

**SMALL-SCALE RURAL FISHERIES AS A VEHICLE FOR RURAL DEVELOPMENT:
A CASE STUDY OF TWO VILLAGES IN THE FORMER CISKEI, EASTERN CAPE
PROVINCE, SOUTH AFRICA.**

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**by
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Abstract

This thesis examines small-scale rural fisheries which were initiated in two villages by the Department of Ichthyology and Fisheries in conjunction with the Institute of Social and Economic Research in 1997. The main objective for undertaking the study was to determine the potential of the fisheries to serve as viable and sustainable options that could contribute towards rural development in the area of study. To examine the contribution made by the small-scale fisheries towards rural development in the villages, it is imperative to have an understanding of the context in which they were established as well as the prospects for sustainable development. It is argued in this study that despite the significant contribution made by inland rural fisheries in improving rural livelihoods they are still accorded minimal support and attention in South Africa. As an illustration of the important role played by rural fisheries, case studies from Malawi and Zimbabwe have been drawn into the study with a view to providing lessons for rural areas of South Africa.

The study took place at a time when natural resources in the villages were significantly declining and environmental degradation reaching uncontrollable proportions, so there is an urgent need to secure an alternative mode of subsistence for the population in the villages. Development interventions by the state and non-governmental organisations in the study area have not been sustainable and they collapsed within a short period of time. A case in point is the Tyefu irrigation scheme, which was initiated in the villages but, owing to various factors, it failed leaving the villagers with a diminished mode of subsistence, thus providing the impetus for the implementation of small-scale rural fisheries.

In order for small-scale fisheries to be sustainable it is essential to adopt models that are aimed at sound natural resource use and management. This study has raised various issues pertinent to natural resource use and management in the study area. A model for management of natural resources that involves and aims to empower local communities in the management of the fisheries is presented in the study. It has also been demonstrated that rural fisheries in the study area comply with the model.

Finally, the study draws the conclusion that small-scale fisheries in the villages contribute towards rural development, however, there are constraints that need to be eradicated.

I hereby declare that this thesis is entirely my own work and has never been submitted for any degree at any other University.

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Chapter 1: Introduction

1.1 Goals of the research

The study seeks to investigate small-scale fisheries as a tool designed for eradicating poverty and contributing towards sustainable rural development in the villages of Glenmore and Pikoli.

1.2 The study area: Glenmore and Pikoli villages, in Tyefu location, Ngqushwa Municipality.

The area of study consists of two rural villages that are situated in the former Ciskei homeland. The two villages form part of Tyefu location, which is made up of nine villages in the Peddie district. Following to the demarcation of new municipal boundaries the area now falls under the jurisdiction of the Ngqushwa Municipality.

The two villages are situated on the borders of the Great Fish River Reserve Complex, approximately 50 kilometres east of Grahamstown. The nine villages making up Tyefu location accommodate more than 20 000 people, with a population density in the region of 70 people per square kilometre (Ainslie et al, 1994). The location falls in a semi-arid zone and due to a combination of prolonged droughts, homeland policies and poor farming practices, land in the study area is degraded, thus limiting viable agricultural activities.

Glenmore, formerly a farm located in a bend on the eastern side of the Great Fish River and about 40 km from Grahamstown is one of the villages in the study area. It came into being due to the forced removals of the apartheid era. The original Glenmore residents were removed in 1979 from Klipfontein, Coega, Colchester and other smaller settlements between the Great Fish River and Port Elizabeth (Whisson, 1981). This settlement can be described as an artificially created community with residents originating from different locations in the Eastern Cape. Glenmore is essentially a township in a rural setting and it displays all the characteristics of a traumatised community such as fractured internal politics and infighting, disunity in action, corruption and high levels of dependency (Timmermans, 1997).

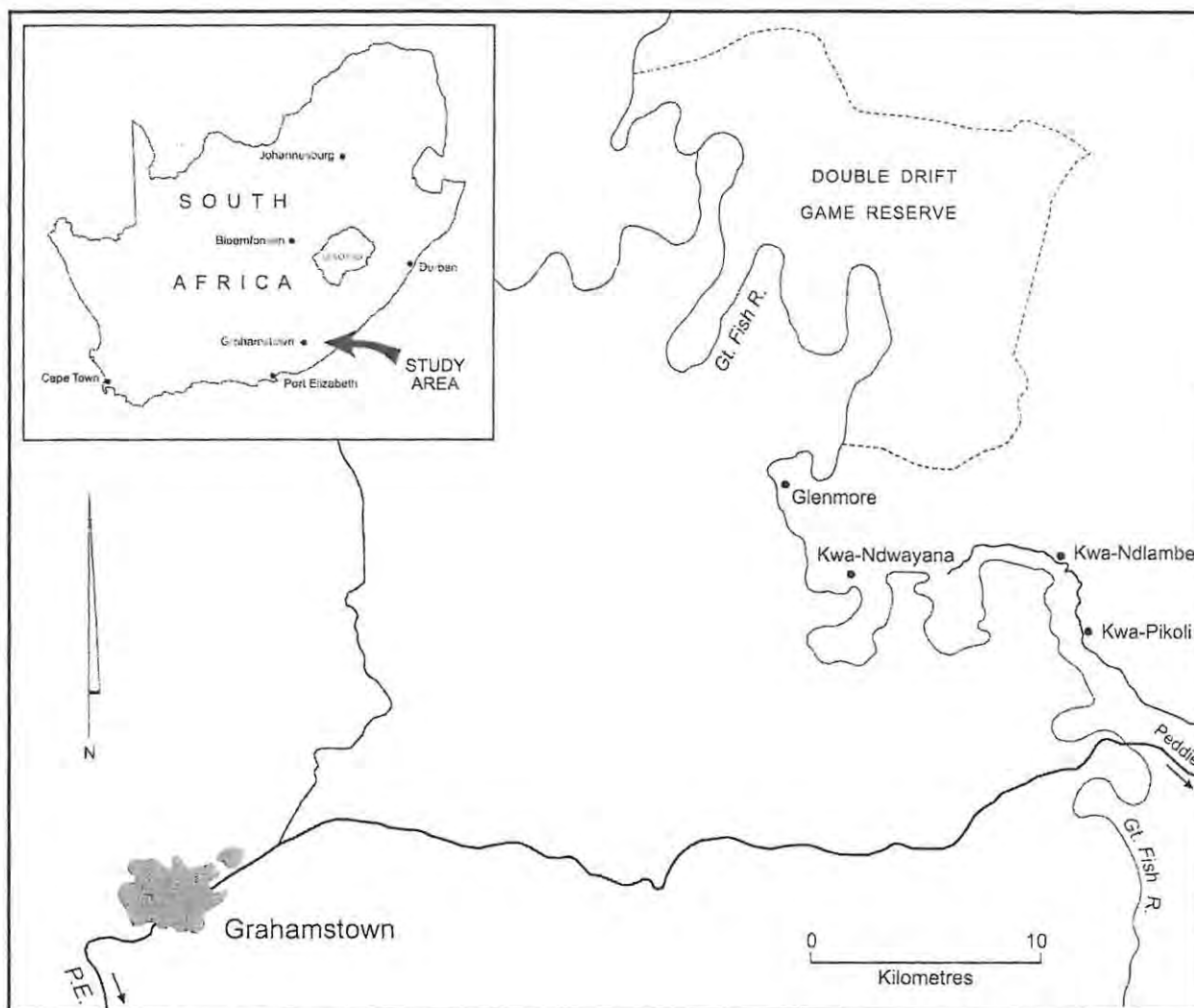


Figure 1: Locality map showing the study area

Unlike its neighbours which are typical rural villages, Glenmore is a planned settlement that has two roomed brick houses, running water and telecommunication facilities. The creation of Glenmore complied with the apartheid policy of developing a town on the borders of the Ciskei that could be filled with relocated people and then handed over to the Ciskei, without any means of sustaining itself economically (Whisson, 1981). In an attempt to alleviate poverty in the villages, the Tyefu Irrigation Scheme was initiated by the apartheid government in the late 1970s and it was later extended to the newly resettled Glenmore community. The scheme was implemented on a tract of land that covers more than three hundred hectares, with the main purpose of promoting the commercial production of vegetables, initially in the villages

neighbouring Glenmore. The irrigation scheme was clearly inadequate as a means of eradicating poverty in the community because, by the mid 1980s the community had begun to manifest characteristics of dire poverty. As the residents put it to a member of parliament who was visiting the village “And sir, there is one more thing - we are very hungry” (Whisson, 1981).

Owing to a number of factors, *inter alia*, poor management and lack of funding, the irrigation scheme collapsed in the early 1990s, leaving the inhabitants with a diminished mode of subsistence, and thus exacerbating the already high level of unemployment in the area. The collapse of the irrigation scheme served as the impetus for investigating alternative ways of inducing economic development in the study area. Due to a population increase and the resultant pressure and over-use of land and since there was no alternative fuel source but wood, the natural resource base has been significantly depleted (Ainslie, 1998). Agriculture became difficult without irrigation, and there is still no sustainable mode of subsistence available to the population of the two villages.

The area of study also encompasses Pikoli village. Pikoli is situated on the eastern banks of the Great Fish River and it is approximately 50 kilometres east of Grahamstown. This village was chosen for the purpose of providing a comparative case study, as the area is different from Glenmore in many respects. Unlike Glenmore, Pikoli is a typical rural village characterised by scattered traditional dwellings, the absence of a basic infrastructure such as proper roads, electricity, telecommunication facilities and running water. In contrast to Glenmore, the inhabitants of Pikoli are not victims of forced resettlement, they have been resident in the village for many years. They therefore have a greater sense of community cohesion and unity.

Pikoli village consists of approximately 431 households with a population in the region of three thousand people. As in all rural areas of the former homelands, land in this village is still held under communal tenure. A fairly large percentage of people who are potentially economically active in this village remain unemployed (Deliwe in Ainslie et al, 1994).

“Rural employment is practically non-existent and migrant wage-labour as well as state pensions offer the only viable strategy for household income generation. The rural areas were stagnating economically and politically (Charton 1980:228). Vast areas of the countryside are over-grazed and heavily eroded. “Despite the industrial decentralisation policy adopted by the South African government in the 1960s, which consisted of encouraging the establishment of border industries that were supposed to alleviate rural poverty, little headway was made in relieving the overall impoverishment of many rural dwellers” (Switzer, 1993:328). A sustainable development framework for the former Bantustans is a contradiction in terms. Bantustan settlements were an imposed, artificial institution created through influx control. No wealth-generating institutions exist in the environment of the Bantustans to sustain the population (Fitzgerald et al, 1995).

In an effort to assist in the development of these communities, small-scale fishing projects have been established. Two groups of fishermen from each of the two villages have been encouraged to harvest suitable freshwater fish resources to improve food security and to generate income. The Rural Fisheries Programme provided the fishermen with appropriate fishing gear such as gill nets, long lines, life jackets, and two rowing boats.

1.3 Small-scale rural fisheries in the Eastern Cape:

The Eastern Cape is located on the south eastern seaboard of South Africa and is the second largest province with an area of 170 600 square kilometres, which represents 14% of South Africa's land surface. The population of the Eastern Cape was approximately 6,7 million in 1993 representing 16,4% of the total South African population. A large proportion of the population resides in the rural areas, mainly on white-owned commercial farms and in the former homelands of Ciskei and Transkei. The metropolitan economies of Port Elizabeth and East London are based primarily on manufacturing, the most important being motor manufacturing. Other major industries in the province include agriculture, textiles and clothing, tourism, wool, timber and transport (Website: www.gov.ec.za).

The province has an abundance of water bodies in the form of rivers and dams. However, fishing

has never been an activity that was extensively undertaken by the people of this province, in particular the Xhosa-speaking people. It has been noted that the Xhosa have no taste for fish and no tradition of seamanship (Peires, 1981). A major economic activity for the Xhosas in the past has been agriculture and livestock rearing. Discriminatory policies of the past, which confined the African population to 13 per cent of the land, led to overcrowding in the reserves. This placed a heavy burden on natural resources and reduced the area of land available for agricultural activities. This eventually resulted in environmental degradation and unsustainable farming practices. To secure a livelihood, those households that did not have migrant labourers or pensioners, had to search for alternative means of ensuring food security and generating income (Andrew et al, 2000).

The absence of inland fisheries in the Eastern Cape has been attributed to Xhosa cultural beliefs. It was thought that such beliefs might have rendered the capture and consumption of fish an unattractive option. The fact that there were no studies, prior to the implementation of the rural fisheries programme, that reported on successful inland fisheries in the Eastern Cape, gave weight to the view that cultural beliefs hindered the development of fisheries. However, empirical studies conducted to investigate the strength of these beliefs indicated that the beliefs were not strong enough to have a negative impact on the process of fisheries development.

For instance, a study conducted in the former Transkei homeland among retailers indicated that there was a potential demand for fresh water fish. It was concluded that freshwater fish could a possible alternative to augment food supply and as a product that could be harvested for income generation purposes (Andrew et al, 2000), but the fish populations in the water bodies were poorly known and initiatives such as the rural fisheries programme have made inroads in terms of the development of inland fisheries in rural areas. The rural fisheries programme, which was initiated in 1997, served as a vehicle for mobilising rural communities to make sustainable use of freshwater fish resources that are abundantly available in some of the water bodies of the Eastern Cape.

The Rural Fisheries Programme (RFP) was established in order to investigate the potential for the development of small-scale freshwater fisheries in rural areas of the Eastern Cape. Core funding for the programme was provided by the Premier's Office of the Eastern Cape Government for a period of four years, commencing from 1997 until 2000.

A major objective of the RFP during the first four year phase was to obtain information from experimental small-scale fisheries in order to make informed decisions about further development in this sphere. To facilitate this, five sites which were diverse in environmental and socio-economic qualities were chosen in the Eastern Cape to form part of the study area. The sites included Kat River Dam in Seymour, Lubisi Dam in the Transkei, the Fish River and two small dams in Glenmore and Pikoli villages.

1.3.1 Mode of operation of the fishing groups in Pikoli and Glenmore villages

A group of twelve fishermen recruited from the villages of Glenmore, Ndwayana, Ndlambe and Pikoli started fishing for sharp catfish with longlines in the Fish River during 1997. The harvesting of fish took place concurrently with continuous monitoring of fish stocks in the river by the Rural Fisheries Programme. On the basis of the initial results of these surveys, a conservative level of effort was set to ensure sustainable catches of catfish from a 25km stretch of the river. The fishing gear provided initially consisted of 12 long lines with 12 hooks each, 144 hooks in total. Catch records which indicated the length of fish caught and the locality of capture were kept by the fishermen over a two year period and returned to the RFP for monitoring purposes. In addition to the biological data collected from the fishermen as part of the feedback process, the fate of harvested fish was recorded in order to obtain an idea of how the product benefitted the fishermen and the entire community. Meetings were also held with the fishermen on a monthly basis to evaluate their progress, to uncover any problems experienced, and to provide assistance when needed.

In 1999 fishermen started harvesting moggel¹ from the two dams in the study area, namely, Tyefu and Pikoli dams, with gill nets. These dams are both approximately 10 hectares each in size. The length and mesh size of the gill net to be used in the dam was chosen after initial surveys of the fish stocks had been carried out by the RFP. The fishermen were organised into a fishing committee that had the task of liaising closely with the RFP through regular meetings. Other stakeholders who were represented on the fishing committee were the Eastern Cape Nature Conservation and the local branch of the South African Civic Organisation (SANCO).

Fish are harvested and cleaned at the site of capture. The cleaning is usually done by casual helpers who are paid in fish for their services. Some of the cleaned fish are marketed locally in the surrounding villages, while the rest of the catch is usually transported by donkey cart or taxi to the roadside for sale. The fishermen keep some of the fish for home consumption and if it is not possible to sell the entire catch on the day of harvest, surplus fish is stored in local freezers for later sale. The freezer owners who provide space get paid in fish for this service (Andrew et al, 2000).

1.4 Fieldwork and Methodology

The small-scale fisheries had been in operation for a period of five years at the time of the study. This study will therefore set out to assess the viability of the projects as alternative routes to achieve rural development in the study area. Various methods were employed to collect data for this study.

In 1999 a socio-economic survey was conducted in the two villages, the aims of which were:

- To determine the demand for freshwater fish in the villages situated in the lower Fish River Valley.
- To ascertain perceptions held by village dwellers with regard to fishing and fish consumption

¹Fish species indigenous to the Eastern Cape. Its scientific name is *Labeo umbratus*

- To uncover the constraints on fish consumption and assess current consumption patterns
- To assess the level of awareness about freshwater fish and the fishing projects operating in the villages.

Results from this survey have been used as a database and inferences have been drawn in order to determine the qualitative and financial value of the fishing projects and the fish resources to the two communities.

In the year 2000, towards the end of the duration of the Rural Fisheries Programme, a socio-economic survey was conducted on fishermen in the two villages. The survey was aimed at evaluating the contribution made by the small-scale fisheries in alleviating poverty and the promotion of rural development in the study area. Furthermore, this survey was also aimed at eliciting the views and perceptions of the fishermen with regard to the value of the fisheries as a source of livelihood.

Document analysis of the records of fish catches dating back to the establishment of the small-scale fisheries has also been carried out as one of the methods of assessment employed in the study. Data was also collected during meetings held by RFP researchers on a monthly basis with the fishermen. The meetings were designed to provide ongoing support to the fishermen to enable them to manage the fisheries efficiently.

Lastly, field visits to the two villages were undertaken to conduct in-depth interviews with the fishermen in an attempt to solicit their views and perceptions about the small-scale fisheries and to assess the operation of the fisheries. The interviews also served to verify and expand on the data obtained from the fishers through the use of a questionnaire survey².

² See chapter 4 for more details on the methods used in the study.

1.5 Chapter Outline

Chapter two is an exploration of theoretical works on natural resource utilisation and management for development in South Africa.. It begins by providing a discussion on sustainable development, looking at what is entailed in sustainable development and the challenges it faces. Sustainable development is discussed and situated within the South African context under the heading of the Reconstruction and Development Programme. Challenges to the RDP and indications that it has been abandoned in favour of the Gear strategy are highlighted. It is argued that the above has negative implications for natural resource use and management in South Africa, especially in the rural areas. Finally, as natural resource use and management falls within the ambit of sustainable development, a discussion of these is provided in this chapter. The discussion identifies some of the necessary conditions for successful natural resource use and management and these have been discussed in relation to small-scale rural fisheries. How the fisheries comply with these conditions is also examined.

Chapter three is aimed at presenting case studies from Malawi and Zimbabwe. These case studies relate to the exploitation of inland fisheries for the development of rural communities. It is believed that lessons can be drawn from these case studies, with a view to emulating them in the South African context. However, it has been borne in mind that rural fisheries have not been extensively undertaken by the rural communities of the Eastern Cape in the past, unlike in the two case study areas, and therefore extreme caution needs to be exercised when making contrasts and comparisons. Having presented the Malawi and Zimbabwe case studies, this chapter will compare and contrast these with the South African case study areas, as well provide a discussion of lessons to be learnt.

Chapter four will present the data and provide a discussion of the research findings. The data and research findings used in this study emanate from two questionnaire surveys that were conducted in the two villages. The first survey targeted ten per cent of the households in each village whilst the second one was aimed at the actual fishermen. On the basis of the findings from the questionnaire surveys, a conclusion has been reached.

Chapter five draws a conclusion and provides an answer to the research question. The question was whether small-scale rural fisheries could contribute towards poverty alleviation and rural development in the two villages. The conclusion drawn in this chapter is that the small-scale rural fisheries in the study area have demonstrated that they are a sustainable and viable option for promoting rural development in the study area. However, a number of constraints that can potentially hinder the successful operation of the fisheries have been also been identified.

The appendices contains copies of the questionnaire surveys used for data collection in the two villages.

The **bibliography** contains all the references consulted and quoted in this work

Chapter 2 - Natural Resource Use and Management for Development in South Africa

2.1 Introduction

Natural resource use and management remains one of the critical areas for development in southern Africa. South Africa, for instance, is still coming to grips with the enormous challenge of developing its natural resources to the benefit of all, in particular the rural poor. In the past, the apartheid state exercised very strict control over national parks and game reserves and it was mainly concerned with the conservation of natural resources. The perceptions, needs and aspirations of rural communities were regarded as the root cause of environmental problems and as a threat to sustainable natural resource use and management. In the new democratic South Africa, there has been a shift from the old approach to the conservation and use of natural resources. The current government has adopted an approach that seeks to provide support for community participation in conservation and the sustainable use of natural resources. The new approach also takes into consideration the social, political, cultural and historical context in which the conservation and use of natural resources takes place (Dladla, 1995).

Small-scale rural fisheries in the Eastern Cape have been initiated against a background of new policies and institutions for the sustainable use and management of natural resources which are only slowly emerging and which will hopefully enable local people, in particular rural people, to work out sustainable, profitable arrangements for income generation from natural resources. This chapter will therefore explore theoretical work on natural resource use and management for development in South Africa. As natural resource use and management falls within the broad ambit of development, the first section of this chapter provides a discussion of sustainable development. It begins by offering a broad theoretical background to sustainable development, looking at what is entailed by sustainable development, its challenges and the opportunities for implementation. As South Africa has recently emerged from an era of separate development, the implications for sustainable development in South Africa are also examined in the first section. The second part of this chapter discusses natural resources use and management, defining what 'natural resources are' and looking at strategies for the sustainable management and use of

natural resources. Natural resource use and management forms an integral aspect of the sustainable development concept, as sustainable development advocates the use of resources, both natural and human, to meet the needs of present generations, without compromising those of future generations. Finally it will be argued in this chapter that natural resource use and management in the rural areas of South Africa, particularly in the Eastern Cape, has not been accorded sufficient attention as one of the strategies for promoting sustainable rural development.

2.2 Sustainable Development

Sustainable development has been defined as “paths of progress which meet the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs” (Brundtland,1987:ix). The concept of sustainable development was arrived at by the World Commission on Environment and Development in 1987. The Commission was mandated, as part of its terms of reference, by the General Assembly of the United Nations to propose long-term environmental strategies for achieving sustainable development by the year 2000 and beyond.

In view of the fact that previous development models have failed in the past, the Commission recognised the need to propose long-term environmental strategies that would promote long-lasting and sustainable development. However, it remains questionable whether universal long-term environmental strategies for achieving sustainable development can be effectively implemented in view of the socio-economic disparities between the North and South, as well as the diverse nature of environmental problems in the two worlds. The North has tended to view the global crisis in terms of environmental destruction in the South, for example the loss of rainforests, desertification and population pressures rather than in terms of the activities of the developed world that have caused the environmental crisis. The South, on the other hand, tends to see the high levels of resource use in the North and the unfairness of the international economic world order as the root cause of environmental problems (Reid, 1995).

Secondly, the Commission sought to recommend ways in which an environment could be created for greater co-operation among developing countries and between countries at different stages of economic and social development, leading to the achievement of common and mutually supportive objectives that take account of the interrelationships between people, resources, environment, and development. A potential shortcoming in this regard might emanate from the view that 'environmentalism' which has emerged in developed countries, consists of characteristics that cannot be applicable or extended to countries in the South as environmental problems are still a small part of the development concern of less developed countries. Poverty eradication rather than the preservation of the environment is still a major concern of countries in the South. It has been realised that poverty and environmental destruction are inseparable. In order to achieve 'environmentalism' in the South, there is a need to address the critical question of poverty alleviation. In developed countries, lower priority needs such, as freedom from pollution assume importance because higher priority needs such as housing and food, have already been satisfied for the majority of people, whereas in many developing countries that is not the case (Redclift, 1984). Thus, the achievement of common and mutually supportive objectives between countries that are at different stages of economic and social development tends to be difficult to obtain.

Thirdly, helping to define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment was one of the tasks assigned to the Commission. In this regard, it had to propose a long term agenda for action during the coming decades, and aspirational goals for the world community (Brundtland, 1987:x). A possible constraint on this task was the diverse environmental conditions in the developing and developed countries. For instance, in the developing world, the human environment is characterised by rapid population growth, rising numbers of people in absolute poverty, high levels of unemployment, widespread ill-health and increasing urbanisation. Elliot (1994) draws the conclusion that these characteristics of the natural and human environment in the developing world ensure that the challenges of and opportunities for sustainable development are different from those of the developed world. It

therefore remains a challenge for the world community to have common aspirational goals for sustainable development.

The commission noted that the achievement of sustainable development could be made possible by an economic system that provides for solutions to allay tensions that arise from disharmonious development. Related to the above would be a production system that respects the obligation to preserve the ecological base for development. Environmentalism as conceived in the North advocates conservation of nature and any development that poses a threat to the natural environment has to be justifiable. According to this view nature should be left unaltered or conserved, unless and until it can be shown that interference is truly necessary (Redclift, 1984). Development needs may necessitate the disturbance of nature for the benefit of impoverished communities. This is particularly the case in rural areas of the South. Reconciling conservation of the natural environment with the development needs of the poor remains a contentious issue.

Sustainable development as a concept broadly propagates help for the very poor because without intervention they are left with no option other than to destroy their environment. Poverty often leads to environmental degradation, especially if there is over-reliance on a limited natural resource base. The realisation that poverty is often responsible for environmental depredation has been growing in recent years (Eckholm in Redclift, 1984). It has also been observed that human poverty makes physical environments poorer, just as poor physical environments make for greater human poverty. However, poverty is not the single major cause of environmental destruction. There are numerous other factors that result in environmental degradation such as industrialisation, irresponsible waste management and capital intensive technology. Some authors such as Redclift (1984) concur with the view that poverty in the developing world can be attributed to a number of factors, inter alia, the continuing condition of underdevelopment, an active process of extraction of surplus through colonialism, neo-colonialism and forces of capitalism and unequal exchange between the North and South and to an impact of inappropriate capital intensive technology. Poverty, according to this view, is structurally determined and it reduces the poor people's command over their own livelihoods.

Sustainable development also builds on the notion that people-centred initiatives are needed. In other words human beings are the resources in terms of sustainable development (Tolba in Elliot,1994:3). People-centred development has been promoted as empowering development. Its precondition is participation by the intended beneficiaries in their development. Development imposed in a top-down approach has proven to be unsustainable as there is no sense of ownership on the part of the beneficiaries. The role of development agencies and the government should be an enabling and supporting one and the main objective of this role is to provide the people with the necessary information so that their empowerment will be meaningful (Swanepoel, 2000).

The concept of sustainable development came into existence as a result of changes in thinking about what constitutes 'development' and how best to attain it. Thinking about 'development' has evolved since the United Nations Development decade of the 1960s, which was premised on the notion that problems of the underdeveloped countries would be quickly solvable through the transfer of finance, technology and experience from the developed world. This decade saw the decolonisation of many countries in Africa, Asia and Latin America and there was a need to provide a theoretical framework to map the road these countries had to take in realising their development, and the idea of modernisation served this purpose (Coetzee, 1996). Modernisation theory was the dominant force that influenced thinking about development during this era. According to this theory the development of the newly decolonised and underdeveloped countries could follow the same path as the developed world. They had to move through development stages to reach their final phase of development. In a nutshell, "modernisation refers to the total transformation which takes place when a so-called traditional or pre-modern society changes to such an extent that new forms of technological, organisational or social characteristics of the so-called advanced society appear" (Coetzee, 1996:43). To induce the change from a traditional to a modern society certain external factors such as industrialisation, technological adaptation, commercialisation, structural differentiation and economic growth had to be introduced (Coetzee, 1996). It was widely believed that the central force behind development was economic growth, mainly because it was economic growth that had shaped the current position of the developed countries (Elliot, 1994).

In spite of marked economic growth, in the 1970s, poverty in the world as well as social and economic inequality persisted, and it became apparent that the benefits of increased economic growth were not trickling down equally among the populations of the underdeveloped countries (Elliot, 1994). In Brazil, for instance, in 1970 the poorest 40 per cent of the population received only 6.5 per cent of the total national income, whilst the richest 20 per cent of the population received 66.7 per cent of the national income. During the development decade of the 1970s there was also a decline in international commitment to sharing and cooperation (Elliot, 1994).

The development decade of the 1980s saw the re-emergence of international collaboration and optimism about development in the literature on development. Even though, there was still an emphasis on economic growth as the driving force behind development, there was an indication of a growing concern that it needed to go hand-in-hand with improving income levels for target populations. Phrases such as 'Growth with Equity' or 'Redistribution with Growth' emerged and reiterated the view that economic growth was central to development, however, checks and balances had to be built in to ensure that the benefits of increased economic growth were not enjoyed by a tiny minority of the population, but were shared equally by all population groups (Elliot, 1994).

Due to the failure of development policies that were influenced by modernisation theory, Marxist theories of development offered an alternative in the 1980s. These theories were mainly concerned about the growing inequality between the developed West and the so called 'Third world countries'. The West was becoming richer at the expense of the developing countries, and this continued even after decolonisation. The West's expropriation of economic surplus from the Third World led to the latter developing specialist export oriented economies which were dominated by a small mercantile capitalist elite (Wood, 1996). Basically, the development of the West led directly to underdevelopment of the peripheral Third world. The solution according to Dependency theorists was de-linking from the Imperial world. This would enable the Third world to tailor external trade to fit their internal needs and induce an 'autocentric' national development (Wood, 1996).

However, with the advent of the end of the Cold War and the collapse of the Berlin Wall the intensity and foundations of the debate between modernisation and Marxist development theories became weakened. These events also led Marxist development theories to an impasse.

According to Booth (1985 in Coetzee) these theories seemed to be logically flawed and out of touch with empirical reality, and unable to generate viable development policies. This crisis could be called an impasse because there were no alternatives available, neither in Marxist nor in modernisation theories (Graaff, 1996). Coetzee, has argued that “at the theoretical level macro theories had shown themselves to be out of touch with the reality which individuals lived day by day and these theories were marred by problems of determinism, functionalism, economic reductionism and evolutionism” (1996:1). At the practical level, the policies that emerged from previous theories had proved themselves unsustainable. These were mostly driven at the macro level by agencies such as governments and the World Bank, therefore their development efforts had too frequently failed to involve ordinary people on the ground (Coetzee et al, 2001). Based on all the unsuccessful development efforts of the past decades, it became apparent that there is no single model for achieving development. This has also been accompanied by a realisation that development is a multidimensional concept which should include a widespread betterment of the social and material well-being of all in society. Recent theoretical debates on development emphasise the point that social reality cannot be properly comprehended in either the macromode or the micromode. According to the newer debates, both perspectives are essential for proper understanding of social reality (Coetzee et al, 2001). Therefore, there is a need to amicably combine macro and micro perspectives in a most fruitful manner. Such a combination of theories should be able, at the practical level, to influence policies that will ensure sustainable development.

On the whole, sustainable development has to encompass not only economic and social activities, but also those related to population, the use of natural resources and their resulting impacts on the environment (Elliot, 1994). Furthermore, development has to be aimed at ensuring that people’s basic needs are being met, that the resource base is conserved, that there is a sustainable population level, that communities are empowered to manage and develop

themselves (Fitzgerald, McLennan and Munslow, 1995). In line with the above, small-scale rural fisheries in the study area were implemented, based on the principles of sustainable development.

2.3 Sustainable development in the South African context

Sustainable development is still a fairly new concept in South Africa. After the era of separate development during the apartheid period, in the new South Africa the Reconstruction and Development Programme served as a development directive until it was superseded by the Gear strategy. The Reconstruction and Development Programme (RDP) placed sustainable development in South Africa at its centre. According to the RDP, the economic growth process has to be accompanied by people-centred initiatives with a considerable degree of state intervention and support. It also has to meet the basic needs of the population, in particular the needs of the historically disadvantaged majority. Fitzgerald et al (1995) argue that sustainable development in South Africa will require, *inter alia*, a massive educational effort in order to make the people aware of the need to manage resources wisely so as to attain the maximum benefits at minimum costs. People will also need to be made aware that they need not only to fulfill their present needs, but those of their children and of future generations.

As sustainable development in South Africa was central to the Programme for Reconstruction and Development, it will be imperative to examine how the programme envisaged this development, because the RDP has been regarded as a significant effort at building a sustainable approach to development management in South Africa (Munslow and Fitzgerald, 1995), and in view of the government's assertion that the RDP still remains an official policy of the government.

The RDP has been envisaged to be a people driven, integrated and sustainable development programme that aims to provide peace and security for all, build the nation, link reconstruction and development and spread democracy. The programme consisted of five main themes which were as follows: meeting basic needs, developing human resources, building the economy, and democratising the state and society (Munslow and Fitzgerald, 1995). The programme clearly

outlined and identified these themes, however, it failed to clearly outline the processes which were required to ensure that these goals did materialise.

Munslow and Fitzgerald, identified two levels at which the programme could be understood. According to the first level, it can be regarded as a development guideline for the country aiming to provide a strategic vision that sets the agenda for the government in its efforts to meet the basic needs of the population and at the same time start to redress the disparities of the past. On the second level, it was aimed at co-ordinating the work of various ministries in order to create a coherent programme. At this level, the programme was represented by a department in the Office of the President (Munslow and Fitzgerald, 1995).

Prior to the closing of the RDP office, the RDP was hailed as having played an important role in ensuring a smooth transition from separate development towards a more sustainable development future, as it situated issues of sustainability at the centre of the policy process and it attempted to link macro-economic and fiscal prudence with serious efforts to redress past imbalances (Munslow and Fitzgerald, 1995).

The RDP further attempted to combine natural resource use and management with the national development programme. For example, it states that:

“The democratic government must ensure that all South African citizens, present and future, have the right to a decent quality of life through sustainable use of resources. To achieve this, the government must work towards equitable access to natural resources, a safe and healthy living and working environment and a participatory decision-making process around environmental issues, empowering communities to manage their natural environment”(in Dladla, 1995:212).

Whatever the stated policy directives of the RDP, whether or not the government has abandoned it in favour of the GEAR strategy still remains a bone of contention. The following are some of the indications that it has been superceded by the new macro-economic strategy.

2.4 Indications that the RDP has been replaced by GEAR

It has been alluded to earlier in this chapter that the RDP has been replaced by GEAR. This is denied by the ruling party on the grounds that the programme has now been sufficiently embedded in the government's line ministries. During the 1998 SACP Congress, President Mbeki refuted assertions concerning the replacement of the RDP, saying that the government has not abandoned the programme. Mbeki argued that the government was still pursuing the five year targets of the RDP through its various ministries. These targets, as enshrined in the RDP document, include a million new low-cost houses to be made available to even poorest South Africans, electrification of 2.5 million houses, creation of new jobs, redistribution of 30% of good agricultural land, clean water and sanitation for all, a cleaner environment, full reproductive rights for women and universal primary health care and social welfare (Bond, 2000). He pointed to the progress the government has made to date in meeting the above targets, and he also mentioned that the ANC would prepare and publish a booklet reporting on what the government has done to implement the objectives that are spelt out in the RDP. Mbeki emphatically labeled the assertion that the government has abandoned the RDP as false and completely without foundation (Bond, 2000).

However, critics on the Left strongly believe that the RDP has been abandoned in the most crucial areas of social policy. They have identified policy directives that were contained in RDP, but were later distorted and did not make their way into government policy. The key expectations of the Left have not been fulfilled. For instance, the RDP promised that 30% of the land would be redistributed within five years, but less than 1% of the land was redistributed and substantial funding needed for land redistribution was not forthcoming; there were significant cuts in social assistance grants to poor dependent children, there was no massive employment creation through public works programmes; there were no subsidies available for local economic development; there was no enhancement of social welfare and community development and youth needs have not been sufficiently addressed (Bond, 2000).

Deviation from the key RDP policy directives left critics wondering whether the original RDP document was insufficiently clear in its policy directives or whether its role was meant to be that of a nation building signifier, rather than a detailed policy guidebook. Other commentators are of the view that the RDP was adopted primarily because the ANC had no other articulated set of policies prior to the 1994 elections, but two years later it was evidently ditched in favour of neoliberal policies, due mainly to international pressure and the influence of the Right wing tendencies within the ANC. The South African state has been perceived as having sold out to the prescriptions of the Washington Consensus (Coetzee et al, 2001), an indication of this that is often cited is the government's adoption of the neo-liberal Gear macro-economic strategy, which resembles the Structural Adjustment Programmes. This idea is mainly advocated by critics who are in favour of the Reconstruction and Development Programme. However, challenges to the implementation of the RDP need to be taken into consideration.

2.5 Challenges to the implementation of the RDP

Funding for the programme was the major challenge facing the RDP. The estimated total cost of the RDP ranged between R39 billion to R79 billion, but it received only R2.5 billion for its first year of operation. Former President Mandela promised that the initial amount would rise annually to more than R10 billion by the fifth year of government, efforts were also going to be made to raise funds from the private sector and foreign donors (Munslow and Fitzgerald, 1995). The initial amount set aside for the RDP was clearly insufficient for the enormous task of reconstruction and development in South Africa. This negatively impacted on funding for natural resource use and management projects, especially those aimed at using natural resources for development and poverty alleviation in rural areas. Rural areas in general received very minimal benefits from the RDP and this was further exacerbated by the closure of the institutional base of the RDP.

In 1996 the government closed down the institutional home of the RDP, which was the Ministry without Portfolio. In defence against claims that the programme had been abandoned, the government argued that there had been a strategic shift to integrate the RDP into all levels of

government operations. In essence, the RDP has been superseded by “GEAR which is a set of macro-economic policies designed to decrease the role of the state in the economy by creating an enabling environment for both foreign and domestic investor participation. It is basically aimed at reducing government budget deficits, easing exchange control, privatising state assets, relaxing labour legislation and lessening the tax burden on the private sector”(Development Update, 1999/2000:61). The underlying rationale being that the combined effect of the macro-economic policies will lead to economic growth, which will result in employment creation and the reduction of the development backlog.

GEAR has been subjected to criticism for failing to create jobs. Instead a massive number of jobs have been shed. For instance, in the first quarter of the year 2000, the non-agricultural sector shed 40 000 jobs. According to STATS SA surveys, some 400 000 jobs were lost in the formal sector between October 1996 and October 1999. Rural areas are the most affected by job losses, especially in the mining sector, as they largely depend on income from migrant labour and state pensions. Rural areas have been worst affected by the shortcomings of Gear which instead of creating jobs, gave impetus to community-based economic self-reliance. This took the form of small, medium and micro enterprises, as well as other income-generating endeavors, such as the small-scale rural fisheries. Severe socio-economic and environmental constraints and concerns over food security in many African countries have encouraged a re-evaluation of the importance of locally available resources and technical knowledge in an attempt to improve rural livelihoods (Nel et al, 1999). This entailed a shift from a macro to a micro perspective on development of the rural areas.

In line with the micro theoretical perspective the RDP had envisaged people-centred development, whereas the focus of the new GEAR strategy is on market-driven and centred development. GEAR advocates the reduction of government spending on health, education, and welfare, which will definitely have a detrimental impact on the already impoverished rural communities. Basically, GEAR poses another challenge for sustainable development in South

Africa. There are numerous challenges to sustainable development in general, and these are discussed in the section that follows.

2.6 Challenges to sustainable development

The challenge of implementing sustainable development in practice has been an ongoing one to which many governments, organisations and individuals have been addressing themselves since the 1980s (Elliot, 1994). Sustainable development is not something that can happen easily. While all can agree on the principle of sustainable development, realising it in practice is far more problematic (Fitzgerald et al, 1995). According to some commentators, the challenge of sustainable development has been made more complicated by three recent developments. These developments include the rapid collapse of the socialist experiment and the proliferation of what the World Bank terms 'market friendly policies'. This has resulted in a shift from a people-driven and centred development to a market-driven development (Carley and Christie, 1992).

Last but not least, threats to the sustainable use of resources come as much from inequalities in peoples access to resources and from the ways in which they use them as from sheer numbers of people. Inequality of access to resources threaten the prospects for sustainable development in various ways. Basically, it confines large numbers of people to poverty, which often leaves them with no choice but to degrade and destroy the resource-base on which their livelihoods depend (Elliot, 1994). Poverty, as argued earlier on, is not the only cause of environmental degradation and there is a correlation between a poor human environment and degraded natural environments, and vice versa. Environmental degradation is often attributed to unsustainable natural resource use and management.

2.7 Natural resource use and management: a theoretical perspective

Over the last twenty-five years numerous natural resource crises have commanded public, political and academic attention. These crises include, among others, concerns over declining environmental quality standards, the possibility of irreparable damage being inflicted on global life support systems, the suffering caused by drought and desertification, the looming physical

exhaustion of mineral stocks, and the depletion of naturally renewable 'productive' resources, such as aquifer water, soils, forests and fish. Rees (1985) further asserts that all the above mentioned problems eventually amount to conflict between the different social, economic and political interests as to who should benefit from the exploitation of the natural resource base.

2.7.1 Resources defined

Rees (1985) maintains that for anything to be defined as a resource there are two necessary conditions that have to be satisfied. The first one is that 'knowledge and technical skills must exist to allow for its extraction and utilisation. Secondly, there must be a demand for the product, materials or services produced. If either of these conditions is not satisfied, then the physical substance remains 'neutral stuff' (Rees, 1985). Hunter (1995) further expands on this definition of resources by distinguishing between three types of resources. These are non-renewable resources, such as fossil fuels and minerals, renewable resources, e.g animals, fish and plant stocks, and continuing resources such as sunlight, wave and wind energy.

The focus of this section will mainly be on the renewable resources, in particular fish. The depletion of renewable resources is regarded as a very serious problem. One of the solutions to this problem is to harvest only as much as can be replenished naturally. Sustainable development is most relevant to renewable resources. In using such resources, people have to satisfy their needs at present without compromising the ability of future generations to meet their own needs.

2.7.2 Recent trends in natural resource management in sub-Saharan Africa

Sustainability in natural resource use has been one of the main problematic areas. Numerous natural resource management and soil and water conservation projects have been implemented in sub-Saharan Africa over the last 30 years or so. The objective has mainly been to reverse land degradation and increase rural income, but in many cases, the projects have not had a lasting impact. This dismal performance has stimulated reflection as to why so many projects have failed. This requires an analysis of what lessons can be drawn from successful projects and to what extent these successes can be replicated elsewhere (Critchley and Reij, 1996). A number of

factors are usually cited for the failure of such projects and they include the fact that the beneficiaries were insufficiently involved in the design of the projects that were intended to help them. Other reasons that led to the failure of these projects could be that they were not designed with their future sustainability in mind, nor did they meet the conditions for natural resource use and management (Critchley and Reij, 1996).

2.7.3 Conditions for natural resource use and management

According to a study which was entitled *Decentralisation and local autonomy: conditions for achieving sustainable natural resource management*, the following conditions were regarded as conducive for sustainable natural resource use and management. These should not be taken as a blueprint which can be applicable in any context.

In order for natural resources to be used and managed sustainably, incentives for users to govern and manage natural resources have to be provided. Deriving a livelihood from natural resources is one of the important incentives for sustainable management of resources as that may encourage people to use and conserve for the future. Basically, the benefits from sustainable natural resource management should exceed the costs. The incentives should be accompanied by a recognised capacity on the part of the users to control access and membership. In most cases, control of access and membership is achieved through institutions which are constituted by the users and accorded power and authority to regulate access to particular resources. However, control of access is not always possible, especially in a situation where there is 'open access' or there is no recognised institution to control access and membership.

Another condition stipulates that management of natural resources has to capitalise on local knowledge, or on an effective combination of scientific knowledge and local knowledge. Rural communities may have their own indigenous methods of managing resources and these have to be taken into consideration. Scientific knowledge should not just be imposed without due regard for the user's indigenous knowledge. Several projects on natural resource use and management fail mainly because their designers ignore indigenous knowledge and management systems and

such projects tend to be environmentally, economically and socially unsustainable. The indigenous knowledge base can serve to offer the appropriate starting point for identifying problems in natural resource management and in devising feasible solutions.

Self-governing local institutions should be in existence, and members should have a voice in natural resource management decision-making. Management regulations and systems imposed from outside or above run the risk of being rejected by local resource users. Most importantly, the local self-governing institutions have to be democratically constituted and founded on participatory principles. It is also imperative for local institutions to have links with higher authorities, such as the state, which can play an important supportive role.

Conflict and competition are often prevalent in natural resource use and management. This necessitates the establishment of fair and low-cost mechanisms for conflict resolution. Such mechanisms could be devised and implemented by local users at the local level. Always resorting to remote higher institutions for conflict resolution may put great strain on the local management system and it may be very costly. If conflict can be resolved locally and in a cost-effective way, the overall burden on resource users will be minimal. Peer pressure and sanctions within the resource- using community will help enforce the decisions reached on conflict resolution, meaning there will be little or no room for conflict.

Within any community of resource users there will always be diverse interest groups or individuals with divergent interests. These interests may take the form of claims on the actual resource or for increased access to the resource. It is therefore essential that resource governance and management institutions take account of such diverse and legitimate interests.

They also have to be able to accommodate and manage diversity and convert any conflict arising from the diverse interests into cooperation

Successful natural resource use and management also requires an environment which will be conducive for management institutions to flourish. Such an enabling environment could be

created by national and regional policies and institutions. The policies and institutions have to provide a supportive framework within which local users can derive sustainable livelihoods (Critchley and Turner, 1996).

A recurring theme in the literature and discussions is that a sense of ownership of natural resource management endeavors by the resource users is an essential ingredient for success. Projects that are imposed from outside or owned externally are unlikely to be sustainable and yield sufficient benefits for the intended beneficiaries. There is also general agreement about the common need to support and strengthen local institutions to enable them to sustain successful natural resource management in the rapidly changing social and economic environment of Southern Africa today (Critchley and Turner, 1996). In keeping with this condition, the rural fisheries programme in the study area tried to inculcate a sense of ownership by building the capacity of the beneficiaries to manage the fisheries themselves. Having considered all the above, one can come to the conclusion that small-scale fisheries in the area of study could be regarded as sustainable vehicles for rural development. However, there is more to be done in terms of promoting sustainable natural resource use and management in the areas in order to induce rural development.

2.8 Conclusion

In conclusion this chapter has provided a discussion on natural resource use and management for development in southern Africa. South Africa is in the process of formulating new environmental policies that promise a complete shift from the old protectionist and conservationist environmental policies of the past. It has been realised that community involvement in natural resource use and management is pivotal for rural development. The concept of sustainable development has also been explored in this chapter, looking at its implications for natural resource use and management in South Africa as well as its challenges. In South Africa, the Reconstruction and Development Programme offered a guideline for people-centred, integrated and sustainable development. With the abandonment of the RDP in 1996, the prospect for sustainable development in South Africa remains uncertain. This chapter also offered a discussion on natural resource use and management. The discussion showed that a number of natural resource management endeavors fail the sustainability test due to various reasons, one of these being unsustainable use of the resource. Due to the fact that South Africa is still formulating environmental policies, little has been achieved in terms of encouraging community endeavors in natural resource use and management in the rural areas. In view of the government's formulation of national policy and strategies for managing natural resources in South Africa, Critchley and Turner (1996) are of the opinion that the country will learn important lessons by initiating a networking process with other countries in the region that have undergone a similar kind of change, sharing ideas and concepts, but most of all, experiences with other countries.

Chapter 3 - Small scale rural fisheries in southern Africa: lessons for South Africa

3.1 Introduction

Fish is an important source of subsistence and income for a large number of people in Africa and it is also an essential source of revenue for several national governments (Tvedten and Hersoug, 1992). In South Africa the above applies mainly to the marine fishing industry. The inland fishing industry is not as well developed as in some other African countries. Various factors are responsible for slow the development of inland fisheries in South Africa. There are factors responsible for thriving inland fisheries in other African countries and this chapter will, inter alia, investigate those factors.

Case studies from two neighbouring countries, Malawi and Zimbabwe, will be documented in this chapter. These case studies relate to the use of freshwater fisheries for the development of rural communities in the two countries. It is believed that lessons can be drawn from these case studies and some of those lessons can perhaps be emulated in the rural areas of South Africa. When drawing lessons from the case studies, the diverse conditions that distinguish the South African situation from that in neighbouring countries will have to be taken into consideration.

The chapter will begin by presenting a general overview of small-scale rural fisheries on the African continent. The emphasis will be placed on the role played by small-scale inland fisheries as a source of livelihood for the poor rural communities of the African continent. The main role players in inland fisheries on the African continent are artisanal fishermen. This chapter offers a discussion on these fishermen and looks at their distinguishing features, as well as their mode of operation. This chapter proceeds to discuss the two case studies, looking at the socio-economic profile of each country, their fish resources and the manner in which they are harvested.

3.2 Fisheries in the African continent: a general overview

Many of the landlocked countries in Africa are blessed with an abundance of water resources such lakes, rivers and dams. In most cases the water bodies have a number of users who utilise

their resources for various activities. Freshwater fishing forms part of the diverse activities around these water bodies. Such fish resources contribute an important source of subsistence and income for a large number of people in Africa. Fish is also an essential source of revenue for several national governments. As fish is a relatively cheap source of food in most of the countries in Africa, the importance of fish among the poorest sections of the population, especially the poor rural people, is considerable. For eleven countries on the continent, including Malawi and Angola, fish provides more than 40 per cent of the animal protein consumed by the population and in other countries it contributes 25 per cent on animal protein. The importance of inland fisheries varies considerably between different regions in Africa, with southern Africa being the region where it is most important. For instance, the SADC region, mainly Zambia, Tanzania, Zimbabwe and Malawi, accounts for 60 per cent of inland catches in Africa. Malawi, Tanzania and Zambia stand out as the countries with the most significant inland fisheries, both in terms of production and employment. The total number of full-time, part-time and seasonal fishermen on the continent is estimated to be around 1.9 million, and 98 per cent of them are said to be operating in the inland fisheries sector (Tvedten, Girvan, Maasdorp, Pomuti and Van Rooy, 1991).

It is estimated that Africa has a potential of 10 million tons of fish resources. Of these marine fish resources constitute 6.8 mt and inland fish resources make up 3.2 mt. It is widely believed that Africa's production has not increased significantly in real terms, but the continent contains some of the world's larger remaining underutilised freshwater fish resources. Over the period from 1970 to 1986, foreign trade in fish products has been characterised by an increase in quantities of fish exported from African countries (Tvedten and Hersoug, 1992).

In many African countries, including South Africa, freshwater fisheries have largely been marginalised. There is also a large discrepancy between the economic value of inland and marine production, especially in South Africa and Namibia (Tvedten et al, 1991). In spite of the importance of freshwater fisheries, the attention that has been given to the sector by governments and international aid organisations has been minimal. The major reason for this seems to be the

limited economic importance attached to them in comparison with marine fisheries. For instance, the total support to inland fishery projects within the SADC region in 1987 was US\$ 2.3 million, with an additional US\$ 1.8 million being spent on aquaculture development. While US\$ 13.9 million was used to assist marine fishery projects (Tvedten et al, 1991).

3.3 Artisanal fishery sector defined:

It is mainly the artisanal fishery sector that will be the subject of analysis in this chapter, therefore it is important to define what is meant by artisanal fishery or fishermen. Artisanal fishermen have been characterised by, inter alia, their tendency to combine fishery with other rural activities, such as agriculture, animal husbandry and aquaculture. This means that fishing activity for artisanal fishermen is often part-time and household income may be augmented by other non-fishing activities (Pollnac, 1991). They also relate to intermediaries both for capital and inputs in the production, distribution and processing of fish. They usually rely on external agencies for financial assistance in the form of aid or loans when they need to purchase sophisticated fishing gear or set up processing facilities. For the purpose of distributing their harvest, they normally require or hire the services of a non-fishing middle person who has access to a means of transportation.

Artisanal fishermen communicate with the state regarding the regulation of markets and inputs, especially where there is significant state support and intervention in the form of cooperatives. The state regulates small-scale fishermen through the issuing of permits, quotas, advice on marketing strategies and opportunities, funding for inputs such as gear, and monitor the fishing industry. Most artisanal fishermen normally depend on products that are not produced in their immediate area of residence. For instance, their fishing gear which normally consists of nets, hooks, lines, rowing boats, salt and sometimes even bait have to be acquired from outside their local area. Artisanal fishermen are also characterised by their use of simple technologies, and a low level of productivity. Their catch most often does not get distributed to larger markets, but it is dispersed at points of landing and part or all of the catch is consumed by the operator and his family. In other words, the artisanal fishery sector is often subsistence-oriented even though a

surplus might sometimes be marketed. Finally, another basic characteristic of artisanal fisheries is the division of labour on the basis of sex. Women are not usually involved in the actual fishing process. This may be due to the physical separation of fishing from local and family life, and therefore women are mostly confined to shoreline, activities which include shell fishing in the shallows where the work will not conflict with child care (Tvedten and Hersoug, 1992).

Having identified the characteristics of the artisanal fishery sector, it needs to be borne in mind that the fishing sector is not homogenous, as it is diverse in terms of species that are harvested, devices used for harvesting, production methods, markets and institutional arrangements. Artisanal fishery also differs in terms of the scale of the operation. In view of the above, some commentators suggest drawing the distinction on the basis of 'professional' versus 'non-professional' fishermen. Such a distinction could be drawn by considering how much fishing contributes to a fisherman's and his household's income, how much time and effort he dedicates to fishing, and lastly, how he himself and others perceive him (Tvedten and Hersoug, 1992).

The artisanal fishery sector still remains relatively less known. More research therefore needs to be conducted on artisanal fishermen in Africa as there is more information about the different species of fish in African waters than there is about artisanal fishermen, both in terms of quantity, migrations and internal dynamics (Tvedten and Hersoug, 1992).

3.3.1 Characteristics of artisanal fishing communities

Artisanal fisheries are generally located in rural and coastal areas, near lagoons and estuaries. Most international development agencies tend to classify artisanal fishery with aquaculture due to the misconception that the two have many things in common, whereas in reality these sectors are worlds apart, the only thing they have in common being the product. The approach usually adopted by these development agencies when undertaking fishery development is often not appropriate and leads to numerous difficulties being faced by fishery projects. This is manifested by the fact that fully one-half of the World Bank-assisted completed fishery projects either failed to achieve their major objectives or had uncertain or marginal outcomes (Pollnac, 1991).

A distinction has been drawn between the artisanal fisheries and aquaculture on the grounds that artisanal fishermen depend on open access and, because the prey is wild and moves from place to place, it requires the fishermen to be mobile. In aquaculture, on the contrary, harvesting of the product is more controlled and predictable. In most cases the aquaculturalist knows where the fish are and when they are ready to be harvested. A distinction can also be drawn on the basis of manpower and capital requirements which differ for the two types. Artisanal fishermen usually harvest what grows naturally and they do this with a relatively low capital investment. Aquaculture, on the other hand, requires activities such as stocking, pond excavation, maintenance of water quality and feeding, which have a relatively high capital investment (Pollnac, 1991). To further illustrate the distinction between aquaculture and artisanal fishery two case studies are presented in the section that follows.

3.4 Malawi case study

Malawi is a landlocked country, bordered by Mozambique to the south and east, Tanzania to the east and north and Zambia to the west. The country has a total area of 119.14 square kilometers, and water bodies constitute 20 per cent of the total land surface area. It has a total population of approximately 10,548,250 people and 90 per cent of the population lives in rural areas. The majority of the population is dependent on subsistence farming and fisheries, which provide a large percentage of the annual protein intake. The population has been growing rapidly as an annual growth rate of 3.7 per cent has been recorded. Due to the undeveloped industrial base in Malawi, agriculture has developed into a major economic activity of the country and this means that a large portion of the population is directly dependent on the natural resources of the country, leading to severe depletion of resources. The engine of growth in the economy has been an export-oriented sector, based on tobacco, tea, coffee, cotton and groundnuts as the main export crops and maize as the domestic food crop (Moyo et al, 1993). The economy depends on substantial inflows of economic assistance from the International Monetary Fund, the World Bank, and individual donor nations.

Water resources are also abundant in Malawi. Lake Malawi serves as one of the key water bodies in the country, the actual waters of the lake occupy about 29.604 square kilometres. The lake is also important for fish harvesting purposes as over 200 000 Malawians are either directly or indirectly employed in the fishing industry and depend on it for survival. It is believed that, for each inland fisherman, five people are active in support functions tied to the processing and preservation, transport, marketing and production and maintenance of boats and gear (Tvedten et al, 1991).

3.4.1 Fish resources in Malawi - Lake Malawi

Fish resources from Malawi's lakes and rivers have historically been exploited by traditional methods for many centuries. Traditional methods usually include simple fishing techniques like handlines, self-made traps and baskets. The fishing activity tended to be seasonal with prolonged off-seasons (Tvedten et al, 1991). In many traditional fishing communities, the only purpose of fishing was to provide food for the fisherman and his dependants (Bertram, Borley and Trewavas, 1942). Commercial fishing started in 1935, but it was only in 1968 that commercial exploitation became a significant industry. Commercial fishing is characterised by the use of modern fishing gear such as gill and seine nets, power boats and sophisticated marketing strategies. With commercial fishing, the fishery also tends to be exploited intensively both for local and regional markets and fishing is often not only done by local inhabitants, but also by outsiders who move into the fishery in the hope of maximising profits (Tvedten et al, 1991). The total productivity also tends to increase and the marketing of fish is often dominated by middlemen. The development of commercial fisheries tends to result in the marginalisation of most fishermen from traditional fishery communities, as income and catch per unit effort decreases (Tvedten et al, 1991).

At present Malawi has both traditional and commercial fishing, which is supplemented by fish farming at both smallholder and estate level. Today, 20 000 full time artisanal fishermen exist and they produce about 85% of the total fish harvest (Moyo et al, 1993). In Lake Malawi, there are semi-industrial fisheries and the rest are small-scale and labour intensive fisheries (Tvedten et

al, 1991). Lake Malawi is the largest water body in the country and it accounts for about 40-60 per cent of the total fish catches. Malawi's fish exports experienced an almost 99 per cent drop in just ten years, due to over-fishing in both Lake Malawi and the Shire River (Malawi Government Report, 1990).

The German-funded National Aquatic Resource Management Programme stated that Malawi exported 2000 tonnes of freshwater fish in 1980, but this dropped to just 3 tonnes in 1999 (Tvedten et al, 1991). In response to the above, all fishing activity in Malawi is now regulated by the Fisheries Department, which is concerned with all aspects of fisheries. All commercial fisheries are now required to have licences and their catches are monitored at a number of central landing points. The department also poses restrictions on where and when fishing can take place, the mesh size of the net, engine power and the minimum size of fish that can be harvested. Artisanal fishermen are not exempted from the restrictions of the Department as they are also required to license their nets. In addition to these restrictions, the government has introduced stringent legislation in the form of the new Malawian Fisheries Act, adopted in 1997. The new legislation, amongst other things, empowers communities to confiscate illegal fishing nets. Apart from the above regulations, the Fisheries Department of Malawi has been involved in developing alternative income generating activities, with the aim of decreasing the pressure on the fishery. The stringent government regulation of fisheries in Malawi is an indication of the importance of the resource to the economy. This is also indicated by the fact that Malawi has been given the responsibility of co-ordinating all SADC fishery developments (Moyo et al, 1993).

3.5 Zimbabwe case study

Zimbabwe is a tropical land-locked country situated in south-central Africa. Its surface area is 389,000 square kilometres. In 1990, the population of Zimbabwe was estimated to be in the region of 9 million. In Zimbabwe, 75 per cent of the population lives in rural areas and the average density was estimated to be 25.2 people per square kilometre in 1982. Almost all communal land dwellers depend on agriculture for their livelihood and it is therefore believed that any improvements in their living standards would have to be based on agricultural

development. As in the South African situation, communal areas in Zimbabwe have served as labour reserves for miners, large farms and industries (Moyo et al, 1993).

In terms of land use practices in Zimbabwe, 15 per cent of the land is held in trust by the government for the preservation and development of resources, 36 per cent of the land is commercial, freehold land, which used to be owned largely by white farmers and 42 per cent is communal land, which is communally owned and managed. Communal areas are characterised by severe land degradation, which is exacerbated by rapid population growth, increased livestock numbers and the reduced productivity of the land. About 7 per cent of the land is made up of resettlement areas which were designed to accommodate some of the population in the overcrowded communal areas. However, with the recent farm invasions in Zimbabwe, the above land use patterns must have changed considerably, as a large number of commercial farms have been redistributed.

Zimbabwe, unlike Malawi, is a mineral-rich country. It is well endowed with sources of gold, chrysotile asbestos, chrome, nickel, copper, iron and silver. However, these resources are mainly exploited by foreign transnational corporations. This country also has a well-developed and diversified manufacturing sector, which contributes 25 per cent to the GDP and accounts for about 16 per cent of wage employment in Zimbabwe. Zimbabwe is also a major producer and exporter of tobacco (Moyo et al, 1993). Most Virginia tobacco is grown on large-scale commercial farms situated north of Harare, whilst the communal farmers produce burley tobacco.

In terms of environmental problems, soil erosion is one of the major problems. It is mostly related to human activities such as logging, road construction, deep ploughing of fragile soils, clearance of forests for cultivation or fuel wood and overgrazing. According to Moyo et al (1993), soil loss in Zimbabwe through erosion is one of the most serious physical problems.

Zimbabwe has abundant water resources but, due to accelerated run off, which is a consequence of deforestation, rivers dry up sooner than previously. Trees are cleared from land required for

cultivation, and, in the absence of alternative sources of energy, are used as fuel wood. It has been estimated that 70 000 hectares of woodland is cleared annually for agriculture. Apart from these factors deforestation has also been attributed to commercial felling, effects of fire and urban expansion. Owing to deforestation, the major rivers of Zimbabwe, such as the Limpopo and Save have become rivers of sand with muddy pools joined only by a trickle of brown water by the end of the dry season. Many small dams that draw their water supply from badly-eroded catchments have tended to silt up rapidly. Although the country boasts significant groundwater reserves, the quality of the water is usually very poor.

3.5.1 The Mwenje Dam Fishery

A feasibility study conducted on Mwenje Dam serves as an illustration of the inland rural fisheries in Zimbabwe. The dam is situated within the Mazowe Rural District Council's jurisdiction. It is utilised by villagers in the Chiweshe Communal lands and by commercial farmers. A small-scale fisheries project is operating on the dam and two wards in the communal area are involved in the project. The fishery has been initiated on an experimental basis by the Mazowe Rural District Council and it is the council's first CAMPFIRE³ project.

There are multiple stakeholders who use the resources of the dam for diverse activities. Apart from the fishermen, there are other users, such as the commercial agricultural farmers, livestock owners, brick-makers and part-time fishermen from areas neighbouring the Chiweshe communal lands. Part-time fishermen from villages adjacent to Chiweshe communal lands also feel that they have a stake in the Mwenje Dam Fishery. This has led to an almost 'open access' arrangement in the dam, in terms of harvesting the fish (Malasha, 1998).

As the case study is drawn from a feasibility study conducted on the dam, it will be essential to identify the objectives of the study from the onset. Firstly, the objective of the study was to analyse the fishing activities of the local fishermen and ascertain their perceptions towards the

³ Communal Area Management Programme for Indigenous Resources

sustainable use of the fishery. Secondly, the study was aimed at identifying constraints faced by the participants in the fishery project in improving their fish harvesting and marketing activities. This encompassed the type of fish harvesting technology used, fish processing procedures, as well as marketing outlets. Lastly, the aim of the study was to make recommendations to the Campfire project on how to eradicate the constraints identified during the study and improve the fishing operation in the dam (Malasha, 1998).

Five species of fish are harvested from the dam. They are bream, black bass, catfish, labio and barbus. The technology used by the fishers in this dam included gill-nets and self-made boats. It was observed during the study that the amount of fish caught by each fisherman depended on the amount of gear he had, and those who have been fishing longer than others had acquired more gear than new members. Their catches tended to fluctuate depending on whether it was a peak fishing season or an off peak season. The peak fishing season commences in November and ends in April. During this period, the fishermen can catch more than twenty kilograms of fish on any given fishing day. In the off-peak months catches tend to be generally low (Malasha, 1998).

The majority of the fishermen dispose of their day's catch by selling it either to people who come from Harare, who buy in large quantities or by selling them by piece to households in their villages. Fish is sold mainly in fresh form due to the unavailability of freezing and processing facilities. The fishermen sell their fish individually. They do not pool their harvest with others in order to obtain higher prices. One of the reasons they cited for selling individually was that each fisherman is paid according to his effort. This means that those who own more gill-nets will be able to get more income from selling their fish than those who are new to the fishery.

None of the fishermen who are part of the Campfire committee has ever received training in fish harvesting techniques, nor have they ever received any form of training in net-mending, fish catching methods, boat navigation or fish processing. They learnt the techniques from relatives who were willing to teach new members of the fishery. The size of the nets used by the fishermen was also not regulated and it was likely that unsuitable sizes of fish were caught, which might

jeopardise the sustainability of the fishery, because juveniles and breeding stock might also be harvested.

Major constraints that were encountered by the fishermen were the lack of storage facilities and transport. These fishermen wanted to market their fish in high-paying urban towns and for this they required to have storage facilities and a means of transport for distributing their fish in those urban centres. Another constraint cited by the fishermen during the study was the decline in prices of fish during the agricultural season because, during this season, most of the people who buy fish locally are busy working on their agricultural fields. Poaching or fishing illegally by occasional fishermen from outside the communal area was also regarded as a constraint on the fishery (Malasha, 1998).

Recommendations made by the study included the need for the Campfire committee to define ownership of the fishery and control access to it. The ownership of the project should be in the hands of the Ward Campfire project. Secondly, the study recommended that a biological assessment or survey be conducted to determine the species in the fishery and the effort to be exerted as well as the gear suitable to be utilised for harvesting purposes.

3.6 Lessons from the case studies

Major lessons could be drawn from the two case studies and used to enhance the development of freshwater fisheries in the rural areas of South Africa. Other inland fisheries could be established along the lines of the operation of the Rural Fisheries Programme over the past years. Firstly, it has been shown, through the Rural Fisheries Programme that rural communities in the Eastern Cape are capable of harvesting stocks of freshwater fish in an effective and sustainable manner. Secondly, it has become apparent that freshwater fish are already contributing to improved quality of life through providing a healthy source of protein and by supplementing income within involved communities. Finally, the experimental fisheries have indicated that the potential within the entire Eastern Cape for fisheries development is enormous, and that expansion into

environmentally suitable new areas should be encouraged, taking into consideration certain guidelines that have been drawn from the experimental phase (Andrew et al, 2000).

In contrast to the RFP, there is much more extensive government regulation of inland fisheries in Malawi and Zimbabwe than is the case in the Eastern Cape. This has been the result of the perceived threat to fish resources due to overexploitation and unsustainable harvesting methods. In the Malawian case, for instance, all fishing activity is regulated in order to guard against over-exploitation, all commercial fisheries are required to possess a fishing license. Artisanal fishermen are required to license their nets. In the Eastern Cape, there is no immediate threat to the fish resources such as overexploitation and unsustainable fishing methods that could justify extensive government regulation. Artisanal fishermen in Malawi and Zimbabwe tend to market their fish individually and do not combine with others to obtain higher prices. They argue that selling their fish individually is ideal because each one is paid according to his effort, this enables those with more nets to get more money than those who are just establishing themselves in the fishery (Malasha, 1998). This creates social stratification among the fishermen.

Another important contrast between the case studies is the context in which the fisheries are operating. In Malawi, for example, there is a heavy reliance on agriculture and natural resource based livelihoods, whereas in the rural areas of the Eastern Cape there is a dependence on multiple sources of livelihood, such as state pensions, remittances, wage employment and casual employment. This leads to a higher degree of fish resource exploitation in Malawi as compared to the Eastern Cape. As mentioned previously, cultural beliefs do affect the development of inland fisheries among rural communities. In Malawi and Zimbabwe, fishing has been extensively undertaken for many centuries by the indigenous populations, using mainly traditional methods (Moyo et al, 1993). This is an indication of the receptive nature of their culture towards fishing. The gradual development of inland fisheries in the Eastern Cape, on the contrary, has been partly attributed to Xhosa cultural beliefs about fishing and fish consumption.

Finally, it has been shown in the two case studies that government regulation of inland fisheries is imperative in order to ensure sustainable use of the resource. This is necessary in the South African context as fisheries have an important role to play in securing livelihoods in the rural areas. There is a need for greater investment in rural inland fisheries through advice on marketing strategies and opportunities, funding for inputs such as gear and the regulation of the fishing industry.

3.7 Conclusion

This chapter has presented a discussion on inland fisheries in the Southern African region, with a view of drawing lessons that could be followed in South Africa. The discussion commenced by placing inland fisheries within a broader African context. Within the African context, artisanal fisheries have contributed significantly towards subsistence and income generation in many rural communities. International development agencies have tended to equate aquaculture with artisanal fisheries and this in turn resulted in the collapse of many fishery projects. In this chapter, a distinction was drawn between artisanal fisheries and aquaculture. Characteristics of artisanal fisheries or fishermen have been discussed in this chapter, the main objective was to adequately distinguish small-scale artisanal fisheries from aquaculture and other large-scale types of fisheries. The two case studies from Zimbabwe and Malawi clearly demonstrated the important role of artisanal fisheries in the economies of these two countries, especially in the rural economy. It is evident that inland fisheries make a significant contribution in terms of securing livelihoods and generating income for many communities in the African continent. It has been concluded that in South Africa there is a big discrepancy between marine and inland fisheries with more value being placed on marine fisheries. Even government legislation such as the Marine Living Resources Act, is biased in favour of marine fisheries, it makes no reference to inland fisheries. There is a need for more support for the inland fisheries sector in South Africa in order for it to thrive.

Chapter 4 - Data Analysis

4.1 Introduction

This chapter will present and discuss data that has been gathered for this study. The data was collected when the researcher was working for the Rural Fisheries Programme, a joint project of the Institute of Social and Economic Research and the Department of Ichthyology and Fisheries Science. The objectives of collecting the data were twofold. Firstly, the data served the purpose of providing feedback to the RFP, to inform the researchers about the progress of the fisheries, the impact made by the fishing projects on beneficiaries and the constraints experienced by already established projects. Secondly, the data was collected for the purposes of this thesis. An understanding was reached between the researcher and the RFP project leader in this regard. The researcher has decided to include only those aspects of the data that are relevant for the study. The responsibility for collection, analysis and writing up of the data rested solely with the researcher. The data analysed in this chapter consists of two questionnaires that were conducted in 1999 and 2000 respectively. The former questionnaire survey was conducted in four villages that are situated in the lower Fish River valley, whilst the latter survey was conducted on fishermen in two villages.

The objectives of the study included the following. Firstly, the study set out to determine the demand for freshwater fish in four villages situated in the Lower Fish River Valley. The Rural Fisheries Programme was established at the study site in 1997 and, prior to the survey of 1999 no research had been done to obtain data on how the communities were responding to the availability of freshwater fish, hence the need for a study of this nature.

Secondly, the study was aimed at ascertaining perceptions held by the village dwellers with regard to fishing and fish consumption. In other words, it was an investigation into how the respondents view fishing and the actual consumption of fish. Do they regard these as good or bad? If they regard them as either good or bad, what are their reasons for viewing them as such? Perceptions are very important and they can determine whether the fishing projects flourish or

fail. For instance, if fish consumption is perceived in a negative light by the entire village, it will be difficult for the fishermen to generate income through selling their fish.

Thirdly, the study sought to uncover the constraints on fish consumption and to assess current consumption patterns. The researchers were of the view that uncovering constraints to fish consumption and assessing current consumption patterns would assist the fishermen in deciding what marketing strategies to employ when selling their fish. Furthermore, identifying constraints to fish consumption would be an advantage to the fishermen in the sense that they could attempt to eliminate the constraints in order to further develop the fishing project.

The study was also designed to assess the level of awareness about freshwater fish and the fishing project that has been established in the Lower Fish River Valley. It was strongly felt that awareness of the project on the part of the communities was imperative as it would enable them to purchase fish and it would also assist the fishermen in marketing their product.

An evaluation survey was also conducted towards the end of the year 2000. This survey was targeted at fishermen only. The main objective of the evaluation survey conducted on fishermen in 2000 was to investigate the contribution made by the small-scale fishing projects in improving the livelihoods of the fishermen and their families. Five fishermen were interviewed, four from Glenmore and one from Pikoli village. The questionnaire was divided into four sections, namely, the history of their involvement in the fishing project, the socio-economic profile of the respondents, their actual fishing activities and their sources of livelihood.

4.2 Method

Questionnaires were used for the purposes of gathering data. These were formulated through a collective effort on the part of the Rural Fisheries Programme team, which consisted of two researchers from the Institute of Social and Economic Research and one researcher from the Department of Ichthyology and Fisheries Science. All three researchers contributed equally towards the design of the questionnaire. However, the responsibility for printing, translating,

administering and analysing the questionnaires rested solely with the author of this thesis. For the purposes of the questionnaire, individual household heads or individual members of the household who were the respondents in this study were regarded as representatives of their households, they were therefore required to provide data about the situation of the entire household. The survey that was conducted in 1999 consisted of the following parts:

Socio-economic factors

- This section attempted to seek out household personal variables such as age, gender, employment status, household size, sources of income, and the household's average income.

Awareness of fish and fishing projects

- Questions in this section were designed to assess the villagers knowledge of fish in the river, number of household members taking part in fishing, awareness of fishing projects currently operating in the study area, fishermen's marketing strategies, and the form in which transactions took place (cash or credit).

Perceptions of fish eating and fishing

- In this section, an attempt was made to solicit the respondents' perceptions of fish eating and health, fishing in the dams and rivers, past traditional fishing practices, and the traditional belief which allegedly discourages fish consumption and fishing.

Eating pattern, marketing and pricing

- This section contained questions which related to the consumption of fish, types of fish consumed, reasons for not consuming fish, outlets where fish is obtained and amount spent by the household on buying fish.

4.2.1 Sampling Strategy

In selecting the sample for the questionnaire survey, a stratified random sampling method was employed. The rationale behind using the stratified random sampling was that it gave each subject within the population who matched the identified characteristics an equal chance of being included in the sample. The identified characteristics included that respondents had to be household heads, or in the absence of the head, a person who is above eighteen years of age and could provide the required data about the household. In each village, 10 per cent of the households were included in the sample. Glenmore has approximately 553 households and 10% (55) of these were included in the sample. Ndwayana, Ndlambe and Pikoli villages have approximately 322, 397 and 431 households respectively. An estimated total of 1703 households constituted the overall population of the study. Whilst the total sample consisted of 170 households.

4.2.2 Pilot study

To test for ambiguities, relevance and effectiveness of the questions contained in the questionnaire for potential consumers of freshwater fish, a pilot study was conducted on twenty respondents drawn from each of the four villages. The gender breakdown of the sample for the pilot study consisted of thirteen females and seven males. Similarly, the questionnaire for the evaluation survey was tested on two fishermen. Ambiguous questions were identified and the content of the questionnaire was subsequently adapted accordingly.

4.3 DISCUSSION OF RESEARCH FINDINGS

The first section is aimed at discussing the findings from the questionnaire survey for potential consumers of freshwater fish conducted in 1999, and the second section will discuss findings from the evaluation survey that was carried out in 2000. An effort will be made to discuss the findings with a view to demonstrating their relevance to rural fishing projects. In discussing the findings it will also be important to illustrate the sociological relevance of the findings as well as showing how they assist in providing an answer to the original research question. Broad themes

have been identified and these themes correspond with the original objectives of the study. The research findings will therefore be discussed within the context of the themes.

Socio-economic profile of respondents

It is believed that the socio-economic background of each respondent and their household will shed light on the situation of the entire study area. In other words, based on the socio-economic profile of each household, a generalisation for the villages of the study area can be made.

Gender is one aspect of the socio-economic profile of the respondents. The study provided a gender breakdown and the respondents who took part in the study from all four villages consisted of 65 (38%) males and 105 (62%) females. Female respondents clearly outnumbered their male counterparts in the study despite efforts to have a representative sample. Women make up 52% of the entire South African population, and they comprise a slightly larger percentage in the rural areas. The majority of the able-bodied males are absent from the villages, mostly in town working or seeking employment. The absence of able-bodied males has negative implications for the rural economy. For instance, agriculture tends to decline, largely due to a lack of sufficient manpower. Basically, the absence of the majority of males from the villages has a detrimental effect on development projects in the study area, including the small-scale rural fisheries.

In terms of age, the majority of respondents were young and they could be regarded as youths. For instance, 61(36%) of the respondents were in the 17-35 years age category whilst 41 (24%) were in the 36-54 category which consisted mostly of household heads, and 55 (32%) were in the 55-74 years age category. This category was mainly made up of pensioners. Only 13 (8%) of the respondents were 74 years of age and above. Young people, as revealed by the findings, constitute a large sector of the population in the study area. In general, youths makes up a large proportion of the entire population and they also constitute a large section of the unemployed. This places a heavy burden on the main source of income, namely, pensions. In view of the plight of rural youth, the fishing project was initially aimed at generating income and alleviating poverty in the villages, thus augmenting rural income. The fishing project fulfills this role,

considering that fish harvested in the study area makes an important contribution to the diet of the fishermen and to an increasing number of other community members who now have ready access to a local supply of freshwater fish. Furthermore, the income generated from the project assists not only the individual fishermen directly associated with the fisheries, but also contributes to the well-being of the young members of the family.

Families in the area generally consist of few household members, although there are large households in the villages that depend on a single source of income, which is usually pension. Data obtained from the study about household size in the villages will also reveal information on their socio-economic situation. For the purposes of the study only full-time members of the households were recorded, that is, members who were permanently resident in the villages at the time of conducting the survey. Even though absent members do make a contribution to the income of the household through remittances, they were excluded when counting the members of the households. Household size was recorded because the composition and size of each household can be expected to influence the income-generating strategies that are adopted. Households with extended families tend to adopt diverse income-generating strategies and the economically active members would normally pool and share their resources for the benefit of the entire household. Table 1 in the following page, contains the number of people that are resident in each household.

Another indicator of the socio-economic profile in the study area is employment or the rate of unemployment. It emerged from the study that only 11 (6%) of the respondents in the sample were engaged in full-time employment whilst 159 (94%) respondents were unemployed. This excludes other household members who are employed or unemployed, as it refers only to the respondents who were part of the study. The above clearly manifests the high unemployment rate, which exacerbates poverty in the study area. The high unemployment rate discovered among the respondents could be attributed to various factors. For instance, the questionnaires were administered during the day when most employed people were at work and thus not present to act as respondents.



Table 1: Number of people currently residing in each household

Number of occupants in each household	Number of households with similar size	Percentage of sample
1	7	4
2	19	11
3	30	18
4	23	14
5	31	18
6	27	16
7	12	7
8	10	6
9	5	3
10	2	1
11	1	0.5
12	1	0.5
13	1	0.5
16	1	0.5
Totals:	170	100

However, this could also be a true reflection of the situation in the villages, there are limited sources of formal employment, as shown by the high unemployment rate in the villages. In the prosperous years of the mining sector, the villages served as reservoirs for unskilled migrant labour. With the decline of mining and thousands of jobs being shed every year, migrant labourers have been compelled to return to the villages, further exacerbating the problem of unemployment in the study area. A generalisation for the entire study area can therefore be made on the basis of the socio-economic profile of the respondents. The profile serves as an indication of the plight of the villages that are characterised by abject poverty and a high unemployment rate. In view of this, the small-scale rural fisheries can play a significant role in alleviating poverty and augmenting rural livelihoods in the study area.

The study also set out to investigate other sources of income in the study area in order to be able to draw a conclusion about the economic conditions in the villages. The following additional sources of income were stated and ranked in order of their importance.

Figure 2: The relative importance of the sources of income

Sources of income	Responses ranked in order of importance			
	1	2	3	Total
Pension	95	4	-	99
Full time employment	25	2	-	27
Remittances	17	8	-	25
Casual work	16	3	-	19
Sales	12	3	1	16

As shown in *figure 2* above, the state pension was ranked as the most important source of income in the villages. Full-time employment was ranked as the second most important source of income. This indicates that in addition to the household heads or respondents who were recorded as being employed there were other household members who were engaged in full-time employment and contributing to the income of the household. It basically reveals that in addition to the eleven respondents registered as being engaged in full-time employment there were others who were at work at the time the research was conducted. Those who are engaged in full-time work usually do so outside the study area, owing to limited employment opportunities in the villages.

Current fishing levels and awareness of freshwater fish and local fishing projects

Investigating the current fishing levels and awareness of freshwater fish, as well as the fishing projects, enabled the study to assess the role played by fishing projects in contributing towards

improving livelihoods in the study area. Furthermore, awareness of freshwater fish and the fishing project will provide data on how well received the fishing projects have been in these traditionally non-fishing villages. To assess current fishing levels, the study sought to ascertain if there were any household members who took part in fishing, individually or as part of the fishing project. It was found that only 11 (6%) of the households had members who took part in fishing in the local dams and river and one of these individuals was a member of the fishing project. The ages of members who took part in fishing were between 13 and 46 years and all of them were males. Only one was a member of the fishing project; others fished individually using self-made fishing equipment. The fact that only 11 households had members who took part in fishing indicates that fishing is not an activity that is extensively undertaken in the study area. However, since the inception of the fishing project, people in these communities are gradually becoming exposed to fishing. The continued existence of the fishing project requires potential customers to be aware of the project and receptive to the idea of freshwater fish resource, in order for them to buy from the fishermen.

From the study it also emerged that the level of awareness that freshwater fish is available in the Fish River was very high among the respondents. 143 (84%) respondents indicated that they had knowledge of freshwater fish found in the river, whilst 3 (2%) were not aware of the availability of fish in the river, and 24 (14%) were unsure if there were any fish in the river. This indicates that members of the community are aware of freshwater fish that is found locally. In view of this, fishermen will have an easy task in marketing their fish to the entire community, because people are already aware that freshwater fish is found in the river.

It has been shown above that the level of awareness about freshwater fish is high among the respondents, however, awareness or knowledge about fishing projects within the communities still remained unknown. Despite the fact that small-scale rural fishing projects were established in the study area through a process that involved consultation with a local civic organisation, SANCO, and other local interest groups, the level of awareness about the fishing projects among the villagers still remained unknown. It had never been empirically determined whether the

villagers had knowledge about the operation of the fishing project or fishermen. There was an assumption that low fish sales in the study area were attributable to a low level of awareness about the fishing project. In view of the above, one of the objectives of the study was to assess the level of awareness of the fishing project within the study area because the success of the fishing project hinged mainly on the communities being aware and supportive of the fishing project.

The level of awareness about the fishing project was very low as only 33 (19%) of the respondents were aware of the fisheries that operate in their communities. On the contrary an overwhelming 137 (81%) respondents had no knowledge of the fishing projects that had been established in their villages. Of the 33 respondents who had knowledge of the fishing projects, 17 (52%) reported that fishermen selling fish had approached them. More work needs to be done by the fishermen, in terms of marketing and promoting their fishing activities within the study area and beyond. However, marketing of fish also hinges on the availability of fish. Fish is a highly unpredictable resource as it moves from place to place.

From the original study, respondents who did not buy fish from the local fishermen cited the reasons below.

TABLE 2: Reasons for not buying fish

Reason	Number of responses
Fishermen never came to sell their fish	9(50%)
I did not have money	1(6%)
I do not like fish	3(16%)
Fish from the river looks scary	1(6%)
I do not eat fish	1(6%)
Freshwater fish has a bad smell	3(16%)

These responses came only from those respondents who indicated that they had knowledge of the small-scale fishing projects operating in the study area, hence eighteen responses were recorded. As shown in the table above, the majority of respondents did not buy freshwater fish because fishermen had never approached them selling their fish. This is an indication of a poor marketing strategy on the part of the fishermen. The villages are relatively small in size meaning that it is possible for the fishermen to market their product to every household in their villages.

Perceptions of fishing and fish eating

Again the success or failure of the fishing projects was largely dependent on how the villagers perceived them and the product they were offering. Negative perceptions towards the fishing project could jeopardize the chances of generating income through selling fish as the communities would view them in a generally bad light. Therefore, it was essential to investigate the perceptions held by village dwellers in relation to the fishing projects and fish consumption, in order to make informed decisions about the further development and viability of small-scale fisheries in the study area.

On the question of whether respondents viewed fish consumption as good for their health or not, the study revealed that 39 (82%) respondents regard fish eating as good for people's health. Whilst only 4 (2%) were of the opinion that fish consumption was not good for health because it causes numerous diseases. Lastly, 27 (16%) respondents were undecided, meaning they were not certain if fish consumption was good for health or not. On the basis of these responses it could be concluded that clearly there is a positive perception of fish consumption among the respondents in the study area and they also appreciate the nutritious value of fish for their health. This serves as a good indication for the fishing project as it signals the receptiveness of the communities to their product.

Having uncovered the respondent's perceptions towards fish consumption, the study sought to discover their perceptions towards fishing in the local dams and rivers. The study assessed whether fishing in the river and dams was a culturally and socially acceptable practice or if it was

a taboo. According to the findings 94 (55%) respondents in the sample regard fishing in the river and dams as a good thing, whilst 25 (15%) respondents in the sample do not think fishing in the river and dams is a good thing. On the other hand 51 (30%) respondents were undecided about whether fishing was good or bad. The findings from the study indicate that although Xhosa-speaking people in the past did not regard harvesting and consumption of fish as important, it has now become an acceptable practice.

Various reasons against fishing in the dams and river were also uncovered by the study. Most of the reasons relate to cultural beliefs about ancestors, fish and the river, for instance, “fishing is disturbing river ancestors and the river is like a household it should be respected”, “fish is a creature that belongs to the river ancestors and it should not be harvested”. There was also a strong belief that disregarding such cultural beliefs could lead to bad luck on the part of the transgressors such as drowning or an illness.

Furthermore, it emerged from the study that some respondents regarded freshwater fish as unhealthy. They were of the view that freshwater fish from the river and dams have a bad smell and a taste that is different from marine fish. On this basis freshwater fish was regarded as unsuitable for human consumption and therefore fishing in the river and dams was believed to be a bad practice. However, this view emanated from a minority of respondents and therefore does not seem to pose a serious threat to the sustainability of the rural fishing project. Furthermore, changes in the economic situation can influence views held against freshwater fish and fishing in general, in other words, these views may change over time as a result of changes in the economic position of the respondents.

Changing Cultural Perceptions

Fishing is a relatively new phenomenon in the study area. This is partly attributable to the fact that Xhosa people inhabiting the villages have various ancestor veneration practices that involve traditional rituals in the river and dams. Cultural perceptions about fishing were revealed from the findings of the study. Basically, the perceptions that were uncovered do not pose a threat to

the sustainability and development of rural fisheries. If overwhelmingly negative cultural perceptions were held regarding freshwater fish, these might stifle the development of the rural fishing project by discouraging people from consuming freshwater fish or taking part in fishing activities.

According to the study 120 (71%) respondents were not aware of any traditional belief about river ancestors, that might discourage fishing and fish consumption, whilst 50 (29%) respondents reported that they were aware of a cultural belief about river ancestors. However, some of those who were aware of the belief suggested that they do not adhere to the belief and it does not influence their perceptions of fish consumption and fishing in general.

The respondents might be aware of the belief but their awareness does not necessarily translate into support for the belief. The respondents who do not support the cultural belief were not deterred by it from consuming fish from the river or engaging in fishing activities. Whilst the respondents who support the belief stated that they strongly adhere to it. For instance, they would not engage in fishing in the river and dams because of their respect for the ancestors who they believe reside under water. It is evident from the discussion of the findings above that cultural beliefs about river ancestors do not pose any significant threat to further development of small-scale rural fisheries in the study area as a large percentage of the respondents were not aware of these beliefs.

Eating pattern and marketing of fish in the villages

Having uncovered that cultural perceptions of fish consumption and fishing were generally positive, it was therefore imperative to assess eating pattern and marketing of fish in the villages. The rationale behind the assessment was twofold. Firstly, if the fishermen were aware of current trends in fish consumption and marketing they would be in a better position to respond to market requirements. Secondly, by being informed about patterns of marketing and consumption of fish in the study area, the researcher would be able to assess whether the marketing strategies of the

fishermen conform to market demands, thus shedding light on future viability and sustainability of small-scale fisheries in the study area.

To assess the level of fish consumption in the sample, the number of respondents who consume fish was determined. 145 (85%) of the respondents in the sample consume fish, while only 25 (15%) did not consume fish. Consumption of fish referred to both marine and freshwater species. The findings have shown that there is a high level of fish consumption in the study area. Consumption of fish is therefore not one of the constraints to the development of small-scale fishing projects in the study area. There is a potential market for freshwater fish in the villages.

It was essential to elicit the reasons from those respondents who do not consume fish in order to determine if they had any detrimental impact on the fishing project. It was imperative to establish whether or not the reasons related to changeable factors. If they do, the fishermen could make an effort to rectify any areas of their operation that were deemed to be problematic. Respondents cited the following reasons and they refer to both marine and freshwater fish.

Figure 3: The relative importance of reasons for not eating fish

Reasons	Responses ranked in order of importance			
	1	2	3	Total
I do not like fish	21	5	1	27
Fish has a bad smell	15	6	4	25
Family members don't like it	6	1	-	7
Traditional beliefs	4	3	-	7
Fish is not good for health	4	2	1	7
Fish is too bony	2	2	3	7
Fish is not available	5	-	-	5
Do not have money to buy	1	3	-	4
I don't know	2	-	-	2

As can be seen from *figure 3* above some of the reasons relate to factors that can be changed, for instance, something can be done about non-availability of fish by ensuring that there is a greater supply of fish to satisfy the demand. Something could also be done about the bad smell of fish, it could be altered by adding value to the product, for instance, certain spices could be added in order to get rid of the smell.

In terms of the eating pattern, the respondents who consume fish were requested to distinguish the type of fish they consume or prefer to consume. The findings revealed that the majority of respondents consume or prefer marine fish in comparison to freshwater fish. This was demonstrated by the fact that 47 (32%) respondents preferred to consume marine fish only, whilst 2 (1%) respondents consume freshwater fish only. However, 96 (67%) preferred to eat both marine and freshwater fish. This clearly demonstrates that marine fish enjoys a bigger share of the market in the study area compared to freshwater fish. Various factors account for this state of affairs, for instance, freshwater fish, at the time of the research, was a relatively new product on the market and therefore unknown to the majority of consumers in the study area. In spite of what has been stated above, the small market share enjoyed by freshwater fish in the villages poses a threat to the sustainability and viability of rural fisheries, unless the fishermen can find alternative markets outside of the study area. The sale of fish outside the study area is essential in order to ensure cash is brought into the local rural economy, which will contribute towards poverty alleviation in the study area.

For the purpose of expanding the market share of freshwater fish, the study investigated outlets where respondents obtained their fish. This will assist the fishermen in distributing their fish if they have knowledge of where it was obtained by the villagers or enter into partnership with owners of outlets and supply them with freshwater fish. Findings from the study revealed that fish is usually obtained from the following outlets contained in the table below.

Table 3: Sellers from whom fish is obtained

Type of fish seller	Number of responses	Percent
Shops in town	115	58
Hawkers in town	29	15
Fishermen	20	10
Local hawkers	34	17

As indicated in the table above, a large percentage of respondents obtain their fish from shops in town. The fish they usually buy in the shops in town is marine fish, usually maasbanker and hake. 17 per cent of the respondents purchase their fish from local hawkers and the fish usually sold by hawkers is fried maasbanker, hake or canned pilchard. Only 10 per cent of the respondents obtain fish from local fishermen, who sell freshwater fish as part of the rural fisheries programme. This clearly shows that freshwater fish needs to be rigorously marketed by the fishermen in order for it to reach the same level as marine fish. Basically, there is a need to make freshwater fish easily available at a competitive price with marine fish that is brought in from outside the study area.

It has already been demonstrated above that marine fish enjoys a bigger share of the market in the study area, however little was known about the amount of money spent on buying it per month. The rationale behind investigating the expenditure on fish was that the amount of money each household spent on buying fish per month would give an indication of the fish component in the diet of the household. Their expenditure would also give an indication of the value they place on fish. In other words if more money is spent on buying fish than on other household consumables per month that would show that fish is the most consumed product and therefore is most valuable. Findings from the study indicate that a large percentage of households in the study area spend in the region of R0-R20 per month when they buy fish. Again a large portion of this expenditure goes towards purchasing marine fish, which is brought into villages in canned or frozen form. As mentioned earlier, this poses a challenge to the fishermen as they need to

increase their share of the market in order to successfully compete with marine fish products. The table below contains the amount of money spent by each household per month on buying fish.

Table 4: Amount spent per month on buying fish

Amount in Rand	Number of responses	Percent
0-20	101	70
21-40	30	21
41-60	8	6
61-80	4	2
81-120	1	1

The study also established the frequency with which the respondents consumed fish. The findings on the time since fish was last eaten shed light on the level of consumption, the demand for fish, and the availability of fish in the villages. 64 (43%) of the respondents, as shown in the table below, reported that they had last consumed fish a month ago. Only 5% of the respondents could not remember the last time they consumed fish.

Most importantly for the fishing projects, this indicates that there is a demand for fish and that people will buy and consume freshwater fish harvested locally, in spite of the fact that freshwater fish enjoys a smaller share of the local market.

Table 5: Time since last consumption of fish

Time	Number of responses	Percent
This week	24	16
1-2 weeks back	35	24
1 month ago	64	43
1 year ago	17	12
Cannot remember	8	5

The table below also reveals an ongoing trend of fish consumption in the villages and it clearly shows that fish is being consumed in the study area. To determine the value placed on fish, both marine and freshwater, by the respondents, the study established which product they would like to be more expensive, meat or fish. 110 (65%) respondents strongly believed that meat should be more expensive than fish. Whilst 41 (24%) respondents were of the view that fish should be more expensive than meat. Lastly 19 (11 %) respondents were not sure whether meat or fish should be more expensive. This question referred to both marine and freshwater fish.

Various reasons for asserting that meat should be more expensive than fish emerged from the study. Among these was the belief that meat has a higher nutritional value than fish and it already has an established market as the majority of people consume it. Other respondents were of the view that fish is already abundantly available therefore it should be less expensive than meat. It was further reasoned that because fish is a highly perishable product compared to meat, it should be cheaper than meat. Lastly, meat is already more expensive than fish and a majority of respondents felt that the status quo should remain. From the above responses, it is indicated that more value was placed on meat than on fish and that could be attributed to the entrenched practice of meat-eating in the study area. The entrenched culture of meat consumption in the study area is further illustrated by the fact that 167 (98%) respondents in the sample consume meat.

On the other hand, the respondents who were of the view that fish should be more expensive than meat offered the following reasons to support their view. Fish, because it is classified as white meat, is better for health in comparison to red meat that causes numerous health hazards, therefore fish should be more expensive. It was also believed that the process of harvesting fish can be very dangerous and fishermen put their lives at risk by engaging in fishing, so fish should be more expensive than meat. In reality, fish is less expensive than meat and there are other factors that determine the price of a commodity such as production, distribution and labour costs, as well as supply and demand. However, comparing meat and fish in terms of pricing served to assess the value placed on fish and meat by the respondents. It has clearly been found that meat is

more valued than fish in the study area. This is largely due to the entrenched culture of meat consumption among the respondents, as already mentioned previously. Freshwater fish also faces competition from meat, which has a long established tradition of being consumed in the area. As stated earlier on, the success of the fishing project partly hinges on increasing the market share locally or marketing their product externally.

The previous discussion on the findings focused mainly on potential consumers of freshwater fish, investigating their perceptions about fish and fishing in general, their eating pattern and the marketing of fish in the villages, current fishing levels, and awareness about fishing and fishing projects. The section that follows discusses the findings from the perspective of the fishermen. It investigates their views about the project they are involved in, their everyday fishing activities and the contribution made by the fishing project to improving their livelihood.

History of involvement in the fishing project

This section explores the history of involvement of the fishermen in the fishing project. It is aimed at investigating when and why they joined the fishing project as well as what motivates them to remain members of the fishing project. As the main objective of conducting the study was to evaluate the contribution made by the fishing project to the livelihood of the fishermen, the history of the fishermen's involvement will be essential in determining the value placed on the fishing projects by the participants.

As a point of departure in terms of the history of involvement, the study determined when the respondents joined the fishing project. From the research findings, it emerged that one respondent joined the fishing project in Pikoli village in 1999, whilst the other four respondents joined the fishing project in 1997. The rural fisheries programme commenced in 1997 and the four respondents from Glenmore village were the pioneers of the fishing project. The latter group has been part of the fishing project for almost six years, which indicates that the project has been worthwhile enough for them to continue being part of it.

Over the six year period, they have benefitted from the fishing project through income generated and supplementing their diet with freshwater fish.

Apart from the date on which they joined the project, the findings also revealed their motivations for joining, which are essential in assessing the impact made on their lives by the small-scale fisheries and to uncover their preconceptions of the fishing project and their expectations. The main reason for joining was the desire to generate income. In a situation of dire poverty and unemployment, as is the case in the study area, the fishing project was seen to provide an opportunity for generating income. It is one of the important aims of the study to assess if the participants have generated any income from their involvement in the projects, in other words to see if their expectation of generating income has been fulfilled. Another motivating factor for joining the fishing project was the respondents' love of fishing, and this was demonstrated by responses such as "I joined because I like fishing and the project gave me an opportunity to fish more". Furthermore, the respondents also stated responses such as "I like fishing and used to fish in the sea, I thought the project would provide us with transport to go and fish in the sea". The fact that the project had provided them with fishing equipment and permits was also mentioned as one of the reasons that motivated the respondents to join. Some of the fishermen mentioned that, prior to joining the project they were using self-made fishing gear and they were catching very little compared to what they are catching with the project gear. The fishing permits, on the other hand, gave them a sense of security as they meant that their fishing was done within legal bounds. Most of their expectations were fulfilled except for the expectation that transport would be provided for purposes of fishing in the coastal towns.

Socio-economic profile of the fishermen

The fishermen who were recruited to take part in the project were mature people. The ages of the respondents were 32, 47, 49, 61 and 62 years. Mature fishermen were recruited because the facilitators believed they would be responsible and commit themselves to making the fishing project a success. Moreover, most of the fishermen have families they have to support and fishing is one of the ways through which they can support their families.

All five respondents in the study were males. The fact that all five fishermen were males reflects the division of labour according to sex in the study area. Certain duties are regarded as being the exclusive domain of either males or females. In this instance, fishing is viewed as a male preserve, while women are allocated other household tasks. Women are involved in other activities associated with fishing, such as cleaning and cooking the fish but not the actual fishing. Sexual division of labour is not a new phenomenon in the study area or in society. It can largely be attributed to the process of socialisation whereby we learn at an early age the behaviour that is expected of males and females within society. Through socialisation we also learn that certain duties are expected to be carried out by either males or females only. In the study area, the activity of fishing is regarded as exclusively the domain of males.

The respondents who took part in the study were all unemployed. As mentioned earlier, the study area is characterised by a high level of unemployment, due largely to limited employment opportunities in the villages. Local employment mainly consists of casual work in the form of fence making, building houses and temporary government initiated development projects. The state pension is the main source of income for a large number of households in the study area. In view of this situation, the involvement of the fishermen in the fishing project serves as a positive contribution towards the creation of self-employment in the study area.

Livelihood Sources

This section is aimed at exploring alternative sources that are used by the respondents and their households for purposes of deriving a livelihood. Findings from the study again confirm that the state pension is the main source of income in the villages as four respondents recorded pension. Having identified the sources of income from which the fishermen derive their livelihood, the study explored further the number of people who are dependent on the fishermen. The objective was to investigate the contribution made by fishing towards sustaining the fishermen and their families. The table below contains sources of income that were reported by the fishermen.

Table 6: Sources of income

Respondent	Source of income	Amount	Comment
1	Pension	R540	His mother is a pensioner
	Selling	R70	A week from selling pineapples
	Fishing	R130	A month from selling fish
2	Remittances	R500	Sent occasionally by his son
	Agriculture	R100	Selling maize during harvest time
	Casual work	R200	He does casual jobs locally
	Remittances	R60	A week
	Fishing	R50	A week from selling fishing
3	Pension	R540	His mother is a pensioner
	Agriculture	R400	During harvest month
	Fishing	R100	A month from selling fish
4	Pension	R540	His mother is a pensioner
	Agriculture	R50	From selling during harvest month
5	Pension	R1080	2 Pensioners

It was believed that income generated from fishing assists not only the fisherman, but other people who are financially dependent on him. All the respondents reported that there were people who were financially dependent on them.

Table 7: Number of fishermen's dependents

Respondent	Number of dependents
1	3
2	6
3	6
4	2
5	4

Livestock was also regarded as an alternative source of income. In the rural villages the number of livestock owned by a household can be used as a yardstick to determine whether the household is poor or well off. Households that own a large number of livestock, especially cattle, is usually regarded as wealthy in comparison to those that own no livestock.. As shown in the table below the fishermen's households own very little livestock. None of their households own cattle and one of the households owns no livestock at all. Chickens are the most commonly owned type of domestic animals. In total, the households own fourteen chickens. Chickens are mainly kept for their meat and eggs that are consumed by the households.

Table 8: Livestock owned

Respondent	Livestock owned	Number	Function
1	Chickens	4	For meat and eggs
2	Goats	14	For sale
	Chickens	10	For meat and eggs
3	None		
4	Pig	1	For sale
5	None		

Goats and pigs are generally sold in order to generate extra income for the household. On the basis of the number of livestock owned by the households a deduction can be drawn. These households can be regarded as worse off or poor compared to those that own larger numbers of livestock. The members of the fishing project have been drawn from these poor households and the fishing project is making a contribution towards poverty alleviation in the villages, however small the contribution may be.

Education and Training of the fishermen

Their level of education further exacerbates their poverty. The study found that four of the respondents could read and write whilst one could neither read nor write. This indicates the low

level of literacy among the respondents. There is generally a low level of literacy in the study area, especially among the older generation. This is indicated by the fact that none of the fishermen possessed a grade 12 qualification, their lowest grade is Sub-B and the highest grade passed by the fishermen is standard 4 (Grade 6). It is difficult for them to find skilled employment without a good education. Their low level of education also confines them to a life of poverty, as education is vital for improving one's standard of living. Despite their low level of education, it has been found that some of the respondents have been equipped with valuable skills and training through various jobs they have engaged in. The table below lists the skills and training received by the respondents.

Table 9: Training received by the fishermen

Respondent	Training/Course attended
1	Training for operating machines and Business Management Course
2	Bricklaying training and Business Management Course
3	Welding and Bricklaying training
4	Business Management Course and Bricklaying training.
5	Business Management Course

Having discovered the training received by the respondents, the researcher tried to determine if these could be put to use for the fishing project. It has been found that due to the high rate of unemployment and lack of development assistance in the study area, most of the skills that are possessed by the fishermen were utilised in the villages. For instance, there were respondents who were trained in brick laying, but they were not using this skill in any way. In view of this, an effort was made to equip the fishermen with a skill that would be useful not only in the fishing project, but in other facets of their daily lives.

In an attempt to empower the fishermen with business skills the RFP sent them for a business management course. The objective was for the fishermen to apply the business skills they acquired in managing the fishing project and other business ventures they might wish to pursue in future. Proper business management skills were regarded as integral to the successful operation of the fishing project. However, one of the potential constraints to sound business management was the low level of education of the fishermen, as they were required to keep records whilst most of them struggled with writing.

Fishing Activities

This section focuses on the activities that the fishermen engage in during their day to day fishing operation. It also looks at the factors that motivate them to fish or not to fish on a particular day. The respondents' perceptions of the fishing projects and their likes and dislikes about the project, were uncovered in this section.

One of the important factors to uncover in the fishing activities of the respondents was the factors that motivate them to decide to fish or not on any particular day. The rationale for attempting to uncover the motivating factors was to identify any constraints to the operation of the fisheries. Various factors emerged from the study as the reasons that make them decide to go fishing or not to go fishing. A need for money was stated as most important motivating factor that compels the respondents to go fishing. When the fishermen fish and sell they are able to generate income. Another reason that was mentioned by the respondents was an order for fish. If there is an order for fish, the fishermen are then obliged to go and fish to be able to satisfy the order. Boredom and an interest in fishing were also cited as factors that serve to motivate some of the respondents to go fishing.

Factors that demotivate the fishermen from fishing included household chores, community meetings, working in the food plots and low fish catches or no catches at all. When the respondents are busy with their everyday household chores, such as working in the garden or

fencing their kraals, they do not go out fishing. In both villages there are regular community meeting days and on those days when the respondents attend meetings they also do not go fishing. Also when it is time to cultivate or harvest the food plots, the respondents spend their time working on the food plots, which means their fishing is temporarily put on hold. However, with the fishing techniques that are used by the fishermen it is possible to fish and carry out all their other chores as well.

The fishermen use nets that can be left in the water overnight or during the day and collected at a later time, they therefore can deploy the nets early in the morning, for instance, and collect them late in the afternoon when they have finished doing all their other chores.

Motivating factors discussed previously were viewed in relation to the fishermen's perception of the fishing project. Their views about whether they thought fishing could one day become a full-time job were elicited from the findings. Such views helped to determine whether the fishermen regard their fishing as just a hobby that they can abandon when an alternative comes along, or they believe that it could one day grow into a full time job. Four respondents answered yes to the question above whereas one respondent answered no. They also elaborated why they thought fishing could or could not become a full-time job. One of the interesting reasons for thinking that fishing could one day become a full-time job was "if people can have employment in the villages they will be able to buy fish and fishing will therefore become a permanent job". Lack of buying power in the villages has been identified as one of the major constraints to the development of the fishing project in the study area. This is largely due to limited cash in the villages. Another reason that is related to the above is that "when I sell I am able to make good money, and if I can sell consistently, fishing could become a full-time job". This reason alludes to the fact that their sales have not been consistent which may be due to the previous reason. The reason given by the respondent who felt that fishing could not become a full-time job was also along similar lines as the above reasons. The respondent reasoned that "there is no market for freshwater fish. If there was, our fishing could become a regular job".

All the reasons point to the fact that marketing their product is a major constraint in the villages and it has the potential to hamper the fishing projects. In an attempt to overcome the fish marketing constraint in the villages, fishermen in one of the villages came up with an innovative idea that proved to be successful. The fishermen from Pikoli village decided to transport and sell their fish to passing motorists at the main road between Grahamstown and Peddie. This idea worked very well and served to bring income into the economy of the study area.

Perceived contribution made by the fishing project

This section provides a discussion on the perceptions of the fishermen about the contribution made by the fishing project to improving their livelihoods. Their perceptions, as revealed from the study, will assist in establishing the efficacy of the project in alleviating poverty in the study area. In other words, if no contribution has been made by the project in the lives of the fishermen it would be futile to advocate the continuation of the fishing project in the study area.

Estimates by the respondents of the total amount of income they have generated since the inception of the fishing project served to uncover their perceptions of the contribution made by the fishing project. Three respondents could estimate the amount of money they have made since the projects started, whilst two respondents answered that they could not estimate the money they have generated. Respondent 1 gave the highest estimate compared to other respondents. This could be attributed to the fact that this particular respondent was a member of the group that sells their fish on the main road between Peddie and Grahamstown. The table below contains the estimated amounts of income generated from the project.

Table 10: Estimates of income generated

Respondent	Yes/No	Amount
1	Y	R1 850
2	N	
3	Y	R 800
4	N	
5	Y	R100

However, it needs to be borne in mind that amounts are estimates and not the exact figures. Some of the amounts seem to be far less in relation to the duration of time the respondents have been members of the projects. For instance, respondent 5 in the table below estimated the amount he made to be R100 over a period of four years. Perhaps the marketing constraints that were mentioned earlier are partly responsible for the low estimates made by the respondents. At the beginning of the fishing project the respondents received training in keeping records of the income they generated and how to open a bank account to save their money. Records were kept, but were usually inaccurate. This was largely due to the fact that most of the respondents are semi-literate.

In personal communication with the fishermen, they reported a good income they were making when selling their fish on the main road. What is important is that the respondents reported an income they were making, however meager their estimate may be. In the study area, any income is very valuable due to the high rate of unemployment and heavy reliance on state pensions. Basically, one can come to the conclusion that the fishing project is making some form of contribution to the livelihood of the fishermen. Through the project they are at least able to generate some income and provide fish as food for their families.

Comparing the income they generated from the project to what they could potentially earn from paid employment if they were offered it also served to ascertain the contribution of the fishing project to the welfare of the fishermen. The findings from the study uncovered the respondents' views about full-time paid employment in relation to their fishing. Four of the respondents answered that they would take a three-month casual job if they were offered it, and one said he would not take a casual job if they were offered it. The reasons given by the four respondents for saying that they would take a casual job included these, "because I will work during the week and fish on weekends or during public holidays. I have a family and a job with a guaranteed wages will assist them" The reason that employment provides a guaranteed income was cited by all four respondents. The respondents felt that a three-month job would not interfere with their fishing because they would be able to fish on weekends and during their spare time.

The respondent who answered that he would not take a casual job reasoned that he was committed to the fishing project and would not want to leave it. A shortcoming of this response might have been the fact that the researcher who conducted the study was intimately involved in establishing the fishing project and therefore the respondent might have been reluctant to give him an answer that indicated his willingness to leave the project for paid employment.

This indicates that there is more value placed on wage employment than on self-employment generally in the study area. This is partly due to the fact that with wage employment one has a guaranteed income and easy access to credit facilities whereas it is the opposite with self-employment. And also formal employment affords one not only income. It is also a source of social status. The question posed above has to be viewed within this context.

Evaluation of the fishing project

The study also afforded the fishermen an opportunity to evaluate the fishing project. Their evaluation of the project was useful in highlighting the value placed on it by the fishermen. The evaluation was done through stating their likes and dislikes about the fishing project. The findings on the fishermen's likes and dislikes enabled the researcher to assess their perceptions of the project and whether they regard the fishing project as worthwhile.

The findings revealed the likes and dislikes about the fishing project. What they liked the most about the project was the provision of equipment and continuous monitoring that was done by the RFP. They also mentioned that they liked the project because it gave them a chance to learn new skills such as business management. They also liked the project because it enabled the respondents to fish legally as it provided fishing permits for the fishermen. Finally, some respondents said they liked everything about the project and they did not specify any particular aspect of the project they liked.

Only two dislikes about the project emerged from findings. Firstly, they did not like the RFP's policy of non-replacement of worn-out fishing gear. The fishermen were encouraged to save

money from their income for the purpose of investing in new equipment or repairing their worn-out gear. The rationale behind the policy was to inculcate a sense of ownership and self-sufficiency in the fishermen that would enable them to continue with the fishing project long after the RFP had withdrawn its assistance.

Secondly, the respondents did not like walking a long distance to the dam and they felt that the RFP should provide them with transport. The vehicle issue always cropped up at meetings with the fishermen. They needed to own a vehicle for transporting their fish to the market. However, from an analysis of the pros and cons of owning a vehicle, they realised that it would be too costly for them to maintain a vehicle with the income they were generating at the time, so they unanimously agreed that owning a vehicle was not their first priority. Furthermore, a collectively owned vehicle might have been a source of conflict among the fishermen.

Having voiced their likes and dislikes, the respondents suggested ways in which they thought the project could be improved. Again transport was mentioned, three respondents were of the view that transport was needed to take them to the dam and to markets to sell their fish. Another way in which the project could be improved was by providing larger gill nets that would enable them to catch larger fish. Surveys were conducted in the dams and river by biological researchers prior to implementing the fisheries and the size of the gill nets was determined on the basis of their findings. The size of the nets was also meant to ensure the sustainability of the fishing project because the nets were designed to catch only a certain size fish and avoid breeding fish and juveniles.

One of the fishermen felt that the project could be improved by providing coveralls for working. The fishermen were using their old clothes for working in the fishing project and they felt that having coveralls with the name of the project on them would give some form of visibility and recognition to the project in the community.

Finally, the project was evaluated by means of a ranking exercise. On a scale of 1-5, 1 being very poor and 5 being very good, the respondents ranked the fishing project. One respondent ranked the project as poor, one ranked it as very good and three respondents ranked it as good. Again the ranking exercise provided an opportunity for assessing how the respondents viewed the project and the value they placed on it. If the project was ranked as very poor that would convey a message that it was worthless and not valued by its intended beneficiaries. However, in this instance, four of the respondents ranked the project as good which indicates that it has made a positive contribution to their livelihood. Overall, the fishing project was evaluated positively and the respondents suggested no major improvements to the project. It can therefore be concluded that the fishermen generally perceive the project in a positive light.

4.4 Conclusion

From the discussion of the data it can be concluded that the objectives of the study have been achieved. The first questionnaire survey was aimed at determining the demand for freshwater fish in the study area. Findings from the analysis of the data revealed that a large number of the villagers do consume fish, however they mostly consume marine fish that they obtain from local hawkers and shops in town. One of the main reasons they cited for not buying freshwater fish was that the fishermen had never approached them to sell their fish. This clearly indicates that the fishermen need to do more work on marketing themselves and their product in order to raise the demand for freshwater fish in the study area.

The questionnaire also attempted to ascertain the perceptions held by the respondents with regard to fishing and fish consumption. To achieve this, a number of questions were included in the research instrument. Findings from the research revealed the perceptions held by villagers towards fishing and fish consumption. For instance, 82% of the respondents were of the view that consuming fish is good for health and 94% regarded fishing in the dams and river as a good and acceptable practice. It was also confirmed that fishing in the dams and river has been done in the villages in the past, the respondents had reportedly seen fishing activity in the villages. Prior to the study, there was a notion that the villagers had negative cultural perceptions of fishing and fish consumption due to their belief in ancestors who dwell under water. However, findings from the study present a different scenario, as 71% of the respondents were not aware of any negative cultural beliefs regarding fishing and fish consumption. It has basically been shown that perceptions of fishing and fish consumption are generally positive in the study area.

The study also sought to assess the level of awareness about freshwater fish and fishing projects in the villages. A large percentage of the respondents were aware of the existence of freshwater fish in the river and dams. However, the level of awareness about the small-scale fishing project was very low as only 17% of the respondents were aware of a fishing project in the study area. The low level of awareness of the fishing project among the respondents can be regarded as a constraint on achieving higher fish sales.

This can be linked to an assertion made earlier that the respondents obtain their fish in town because the fishermen have never approached them to sell their fish.

Identifying constraints to freshwater fish consumption and assessing current consumption patterns was also part of the study. With regard to constraints on fish consumption, those respondents who do not consume fish stated a number of reasons why they do not, such as 'I do not like fish or freshwater fish has a bad smell'. These reasons could be regarded as constraints on the consumption of fish as they prohibit people from consuming fish. In terms of current consumption patterns, the findings reveal that the majority of respondents consume mostly marine fish, such as maasbanker, hake and pilchard. 48% of respondents prefer to buy already fried marine fish from hawkers in town and locally.

Finally, the study investigated the contribution made by small-scale fishing projects in improving the livelihood of the fishermen and their households. The findings from the research indicate that fishing projects do contribute towards improving the plight of the fishermen, however, fishing is only one of the strategies used by the fishermen in securing a livelihood. It appeared from the research that fishermen augment the income they derive from other sources such as state pension, agriculture, livestock and selling with the income from fishing. Fishing contributes to the household as a source of valuable protein, which also improves the health of the fisherman's family. A conclusion can therefore be drawn that a contribution, however small it may be, has been made by the fishing project in alleviating poverty and improving the life conditions of the fishermen.

Chapter 5: Conclusion

This thesis set out to investigate the contribution made by small-scale rural fisheries towards poverty alleviation in the villages of Glenmore and Pikoli in the former Ciskei homeland. Most importantly, the study also sought to assess the viability and sustainability of the fisheries in order to make informed recommendations about their replication elsewhere. To achieve the above objectives, two questionnaire surveys were conducted in the study area and from the research findings deductions were made. On the basis of the research findings, it has been deduced that small-scale fisheries do make a contribution towards poverty alleviation through the income generated by the fishermen and the fish used to supplement the diet of the villagers. Basically, it has been demonstrated that freshwater fisheries do contribute towards the improvement of the livelihood in the study area, however meager the contribution may be. It can also be concluded that there are no major constraints to the sustainability and viability of the rural fisheries. However, constraints to the operation of the fishing project have been identified during the course of the study and they will be discussed in the following section.

An effort has been made in previous chapters to situate the study within a broad theoretical framework on sustainable development and natural resource use and management. In terms of the basic provision of sustainable development, it encompasses paths of progress which meet the needs and aspirations of the present generation without compromising the ability of future generations to meet their needs. It has been shown that small-scale rural fisheries comply with the central tenets of sustainable development and natural resource use. The organisation of the rural fisheries, in terms of their mode of operation, the equipment used, and management capacity, conforms to the prerequisites of sustainable development. It has also been shown that the fisheries also comply with the tenets of sustainable natural resource use. The basic tenets, which stipulate that there have to be incentives to users in order for them to govern and manage natural resources; there has to be an effective combination of scientific and indigenous local knowledge and that an environment that will be conducive for management institutions to flourish is a necessary condition for successful natural resource use and management, have been found to be fulfilled in the rural fisheries case study.

The contribution made by artisanal fisheries or small-scale inland fisheries in the African continent, in particular in southern Africa, has been clearly documented in this thesis. A case in point has been the case studies of inland fisheries in Malawi and Zimbabwe. It has been demonstrated that from the operation of artisanal fisheries in the two countries lessons could be drawn, which could possibly be used in South Africa. One of the major lessons to be drawn from the Malawian case study is the importance of inland fisheries in their rural economy and the contribution made in improving rural livelihoods in Malawi. Governments in both Malawi and Zimbabwe are heavily involved in the inland fisheries sector, providing the necessary support and legislative framework aimed at regulating rural fisheries.

It has been taken into consideration that lessons cannot just be transposed into the South African context without prior consideration of the differences between the countries. In Malawi, for instance, there is a narrow industrial base which compels people to rely heavily on agriculture and inland fisheries, hence there is a thriving inland fisheries sector. In South Africa, on the other hand, there is a high level of proletarianisation and heavy reliance on social security in the form of the state pension, especially in the rural areas. Even though there is a marked decline of agriculture in the rural areas, inland fisheries are still not regarded as a primary source of rural livelihoods, as rural residents derive livelihoods from multiple sources. In spite of the fact that small-scale rural fisheries cannot become the sole source of income for rural communities, they can play a role as a secondary form of activity by augmenting household earnings and securing food supply. Furthermore inland fisheries are a relatively new phenomenon in the study area. The inhabitants of the villages are not known to have undertaken fishing extensively in the past. However, they are gradually becoming receptive and accustomed to the new practice of fishing and fish consumption. The chapter also served to highlight the important role that fisheries play in Malawi and Zimbabwe, as well the role they could potentially play in South Africa if offered the necessary support.

Chapter four provided a discussion of the research findings from the surveys that were conducted in the study area. Findings from the questionnaire surveys served to provide responses to the

research question which was aimed at establishing whether small-scale fisheries are a viable option for rural development and improving rural livelihoods. The findings also provided feedback on the progress of the rural fisheries and they clearly indicate that the study area has capacity to harvest and market freshwater fish with the view to generating income and improving livelihoods. On the basis of the findings, it has been concluded that fishing serves as a viable vehicle for promoting rural development and creating rural livelihoods in the study area. They cannot be used as a sole vehicle for achieving rural development, but they can be used to complement other efforts aimed at bettering the livelihoods of rural residents.

Constraints and limitations of the rural fisheries

Numerous constraints to the operation of the freshwater fisheries became evident from the findings of the study. One of these constraints was the lack of a strong local market, which compels the fishermen to seek external markets. Various factors account for this state of affairs. For instance, at the time of conducting the research, freshwater fish was new on the market in comparison with marine fish. This partly accounts for the low fish sales in the study area. This has also been exacerbated by the fact that in the rural areas there is a very high rate of unemployment which leads to limited cash resources. The fishermen are often compelled to sell on credit and have difficulty in recouping their cash later. Efforts have been made to eradicate the marketing constraints and these included supplying a facility for freezing purposes and empowering the fishermen with effective business management and marketing skills. The low sales limit the development of rural fisheries in the study area, which makes it imperative for the participants in the project to find alternative markets for their product.

The quality of the product is another factor that is responsible for the low sales in the study area. The quality of freshwater fish is low in comparison to marine fish. Owing to the above, freshwater fish does not enjoy a big demand from the rural residents. From the survey, reasons such as that freshwater fish has a bad smell or it is too bony were mentioned for not buying it and this bears testimony to its poor quality. Marine fish was the preferred choice over freshwater and this could be attributed mainly to the high quality of the product and the history of its

consumption in the study area. However, efforts could be made to add value to freshwater fish and make it a high quality product. For instance, when it is prepared, the fishermen could add spices to conceal the bad smell or try to debone the fish before selling it.

Prior to establishing the fisheries, one of the anticipated constraints that might inhibit the projects was traditional beliefs about river ancestors. It is common knowledge that Xhosa people still adhere to beliefs about the veneration of ancestors and they also believe that some of the ancestors dwell under water. It is also believed that all under water creatures, including fish, are a preserve of the ancestors. Fishing and the consumption of fish is therefore prohibited in terms of this belief. A survey was conducted to verify the validity of this traditional belief and it revealed that there were people who still adhered to the traditional belief, however the majority of respondents were aware of the belief but, they did not subscribe to it.

Apart from traditional beliefs, limited cash locally also constrains the operation of small-scale rural fisheries in the study area. The study area is characterised by a high unemployment rate and a large number of households rely on the state pension as their main source of income. This means there is very little disposable income that could be spent on purchasing freshwater fish. For the fishing project to continue existing and for the participants to generate an income, they have to sell their product locally. In view of this constraint, it becomes imperative for the fishermen to make sales outside of the study area in order to ensure income generation and the continued operation of the fishing project.

Lack of support can also be regarded as a limitation to the fishing project. During the four year funded phase of the project, the RFP facilitators provided support to the fishermen. Support was provided through continuous monitoring on a monthly basis. With the end of the funded phase, support for the fishermen also came to an end. The provision of support and advice to the fishermen could be done through extension services. Inland fisheries extension officers could be employed by Marine Coastal Management to provide the necessary support and advice to fishermen in the villages.

Inland fisheries in South Africa have a very low profile as more value and attention is focused on the lucrative marine fisheries. Government legislation places more emphasis on marine fisheries and very little is mentioned about freshwater fisheries. Recently, in the Eastern Cape, Marine and Coastal Management (MCM) appointed four fisheries extension officers to assist subsistence fishermen in coastal towns. The extension officers will establish and train local management committees that will recommend who should receive subsistence permits from Marine and Coastal Management. Basically, this is a manifestation of bias on the part of the government in favour of marine fisheries, as more support is accorded to marine fisheries than inland fisheries. Therefore, one of the recommendations of this study would be to give more support to inland fisheries, in the form of extension services, fishing equipment, and funding. This is necessary as it may take a number of years before the rural fisheries can reach a point where they can operate independently and entirely on their own.

A multi-disciplinary approach to rural fisheries development is essential. Such an approach should embrace the biological as well as the social and economic aspects of rural fisheries. An approach that focuses on one aspect will not adequately meet the requirements of rural fisheries as the two components complement each other. In conjunction with the above, it is suggested that skills, indigenous technology and infrastructure that are already available locally should be utilised as much as possible, instead of high level technology that is too costly to maintain.

In conclusion, the study has achieved the objectives it set out to achieve and these form the premise which supports the deduction that small-scale rural fisheries are contributing towards poverty alleviation and rural development in the study area. The small-scale rural fisheries could serve as building blocks for further work in developing inland fisheries in the Eastern Cape and South Africa as a whole.

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APPENDICES

APPENDIX 1

**MARKET SURVEY OF POTENTIAL CONSUMERS OF FRESHWATER FISH
IN GLENMORE, NDWAYANA, NDLAMBE AND PIKOLI VILLAGES, LOWER
FISH RIVER VALLEY, EASTERN CAPE.**

Questionnaire number:.....

Administrator.....

Area.....

Date

PERSONAL AND SOCIO-ECONOMIC STATUS

1. What is the gender of the respondent?

Gender	<input type="text"/>
--------	----------------------

Codes

<i>Male</i>	<i>1</i>
<i>Female</i>	<i>2</i>

2. What is your age (or date of birth) ?

.....

3. How many people live in your household?

Household size	<input type="text"/>
----------------	----------------------

4. Are you employed?

Codes

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

5. If not how does your household gain an income?
 [Please rank in terms of monetary value]

Household Income Sources

Source 1	
Source 2	
Source 3	

Codes

<i>Pensions/Grants</i>	<i>Remittances</i>	<i>Sales</i>	<i>Other</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>

Other.....

6. What is the average monthly income in your household?

Monthly income	
----------------	--

Codes

<i>0 - R100</i>	<i>R101 - R300</i>	<i>R301 - R500</i>	<i>R501 - R700</i>	<i>R701 - R800</i>	<i>R801 - R900</i>	<i>R901 - R1000</i>	<i>> R1000</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>

AWARENESS

7. Does anybody in your household fish?

Codes

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

8. If YES, can you tell us their sex and age

Sex	
Age	

Codes

<i>Male</i>	<i>1</i>
<i>Female</i>	<i>2</i>

9. Do you know that there is fish in the Fish (Inxuba) River?

Codes

Yes	1
No	2

10. If YES, how do you know this?

How do you know	<input type="checkbox"/>
-----------------	--------------------------

Codes

<i>Heard about it</i>	<i>Seen people catching</i>	<i>Used to fish</i>	<i>Children catch it</i>	<i>Bought from fishermen</i>
1	2	3	4	5

Other.....

11. Do you know that there are fishermen from this community who fish in the river and are selling in the village?

Codes

Yes	1
No	2

12. If YES, have you ever been approached by these fishermen selling fish?

Codes

Yes	1
No	2

13. If YES, have you ever bought fish from these fishermen?

Codes

Yes	1
No	2

14. If NO, why not?

.....

15. If YES, how did you pay?

Codes

<i>Cash</i>	<i>Exchanged for other goods</i>	<i>Credit</i>	<i>Other</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>

Other.....

PERCEPTIONS

16. Do you think that eating fish is good for your health?

Codes

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

17. Do you think it is acceptable to catch fish in the rivers and dams ?

Codes

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

18. What is your reason for saying this?

.....

.....

.....

19. Do you notice a change in culture towards fishing in your community?

Codes

<i>Yes</i>	<i>1</i>
<i>No</i>	<i>2</i>

20. If YES, please explain.

.....

.....

.....

EATING PATTERN, DEMAND, AND PRICING

21. Do you eat fish?

Codes

Yes	1
No	2

22. If NO, why do you not eat fish?

[Please rank in order of importance]

Reason

Reason 1	
Reason 2	
Reason 3	

Codes

Can't afford	Not available	Don't like it	Traditional beliefs	Others in family don't like	Too bony	Bad smell	Bad for health	Don't know
1	2	3	4	5	6	7	8	9

Other.....

23. If YES, where do you get fish from?

Source of fish	
----------------	--

Codes

Town	Local shops	Fishermen	Other
1	2	3	4

Other.....

24. What kind of fish do you buy the most?

Kind of fish	
--------------	--

Codes

<i>Marine fish</i>	<i>Freshwater fish</i>
1	2

25. What is your favorite kind of fish?

Favorite fish	
---------------	--

Codes

<i>Mausbanker</i>	<i>Flake</i>	<i>Catfish</i>	<i>Palang</i>	<i>Carp</i>	<i>Moggel</i>	<i>Other</i>
1	2	3	4	5	6	7

Other

26. In which form do you like to buy your fish?

Preferred form	
----------------	--

Codes

<i>Fresh</i>	<i>Frozen</i>	<i>Canned</i>	<i>Fried</i>	<i>Cooked</i>	<i>Dried</i>	<i>Smoked</i>	<i>Other</i>
1	2	3	4	5	6	7	8

27. How much do you pay for fish?

.....

28. When last did you eat fish?

When	
------	--

Codes

<i>1-2 weeks ago</i>	<i>Last month</i>	<i>Last year</i>	<i>Don't know</i>
1	2	3	4

29. Which do you think should be more expensive - fish or meat?

Answer	
--------	--

Codes

<i>Fish</i>	1
<i>Meat</i>	2

30. What is your reason for saying this?

.....
.....

31. Where do you buy your meat from?

Source of meat	
----------------	--

Codes

<i>Town</i>	<i>Local shops</i>	<i>Hawkers</i>	<i>Other</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>

Other.....

32. How much do you pay for meat?

.....

Thank you for your time.

APPENDIX 2

**SOCIO-ECONOMIC QUESTIONNAIRE SURVEY FOR FISHERMEN
INVOLVED IN SMALL-SCALE FISHERIES DEVELOPMENT IN THE FISH
RIVER VALLEY, EASTERN CAPE.**

Questionnaire number.....

Date.....

Place.....

Administrator.....

SECTION A: History of involvement in the fishing project

1. Age

--

2. Gender

Male	Female
1	2

3. When did you become a member of the fishing project?

Date	
-------------	--

4. Why did you join the fishing project?

.....

.....

.....

.....

.....

.....

5. Are you still a member of the fishing project?

Yes	No
1	2

SECTION B: Socio-economic profile of the respondents

6. Are you employed?

Yes	No
1	2

7. How does your household generate a livelihood?

.....
.....
.....
.....

8. How many people are financially dependent on you?

Number	
--------	--

9. Can you read and write?

Yes	No
1	2

10. What level of schooling have you reached?

Standard/Grade	
----------------	--

11. Have you attended any training courses?

Course/Training	Comments

SECTION C: Fishing activities of the fishermen

12. How many days a month do you fish?

Number of days	
-----------------------	--

13. What are the factors that make you decide to fish or not on a particular day?

Factors	Comments

14. How many fish do you need to catch before you decide to sell?

Number of fish	
-----------------------	--

15. Do you think that your fishing activity could one day become a full time job?

Yes	No
1	2

And why?

.....

.....

.....

.....

16. How much fish do you need to catch per day to make it worthwhile to continue fishing?

Per Week	Per Month

And why?

.....

.....

17. Can you estimate the total amount of money you have made from this project?

Yes	No
1	2

If yes, how much?

Cash	Credit

18. If you were offered a 3-month casual job, other than this fishing project, would you take it?

Yes	No
1	2

Reasons?

.....
.....
.....
.....

19. What do you like about the fishing project? And why?

.....
.....
.....
.....

20. What do you dislike about the fishing project? And why?

.....
.....
.....
.....

21. In what way can the fishing project be improved?

.....
.....
.....
.....

22. How would you judge the project?

Very poor	Poor	Average	Good	Very good
1	2	3	4	

SECTION D: Sources of household income

23. What are the sources of income in your household which bring in money?

Source of income	Amount	Comment
Pension		
Grants		
Remittance		
Job		
Hawking		
Livestock sales		
Agriculture		
Fishing		
Other		

24. Livestock owned within household

Livestock	Number	Function / reason for keeping
Cows		
Donkeys		
Goats		
Sheep		
Pigs		
Chickens		
Ducks / geese		
Other		

Thank you for your time.

