone as defined by Palmer (1994) is an area along the river bank extending beyond the flood prone areas and incorporating the adjacent land influenced by the river and associated ground water. The riparian zone has vegetation which according to Palmer (1994) has an important role to play in both the health of the river and of the aquatic life in the water body. The

riparian vegetation functions to:

- stabilize the river banks and trap sediments coming from the crop fields (Petersen *et al*, 1992). The process is a result of a well established root system of the vegetation which anchors the roots in the soil preventing the destruction of the banks, especially during flooding;
- recycle nutrients from the fields contained in runoff, by adsorbing the nutrient and converting it biologically in the plant system for growth (Petersen *et al*, 1992). In this way the riparian vegetation serves as a filter for the runoff that contains the fertilisers, potential water body pollutants such as nitrates and phosphates. In the process of filtering, the riparian vegetation slows down and decreases the amount of pollutants that would eventually get into the water body and influence water quality. Studies carried out on the recycling function of the riparian vegetation have shown that 68% to 100% reduction of the nutrient (nitrogen) concentration has been achieved, although the process depends on the buffer strip's width and soil type;
- serve as a habitat for fauna, such as birds and insects (Palmer, 1994). In a study on bird habitat analysis using aerial photography in southern Sweden, a conclusion was reached that deciduous woodland along the river banks of arable land should be conserved or promoted for effective conservation of bird populations (Petersen *et al*, citing Robertson *et al*, 1992);
- decrease the rate and amount of water that enters the river or the stream at a time. Therefore, the effects of erosion, nutrient transport and sediment load that enters a water body are mitigated (Petersen *et al*, 1992); and
- provide for growth of fauna such as fish in a water body. The growth of fish has been related to the status of an associated riparian vegetation which provides detritus or allochthonous litter fed upon by the invertebrate population which is in turn consumed by the fish. Alletson (1987b) reports that studies carried out on the Loteni, Umkomazi and Mooi Rivers have shown that there is a relationship between the growth rates of trout and the availability of invertebrates in the area. These invertebrates feed on the riparian vegetation. These studies revealed that trout grow faster where there is a riparian vegetation with high mean biomass, in other words, the fish biomass was found to be proportional to the riparian zone vegetation biomass. The riparian vegetation in Mooi

River had a high biomass which was due to the higher woody component, especially the broad-leafed shrubs such as Leacosadia sericea species being an important species when compared to the other two, Umkomazi and Loteni Rivers (Alletson, 1987b).

In the study it was established that the Ngwagwane River riparian zone is predominantly alien species. Versfeld (1998: 26) contends that 'alien invaders are primarily a riparian problem'. Versfeld further reports that South Africa alien vegetation uses 3 300 million m^3 which is 7% of the annual river flow. Black wattle, Acacia mearnsii and silver wattle A. dealibata are the species extensively found along the Ngwagwane riparian zone on both community and privately owned land as well as in protected areas such as the CNR and the UDP. Wattle trees have various impacts when compared to indigenous trees such as firstly, a poor ability to anchor river banks, secondly, excessive consumption of water from the water body, thirdly, because of the weaker root structure they eventually fall into the water channel during floods, blocking the movement of water and trapping pollutants such as paper and plastics and lastly, loss of aesthetic value which is a threat to ecotourism. It should be noted that along the Ngwagwane River in the Nsikeni area, the infestation of wattle is relatively slight when compared to the privately owned lands upstream.

An initiative by the Department of Water Affairs and Forestry (DWAF), in a programme referred to as 'Working for Water' (WfW), is addressing the issue of impacts associated with alien species on both the riparian zone and the landscape in South Africa and Lesotho (Versfeld, 1998). Some of the areas which will be given high priority are the catchment areas of the southern Drakensberg in the Eastern Cape (Versfeld, 1998). In light of the impacts mentioned above, caused by alien vegetation, the WfW programme is aiming at eradicating the alien species in catchment areas and along the river banks which in turn would conserve water and prevent further loss of water to the alien species, conserve biodiversity and catchment stability, create jobs and help build the socio-economic structures of the rural communities and help support ecotourism. To achieve the mentioned objectives, the WfW programme has been allocated R700 million by DWAF. Furthermore, the Minister of Water Affairs and Forestry, Ronnie Kasrils, accepted some trout which he caught as a gift when visiting a DWAF WfW project in Mpumalanga. This indicates some commitment by the government to fly fishing as well as an acceptance that an exotic can be a sign of a water's ecological health.

5.3 Conservation organisation along the Ngwagwane River

The Ngwagwane catchment has different land users but there is one land user organisation in the catchment. Although not formed under the National Water Act's Water User Association the organisational structure was formed to address individual land user concerns and undertake water related activities for mutual benefit. This organisation is the Ngwagwane Biosphere. The concept of a biosphere, in its origination in the Soviet Union in 1921, intended striking a balance between the ecology and the wilderness with human concerns (IUCN, UNEP and WWF, 1991). Human concerns are mainly to deal with economic growth. Therefore, the setting up of the biospheres is to incorporate the concerns from economic growth activities into the carrying capacity of the ecosystem. According to the International Union for the Conservation of Natural Resources (IUCN) the biosphere is one of the conservation options that has a purpose to establish a network amongst users designed to protect and conserve the plant and animal community within a natural ecosystem (Mountain, 1990). The biosphere has the basic function to serve as a conservation, monitoring and economic development forum. It provides a framework for coordination and cooperation among different actors with different interests in composite areas serving many and often conflicting purposes (Serageldin and Steer, 1993).

There are other organisational structures that have similar functions to the biosphere such as conservancies. Conservancies are based on the same principles as biospheres, although their main concern is nature conservation, while biospheres promote sustainable management of the environment. Winter (1999), citing Ferrar, defines a conservancy as 'adjoining private commercial farms with co-operative management agreements based on shared cultural values such as conservation of natural resources'. The benefit of such an arrangement is shared economic costs or measures that can curb externalities, which move would in turn benefit sustainable improvement of the ecological system such as the river system. Vital for the success of conservancies is social integration whereby the landowner and community can address their concerns. It is based on concerns to protect the ecosystem at a low cost (Winter citing Kotze, 1999). This study established that conservancies in the study area (Ngwagwane catchment) fell apart because of lack of coordination between the various stakeholders (Goosen, pers.comm).

The Ngwagwane Biosphere is made up of private farmers and the CNR. These farmers are mainly commercial agricultural farmers, some having ecotourism enterprises through fly fishing and other activities. The African rural community, such as Nsikeni, is not part of the Ngwagwane Biosphere. This is because the biosphere and river conservancy concepts were set up by the Natal Parks Board (NPB) a conservation body of KwaZulu-Natal (KZN) (Bainbridge, pers. comm.). In addition it was provided for through Section 136 of the Natal Conservation Ordinance 15 of 1974. KZN and Nsikeni (in the Eastern Cape) are separated by the provincial boundary and therefore the NPB did not have the legislation power to implement the biosphere concept with the Nsikeni community. A general observation is that conservancies and biosphere organisation in the study area (Ngwagwane catchment) have been dominated by private land owners (Goosen, pers comm). In addition, communal land owners have not been included in the participatory process of water resource management (DWAF, 1996). Furthermore, tribal authorities who regulate and oversee traditional laws relating to water use and resource allocation in rural community areas have not been included in the participatory process of water resource management (DWAF, 1996). The exclusion of the traditional leaders and their people from such organisation has not helped the communities in the conservation of the river ecosystem. That the private farmers lack enthusiasm for the biosphere concept and the poor level of conservation at their river frontage would appear to indicate that the biosphere has not achieved its goals with them.

There are, however, plans to include the communal land owners, who are mainly the African communities in resource management initiatives. According to Div de Villiers, an official with the Department of Environmental Affairs (conservation division) there are future plans that have been considered through programs such as the Nsikeni Biosphere Reserve, M-DCA, and Nsikeni Wetland Conservation for cooperate management of the natural resources. These initiatives will include the Umzimkulu TLC, traditional leaders and conservation departments in the management forums (De Villiers, per.comm.).

5.4 Discussion

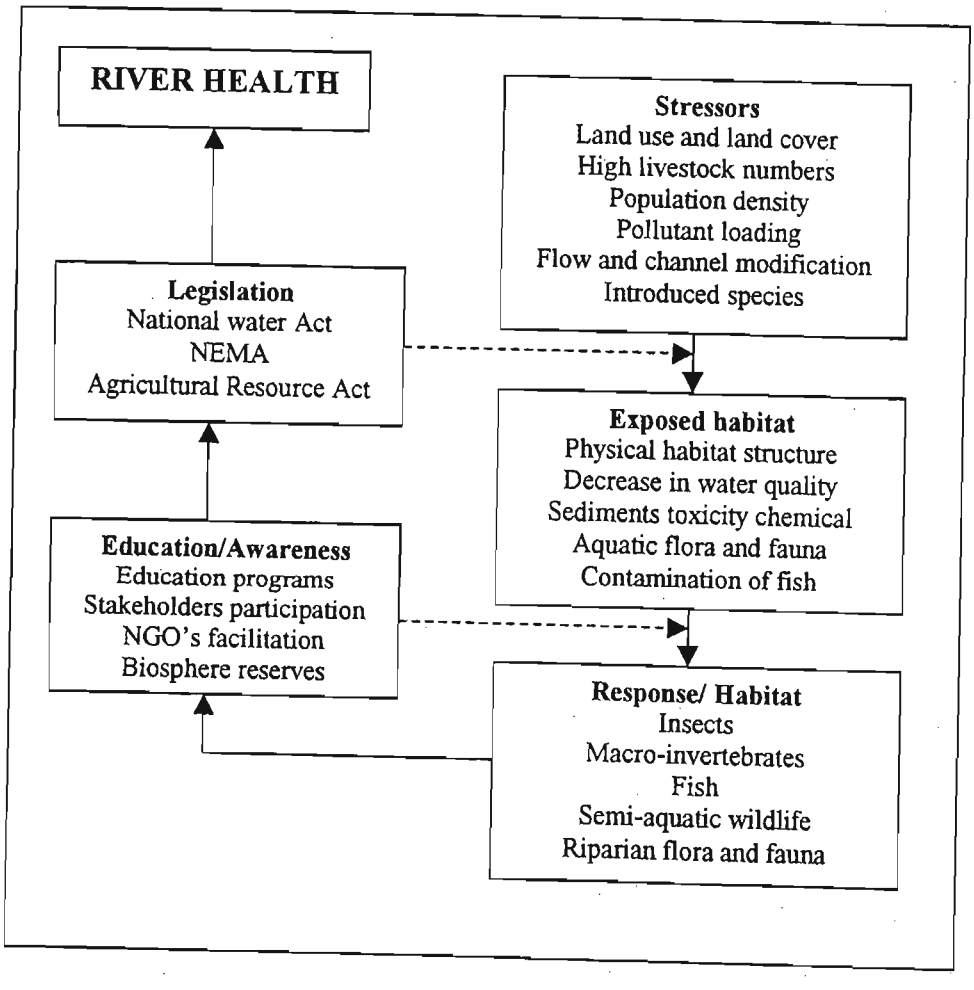
Economic, social and environmental needs are congruent structures of sustainable use of water bodies. An individual land user's capability to transform his environment is driven by his social needs for economic benefit. Likewise, the diverse land-use activities along the Ngwagwane River range from the use of exotics such as trees, crops and fish to the use of the indigenous environment ranging from fish, water, trees and the natural resources. Lowenthal (1997: 235) argues that since 'indigenous purity is neither possible nor desirable', each resource with a value for economic growth should be considered but, it should not be at the expense of the environment, such as a water body which in South Africa is one of the vital resources. The Republic of the South Africa Constitution Section 24 (b) (iii) provides that 'everyone has a right to have the environment protected for the benefit of the present and future generations, through reasonable legislative and other measures that secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development'. The Constitution gives the people of South Africa a right but not a responsibility to take care of the environment. According to Franco (1994: 96), the concept of participation is difficult to put into practice 'because those participating in water resource management have many different interests'. The WCED (1987) advises that land use patterns should be based on a scientific assessment of the land's capacity which must not exceed the rate of natural regeneration. The document on 'Caring for the Earth' lists the following for a sustained use of water bodies (see Figure 5.1).

Figure 5.1: Sustainable use of fresh water bodies: Source: IUCN,UNEP and WWF, 1991.

- better awareness of how the water cycle works, the effects of land uses on the water cycle the importance of wetlands and other key ecosystems, and of how to use water and aquatic resources sustainably;
- management of water demand to ensure efficient and equitable allocation of water among competing users;
- integrated management of all water and land use;
- improved institutional capacity to manage fresh waters;
- strengthened capacity of communities to use water resources sustainably;
- increased international cooperation on water issues; and
- conservation of the diversity of aquatic species and genetic stocks.

The consequence, of fragmentation of water resource management inherited from the previous 1956 Water Act and past inequitable policies are, however observed amongst different water users. According to Du Toit (1998), the 1956 Water Act assumed an abundance of water and a right to distribute water according to one's own decision based on property ownership especially for the riparian land owners. However overriding these assumptions, the NWA holds high priority for the basic water supply of 25 litres per day to all citizens of the country and the environment. Public awareness of its role to conserve water resources has to combine with provision by the legislation for river health (see Figure 5.2).

Figure 5.2: River health



The common goal of achieving river health is embedded in integrated catchment management to ensure that there is equitable and sustained use of the available, but limited water resources to: protect the livelihood of the Nsikeni people. They have to have a river which is healthy for the sustainability of the project. The imbalance in the Nsikeni people's power over the resource needs to be rectified. The current historical context, together with the provision of the legislation, is conducive to this change. The change could be facilitated through the CBRM strategy model discussed in Chapter Six.

CHAPTER 6: COMMUNITY-BASED RESOURCE MANAGEMENT STRATEGY: ANALYSING THE OPTIONS

The underlining factor for the CBRM is that the Nsikeni people should be empowered through participation, decision - making and capacity building (Wells, Brandon and Hannah, 1992; Burkey, 1998). Creemers (1997) identifies conditions which have to be satisfied for projects to be considered community-based. Creemers (1997) lists these conditions as: firstly, the project has to have merits of being endogenously initiated; secondly, the community has to run the management operations of the project; and lastly, the community has to own the project. As discussed in Chapter Three, fly fishing as a ecotourism activity could be a development option for the Nsikeni community. Fly fishing, however, cannot be sustainably established as a community-based project without considering the community needs discussed in Chapter Four. Further more, sustainability of the project and fulfilment of needs have to take place within the capacity of the environment. The potential impact of such land use activities was discussed in Chapter Five. This chapter attempts to formulate a CBRM strategy with a focus on fly fishing considering all the discussion in the previous chapters.

6.1 Analysis of the Options

According to the approach adopted in this study it was acknowledged that each project has its own programme as discussed in Section 1.3. Ashley and Garland (1994) identified four types of community-based implementing programs which are:

- a development project that is completely owned by the agencies such as NGOs or entrepreneurs without the community getting involved;
- a project whereby the agency is the owner of the project but splits the shares profit with the community;
- the project is a joint venture or partnership between the agency and the local people;
- the project is run entirely by the community.

6.1.1 Option one: The top-down approach

The first option as listed by Ashley and Garland (1994) involves the utilisation of the community's resources for the benefit of the outside agency. The approach used for implementation of such a project is the top-down approach. The top-down approach has been extensively used internationally and in South Africa, especially in wildlife management strategies that have been implemented in protected areas (Lewis, 1996). Natural resource conservation has been associated with past inequality laws in South Africa because of the similar 'top-down approach' used in administration (Harley and Fotheringham, 1999). The emphasis has been on preservation of species by the conservation management, and on race superiority by the past apartheid legislature, as opposed to achieving an integrated method of sustainable use of natural resources for everyone's benefit.

Law enforcement has been one method used to ensure compliance with the laws passed in these protected areas. The set-up has denied the people the right and opportunity to contribute their own knowledge in the management of natural resources (Winter, 1999). Lieneberg (1994) argues that the pre-colonial people in Southern Africa were governed by an ethic based on non-exploitation of the natural resource, which was a sustainable relationship with the environment. Africans saw themselves as an integral part of the environment and this is expressed in their folklore, poetry, religion and language. This indigenous knowledge could not be incorporated into the top-down approach because of inequality laws which separated conservation managers and communities. In the light of the exclusion of the communities from participating and so benefiting from natural resources, the first option does not conform to the principles of CBRM. The community does not have the chance to plan 'for' the project, even less 'own' the project. Planning for ones project involves taking into consideration the needs of the community. If the opposite occurs the project is usually rejected by the community, such as was the case in developmental projects designed for the Kaerezi settlement people in the Eastern Highlands of Zimbabwe (see Box 6.1).

Box 6.1: The Eastern Highland Kaerezi Resettlement Programme

The Eastern Highland Kaerezi Resettlement Programme was implemented after post-colonial wars in the Eastern highland of Zimbabwe. The Zimbabwean government bought farms next to a National game park with an envisaged trout river, the Kaerezi. One of the programmes was an initiative by the government to establish community-based trout dams as well as allowing the 'elite' to fish the rivers for the benefit of the resettled community. The Kaerezi settlement people belong to different ethnic groups. The people living near the river who were the intended beneficiaries of the project voiced fears that the Nyarem people would take over management of the project and also the benefits. This was caused by perceptions that the people from Nyarem were more learned than those that lived near to the river. Nyarem people were made up of teachers and farm managers who had been previously involved in trout farming. In addition, the people were sceptical of involving the Chief and Headmen since in previous projects when these authorities were involved the results were not successful. One of the Headmen in one of the projects sought to enrich himself at the expense of the community.

'It is like an octopus out of control'

In another initiative the people were asked to decrease the number of cattle that they had so as to decrease the degradation of the surrounding grasslands. This was in conflict with the people's cultural practices. In Africa a man's wealth is associated with the number of cows the head of the family has. Destocking to accommodate the requirement of the project became a political issue. It has to be noted that all these plans were made without the community's involvement, meaning decision- making was out of the community's hands. As one of the government officials was quoted as saying 'It is like an octopus out of control'. As a result of the actions undertaken to establish the programmes the projects were not successful.

Source: Moore (1996)

The moral of the Eastern Highland Kaerezi Resettlement Programme described in Box 6 brings into light three aspects of that, top-down approach does that it does not work if the needs of the people are not considered, that it is wrong to assume that a community is a homogenous interest group and, that if the project programme is againsts the grain of cultural practices the resultant is failure of development initiatives. These three aspects however, are contended by Burkey (1998) that they result in community-based project failures. The top-down approach however, has its place in implementation process of a community-based project. The fact that the people do not have the expertise neither the resources to implement project plans, means an intervention (usually from outside agencies) in the first stages of the project is required (Breen pers. comm.). The intervention process however, has to facilitate implementation of the project process as well as a capacity building

exercise for the community members. These issues are discussed in Sections 6.1.3 and 6.2.

6.1.2 Option 2: The participatory passive approach

The second option presented by Ashley and Garland (1994) also involves the utilisation of community's resources for 'partial' benefit of the community. The approach used in such a project programme is the passive participatory approach. In such a case the project is designed 'for' the people. The local people's participation is limited to labour and provision of information about the area. The communities are not empowered in terms of informed decision-making process and management skills which would give the communities the opportunity to eventually own the project.

Box 6.2: The Communal Area Management Plan For Indigenous Resources (CAMPFIRE).

Communal Area Management Plan For Indigenous Resources (CAMPFIRE) is a renowned community-based initiative in Africa, initiated to establish an opportunity for Zimbabwean rural communities to benefit from the conservation of wildlife. In this way, the policy decentralized authority over wildlife so that the people could also gain from a conservation responsibility. The CAMPFIRE project has succeeded in several issues such as reducing the problem of game poaching in the country. Instead of decentralizing control over the wildlife and the communities receiving full benefits, the CAMPFIRE has been labelled the 'Campfire Colonialism,'. The Indigenous Environmental Policy Centre (IEPC) based in USA claims that the CAMPFIRE is used by Zimbabwe's white minority to increase its influence over land use, in the process reaping the wealth of the project which is detrimental to the rural communities. The IEPC argues that CAMPFIRE is not a community-based program. This conclusion is based on the finding that the rural communities neither manage nor directly benefit from the programme.

'It seems the people are only receiving compensation for looking after the wildlife'

In addition the IEPC claims that the people are subjected to a passive participatory approach. There is an agreement between the Rural District Councils (RDCs) and the private safari operating industry, which are the groups alleged to benefit from the enterprise and the community is not fully involved in decision-making. For the community members, there is insignificant benefit in comparison to each household income. The rhetoric that was associated with the situation with the CAMPFIRE was that 'it seems the people are receiving compensation for looking after the wildlife'. However, other sectors claim a contradiction.

Source: Patel (1998)

A study was carried out by the Indigenous Environmental Policy Centre (IEPC) on the Communal Area Management Plan For Indigenous Resources (CAMPFIRE) in Zimbabwe (Patel, 1998). The study by the IEPC concluded that income generated through the CAMPFIRE project was not proportional to the benefits obtained by the target population (see Box 6.2). In such an instance there is no sense of ownership and as such no commitment to upkeep stewardship and maintenance of the project structures by the communities.

In analysis of the first two options, they do not conform with the intentions of the CBRM strategy because first, the community's full participation in such programmes is not possible since the project is owned by the outside agency; secondly, training skills are not obtained by the community members since most of the planning, implementation and decision making is done by the outsiders without the community participating (as illustrated in the CAMPFIRE programme Box 6.2); thirdly, only a fraction of the benefits goes to the community so the project benefits mainly the outsiders. In the light of these possible outcomes, the result could be that the community becomes completely dependent on continuous outside assistance for skills such as management, administration and in most cases for financial assistance. Burkey (1998) warns that all the eventualities mentioned above have been the recent trend for community-based organisations and have led to the failure of most projects because of lack of continuous assistance from outside agencies. At Nsikeni this has been observed with the ZWA projects. On the other hand, Wells and Brandon (1993) observe that projects that are partly or entirely run by the local community have the greatest potential to facilitate the sustainable management of the resource base. In the light of these arguments, the last two options can be considered for the implementation of a fly fishing CBRM project at Nsikeni.

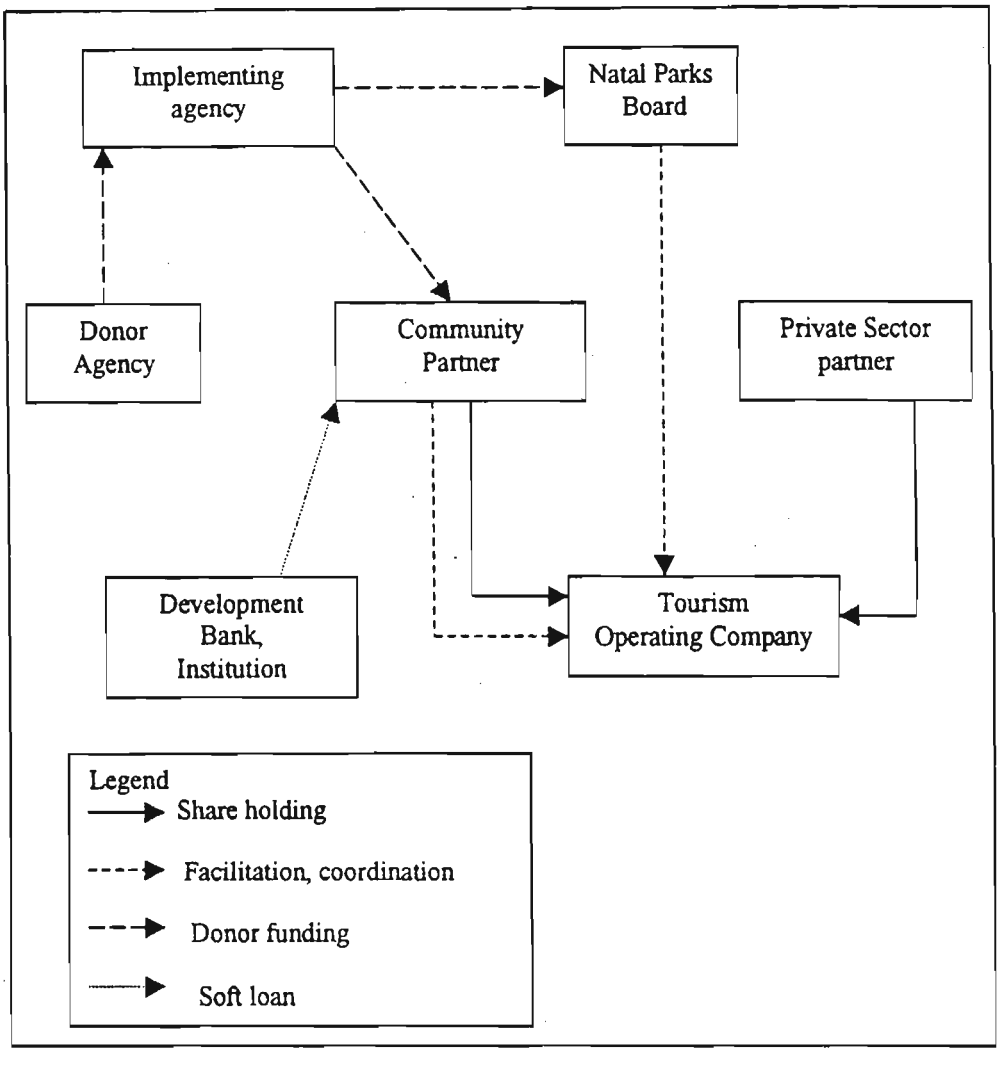
6.1.3 Option 3: The active participatory approach

The third option presented by Ashely and Garland (1994), the project implementation process, involves interactive communication. In the process of utilisation of the community's natural resources, long term benefits are also attained by the community. This option adopts the participatory approach which incorporates understanding the needs of the people. Winter (1999) citing Cernea (1985) defines active participation as having the target

Box 6.3: Creemers (1996) conceptual business model for community-based ecotourism development

The underlying principle for the project described in this model is to facilitate empowerment and capacity building within the community and capacity of the environment. The model is designed for a relation between the community and a protected area. The model proposes that institutions be involved in a joint venture model. These institutions are: the community, private sector, protected area agency (the nature conservation department), donor agency, implementing agency and development funding institution (see Figure 6.1 below).

Figure 6.1: Creemers (1996) conceptual business model for community-based ecotourism development: Source Lewis (1997)



In the context of this model the private sector partner is described as one committed to the development of

profitable resource based operations, which process has to benefit the community sustainably while maintaining the environment's integrity. The functions of the private sector partner in the partnership include: the provision of tourism management and development expertise, the provision of tourism marketing expertise, contribution to the credibility of the company, provision of capital investment and provision of *in situ* training for involved community members.

Like the private sector partner, the community partner has a role. It should constitute a structure which represents the interest of all members of the community. The community organisation has to be made up of the members of the community, which could use outside help to establish the organisation. The role of the community as part of the joint venture is to: represent to the management community interests in the tourism company, disburse funds generated by the tourism enterprise to the development project and recruit community input into the development of the community-based project. Therefore in a way serve as a coordinator between the community and the management organisation.

Another partner, the implementing agency, has to be a non-profit partner in the development. 'It should have knowledge of local conditions and sensitivities, and a proven record of facilitation and development processses' (Lewis 1997, citing Creemers, 1996). The implementing agency should also have the support of all partners. The roles of the implementing agency are: to facilitate the establishment of the partnership, identify interested donors and development institutions, resolve differences and promote trust and commitment between the partners.

The role of the conservation agency is to provide general support to the partnership, contribute to the credibility of the tourism operationg company, provide advice to the partnership on ecological management and rehabilitation of community land where necessary, provide access to the marketing network of the conservation agency, provide free advice to the tourism operating company on local product development, provide advice and support during the early stages before funding has been secured, manage community land and use internal sources to provide legal advice.

The involvement of the development institution such as a development bank, is to incorporate business expertise into the project. The role of the development institution is to provide advice on business matters as well as financing the project at favourable rates and with flexible repayments. The final component of the model is the donor agency. The donor agency is required to provide donor funding for the project. This funding is required for the development of the partnership. It has to cover costs for the implementing agency, fund the community capacity building programme training and capital development which includes the construction of the infrastructure costs (roads and accommodation)

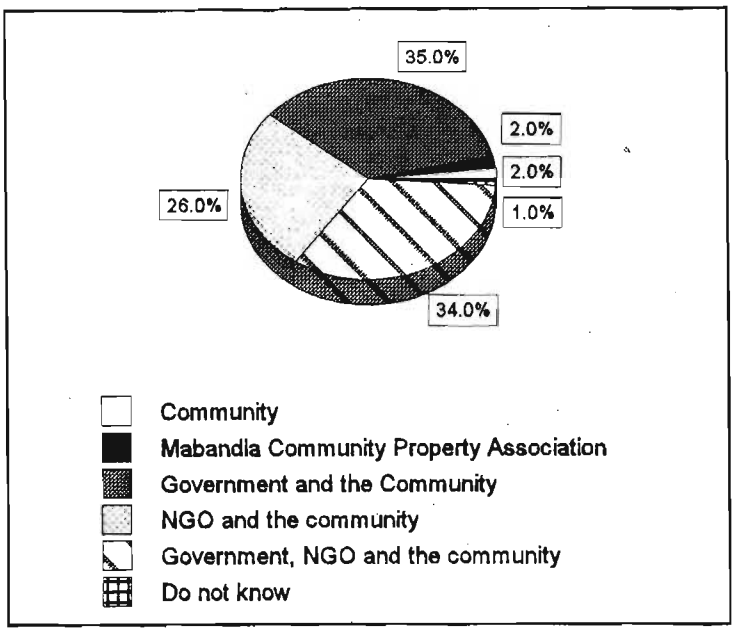
Source: Lewis (1997) citing Creemers (1996)

population taking control of the decision-making process and identifying their assets and resources and acquiring the capacity to manage these resources. As included in the Creemers (1996) model, there are different partners with particular functions whose input results in the transfer of skills and techniques from the agencies to the community (see Box 6.3). In so doing, there is a build up of institutional capacity for people so that they have the capacity to sustain the project. In such an approach the community gains in terms of skills and fulfilling their needs as both individuals and a community. This as described in Chapter Four, is the basis of sustainable development.

6.2 The Nsikeni people's model

Each and every community has its 'ideal' community-based project model. Even for fly fishing the people of Nsikeni have their own. It has to be noted that an ideal model for a individual or a community is what that particular person/group of people has seen succeeding before. Burkey (1998) reports that people can only trust what they have seen succeeding. During the focus group session the participants were asked to list institutions they (participants) thought would have to be included in the fly fishing project (see Appendix B, Section 11). The listed institutions were the government (as Mzimkulu TLC and other departments), a Non-Governmental Organisation (NGO), Mabandla Communal Property Association (MCPA) and the community. The same was done for the questionnaire respondents. From the questionnaire survey the study found that 2% thought only the MCPA should run the project, 3% thought only the community should run the project, while, 26% responded positively to a combination of the NGO and the community. A further 34% responded to the combination of the government, NGO and the community and lastly 36% responded to the combination of the government and the community (see Figure 6.2). From these results it would seem the community wants a combination of the NGO, government and the community to run the project, however, focus group participants recommended strongly the involvement of the MCPA in such a combination.

Figure 6.2: Management of community-based projects



Furthermore, when the focus group participants were further asked on the roles of the listed institutions the following ideas were brought up:

- **Government**

The government's role according to the participants was to provide the community with political support which should be given mainly to the authorities of the area and the MCPA. Further, the government should assist the community in establishing a better infrastructure, mainly roads, clinic and security facilities. The lack of these facilities was an issue perceived by the participants to be hindering the development of the community. The government would also assist in providing the community with financial resources and legal assistance. In addition, the government would ensure that there were well planned environment and development management strategies involving all the stakeholders. Comparing the stated role of the government by the focus group participants to Creemers model (see Box 6.3), the government has a funding as well as a nature conservation function, but most importantly it has to establish an infrastructure to facilitate development in the area.

- **NGO**

The function of the NGO's would be to strengthen the role of all the institutions and promote commitment that the people or organisations have to the exercise. The NGO would also facilitate participation of all the involved institutions or stakeholders. In the process it would ensure capacity building, give technical assistance during the co-ordination of activities and establish the code of standards that each and every stakeholder has to adhere to so as to fulfil the intentions of the strategic plan adopted in the management of the project. Therefore, the training institutions that are chosen to facilitate the running of the project have to be monitored in order to have effective training or empowerment of the people with skills by the NGO. During the discussions, the NGO was also perceived as the funding institution, serving the role of the donor agency as described in Creemers model (see Box 6.3).

- **Mabandla Communal Property Association (MCPA)**

The establishment of the MCPA in the community gave its membership, the people of Nsikeni, the right to use the land for development activities. It seems the people have associated the success of the community afforestation project with the establishment of the MCPA. The MCPA has to protect the rights of the people living in the MTA area, and organise and control development in the community. The intended role of the MCPA in the fly fishing project involves being an effective lead institution that will be able to run the operations of the project "*according to our wishes, the Nsikeni people*", as a focus group participant said. The MCPA would coordinate within community structures and deal with external conflicts (other project partners) with outside agencies that might arise. Another expected role of the MCPA was to coordinate between the NGO, government and the community.

- **Nsikeni community**

The people of the community are to be involved in the community-based model through participation by: first, electing a committee which could be supervised by the MCPA, to deal with specifically with the fly fishing project. The community will also provide labour such as construction of the fly-fisher/tourist accommodation and cleaning. These ideas were also shared by the questionnaire survey respondents (see Box 6.4).

Box 6.4: Perceived involvement of people in the fly fishing project

'Need to be taught certain skills'	15%
'Would serve as fishing guides for the outsiders'	9%
'Make handicrafts'	12%
'Clean the place'	10%
'Help with the construction of accommodation for tourists'	11%
'Organise and facilitate progress'	5%
'My wife will do what is required'	1%
'Need to see the success of the project first'	4%
'Give help wherever needed'	15%
'Do not know'	19%

Note: Box 6.4 was constructed from questionnaire responses based on Appendix B, Section 5.9

While questionnaire respondents thought they would serve as the labour force, others thought they could make and sell handicraft skills. Some thought they had the potential to do better than that, such as organise and facilitate progress in the community, while others were prepared to be trained for skills which could be used to run the project eventually.

It has to be noted that the model idealised and described above by the people of Nsikeni is the same as the one that has been applied for the afforestation project. The institutions that have been involved in the running of the afforestation project are the government (Umzimkulu TLC, DWAF and other departments), Mondi Forests (representing the NGO), the MCPA and the Nsikeni community. When asked on the model setup for the afforestation venture between the community and Mondi Forests, the Chairman of the MCPA, Bhekani Dlamini, described the same functions as the focus group participants for the partners listed. The notation of a similar project to the one established for the community afforestation project confirms Burkey's advice that communities will support establishments that they have experienced suceeding in other communities or within their own community.

When comparing the model that the Nsikeni people perceive could work for them with Creemers model described in Box 6.3 there are similarities. These two models have the

fundamental principle recognised by CBRMs which requires participation of the community in the planning, operation and management evaluation and refinement of the project. These project models provide for community members to gain in the process through a skills training programme provided through funding by the donor agency. The role of the implementing agency, though not covered by the people's model, has its functions allocated to the NGO. This ensures that trust for the project exists amongst community members. Implementation of a CBRM strategy at Nsikeni has to ensure that the community becomes active beneficiaries of the fly fishing project which relies on the previous involvement of the community. Such a model has to consider particular factors that result in some community project strategies not being successful.

Burkey (1998) lists reasons why rural development projects have not been successful in the past. Burkey lists these reasons as:

- heterogeneity of target population;
- non-conformity to the needs and interests of the target group by the implementing agencies;
- socio-cultural factors are often ignored by outsiders;
- unequal distribution of revenues and benefits from the project within the community;
- no flexibility in the policies during the decision-making stage, which are decided in the political and economic context by implementing agencies;
- lack of effective and efficient management and monitoring of the plans during the implementation and operation stages of the project; and
- target population does not have skills to carry out activities in the project's programme.

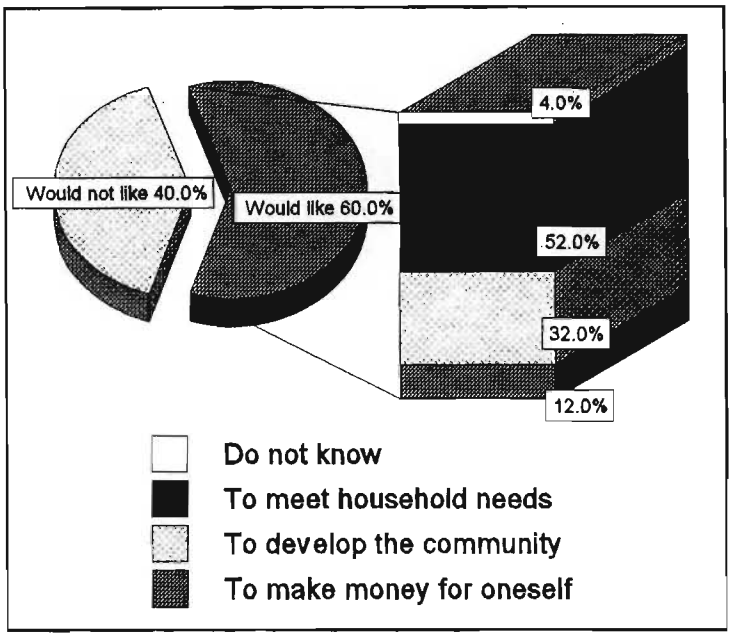
The study found that the Nsikeni community shows homogeneity in terms of the basic needs such as food supply, education, security services and health facilities. Burkey (1998) warns that rural communities are composed of individuals and groups with different and often opposing interests. The differences that have been observed with the Nsikeni community are a result of socio-economic and socio-cultural needs. As seen by De Wit (1998) economic inequalities can prevent a common interest in a collective agreement. Like the people that were resettled in the Eastern Highland Kaerezi Resettlement Programme in Zimbabwe (see

Box 6.1), the Nsikeni people are also headed by an *Inkosi* (Chief) and *Izinduna* (Headmen). The people are sceptical of the power that those in authority have on influencing the project intentions to benefit them. These sentiments were also raised by a focus group participant who said " *The Chiefs or Headmen might decide to take the benefits from those rivers that have been selected for the project*". This sentiment enlightened the researcher on the scepticism that people have towards the traditional leaders. This factor needs to be taken into consideration in building trust for a particular project. Trust can be built through first, an open participatory process; secondly, through inclusion of all resource users; thirdly, democratic decision making; and lastly development of all the accountable institutions that the people have confidence in (De Wit, 1998). Breen *et al*, citing Peck (1987), argue that one of the characteristics of a community is a group of people that have established a reliable and trustful way of communicating with each other.

Another factor that highlights possible differences that exist within the community is that most men who are household heads work away from the community and only come home during the festive season. This results in the women not being able to take firm decisions which could be against their husbands' wishes (key informant).

The needs for the Nsikeni community emerged from the questionnaire survey when the questionnaire respondents were asked to indicate whether they would like to participate in ecotourism and give reasons. The response was that 60% would want to take part while 40% indicated that they did not want to take part. As illustrated in Figure 6.3 more than half (52%) of those who indicated that they wanted to take part gave as their reason to meet their household needs, while 32% indicated that they would take part to develop the community. Twelve percent on the other hand indicated that they would take part to make money for themselves while, 4% did not know.

Figure 6.3: Willingness to take part in an ecotourism project



The questionnaire also asked for any additional information which the respondents thought should be understood by the administrator, and responses here indicated that the people of Nsikeni felt lack of basic needs they wanted to satisfy, that they wanted to see employment opportunities created, and they needed to know more specifically what roles they could play in the strategy and what benefit they would derive from it (see Box 6.5).

Box 6.5: The things that the questionnaire administrator should understand

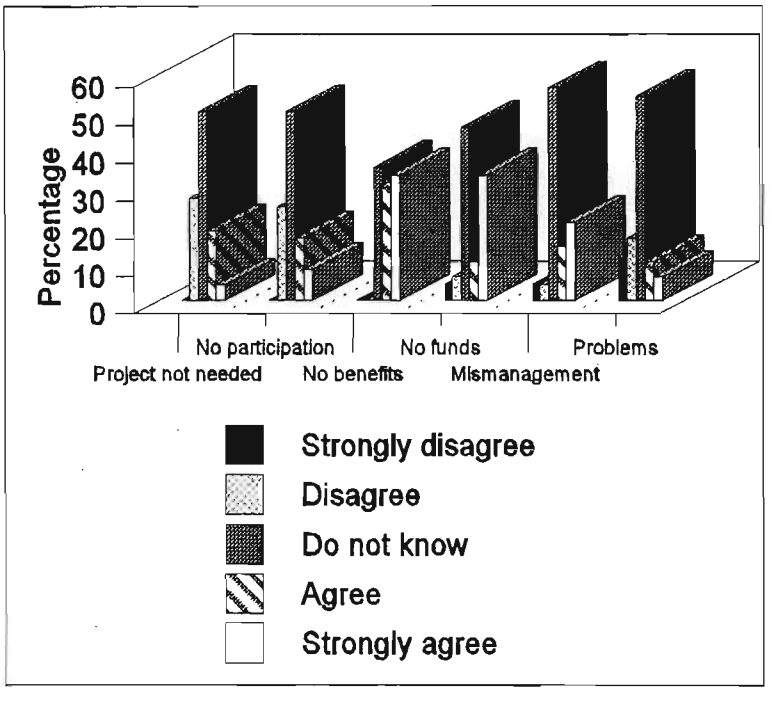
'We need better infrastructure such as roads, electricity, telephones, clinic, shops'--------	36%
'We need employment opportunities'----------	42%
'What are we to gain from the questionnaire'----------	11%
'Nothing'----------	11%

Note: Box 6.5 was constructed from questionnaire response based on Appendix C, Section 5.11

In addition, the study found that a relatively low percent (15%) of the questionnaire respondents perceived projects initiated in the area as successful. On the other, hand, 30%

thought that the projects had not been successful. A substantial percentage (55%) of the respondents did not know about the success of projects in their community, which could be an indication that people do not get involved or are not interested in community projects. A further assessment to find out why the people thought that projects had not been successful in the community was sought through the questionnaire survey (Appendix C Section 5.5). The results of the study confirmed some of the reasons listed by Burkey (1998) as causing failure of the projects.

Figure 6.4: Reasons why community projects are perceived as not successful



For this study, lack of benefit and lack of funds are the foremost reasons agreed upon as perceived causes for failure of projects. Thirty-three percent of the questionnaire respondents strongly agreed that lack of benefit and lack of funds caused failure of projects in the community (see Figure 6.4). A further 21% strongly agreed that mismanagement of funds was the cause. Non-involvement of community members was supported as the reason by 8% of the respondents. Tensions or problems that arose during the running of the project within community members, and that the project had been not initiated by the community were perceived as the least cause of projects failure with only 6% and 4% respectively strongly

agreeing with such reasons. In addition to the reasons mentioned above the focus group and some interviewed community members cited lack of development assistance from the Umzimkulu TLC which however is a political issue outside the scope of this study.

6.3 Discussion

In the document 'Caring for the Earth' (IUCN, UNEP and WWF, 1991: 261) a strategy is defined as 'a combination of communication and consensus building, information assembly and analysis, policy formulation and action planning and implementation, to enable a society to conserve its natural capital and to achieve economic development and conservation of natural capital'.

It seems that the people of Nsikeni have been subjected to the participatory passive approach which was described in Section 6.1.2 and as a result most of the implemented projects have not been successful because of lack of empowerment in the project process and dependency on outside assistance which ceased in the long run of the project lifespan. This confirms Burkey's observation that projects that depend on outside help do not empower the community members with skills to run and sustain the project. As established in the case of Nsikeni a combination of heterogeneity amongst community members, lack of transparency in communication between the community and traditional leaders, mismanagemnt of funds and also lack of involvement of government departments in the empowerment of the community seem to be the underlying factors to be addressed in the strategy. However the Nsikeni people have basic needs requirement which they hope to be addressed bound to the outcome of every project that is to be implemented in the community.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The southern Drakensberg is known as a fly fishing and ecotourism destination. Nsikeni, the rural community in the Eastern Cape envisaged for fly fishing potential, does not share the same popularity as the rest of sourthen Drakensberg. One has to visit and see the natural assests: the Ngwagwane river ecotouristic potential, the 300 year old yellowood indigenous forests, the rare communities of flora and fauna and the big fish caught by community members to appreciate the potential that the area has in relation to the development of ecotourism and fly fishing as complementary activities. These activities are developmental tools which have to take place in the context of the Nsikeni society and within the provision for the conservation of the rivers environment.

The Nsikeni people have inherited properties of apartheid created 'homelands' characterized by highly populated areas in mountainous or poor land environments, unemployment and dependency on job creation opportunities outside the community area, and a low level of development. The 'betterment'policy also aggravated these properties by decreasing the people's land, settlement pattern and to a large extent their indigenous way of living. These pressures together with socio-cultural inputs have led to dependence on subsistence practices which as Burkey states reduce the ability of the people to take 'risks' for profit production because of insecurity for future provision for the large families. These activities have not contributed to the improvement of the quality of life for the people. The 1994 election saw few changes at Nsikeni beyond the contruction of schools and a gravel road to Lukhasini (one of the wards) and the people realising their democratic right to vote.

The study found that fly fishing is not a method used to catch fish by the community members, who are accustomed to bait-fishing, so implies that they are not familiar with the practice. Most of the peple do not see the potential for fly-fishers to come to fish their rivers. The rivers, in fact are seen

only as sources for food provision for the community. It is not clear whether the people do not attach value to the rivers as having tourism potential because they have not been informed, or because of the cultural background of fly fishing being considered an elite sport. Some still feel sceptical about visitors coming to the area, highlighting the crime and insecurity that would be associated with the ecotourists or fly-fishers. This brings into light the quality of the package offered by ecotourism destinations which have to guarantee ensured safety of both the tourists and their property such as cars. As Koch advised ecotourism in South Africa is under threat because of the high rate of crime. The White Paper on the Development and Promotion of Tourism (1996) also stresses 'responsible tourism', meaning that the rural communities should protect both the resources and the tourists.

The study also found that the Nsikeni area has accessibilty problems. The roads are of a very poor condition and during the rainy season they are impassable. There is no communication network in the community such as telephones and electricity. There are no facilities to cater for emergencies in the community or serve as supporting structures for establishment of a project.

The sustainable management of natural resources cannot be achieved without addressing the socio-economic needs of the local communities. Therefore, the overriding priority is to satisfy the basic needs of the people together with an understanding that social development has to take place within the limits of the resources available. The people perceive the river as a resource for food supply as well as for use during cultural activities. Even for those people that sell the fish they catch the money generated is for meeting household needs and not for profit.

The precedent of the brief success that has been achieved through the community afforestation project through the community based Mabandla Community Property Asssociation (MCPA) changed the people's perception of community-based projects. The people preferred to adopt the same model for a new projet as the one used for the communtiy afforestation project.

There are diverse land use activities along the Ngwagwane River and no organisational procedures

have been put in place to control this. Both the communally owned lands and the privately owned lands have contributing impacts that threatens the potential of the Ngwangwane River down-stream at Nsikeni. Agricultural practices that contribute to soil erosion, introduction of nutrients into the river bodies, afforestation that threaten the integrity of the catchment area, alien species that distort the natural ambience of the area as well as river health are some of the issues which should encourage a holistic participation amongst the land owners. The legislation can provide for mitigatory steps but the departmental capacity and community organisation to carry out the provision is not in place.This results in attempts at river (or nature resource) management not being fulfilled. Participation in the protection of the environment is important for the people of the South. It is argued that the people are part of the natural system. People in turn utilise the same ecosystem that they are part of for economic growth and in most cases exploit it beyond the regenerative capacity of the ecological system. The Gaia hypothesis suggests the ability of the Earth's environs to correct themselves has limits. For the Nsikeni community these limits are not only the environment's integrity but, realising the potential of the rivers as a benefiting resource, addressing the challenges of social development and implementing a sustainable CBRM strategy.

7.2 Recommendations

Stakeholders identified in the study were the Nsikeni community and other riparian community land owners, the donor agency, the facilitator (NGO) and the government (see Appendix F for potential partners). An intervention by an NGO or a facilitator, as discussed in Chapter Six, has to develop a greater awareness of the significant contribution that fly fishing can make to the economy and the environment of the people of Nsikeni. More importantly, people have to understand and appreciate what the community could derive in skills aquisition. Therefore first, a consensus has to be reached amongst the Nsikeni community members to eliminate differences within the community membership regarding the strategy (model) that could be adopted. It has to be noted that if it is the Ngwagwane River that will be promoted for a fly fishing project, then a consensus has to be reached with the adjacent community who share riparian ownership. The consensus could address issues such as: structures within each community that could run the fly fishing project. Networking between these communities out of which civic-mindedness,

community pride, responsibility for one another and the community can be a shared vision for present and a more secure future should emerge. The consensus should also ensure that development would increase people's control of their lives and be compatible with the culture and values of the people affected by it, in order to maintain and strengthen community identity. Community participation in decision-making should be carried out throughout the project cycle employing mechanisms to ensure that indigenous knowledge is taken into account. Then, together, the communities could follow an implementation process as recommended below.

7.2.1 Time frame of the fly-fishing project

The time frame could be separated into three periods, that is, the short term (zero to two years), mid- term (two to seven years) and long term (more than seven years).

(i) Short term

Drafting of a management plan which would:

- spell out the role of all identified committed partners for the development of a sustainable fly fishing destination
- decide on demarcation of water-use zones to accommodate fly-fishers, and the community members who fish for subsistence and traditional purposes
- draw up a training programme which would include all the identified required skills (see Section 8.3)
- frame an employment policy
- ensure that business profits and employment opportunities accrue to the residents of the community and decide how these will be equally distributed within the community as an incentive for the community to conserve the resource
- set up a security policy for the ecotourist and fishers (see Section 8.4)

(ii) Mid-term (two to seven years)

The first term procedures could be followed by:

- Construction of the ecotourism infrastructure in the community such as the cabins, fishing trails; and
- look into options of establishing other water bodies for fishing such as dams. This would give a wider choice for fly-fishers. Furthermore, the function of the dams would not only

be for fishing, but also to cater for other purposes such as fire emergencies for the community afforestation project since there is no bulk water supply system in the area to cater for such incidents in the catchment above the gorges.

(iii) Long term (seven years or more)

At this stage there should be

- establishment of a better infrastructure in the area, such as roads and services for water supply, waste removal and energy supply, shopping facilities, communication network (electricity, telephone);
- development of the cottage industries and curio shop outlet, accommodation adequate to meet the needs of visitors without losing the character of the place;
- establishment of meaningful economic linkages such as supplying agricultural produce to the lodges and cottages and out-sourcing laundry; and
- establishment of linkages with other fly fishing or ecotourism destinations in the region such as the Southern Drakensberg, U/HTFC (which has expressed a willingness to become partners), Sani Saunter and the M-DCA.

7.2.2 Community empowerment

The concept of empowerment should be established so that the community members gain more insight into their capabilities and can take charge of themselves and the resource. In this way the community is provided with the opportunity for their own decision-making and a pro-active approach in management of the project.

- **Management skills**

As revealed in the study the people have a low level of education therefore skills such as book-keeping and financial management skills are required by the community to manage the project. In addition, the people could be trained in activities such as issuing of fishing permits, as well as controlling bag and size limits and keeping records of the catches. The people could also be trained in negotiation/conflict resolution skills which could also be extended to the traditional authorities who were identified as needing to play an important role in the conflict solving skills in the community. These could be done through the U/HTFC in an 'hands on' skills training programme.

- **Fly fishing guide skills**

The community has fishermen who know the river relatively well. Some fly fishing guide training will be needed to increase the capacity of community members to acquiring better guiding and hospitality skills. Hospitality training should be extended to the entire community so that it becomes a prevalent attitude of the residents. Fly fishing guide training could be done through South African Tourism Boards (SATOUR).

- **Other training needs**

Other skills could be developed through:

(i) Agricultural training: -crop/vegetable
- animal husbandry
- poultry

(ii) Bricklaying, blockmaking, home building and other skills

These skills could be acquired by the community through government extension work with the Department of Agriculture. Development of such skills would enable the Nsikeni people not to depend solely on the community-based projects but to venture into other money generating projects in the community.

7.2.3 The target market population

Each ecotourism initiative has a target population which it markets and creates a package for. The target population for the Nsikeni destination could be:

- fly-fishermen with interest in travel in to remote area
- ecotourists or fly-fishers with ability to travel, that is, they have the mode of transport such as 4X4 automobiles
- ecotourists who have a great interest in wilderness fishing experiences

The target population would include private corporate organisation members, and members of the Underberg/Himeville Trout Fishing Club (U/HTFC). Two strategies could be developed, that is to attract a small number of the big-spenders or a strategy to attract large number of small-spenders, such as, high number low impact duration programs through organisation of fly fishing festivals. These options could be discussed after an assessment of the carrying capacity

of the river system.

7.2.4 Security of the fly-fishers and fishing

In the quest for 'responsible tourism' the ecotourists safety and convenience should be paramount concerns of the Nsikeni community. Safe parking must be located as well as establishment of secure areas for the fly-fishers and the ecotourists. This issue could be included in the design of the project area. Security guards from the community membership could be employed to carry out the role of ensuring security to the visitors and fly-fishermen. By the same token of hospitality the whole community could network as 'community police'. Fishing would need regulation therefore there is a need for assessment by fish biologists with regard to the capacity and yield of the waters. The dams would need to be stocked and would require protection as would the afforested area. There could be a coincidence for a security function in these areas.

7.2.5 Marketing/Publicity of the Nsikeni destination

The aim of the project has to be market driven. There has to be development of an organised programme for a unique visitor experience, promoted, and made easily accessible, so as to be competitive in the tourism market place. Marketing of the fly-fishing project could be through the Midlands Meander entrepreneurship publicity structures or the M-DCA initiative or the Southern Drakensberg Sani Saunter or Southern Drakensberg Tourism Association (SDTA) or through the U/HTFC which could also carry out booking and public liaising with the project organisers in the first terms of the project.

An Nsikeni Community Tourism Organisation could be established for easy identification of the destination and providing information about the ecotourism package to be found in the area. The organisation should curtail over-visitation to the area because of the impact that could have on the environment.

7.2.6 Supporting activities

Socio-economic issues were identified during the study which when promoted could ease the high expectations on the fly-fishing project by other community-based projects in the community. These could be through the development of agricultural, Small Micro Medium

Enterprises (SMMEs) and social supporting structures.

- **Agriculture**

The agricultural extension workers could educate the people on land use impacts on the river system. There could also be development of agricultural produce which would eventually supply the cottage industry. The community's participation in decision-making would be encouraged in community work such as the communal vegetable gardens and poultry.

- **Small Micro Medium Enterprises**

Formal and informal entrepreneurship would be promoted through the making of craft wares such as weaving, knitwear, and flies which could be sold to the curio shop outlet. For hand-craft work that the people do not have expertise in, training could be developed as discussed in Section 7.3. Fly-tying training would be provided whereby unique flies that are identified with the community could be developed. These products would have a market in the ecotourists and fly-fishers who visit the community.

- **Social**

Unacceptable activities, such as prostitution, which are survival techniques for the community members should be lessened through social services AIDS awareness campaigns and through schools. A family-planning strategy could be developed through the health services department which could ensure that the Nsikeni people do not have large families which they would not be able to support.

- **Infrastructure**

Inaccessibility of the community, especially the inadequate road network, was a major problem that was established during the study. Other facilities which are non-existent in the community are healthcare, security and sufficient water supply. These facilities need to be established to ensure the quality of the package offered to the fly-fishers and ecotourists. Through the promotion of the infrastructure and services there could also be a reduction in time spent on catering for the family by women and venture into activities that will improve the family economic growth.

7.2.7 Environmental sustainability

As discussed through the text, project formulation is based on CBRM and the concept of sustainable development, therefore a balance has to be reached between the ecological sustainability and social development. This could be achieved through the management guidelines of the fishing resources, awareness programmes through integrated participation of catchment users, and eradication/controlled management of the alien species.

- **Education/Awareness**

The people should be made aware of the impacts that are threatening the river ecosystem and be encouraged to take action to mitigate the potential impacts. These impacts are those arising from subsistence provision such as use of the indigenous forests and sand mining, For firewood the people could use managed woodlots of wattle forests, which is an initiative by the Mondi Forests. Government conservation departments should be consulted so as to monitor the natural resources and establish protective measures in consensus with the community. The awareness programme should be extended to all the land users of the Ngwagwane catchment. This implementation could be carried out through the Ngwagwane Biosphere, M-DCA programme, Nsikeni Wetland Conservation programme and Nsikeni Biosphere Reserve which incorporates all the stakeholders.

The Ngwagwane Biosphere is in the process of being reactivated and has to set up coordination protocols which incorporate the Nsikeni community participation. This could be facilitated by the Department of Water Affairs and Forestry (DWAF). With the initiatives that will be implemented in the future in the Eastern Cape Province involving the communal land owners, the Nsikeni community could participate in a forum that addresses environment management. In another initiative there could be monitoring of the catchment system through the identication of sampling sites along the catchment area for evaluation of deterioration of the river. This monitoring could be established through the River Health Programme (RHP).

- **Control alien plants**

The community could be contracted through the Department of Water Affairs (DWAF) and the funding of the WfW programme to eradicate the alien species along the river system. The people could be also made aware of the fact that they could utilise the wattle forest for the

provision of firewood, building and fencing instead of the indigenous forest, but such an initiative has to be understood and appreciated by the people in relation to its intentions. The process could also incorporate looking after the wetlands in the area.

7.2.8 Further areas of research

- Identification of the fish species found in the river system and their populations for verification of the river system's carrying capacity which could also involve the identification of the best fishing areas in the catchment and how these could be managed.
- The flora and fauna that make up the food chain (that supplies the fish) for the river system and how these is affected by identified land use impacts in the community rivers in relation to the riparian vegetation in the area.
- An investigation of the likely demand for fly fishing and tourism facilities.
- More information on how the community could become involved in managing their own catchment.

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Dlamini, B. Chairman of the Mabandla Community Property Association (MCPA) and contact person for the research study. 31st September, 1999.

Dlamini, D. Nsikeni community fisherman, 21st October, 1999.

Goosen, E. KZNNCS, Conservation Officer based at Coleford Nature Reserve (CNR). 30th November, 1999.

MaMbhele, N. Elderly member of the Nsikeni community. 14th October, 1999.

Mgilane, C. N. Delam'zi Junior Secondary School Principal and Nsikeni community member. 19th October, 1999.

Simson, B. Secretary for the Underberg/Himeville Trout Fishing Club (U/HTFC). 14th September 1999.

Inkosi Sidoi Chief of the Nsikeni area. 5th October, 1999.

Zulu, N. W. Mabandla Community Property Association (MCPA) committee member. 14th October, 1999.

APPENDICES

Appendix A

Sampling of the Mabandla Tribal Authority (MTA) wards for questionnaire administration

Ward name	Number of households units	Sampled units	Percentage (%) of sampled units in each ward
1. Bovini	484	28	5.8
2. Delam'zi	212	9	4.2
3. Egoso	69	4	5.8
4. Khayeka	402	21	5.2
5. Lucingweni	27	1	3.7
6. Lukhasini	266	15	5.6
7. Mangeni	227	13	5.7
8. Matshahlolo	241	14	6.5
9. Mncweba	401	29	7.2
10. Mtintwa	231	14	6.0
11. Tsawule	60	3	5.0
12. Ziqabeleni	141	7	5.0
Total	**2761**	**158**	**5.4 (Average)**

The total number of the households (2761) sampled at 99%, +/- 10% confidence is 158.

Appendix B

Focus group discussion guideline

Focus: Fly-fishing as a community-based ecotourism development option

My name is Sithembiso Hlatshwako from the University of Natal. I am conducting a research project on ecotourism focussing on fly-fishing(Explain). Today we are going to have a talk on issues pertaining to the development of ecotourism projects in your area and other related issues. You will serve as my information pool, Focus group (Explain what a focus group is). All of you are expected to actively participate in the exercise. Your honesty is of importance and there is no wrong or right answer to any issue that we will discuss. Each one's opinion is as important as the other one. Your participation will be held in confidence. The tape recorder I have here will be used because I will be not able to concentrate on what you say and at the same time write. For progress on the issues discussed only one person should speak at a time. If one wants to speak next, please show it by the use of hands. Do you have any questions to ask?

1. General

Let's begin our discussion with general living in Nsikeni.

- How long have you been living in Nsikeni? Probe around the group.
- What do you think are the good things about life in your area? Probe around the group.
- What do you think is the bad thing about life in your area? Probe around the group.
- Do you think your area is in need of development?
- (If so then;)What type(s) of development are you in great need of in your area?
- Do you think this can be done by yourselves, or does it require outsiders to come in?
- What do you think can attract developers to your area? Why?
- What is the development progress you have had in your area for the past 20 years?
- Have there been changes in progress after the 1994 elections?
- Why do you think this has been so?
- Who has implemented the progress? Government, agencies etc
- Do you think you are better or worse off since the Transkei was incorporated into South Africa?

2. Infrastructure

2.1 What basic services do you have in the area? Water, roads etc.

2.2 Who provides you with these particular services? Government, agencies etc

2.3 Do you think your area has enough basic services to cater for your everyday life or do you need more? Why?

2.4 What do you think can be the solution? Probe around the group.

3. Use of natural resources

3.1 Looking around the area there are natural resources, such as the indigenous forest, rivers and water, soil etc. How do you use these resources in your everyday lives? Soil..., Water..Hunting, etc. Probe around the group.

3.2 Do you think as indigenous people our culture caters for sustainable (explain) use of natural resources? Why?

3.3 How do you think colonialism has altered all this?
3.4 Where do you graze your animals? Cattle, horses, goats, etc.?
3.5 Does everybody have the right to keep as many animals as they please?
3.6 Do you think there is enough grass or not enough grass for the animals? Why? Rain, Erosion **[Open a discussion on veld degradation]**
3.7 Do you burn the veld in the community?
3.8 Is the practice done by everybody or specific individuals?
3.9 Is this done any time or there are specific times? That is, burning of the veld.
3.10 Is it a practice that has been agreed upon by the community or not? Can you explain to me how you came up with the decision for this practice?
3.11 Are there any other practices that have been resolved upon like the above?
3.12 Which are those?
3.13 Could you explain to me what happens to someone who goes against the agreement?

4. Ecotourism

Now lets discuss aspects of ecotourism, talking about the resources (both natural and human) that you have in the community.

4.1 Would you like paying visitors to come to your area? Why or why not?
4.2 What do you think are the most striking features that can attract ecotourists to your area? Why?
4.3 What advantages can you see in such a development?
4.4 What problems can you foresee in such a development?
4.5 How might such problems be avoided?

5. River/Water

5.1 Now lets talk about the river and the water. What is the river used for in the community? Drinking water, washing, swimming, clothes, fishing, spiritual/cultural activities, etc
5.2 How do the people view the river on the whole? Positively or negatively? Why?
5.3 Are there lots of fish?
5.4 Which types and how big are they?
5.5 How important is fish as a food source?
5.6 How are the fish caught? Baits such as, worms, flies made from feathers etc . . . ?
5.7 Which are the main rivers for fishing? Can you list them for me?
5.8 Why do you think these rivers are different from the others?
5.9 Do you fish in these waters? When?
5.10 Who fish in these waters? Boys, Men, girls etc.
5.11 Do any African outsiders fish in the river?
5.12 If so, then what do you think of them?
5.13 Do any white outsiders fish in the river?
5.14 If so then, what do you think of them?

6. Rivers status

6.1 Do you wash clothes in the rivers?
6.2 Do you water your animals?
6.3 Over the years have the rivers changed in any way? Such as in amount of water, quality of water etc
6.4 Why do you the rivers have changed or not changed?

6.5 Do you think anything done to the rivers upstream out of the community area causes changes to the rivers?
6.6 Would you attribute any changes to washing in the rivers, watering your animals?
6.7 Do you think the people in the community would be able to do the following:
- not wash clothes in the rivers?
6.8 On what conditions do you think the people would stop washing in the river?

7. Fly fishing

7.1 Let's say an outside agency wants to assist with starting a project on fly fishing which will bring benefits to the community. Do you think the whole community will support or not support the project?
7.2 Who will? Why?
7.3 Who will not? Why?
7.4 How do you think the community could support the project?
7.5 Do you think those that fish could be prevented from fishing if the benefits of having visitors fish are greater than the current value of fish as food. How?

8. Handicraft skills

8.1 Are there people in your community who have handicraft skills or not? Thatching, bead work, making fishing flies etc.
8.2 Why do they make these craft wares? For selling or for themselves?
8.3 Are you familiar with Curio shops?
8.4 Could you describe to me what a curio shop is?
8.5 Do you think that the people could be able to supply a curio shop with the wares they make?

9. Indigenous forests

9.1 Do you use the indigenous forest?
9.2 What do you use it for? Collecting wood, medicinal plants etc.
9.3 Are any species being used up or dying out?
9.4 Has it increased or decreased in size in the past few years? Why?
9.5 Do any outsiders use the forest? If so, what for?
9.6 Who are they and where are they from?
9.7 Is there anyone in the community who knows the forest very well? Such as the birds, animals, trees that are found in the forest?
9.8 Do you think there has to be controlled access of the forest use? Why?

10. Security

10.1 How can you describe the crime rate in South Africa and your Province, the Eastern Cape? Probe around the group.
10.2 Is the situation different in your area? How?
10.3 Lets take for instance that the project is implemented and the ecotourists come to the area. Do you think the people would give security to the fly-fishermen? Probe, ecotourist, cars etc How and Why?

11. Management of projects

11.1 What do you think is the importance of a development project in the community? To get money, jobs etc

11.2 Have there been projects implemented in the area? Tell me about their success.

11.3 What about their failures?

11.4 Let's say an agency comes into the community to work with you in developing ecotourism. Do you think there are people from the community that will need to be trained or there is no need? Why? For management, cleaning, guides to fishing sites, security guards etc

11.5 How much do you think the community needs expertise on an ecotourism project?

11.6 If then the agency just offers money and expertise, there will be someone or people that will be needed to manage the project. Do you think a management committee should be set up?

11.7 Who should be in the committee? FOSAF, Nature conservation, Umzimkulu Local Government, community etc (**list would be constructed from the answers)**

11.8 What role will each of the above play in the management system? **(a chart would be drawn up from the answers)**

11.9 How should it be elected?

11.10 Where would be the role of the community?

11.11 Do you think it is important for a community to run a project? Why? Probe around the group.

Appendix C

Questionnaire

Questionnaire Number	

Focus: Fly fishing as a community-based ecotourism development option

My name is Sithembiso Hlatshwako. I am a master's student at the Centre of Environment and Development, University of Natal, Pietermaritzburg. On behalf of the Federation of Southern African Fly-fishers (FOSAF), I am conducting a research project on the feasibility of community-based management strategies of fly fishing in your area Nsikeni. Please feel free to respond as best as you can to the questions you will be asked. Your answers will be used to compile a report that will inform any future development initiative in the area. You are assured of anonymity and confidentiality in your response

[My name is ---------- . On behalf of Sithembiso Hlatshwako a master's student at the Centre of Environment and Development, University of Natal, Pietermaritzburg I am administering a research questionnaire looking into the feasibility of community-based management strategies of fly fishing and other ecotourism activities in your area Nsikeni. Please feel free to respond as best as you can to the questions you will be asked. Your answers will be used to compile a report that will be informative for any future development initiative in the area. You are assured of anonymity and confidentiality in your response.]

Date of questionnaire administration____/___/1999

Name of respondent:_____

Position in Household:_____

Name of ward_____

1.0. Personal and household demographics

I would like to begin by asking you some questions about yourself

CODE BY OBSERVATION

1.1. Sex:

Male	1
Female	2

CODE BY ASKING

1.2. How old are you?

Age in years .....

1.3. What is your marital status?

Married Monogamous	1
Married Polygamous	2
Living with partner	3
Divorced	4
Never Married	5
Other (specify)_____	6

I want to find out how long you have lived here for.

	Yes	No
1.4. Were you born here	1	2
1.5 Has your family always lived here	1 **Go to 1.7.**	2

1.6. Where did you live before coming here?

_____(write exact location)

CODES FOR QUESTIONS IN L-O									
Column E-Sex		Column F-Relation to Head of HH		Column G-Education		Column H-Employment status		Column J-Frequency of I	
Male	1	Household Head	1	No schooling	1	Self employed	1	Every week	1
Female	2	Husband/Wife	2	Sub a/b	2	Employed Full-Time	2	Every month	2
		Child	3	Standard 1	3	Employed Part Time	3	Once in 2 months	3
		Parent	4	Standard 2	4	Employed seasonal	4	3 or 4 times a year	4
		Grandparent	5	Standard 3	5	Not employed	5	Once or twice a year	5
		Grandchild	6	Standard 4	6	Retired/Pensioner	6	Less than once a year	6
		Other relative	7	Standard 5	7	Student	7	Never	7
		Non relative	8	Standard 6	8	Disabled/Disability grant	8	Other (write)	8
				Standard 7	9	Housewife	9		
				Standard 8	10				
				Standard 9	11				
				Standard 10	12				
				Tertiary (N/ University)	13				
				Tertiary (University)	14				

1.7. Now I would like to ask you questions about all the people who live here with you, starting with you.

A	B	C	D	E	F	G	H	I	J
No	Surname	First name	Age	Sex	Relation with Head of HH	Education	Employment status	Money contributed to HH (Rands)	Frequency of I
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									

2.0 Ecotourism

CODES FOR QUESTIONS IN 2.0							
Column C- Ecotourism related earning activity		C- Eco/tourism Activity		Column D-Type of work		Column E-Type of craft	
Yes	1	Fly fishing	1	Resource Management	1	Weaving	1
No	2	Bird watching	2	Clerical	2	Pottery	2
		Indigenous forest	3	Security Guard	3	Carving	3
		Fly-fishing/ Bird watching/ Indigenous forest	4	Trained trail guide	4	Beading	4
		Other (specify)		Untrained trail guide	5	Painting	5
				Cleaner	6	Metal and wire	6
				Make handicraft	7	Crochet and knitting	7
				Sell handicraft work	8	Thatching	8
				Make and sell handicraft	9	Making flies for fishing	9
				Other (specify)	10	Other (specify)	10

2.1. Now I would like to ask you about ecotourism related employment

Is there anyone in your household who earns money in a eco/tourism related activity? [EXPLAIN]	
Yes	1
No	2 **Go to 3.1**

2.2. If there are can you list them for me?

A	B	C	D	E
No	Name **(use code numbers from 1.7)**	What type of eco/tourism activity is it/ are there?	What type of work are/were you/they doing?	What type of craft does the person make?
1				
2				
3				
4				
5				
6				

3.0. Natural Resource Use

Let's talk about the use of natural resources, beginning with the river

	3.1. You use the river for	Always	Sometimes	Never
1	drinking	1	2	3
2	washing cooking utensils	1	2	3
3	washing clothes	1	2	3
4	washing yourself	1	2	3
5	gardening	1	2	3
6	fishing	1	2	3
7	watering livestock	1	2	3
8	Other (specify)_____	1	2	3

	3.2. Which river do you use often?	Always	Sometimes	Never
1	Mangeni	1	2	3
2	Manzamyama	1	2	3
3	Mthimkulu	1	2	3
4	Ndawana	1	2	3
5	Ngwangwane	1	2	3
6	Ngungununu	1	2	3
7	Nonginqa	1	2	3
8	Other (Specify)_____	1	2	3

Let's talk about crops and vegetables in particular

3.3. Do people in your household grow vegetable or crops?	
Yes	1
No	2 **Go to 3.6.**

3.4. Do you grow the vegetable or crops for	
eating	1
selling	2
eating and selling	3
other (Specify)_____	4

3.5. Do you use any of the following to treat your vegetable or crops?	Yes	No
Manure from the kraal	1	2
Lime	1	2
NPK fertilizers	1	2
Pesticides	1	2
Other (specify)_____	1	2

Now let's talk about livestock

3.6. Do you keep livestock?	
Yes	1
No	2 **Go to 4.1.**

3.7. What type grazing animals do you keep?	Yes	No	**3.8. How many?** (Specific number)
Cattle	1	2	
Goats	1	2	
Sheep	1	2	
Horses	1	2	
Donkeys	1	2	
Other (specify)_____	1	2	

4.0. Fishing

Now let's talk about fishing in particular,

4.1. Do you or anyone in your household fish?	
Yes	1
No	2 **Go to 4.10.**

4.2. Who fishes?	
Boys	1
Girls	2
Girls and Boys	3
Men	4
Boys and Men	5
Men, boys and girls	6
Other (specify)_____	7

4.3. How do you/ they fish? Do they use	Yes	No
Bait fishing	1	2
Fly fishing	1	2
Net fishing	1	2
Use tins	1	2
Other (specify)_____	1	2

4.4. Who else fishes with you or with the members of your household?	
Other members of the household	1
Other members of the community	2
People from outside the community	3
Both members of the community and people from outside the community	4
do not know	5

4.5. Why do you/they fish?	
To eat	1
To sell	2
To sell and eat	3
For sport and fun	4
Other (specify)_____	5

4.6. Where do you/they sell the fish caught?	Always	Sometimes	Never
To community members	1	2	3
To nearby communities members	1	2	3
To people in a town	1	2	3
To anyone you come across on the road, bus	1	2	3
Other (specify)	1	2	3
Do not sell	4		

4.7. Can you list the type of fish caught in these waters, starting with the most frequently caught fish, for me?

1._____
2._____
3._____
4._____
5._____

4.8. Would you say over the past years (READ)	
the size and numbers of fish have increased,	1
the size has increased but the number decreased,	2
the size has decreased but numbers increased,	3
the size and numbers have decreased,	4
or do not know	5

4.9. You say this because of [READ]	
Overfishing	1
Inappropriate land use [like too much fertiliser from crop fields getting into river water]	2
Decrease in the amount of water in the rivers	3
Nature	4
The rivers get dirty/contaminated	5
Do not know	6

4.10. Why do the rivers get dirty or contaminated? Because of	
Floods	1
Animals	2
Dead animals	3
People	4
Other (specify)_____	5

4.11. Do you see the potential for outsiders coming to fish in the rivers in your area?	
Yes	1
No	2

4.12. You say this because the rivers	Yes	No
have lots of fish	1	2
have lots of water	1	2
are clean	1	2
are big	1	2
other (specify)_____	1	2
do not know	3	

5.0. Management

Now I would like to ask you questions about information flow and how things are run in your community.

5.1. Can you read (READ)	
with ease	1
with difficulty	2
or you cannot read	3

5.2. Does your household have a working	Yes	No
radio	1	2
television	1	2

5.3. How do you get news about things in the community? Through the	Always	Sometimes	Never
Induna	1	2	3
Children	1	2	3
Development Committee ward Representatives	1	2	3
Friends	1	2	3
Partner	1	2	3
Other (specify)	1	2	3

Now let's talk about development projects' progress in the community

5.4. Would you describe projects that have been implemented in the community as	
successful,	1 **Go to 5.6**
not successful or	2 **Go to 5.5**
do not know	3 **Go to 5.6**

CODES FOR 5.5

SD - Strongly Disagree, D - Disagree, DNK - Do not Know, A - Agree, SA - Strongly Disagree

5.5. If the projects have not been successful, would you say the cause is that,	SD	D	DNK	A	SA
the projects were not needed by the community members	1	2	3	4	5
the community has not been fully involved in the projects	1	2	3	4	5
the community takes part but there are no benefits	1	2	3	4	5
lack of funds	1	2	3	4	5
mismanagement of funds	1	2	3	4	5
tension/problems within the community	1	2	3	4	5
other (specify)_____	1	2	3	4	5

5.6. How do you think community-based projects should be controlled?	
By the Government alone	1
By Non-Governmental Organisations	2
By the Community alone	3
By the Government and the community	4
By NGO's and the community	5
By Government, NGO's and the community	6
Other (specify)_____	7

5.7. Would you like to participate in an ecotourism community project?	
Yes	1
No	2 **Go to 5.10**

5.8. Why would you like to participate in ecotourism?	
To make more money for myself	1
To make more money to meet household needs	2
To develop my community	3
Do not know	4

[CODING WOULD BE DONE FROM GIVEN ANSWERS]

5.9. How would you like to be involved?
1.
2.
3.
4.
5.

5.10. What do you think needs to be done to get you involved?
1.
2.
3.
4.
5.

5.11. Is there anything else that you think I should understand which I left out?

_____

_____

_____

_____

_____

Appendix D

Profile outline of the questionnaire respondents

The questionaire was administered to 158 household units as illustrated in Appendix A. These questionnaires were administered to respondents with the following profile outline:

Quesionnaire respondents were both male and females members of the selected household units. Thirty-two percent (32%) of the respondents were males, ranging between 20 and 72 years of age, while 68% were females ranging between 19 and 81 years of age.

Ninety-two percent (92%) of the respondents were born at Nsikeni, while 8% were not born in area. Those that indicated as not born at Nsikeni were born in areas such as, Matatiele, Mt Frere, Mt Alie, Makhambeni, Antioc, Tabankulu, Nkewezele, Ngwinjini and Malenge which areas fall in the Eastern Cape Province.

Fifty-one percent (51%) of the respondents indicated that they were married monogamously, 20% never married, 15% widows and widowers, 11% living with partner and 3% were in polygamous marriage and none were divorced.

Sixty-five percent (65%) responded that they were able to read with ease, while 24% with difficulty and 13% said they could read.

Appendix E

Summary of the method used to rank frequency of fish species caught

The respondents were asked to list fish species (see Appendix B, Section 4.7) in a sequence with the most frequently caught species first and the least caught last. There were four species listed by the questionnaire respondents. From each questionnaire the species listed first, four points were allocated. For species listed second, three points, the species listed third, two points and the species listed fourth, one point. The total number of points for each species were added together for each species. Then the species with the highest number of points was rated the most frequently caught species. The species with the second highest number of points, the second, the species with the third highest number of points, rated third and the species with the least number of points, fourth.

Appendix F

Publicity/Marketing Organisations

Midlands Meander Association

P O Box 874

3290 Howick

Tel: 027 333 36008

Fax: 027 332 30 5510

Southern Drakensberg Tourism Association

P O Box 169,

Himeville 3256

Tel/Fax: 027 33 7021158

Southern Drakensberg Sani Saunter

P O Box 300

Underberg 3257

Tel: 027 33 7011471

Fax: 027 33 7021158

Underberg/Himeville Trout Fishing Club

P O Box 134

Underberg 3257

Resource/ Nature Conservation Organisations

KwaZulu-Natal Nature Conservation Services (KNNCS)

P O Box 1750

Pietermaritzburg 3200

Tel: 027 333 471981

Fax: 027 333 471980

Underberg/Himeville Trout Fishing Club

Department of Nature Conservation (Eastern Cape)

Funding Organisations

MCPA (through SLAG funding)

Mondi Forests

M-DCA (ecotourism through fly fishing)

Department of Water Affairs (DWAF) the Working for Water (WfW) programme

GTZ (for skills-training programme)

Facilitating Organisations

M-DCA

Department of Nature Conservation (Eastern Cape)

Training Organisations

SATOUR (Fly fishing guides)

U/HTFC