Assessing community access, utilisation and management of fisheries resources at uMthwalume, KwaZulu-Natal.

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Abstract

Coastal communities are disadvantaged, and struggle to access fishery resources due to legislative requirements. This is compounded by overfishing from those possessing permits, and those without (legal and illegal fishers). This reduces catch, and threatens ecosystems and the socio-economic status of the adjacent communities. In KwaZulu-Natal (KZN), the uMthwalume community is an economically vulnerable community that depends on fishery for their livelihood. Legal requirements, however, pose obstacles to access and overfishing decreases the local stock of marine and freshwater fish, leaving community members socio-economically vulnerable.

The aim of this study is to assess the community‟s access, utilisation and management of the fisheries resources in uMthwalume, KZN. Methodology: Data was collected by distributing 80 questionnaires to the residents of the coastal community of uMthwalume. A further 16 informant interviews were carried out and 3 focus group discussions were conducted. The data that was collected was then transcribed and the Statistical Package for the Social Sciences (SPSS) was used as a tool for analysis.

The results revealed that twenty eight percent of the respondents stated that the fisheries resources were always accessible. Seventy two percent of the respondents reported that they could not always gain access to the resources. Fifty six percent of the respondents indicated that they were unsatisfied with the current permit system, particularly their daily quota. These respondents added that they found that the daily quota hardly sustained their livelihoods, especially since the majority of them were unemployed. Fourty percent of the respondents indicated that they were satisfied with the current permit system; whilst four percent communicated that they were unsure. About sixty eight percent of the respondents communicated that government social grants comprised the majority of their income, and that this was supplemented by income generated from the sale of fish. As a result, the respondents perceived the resource management as being ineffective and oppressive.

There seemed to be great tension brewing between one of the stakeholders Ezemvelo KwaZulu-Natal Wildlife (EKZNW), responsible for the management of the fisheries resources, and the community members. The difficult relationship between the EKZNW and the community has been put under more strain in the past year, as result of a shooting that took place, when an EKZNW patrol officer shot a fisher from the community.

It is recommended that there be a thorough analysis of possible alternative livelihood activities that the community of uMthwalume could successfully engage in, so as to improve their quality of living. There is a particular need for an open dialogue between the different stakeholders, where the uMthwalume community can feel they are fully integrated in decision making process.

Key words: fisheries management, subsistence fisheries, small-scale fisheries, co-management.

Table of Contents

List of Figures

List of Tables

Abbreviations

BEE	Black Economic Empowerment
BEEE	Broad Based Black Economic Empowerment
CL	Coastal Links
DAFF	Department of Agriculture, Forestry and Fisheries
DEAT	Department of Environmental Affairs and Tourism
DFID	Department for International Development
DOE	Department of Energy
DTI	Department of Trade and Industry
DW	Developmental Workers
EBFM	Ecological Based Fisheries Management Approach
EBM	Ecosystem Based Management
EBA	Ecosystem Based Approach
EC	Easten Cape
ECRL	East Coast Rock Lobster
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
EPAP	Ecosystem Principles Advisory Panel
FCO	Fisheries Control Officer
HIV	Human Immunodeficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
DOA	Department of Agriculture
GDP	Gross Domestic Product
IDP	Integrated Development Plans

KDNC	KwaZulu Department of Nature Conservation
RDP	Reconstruction Development Program
KZN	KwaZulu-Natal
MLRA	Marine Living Resource Act
MPA	Marine Protected Area
ITQ	Individual Transferrable Quota
GEAR	Growth Employment and Redistribution
NGO	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
FAO	Food and Agriculture Organisation of the United Nations
ORI	Oceanographic Research Institute
RSA	Republic of South Africa
SASSA	South African Social Security Agency
SEDA	Small Enterprise Development Agency
SFTG	Subsistence Fisheries Task Group
SLA	Sustainable Livelihood Approach
MDT	Masifundise Development Trust
SLF	Sustainable Livelihood Framework
RF	Rockefeller Foundation
SPSS	Statistical Package for the Social Sciences
SSA	Statistic South Africa
SSFU	Small-Scale Fisheries Unit
TAE	Total Allowable Effort
UN	United Nations
WC	Western Cape

WCED	World Commission on Environment and Development

Chapter One: Introduction

1.1 Background of the study

Coastal communities are characterised as the poor segment of society who depend mainly on fisheries resources to sustain their livelihoods. Fisheries resources are common ocean resources which are accessible to all (Allison and Ellis, 2001; Jamie and Betchel, 2010). In addition, fishing is no longer considered as a „fall back activity"; community members are generally poverty-stricken, unemployed, and lack alternative livelihood options (Teh et al., 2008). The open access nature of fisheries has often resulted in the over-exploitation of fisheries, poverty and marginalisation (Nandankumar, 2007), and when fisheries are open to everyone, the quantities caught depend on the sophistication of the fishing tools used. Those who possess more advanced fishing tools catch more fish, in a shorter period of time. Evidently, possessing more technologically advanced equipment requires deep pockets, and the community members are financially disadvantaged in that regard. The result is that the community members have to use basic fishing tools with which to catch the limited fish stocks remaining.

Some of the terms and conditions for access to the fisheries resources have further marginalised the members of coastal communities, such as those of uMthwalume. For example, although commercial fishing is open to everyone, it is only really the fishers with access to financial capital, cutting-edge fishing equipment such as trawls, boats and dredges, and business skills that are able to compete financially. Given that coastal communities are poverty-stricken and lack advanced skills, the business opportunities associated with commercial fishing are seized by a select, well-off few.

KwaZulu-Natal"s issues of inequality, over-exploitation of a range natural resources and marginalisation of previously disadvantaged groups are further exacerbated by the past government"s fisheries policies. Ponte (2008, p.287) supports the above statement by stating that "the history of hake trawl fishery under Apartheid is one of the systematic exclusion of blacks from access to fishing quotas, licences and harbours". This period was dominated by the hake fishery industry. During the introduction of the Total Allowable Catch (TAC), ninety percent of the TAC was controlled by three white-owned companies in a country where whites were a minority (Atkison and Sink, 2008). The dawn of democracy in 1994

changed very little. Glavovic and Boonzaier (2007) add that a significant percentage of KwaZulu-Natal‟s coastal communities still live in poverty as result of the Apartheid legacy. Rural households generally cultivate their private land to sustain their livelihoods. Due to land dispossession and poor quality land, these communities now have small unproductive plots of land (van der Burgt, 2012). Limited and low potential land mean low yields for consumption in the household and limited economic returns on the sale of harvest (Tubtim, 2006). As a result, most rural coastal communities also depend on fisheries resources.

The Marine Living Resource Act (MLRA) was passed in 1998 with the aim of resolving the issues of access in the fisheries sector. This Act strives to make marine resources accessible to South African citizens in a fair and equitable manner (MLRA, 1998). The policy formulation process is long and tedious. It goes through a number of phases such as: The identification of the problem, the formulation of strategies, getting the necessary stakeholders involved, testing, monitoring and evaluation of the policy, and then finally the implementing of the policy. All these policy formulation steps might take years. As a result, a long period of time elapses before the impacts of a policy are felt at the community level (Tubtim, 2006). Consequently, one often finds that communities criticise the government agencies of inefficacy in the execution of their tasks. After consulting the communities, the agencies spend a significant percentage of time analysing and synthesising the opinions and views before they present their plan of action. Consequently, community members often think that participating in the policy formulation process is a futile exercise, because it takes a long time before the tangibles are realised. They become impatient and intolerant. Dukeshire and Thurlow (2002) suggest that communities be involved in the implementation of policies from beginning to end, through the holding of ongoing workshops and meetings. This would keep the community up to date with every step of the policy formulation, and remind them that their issues are a priority. Moreover, if people are involved in the process, they get a better understanding of the policy. If there are areas that require revisiting before the final draft, then they are well positioned to point them out (Gezelius, 2008).

In addition, the fisheries resources are to be utilised in a sustainable manner to allow “future generations to enjoy the same benefits that are enjoyed by the current generation”, states Flint (2013, p.28). One of the mandates of the MLRA is to correct the skewed distribution of the fisheries resources, but the fishers still face challenges accessing these resources. Subsistence fishers are unhappy about some of the provisions of the above legislation, including the

restrictions concerning the bag limits for different fish species and the stipulation that they have to consume the majority of their catch and can only sell the remainder (Stern, 2012). These constraints prevent fishers who depend on fishing from earning a better income from the sales of the catches. The income generated from the sale is said to be insufficient to meet the basic needs of the fishers‟ households. Members of a family engage in different fishing activities, depending on what is as acceptable to society (Nunan, 2006). Consequently, Te Lintelo (2008, p.12) reports that "men are generally involved in the catching, processing and trading of the fish, while the women are responsible for the support activities such as making the fishing gear, and processing, handling and sorting the fish". As such, each member of the family has a specific role to play, and these roles cannot easily be swapped or reversed. Matthews, et al. (2012) notes, that men generally make more profit than women, and that the needs of the household generally exceed the income generated.

According to Hauck, et al. (2002), fisheries managers have to contend with conflicts between the users which arise as a result of unequal access to these resources. Isaacs (2006) concurs with Hauck, et al. (2002), and explains that some of the conflicts emanate from the very policies which are meant to address the issues of inequality and marginalisation. Stern (2012) contends that the stringent measures incorporated in these policies, namely, the bag limits and the steep costs of the permits required for fishing, while designed to improve access to the resources, actually make it very difficult for the community fisher. Stern (2012, p.126) is actually quoted as saying that "existing environmental policies restrict such fishers‟ access to marine resource".

This status quo demonstrates that the coastal communities remain locked in poverty, with high unemployment rates, a lack of infrastructural development, illegal fishing, and a rapidly growing population rate (Glavovic and Boonzaier, 2007). The communities thus remain vulnerable and exposed to food insecurity, and there is therefore a need for a holistic fisheries management approach that can deal with the gaps in the fisheries policies**.**

1.2 Motivation

UMthwalume is one of those communities that have a tangible history in using fisheries resources as part of their livelihood activities. Apartheid legislation and past fisheries management strategies and environmental regulations were strategically used to deny them access to fisheries resources, and thus the residents resorted to „illegal exploitation" of the fisheries resources. Nature conservation authorities were tasked with enforcing compliance with the fisheries management legislation. The uMthwalume residents" compliance with the laws that regulated their livelihoods meant that many households were denied nutritious food and the economic benefits derived from sales of the catch. Our democracy has not produced a workable and coherent system that protects fishers from the ruthless economic consequences of policy decisions. The poor segment of the community is still trying to gain reasonable access to the fisheries resources in their locality. The absence of a feasible system increases the perceived need among the fishers for direct influence on decisions regarding their resource harvesting rights (Brown and Neku, 2005). This study interrogates the new set of challenges the community faces and the effectiveness of management strategies to ensure that as much as the conservation of fisheries resources are adhered to, and that the uMthwalume community members also enjoy the benefits of the natural resources in their area.

1.3.1 Aim

This study is aimed at assessing access, utilisation and management of fisheries resources in uMthwalume community.

1.3.2 Objectives

- To investigate accessibility to the fisheries resources at uMthwalume community;
- To examine the effectiveness of management of the fisheries resources in uMthwalume area;
- To determine how the resources harvested contribute to the livelihoods in the uMthwalume community;
- To assess the challenges and successes in uMthwalume community with regards to fisheries resources;

- To investigate other livelihood strategies the uMthwalume community engages in besides harvesting fisheries resources; and
- To forward policy recommendations with regards to accessibility to, utilisation of, and management of fisheries resources in KwaZulu-Natal.

1.3.3 Key questions

• Who is allowed access to the fisheries resources at uMthwalume?

• Who participates in the fisheries management structures and what are the roles of groups or individuals in the fisheries management structure?

• How does fishing contribute to the livelihoods of uMthwalume fishers‟ households?

• Which access and management challenges are faced by the community of uMthwalume?

• Do the community members engage in other activities to supplement the proceeds they get from fishing?

1.4 Chapter Sequence

1.4.1 Chapter 1: Introduction

This chapter will provide a general overview of the study and outline the rationale and motivation of the study. This chapter presents the research problem, aim and research objectives of the study.

1.4.2 Chapter 2: Literature review

This chapter identifies the gaps in the current literature. In addition, the history of South African fisheries management, poverty, and the issue of fisheries governance in relation to the livelihoods of households in the community is discussed.

1.4.3 Chapter 3: Conceptual framework

The Sustainable Livelihood Framework (SLF) is discussed in this chapter, in the context of fisheries management. Various livelihood strategies have been pursued by the locals, using the concepts and outcomes demonstrated in the SLF.

1.4.4 Chapter 4: Study area and methodology

The chapter will provide an understanding of how the research will be conducted. Mixed method, qualitative and quantitative methods will be discussed.

1.4.5 Chapter 5: Data analysis and discussion

This chapter displays the data in graphical and tabular form, where relevant. The information will be critically assessed and key conclusions will be drawn.

1.4.6 Chapter 6: Conclusions of findings and implications for further research

This chapter summarises the main discursive points raised in the analysis of the data from this study. The findings and the theoreoritcal reflections will be used to develop a comprehensive argument that relates to the aim and objectives of the study. In addition, this chapter briefly makes recommendations. Policy recommendations will be made, in line with the findings.

1.5 Conclusion

Fishing is part of the way of life in coastal communities, as fish are generally part of their staple diet and their culture. Fish stocks are declining at a rapid rate globally, due to overexploitation and the constant rise in the human population. This, coupled with a high unemployment rate and a lack of alternative livelihoods, generally leaves the economically disadvantaged groups in coastal communities trapped in a cycle of poverty. It is imperative to conserve our fisheries resources because if they are depleted, the coastal communities which derive their livelihoods from them will suffer. In addition to this, the relationship between the fisheries resources, marine life and the ecosystem at large is interlinked and complex, and must be preserved**.** This study is therefore a relevant one, and a case study approach was employed. The researcher assessed the community‟s access to, and the utilisation and management of the fisheries resources in uMthwalume, KZN.

Chapter Two: Literature Review

2.1 Introduction

According to Garcia and Rosenberg (2010, p.2872), "1.5 billion people depend on fisheries resources as their main source of animal protein, more especially in poor developing countries". Fisheries resources are an essential source of lipids, vitamins, protein and micronutrients (Allison, 2011; Rockefeller Foundation [RF], 2013). Certain fish species, generally the small fish, "are vital in the diet of the poor as they contain high nutrient content such as the polyunsaturated fatty acids like Omega 3, vitamin A, iron, zinc and calcium" (Kawarazuka, 2010, p.26). Evidently, fish plays an important role in the households of the poor, so even if the other food that they can afford and consume is not rich in nutrients, they will not be malnourished. Kettunen and D"Amato (2013) contend that households obtain food security through the purchasing power of the funds obtained from the sale of their goods. This money is used to buy food and other necessities. Fishing is, however, a seasonal activity therefore households are generally also involved in other activities to sustain their livelihoods (Salagrama, 2006).

Alternative livelihoods such as agriculture and farming are other sources of income for fishing households. Te Lintelo (2008) informs that diversification of livelihood strategies is contingent on access and the wealth of the natural resources available. The fisheries industry employs directly, in terms of boat crew members, and indirectly through trading and fishing processing. In South Africa, the fishing industry contributes approximately 0, 5% to the Gross Domestic Product (Milne, 2014, p.34). However, Olivier, et al. (2013) reports an increase in the unemployment rate in fishing communities in South Africa, as a result of fish stock decline. The main causes of fish stock decline are the drop in the number of fish caught; overfishing; and the rise in the human population, whose demand exceeds supply (Pomeroy, 2011).

This chapter presents information on the following points that relate to the topic of this study, namely: coastal communities; poverty; open access to fisheries resources; common pool resources; fisheries management; access to fisheries management; the history of fisheries management; an ecological based fisheries management approach; the main controls for conservation; governance; the problems encountered with respect to the governance of the fisheries management; co-management in fisheries management; and alternative livelihoods.

This chapter also analyses why coastal communities are characterised and are perceived as homogenous, thus resulting in a one size fits all approach to solutions. Such approaches to fisheries management often fail. Justice to the discussion of fisheries management cannot be done without discussing South Africa‟s history, which shaped fisheries and fisheries management as they are seen today. Single-species fisheries management has had partial success at most; and as a result, South Africa is dedicated to employing an ecosystem approach to fisheries management (Hilborn and Ovando, 2014).

Due to shoddy governance and the shortcomings of existing fishing management strategies, co-management is one of the management tools that have been adopted. Berkes (2009a, p.1692) cautions that the co-management approach is not to be heralded "as the panacea to fisheries management", but is to be regarded as one of the approaches that could assist in solving existing issues. Owing to overexploitation of the fisheries stocks, venturing into alternative livelihood strategies such as tourism and agriculture are some of the options that can provide potential solutions to livelihood challenges. Fisheries managers have also sought alternative livelihood strategies to deal with the challenges faced in the fisheries.

2.2. Community

Agrawal and Gibson (1999), state that developmental programs have often viewed communities as a homogeneous group; and therefore devised „one size fits all‟ solutions to the various problems. Leach, et al. (1999) further state that in some instances, social differences are recognised and satisfactory efforts made through the use of participatory rural appraisal methods. Communities voice their concerns in a public domain, and this effort is viewed as adequate to resolve conflicts within the community. From then on, it is believed that the community members work together in "unity and harmony" (Menon, et al., 2007, p.18). This may not, however, always be the case assert Ramirez-Sanchez (2011), because in a public platform some members might not be comfortable enough to voice what they truly believe and think, because they could feel intimidated for various reasons. The community members could fear being judged, and in some cultures and religions, so woman often do not share their honest opinions in the presence of men.

Communities are dynamic (Barrow, et al., 2002). This idea is based on the fact that each family structure is unique within the community; they will not necessarily depend on the same resources to sustain their livelihoods (Leach, et al., 1999). The resource which takes

precedence differs with each individual and household (Clarke and Grundy, 2004). Members of a community use resources differently, and the importance that they place on them also varies accordingly. Activities such as fishing, livestock rearing, and crop cultivation are among other activities that characterise a community. The importance placed on a particular resource may disadvantage the community, for instance a fisheries resource like the east coast rock lobster (ECRL) is a highly valued resource in KZN, but there are closed seasons when they cannot be fished, in order to ensure that they are able to reproduce. A community that depends on the ECRL to bring in the majority of its income would therefore have to supplement this by selling other fisheries resource, or engage in another livelihood activity where they might not derive as much profit as they previously did. The advantage of a resource being important to the community is that conserving that particular resource becomes part of their culture. Ensuring that the environment is not degraded, even the children are taught from an early age of its value because they benefit from it.

The sustainable livelihood strategy which each household pursues depends on the assets, opportunities, and capital accessible to them, and where their strengths and vulnerabilities lie (Burnley et al., 2014). The Sustainable Livelihood Approach (SLA) and SLF, which helps explain these concepts better, is discussed more broadly in chapter three. Those who have a long history of fishing will focus predominantly on this strategy, and in the off season or in the case of a disaster, supplement it with an alternative strategy such as crop cultivation. Leach, et al. (1999) thus explains that people‟s livelihoods are sustained through a diverse use of natural resources.

A community is portrayed by Leach, et al. (1999) as that which has a balance and order that allows for all members to be in agreement and driven towards the same goal. Such an understanding in communities may be difficult to achieve, and it may result in there being insufficient solutions to deal with the management of their natural resources, in this instance, the fisheries. The programs, policies and recommendations forwarded for fisheries resource management therefore cannot be universal. One program may be seen as a successful solution for the fisheries management in one area, but may not be a perfect fit for another community as it was designed with the different conditions and characteristics of that particular community in mind.

According to Leach, et al. (1999), the way in which the term “community” is defined and perceived in natural resource management overlooks a lot of complexity. Communities are

characterised by varying histories, cultures, languages and politics, among other differences, and Menon, et al. (2007) states that these factors also represent inter-personal differences among the communities. This means that even within the same communities, there are significant differences between the individuals. Carlsson and Berkes (2005, p.67) concur, stating that "communities are constantly changing, and it may be useful to think of them as multidimensional, cross-scale social-political units. They are heterogeneous with varying pursuits depending on their gender, age, class, socio-economic group or ethic group".

The livelihood strategies which households pursue in specific seasons of the year are constantly dependent on which resources they have access to at that time (Moconachie, 2007). For example, in winter there is the sardine run along the KZN coast, and crops are not ready for harvesting at that time, so they will rely on fisheries resources during winter. Gender and culture also play a role in which livelihood strategies an individual can pursue; it is generally taboo for African women to be involved in line fishing. So in African societies the majority of the women tend to be involved in agriculture (Kwashimbisa and Puskur, 2014). In order to fully understand the changes in livelihood trends, it is necessary to look at significant information and life changing events, so as to thoroughly assess the past and future use, and the value of resources (Clarke and Grundy, 2004). The latter allows an appreciation of the constant changes in trends. The extraction of this kind of information could prove valuable in improving the livelihoods of different communities.

2.2.1 Coastal communities

Coastal communities include economically disadvantaged groups reliant on fisheries resources to sustain their livelihoods (Nandankumar, 2007). South Africa‟s coastal communities are no different from other African societies who endured different forms of deprivation as a result of the long history of colonisation, but Apartheid was an additional factor in South Africa. Black South Africans were, according to Coombes (2003) denied access to political power; forcibly removed to the outskirts of the cities; disposessed of their land; relocated in the homelands; and had limited access to such things as markets, social and health services, capital, employment, infrastructure; education, justice, and law enforcement mechanisms. Glavovic and Boonzaier (2007) further add that although South Africa was politically liberated in 1994, and a number of programs and strategic plans were created and implemented by the government to confront the Apartheid legacy, the majority of the population still lives in poverty.

Kashorte (2003) also reports that coastal communities depend on fisheries resources to sustain their livelihoods. In addition to the above view, these common pool resources are perceived to be important, hence the expectation for their accessibility to all (Allison and Ellis, 2001). The open access nature of fisheries has often resulted in overexploitation of the resource, leading to poverty and marginalisation (Nandankumar, 2000). The open access allows fishers to catch more than they need for personal consumption, and provides them with extra to sell. Most small-scale or subsistence fishers however, generally do not have freezers in which to store leftovers, leading to wastage as the produce spoils, overexploitation of the resources and a resultant decline in stocks. The market could become flooded if every person fishes as much as they can in order to sell and make profit, and this could force the fishers into selling their stock at lower than normal prices in an effort to beat their competition and earn a living. Lowering of prices could, therefore, defeat their initial goal of increasing profits in order to have a better quality of life.

Teh, et al. (2008) report a global decline in catch size since the late 1980s, which can be attributed to the decline of cod species in the coastal areas of New England and Eastern Canada, According to Pauly et al. (2002) the above would mean that there was a knock-on effect. Over time, more species have declined in numbers. Overexploitation of the fisheries not only threatens biodiversity; it also has a negative knock-on effect on the socio-economic status of the fishing communities (Teh, et al., 2008). When fishers catch fewer fish, crabs and other edible marine life due to the decline in stocks, they start generating less income, and this in turn impacts negatively on their quality of life.

2.3 Poverty

A household is considered poverty stricken, according to Lawson, et al. (2012), if the total income it receives does not meet all its basic needs. However, this definition has been regarded as a narrow perspective; income is just one facet of poverty. The economic perspective categorises indigency into absolute and relative poverty. Newman (2008) defines absolute poverty as a state of deprivation, when people are far from crossing the poverty line so as attain a better living standard. It is when the total income of the household will not render the basic necessities such as food, shelter and clothing (Bohare, 1995). Absolute poverty takes into account people‟s nutritional diet, and their “health and well-being” (Glavovic, 2008, p.245). Relative poverty is determined by comparing the incomes of the

different fragments of populations in society (Grant and Vilder, 2000). “Relative poverty is non-material in that it relates to inadequate access to normative standards of living” asserts Green (2006, p.119). An example would be the lack of a political voice when the members of the community who earn very little have no value assigned to their point of view by the rest of the community. People living in relative poverty do not fully participate in the decision making of development initiatives proposed in the community. As result, the elite benefit the most, as what they prioritise as important will get the most attention, and the rest of the people remain marginalised and unempowered. Jentoft and Midre (2011) support this statement by stating that:

> “By definition, social elites have a political and economic power that non-elites do not have. They also have symbolic power in the sense that their values, opinions and worldviews have an impact on the less powerful. The way in which political and economic elites conceptualise poverty also has consequences for what kinds of policies are established for people dependent on assistance”, (p.44).

It is government‟s mandate and moral obligation to pay attention to absolute poverty and device strategies to reduce it (Glavovic, 2008). Likewise, it is equally important to pay close attention to relative poverty, as it helps determine the goals that the policies would be geared towards, so as to aid in the development of the country and alleviate poverty. The latter can be achieved by taking into consideration every citizen‟s voice and point of view in the community, and by ensuring that ideas put forward for action are what the majority have agreed on, and not just the elite.

Salagrama (2006) classifies the type of poverty in coastal communities as more relative than absolute; and claims that although coastal communities are poverty stricken, just like other rural communities, the coastal communities are often neglected as they only have a handful of individuals who are poor. This perception may however, according to the Organisation for Economic Co-operation and Development (OECD) and the Food and Agriculture Organisation of the United Nations (FAO), just because scholars have only recently started paying attention to the socio-economic status of the fishing communities (OECD and FAO, 2015). Glaeser (2013) draws attention to the preconceived notions that there are abundant job opportunities in coastal areas; and points out that they are generally seasonal jobs. When not fishing, there are opportunities to collect sea shells for arts and crafts, which due to their aesthetic nature attract floods of tourists. What this viewpoint fails to take into consideration,

however, is that as much as there might be numerous opportunities, there are terms and conditions for access to them. Moreover, in this case, the individuals who benefit the most from fisheries resources are those more privileged.

The view discussed above is contrary to the conviction of the majority of the scholars in fisheries literature (Allison and Ellis, 2001; Nandakumar, 2007; Isaacs and Gervasio, 2011; van der Burgt, 2012), who often debate that fishers "are the poor of the poorest", that "fishing is their last resort", and that "they are fishermen because they are poor". Salagrama (2006) alleges that the majority who lives in coastal areas can be categorised as poor. Moreover, fishers are not poor because they are fishers; they are poor because of the lack of diversification of their livelihood activities (Bene and Friend, 2011). As a result, fishers become highly vulnerable to any shocks and trends that can affect their livelihood (such as bad weather and an increase in the prices of fishing gear). These authors thus state that what makes subsistence or small-scale fishers vulnerable to poverty is their reliance on one chief economic activity. "The nature of the livelihoods of the fishers makes them the poorest and marginalised groups", asserts Salagrama (2006, p.1).

Fisheries resources are dynamic and complex in nature (Ahmed, 2008). Dynamic in nature means that when a fisher leaves home to catch fish, there is no guarantee that they will catch fish that day, nor is there any guarantee of the quality of any fish caught. The decline or rise in fisheries stock is affected by a number of factors such as weather, climate change, and pollution. These uncertainties make fisher households vulnerable. The nature of the fisheries industry further marginalises poor fishers as it is capital intensive, highly mechanised, there is an increase in competition for fishing grounds, and the industry requires one to be business savvy and well connected (van der Burgt, 2012). This therefore means that poor, less educated individuals who are not well connected find it very difficult to enter into the industry. An average fisher cannot keep up with the pace of transformation in the fisheries sector (Salagrama, 2006).

As already stated, examining poverty using a solely economic lens is short-sighted; and the social and human scopes need to be included when doing so (van der Burgt, 2012). When inspecting whether or not a household can afford food for its members every day, it is equally important to determine its ability to do so. If the household member is unable to provide for their household/family, what is hindering them? Among other things, capability refers to education and access to credit and health. "This perspective demands consideration of both

the individual agency and the social processes that foster or constrain freedoms" (Glavovic, 2008, p.246). For example; a young man who is physical healthy, has skills and a vast knowledge of fishing, however does not have access to start-up capital to participate in small-scale fisheries. Additionally, this young man does not have access to information regarding government funding institutions such as the Umsombovu Youth Fund or the Industrial Development Corporation which can assist financially and mentor him, and he will thus be unable to rise above poverty. It is such factors that need to be probed in order to determine what is keeping people in the cycle of poverty. It is crucial to eliminate the impediments that limit the choices and opportunities, preventing people from becoming fully functional as the economically active population.

Social structures should also be considered when gauging the level of poverty (Isaacs and Gervasio, 2011), as these structures can either "create or perpetuate poverty" (Glavovic, 2008, p.246). The third perspective of poverty is social exclusion. Citizens who earn a decent income and have capabilities that afford them an acceptable standard of living and wellbeing may as well be poor if they are segregated from political, social, cultural and civic processes and structures (Jentoft and Midre, 2011). Since social exclusion means that people are deprived of the opportunity to fully participate as citizens, Glavovic (2008, p.246) adds that, as a result, they will lack "access to resources, economic opportunity, social networks and political processes". Apartheid serves as a fitting example of where people were racially segregated and the distribution of resources was skewed in favour of the minority. As a result, twenty years into democracy poverty is still deeply entrenched in the former Bantustans.

Conventionally, Green (2006) defines a person as poor if they lack the basic abilities enabling them to meet their physical needs. In addition, a poor person is unable to interact and be part of the life of the community and actively participate in the decision making process. Furthermore, poverty is multifaceted it encompasses:

> "….not only material deprivation (measured by an appropriate concept of income or consumption) but also low achievements in education and health. Low levels of education and health are of concern in their own right, but they merit special attention when they accompany material deprivation" (World Bank, 2002, p.15).

This study hopes to use and incorporate this dynamic view as it unfolds. Banks (2012) stresses that being deprived of the above-mentioned factors it is what holds individuals back from living a lengthy, healthy, purpose driven life. According to Glavovic and Boonzaier (2007), poverty is one of the most significant and challenging issues that the South African democratic government needs to confront. Further to this, Glavovic (2008, p.246) states that:

> "Poverty transcends low incomes and consumption to encompass all dimensions of deprivation including the denial of basic human rights, and the psycho-social reality of impoverishment including poor people‟s perceptions and life experiences of insecurity, marginalisation, powerlessness and humiliation".

Field (2012) argues that poverty in most developing countries is a result of communities being displaced from or losing possession of their land. South Africa is a classic case where the black racial groups were forcefully moved to the former homelands by the Apartheid government. Consequently, communities lost their sustainable livelihoods, making them dependent on external economies (Ownuenele, 2014). After people lost their main means of production (land) they could no longer participate in agriculture and the rearing of stock as they previously did in their homesteads, as they had smaller plots of land and less fertile soil. This meant that people either worked on white owned farms or migrated to the city to seek jobs to sustain their livelihoods. Generally, adult males headed to cities such as Johannesburg, Durban, and Cape Town seeking employment. This caused "social, cultural and economic instability" (Greer and Harvey, 2004, p.116), as communities could no longer attain the resources required to pursue various livelihood strategies as they had done previously. An example to illustrate this instability is when the head of the household leaves home to work in the mines, only returning home after about three to six months. In his absence, the eldest woman has to assume his role and make the important decisions on his behalf. The role of the man as breadwinner/provider is also shared with the eldest woman as sometimes remittances sent by the male may take longer to reach home, and until then the woman has to explore other livelihood options to ensure that the family is fed daily.

Landlessness and the open access nature of fisheries are what drive coastal communities into fishing (Andrade and Midre, 2011). An additional driver is the lack of access to other resources such as livestock and agriculture, thus encouraging communities to engage even more in fishing. That is why fishing is also referred to as a „last resort" livelihood activity

(Blythe, et al., 2014), however the more people that enter in this sector, the greater the degradation and exploitation.

Van der Burgt (2012) stresses the importance of examining poverty from a holistic view, beyond the state of the resources, to evaluate what is preventing people from participating in the economic sector. For example, when examining education, is there skills training that will allow communities to venture into other industries besides fishing? The question should be asked: Do people have a political voice to be confident enough to share their opinion and become involved in decision making programs for the development of their community? Another important question is whether or not people are getting primary healthcare to ensure that they are physically healthy enough to participate in the economically active population.

Another possible cause of poverty is the exploitation of fisheries by industrial fishing fleets (Greer and Harvey, 2004). Commercial fishing catch quotas are generally higher than other fisheries, reducing fish stocks for the local fishers. Oil companies also play a role in poverty with the degradation of the environment following oil spills, which pollute the water and kill the aquatic life (Isaacs and Gervasio, 2011). Tourism development also plays a role, as the best sites in coastal areas are afforded to the highest bidder. The result is that local people can no longer access the fisheries resources in these areas as they did previously, as they are strictly reserved for tourism (Craig-Smith, et al., 2006).

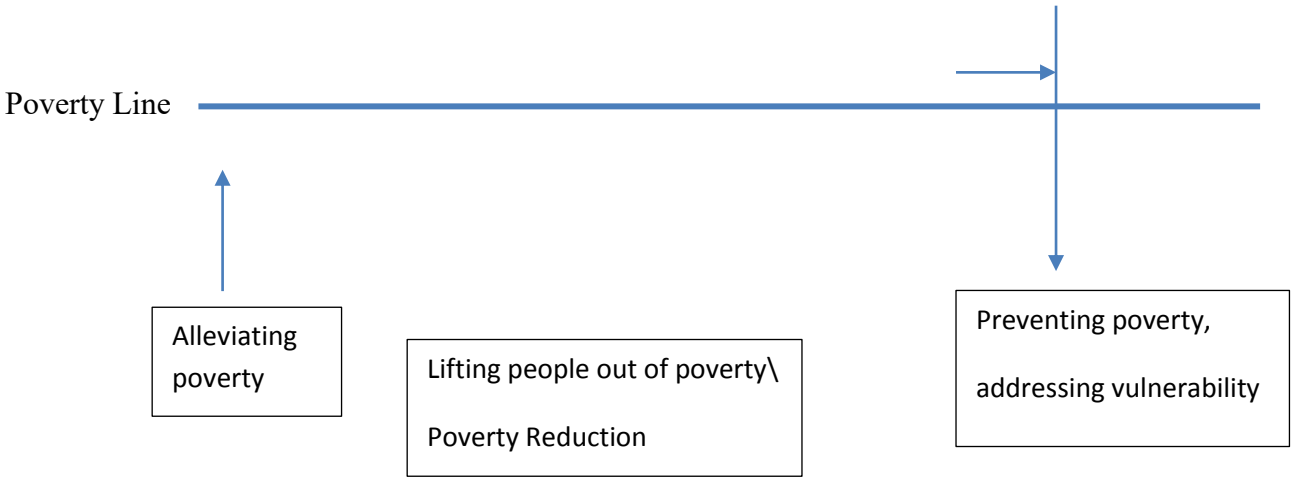
According to King and Palmer (2007), in order to develop effective policies which will bring forth expedient outcomes, it is necessary to clearly distinguish between „poverty reduction", „poverty prevention", „poverty alleviation". The aims of the policy and what it hopes to achieve is what distinguishes these three concepts. Poverty reduction denotes affording an opportunity for communities to have access to start-up capital, and to initiate or be part of small-scale business ventures as cooperatives or startups (Isaacs et al., 2007). This promotes job creation, wealth generation and economic growth.

According to Bene and Friend (2011, p.139) poverty prevention:

> "Refers to the role of an economic activity in helping people maintain a minimum standard of living (even when this minimum standard of living is below a given poverty line) and which prevents them from falling any deeper into destitution".

For example, in KwaZulu-Natal, community fishers could not meet the requirements that allowed them to be involved in commercial fishing, and since small-scale fishing was not practised in the province, the fishers who were unemployed and historically engaged in fishing were categorised as subsistence fishers. The quota set for their catch in this category is just sufficient for consumption in the household and to sell the rest to the neighbours. Sole dependency on fishing might therefore not necessarily afford them a better standard of living, but they will not fall deeper into poverty. According to Isaacs and Gervasio (2011), poverty alleviation incorporates concepts that include both poverty reduction and poverty alleviation. Thin (2004) defines poverty alleviation as relieving the symptoms or decreasing the intensity of poverty, without changing their poverty status.

Figure 2. 1 Poverty alleviation, poverty reduction and poverty reduction



Source: King and Palmer (2007, p.7)

2.4 Open access nature of fisheries resources

Van der Burgt (2012, p.102) states that "the open access nature of fisheries makes it easier for people to get into fishing". This creates a greater dependence on fisheries resources to generate income and provide for their households. Greer and Harvey (2004) point out that this might, however, lead to the overexploitation and degradation of the fisheries resources. The more fishers in the market selling the same species of fish, the greater the probability that this will create competition amongst them, and might persuade them to decrease their prices; those fishers with the lowest price will not probably get the most customers. Nevertheless, if the fishers are selling at a loss or making only minimal profits, it defeats the whole purpose of getting into fishing to sustain their livelihoods. More people tend to depend on fishing as

there are no other alternative livelihoods (Bene and Friend 2011; Isaacs and Gervasio, 2011) add that due to a lack of other employment avenues, fishers find themselves stuck in the fisheries industry even if they are generating low incomes. As a result, some authors (Isaacs and Gervasio, 2011; Jentoft and Midre, 2011; van der Burgt, 2012) call it a poverty trap.

2.5 Common pool resources

According to da Conceicao-Heldt (2004), the terms „open access" and „common pool" are often regarded as synonymous in fisheries, which often leads to misunderstanding. Open access means open for use to all people (Jamie and Betchel, 2010). Open access in fisheries denotes the absence of rules or regulations governing the utilisation of the resources as a result of lack of tenure; with adverse effects economically as there is generally misuse of the resources (Bene, 2013). This implies the non-existence of property rights for the fisheries resource. Examples of open access fisheries are the "high seas outside of the economic zones of coastal nations "and "large inland lakes not owned or regulated by an agency" (Heal, 2000, p.142)

The characteristics that distinguish common pool resources from other goods and services that are private and public are non-excludable and subtractable (Acheson, 2003; Hackett, 2011). Fisheries are categorised as common pool resources. Non-excludible means that the resources are accessible to everyone and da Conceicao-Heldt (2004) states that it is more expensive when trying to exclude individuals in order to manage the resources. To achieve exclusivity and control, fisheries management policies need to be drawn up and then implemented. Management measures include the introduction of permits, quotas, and monitoring, but these are difficult and costly to enforce. Fisheries resources are attributed for their subtractability, as "each user"s harvest subtracts from the welfare of others" (Hutton and Pitcher, 1998, p.472). Although fisheries resources might be categorised as replenishable, this is dependent upon the rate at which people utilise them (Briassoulis, 2002). If fisheries resources are harvested at a faster rate than they are able to reproduce, or species are caught when they are too young and immature to reproduce, that leads to depletion and creates an unfavourable environment. Overexploitation and depletion of fisheries resources makes it very challenging to achieve sustainability (Sharachchandra, 2005).

Grafton, et al. (2010b, p.6) alleges that "fish stocks are common pool resources, making catches rivalrous". This connotes that when fishing, the action decreases the catch available

to others. In a scenario where there is no effective control over the right to catch fish or over property rights, it might lead to fishers catching as much fish as possible, regardless of the impact of this action on others (da Conceicao-Heldt, 2004; Jamie and Betchel, 2010). Nevertheless, this does not mean that the fisher is not sensitive to the sustainability of the species on which the communities depend (Grafton, et al., 2010b). Sometimes the issue is rather that the effort that a fisher makes taking into consideration the sustainability of the resources and sacrificing short term gains to benefits others, who do not attempt to do the same (Munroe, 2015). This discourages fishers from fishing in moderation and they therefore end up overexploiting the resource. It is noted that this scenario prevails in instances where there is no effective management and control.

The "common pool resource nature of fishing stock also poses a challenge, as efficient control of their access and harvesting is costly" (Grafton, et al., 2010b, p.6). At sea, unlike on land, it is expensive to put in measures to monitor who is fishing, whether or not they have the required permit and whether or not they are the sticking to the legal quota (Anderson and Seijo, 2010). It is also difficult to observe who comes in and out of the sea, especially when the weather conditions are unfavourable or at night. These times are crucial because those who are legally entitled to be at sea catching fish and other edible sea life can use these times to capture as much as they possibly can. As a result, national and international governments are confronted with the same problems when it comes to the implementation of regulations and the monitoring and evaluation of fishing activities (McClanahan and Castilla, 2007). For example, Wicks (2012) describes the fisher whose legal bag limit is eight east coast rock lobster per day, but is tempted to catch more and hide the extra catch. The fisher only declares the catch that meets the bag limit requirements to the authorities, and the hidden loot is retrieved when the monitor has left.

Transnational fisheries and highly migratory fish species make this challenge more complex as individuals from different nations take part in harvesting (Grafton, et al., 2010b). Consequently, effective monitoring and evaluation programs are needed to determine what, when and where fish are caught. However, they are only affordable for high value species (Grafton, et al., 2009; Gulbrandsen, 2010). Without monitoring programs for the remaining species, managers have no other option but to just presume what is happening at sea. The lack of effective monitoring and evaluation programs in many fisheries is one of the factors which discourage fishers from behaving in a way that encourages both short and long term interests,

and ensuring the sustainability of the resource (Grafton, et al., 2010a). This problem is compounded for highly migratory and trans-boundary species such as tuna dolphins, whales, swordfish, and sea turtles.

According to Branch and Clark (2006, p.7) "there is universal agreement that open access (no controls over fishing and free access for all) is a recipe for disaster", even though they believe that equitable resource distribution could be achieved through free access to all. Free access could, however, have dire consequences specifically when it comes to economic efficiency and sustainability. In the same breath, failing to develop equitable access to people who were previously disadvantaged and denied these rights would be equally devastating, as it is more likely to provoke unrestrained poaching argue Clark and Heydorn, 2014). Camp and Camp (2009) concur by stating that the true test for conservation is whether society benefits from its undertakings. In South Africa, measures were devised to promote conservation while concurrently offering an opportunity for communities to derive benefits from ecological services. These measures will be discussed in the subsequent section.

2.6 Access to natural resources

Ribot and Peluso (2003, p.153) describe "access as having the ability to benefit from things". These benefits may be for institutions or persons, and may include material objects and symbols, amongst other things. According to Landridge et al. (2006), access emerges from a range of means, processes and relations within society, whereby people come up with mechanisms on how a community gains, controls and maintains access. These mechanisms are inclusive of structural and relational processes such as capital, markets, technology, knowledge, authority, identities and social relations (Sikor and Lund, 2009). Furthermore Baland and Platteau (1999) state that it is resource users who possess a relatively large sum of the factors of production who have better access. This could be as a result of being privileged and born into a wealthy family, having a better education, and having influential social networks amongst, others things (Burnley, et al., 2014). This enables them to obtain credit more easily as they are believed to be credible, they possess information as to which credit opportunities are available and they have connections with people who have influence in credit agencies. In addition, they can employ the necessary people and are therefore able to fully exploit resources and derive the maximum benefits.

Property is defined as “a right to an enforceable claim to some use or benefit of something” by Ribot and Peluso (2003, p.155). Property rights or claims are owned by being endorsed or supported by a social network under some law, custom or convention (Kreike, 2013). Conflicts occur in instances when some activities are illegal under the state law, and acceptable or legal under the traditional or conventional law, and vice versa (Barrow et al., 2002). The east coast region in South Africa in the1900s is an illustration of such a conflict situation. The Apartheid regime excluded the subsistence and small scale fishers from the fishing industry, but the locals in this region continued fishing under the traditional communal systems (Sowman, 2006). Sikor and Lund (2009) state that the distinguishing factor between access and property is that one can benefit from resources without owning the property rights to them. For instance, it is possible to benefit from the commercial fisheries industry through employment, though not in possession of a commercial fisheries permit. Examples of those who benefit in this manner are boat crew members and those staff involved in transporting and selling fish.

Access to natural resources is much broader and encompasses property (Sikor and Lund, 2009). Ribot and Peluso (2003, p.156) further state, that what discerns “access from property lies in the differences between „ability“ and „right“ ”. Ability is affiliated with power; power in the sense of being able to influence the ideas and practices of others, or power associated with being part of an influential network (Dorondel, 2009). The ability to gain control of, and maintain access to, a critical resource improves a community“s entitlements, and creates a buffer during times of scarcity, making their livelihoods resilient and able to survive shocks and stresses (Sanginga, et al., 2010). Institutions also have an influence over property rights and access to natural resource management. North (1991, p.97) defines institutions as:

> “the humanly devised constraints that structure political, economic and social interaction, which can be further divided into formal rules (constraints, laws and property and rights) and informal constraints (sanctions, taboos, customs, traditions and codes of conducts)”.

Kwashimbisa and Puskur (2014) cited an example of how an institution, in this case African culture, influences an individual“s rights to property and access. It is considered a taboo in the African culture for women to be involved in line fishing, but it is acceptable for them to be involved in the processing and trading of fisheries produce. This means that women“s access

is restricted, and as a result they generate less income when compared to the men in the community.

2.7 Fisheries management

Hilborn and Walters (2013) state that restrictions put on fisheries so as to manage them are to the advantage of the communities, as they will benefit from them for longer if they are utilised in a sustainable manner. Fisheries management is a set of rules and regulations which determine who can catch fish, which species can be caught and at what size, the season during which they can be caught and in what quantities they can be caught. Charles (2011) reports that this type of fisheries management is referred to as rights based fishery management. Walker (2005) asserts that fisheries management can also be considered as the presentation of user rights for the harvesting of fisheries resources to a group of people, organisation or to an individual. The latter brings with it a sense of responsibility, because "with rights comes responsibility" (Scott, 2013, no page numbers) and therefore, when user rights are obtained, this means that the users need to utilise the fisheries resources sparingly and not overexploit them. According to Arlinghaus (2004, p.269), "there is no universally accepted definition for fisheries management due to its intricacy in nature". However, an appropiate definition of fisheries management is:

> "….the integrated process of information gathering analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation, with enforcement as necessary, of regulations or rules which govern fisheries activities in order to ensure the continued productivity of the resources and accomplishment of other fisheries objectives" (Cochrane and Garcia, 2009, p.2).

Given how complex and dynamic the fisheries ecosystem is, it is imperative that the principles of its management are viewed in a holistic manner as their repercussions are linked and interconnected.

2.7.1 The impact of Apartheid on fisheries management in South Africa

The colonial period in South Africa persisted for more than 300 years, followed by Apartheid (1948-1994), which lasted for 45 years (Sunde and Isaacs, 2008). Apartheid was a system that divided the human population according to their race group. Apartheid succeeded by enforcing policies and laws such as: "The Black Land Act, No. 27 of 1913, the Development Trust and Land Act, No. 18 of 1936, the Coloured Labour Preference Policy), the Group Areas Act, No. 41 of 1950, as well as the „Homelands" Policy", which are relevant to this study and cited in Hauck and Sowman (2001, p.174). The black majority of the population in the country were moved to the outskirts of the cities and resettled in the „homelands". As a result of this process black people lost productive land, livestock, and close knit social networks, amongst other things.

The former homelands fell under communal tenure, governed by the traditional authorities (Hauck and Sowman, 2001). During the reign of the colonial and Apartheid governments, black fishers had limited access to fisheries resources and they generally harvested using the subsistence fishing permit (Isaacs, 2011). The east coast of the country was not as heavily impacted by the regulations of these governments, and traditional authorities remained in control of the allocation of fisheries resources to some extent (Sowman, 2006; Banvick et al., 2014). This occurred as a result of the east coast having low value species and the area was isolated and difficult to access. Traditional authorities determined the accepted fishing methods, varying from one area to the next (King, 2013).

In some coastal provinces the traditional authorities would permit the use of spears, traps, and rod lines, whilst they might be against the use of large spears and unbaited hooks (Hauck and Sowman, 2001). In alliance with the magistrates, the tribal authorities allocated land to developers, giving them permission to occupy the land (Branch and Clark, 2006). Community members viewed that partnership as an unfair practice, and this alienated the communities. In most cases, the developers" wishes would be prioritised over the concerns of the community, in exchange for monetary benefits or other incentives. This triggered distrust and skepticism in most communities as to which side was (Tunley, 2009). Tribal authorities were perceived as prioritising the interests of the moneyed at the expense of poor local inhabitants.

Some of the valuable assets lost were priceless, such as social networks for which there could be no compensation (Clarke and Grundy, 2004; Ramirez-Sanchez, 2011). The split between the communities and their traditional leaders, which led to the displacement of communities and the loss of such valuable assets in South Africa, was because of the Apartheid regime and the self-interests of the traditional authorities. Assets such as social networks are critical to the fabric, interdependence and functioning of coastal communities, making them resilient to vulnerabilities (Jepson and Colburn, 2013). When looking at finding effective fisheries resource management strategies, these life changing events mentioned above cannot be disregarded. Hauck and Sowman (2001) concur by asserting that in order to establish effective management strategies, it is imperative to understand the political history of South Africa, which influenced and shaped the coastal resource use patterns and the property rights regimes.

2.7.2 The history of fisheries management in South Africa

Before the pronouncement of the Marine Living Resources Act of 1998 (MLRA, 1998), the South African law had only acknowledged recreational and commercial fishers (Sowman, 2006). According to Steyn and Scheyler (2009), indigenous people have been harvesting resources along the coast for many years to support their livelihoods. Branch, et al. (2002) state that this process goes back as far as 100 000 years. Due to colonisation, the rate of subsistence harvesting on the western coast was adversely affected (Sowman, 2006). However, KwaZulu-Natal east coast was not affected because the then KwaZulu Department of Nature Conservation (KDNC) authority at the time perceived:

> "Traditional fishing by indigenous people as an inalienable right of the community while recreational angling, as a tourism attraction, was considered desirable "and "in the 1980s it was suggested that extant legal fishing methods did not compete greatly with each other and overall exploitation levels were low" (Kyle, 1999, p.183).

Therefore, as long as there was no overexploitation of fish species in local fishing areas, traditional authorities could retain their management authority of the fisheries resources. During the reign of the Apartheid government, fisheries were mainly dominated by the white minority as the process was profit driven (Sunde and Isaacs, 2008; Stern, 2012), and excluded other race groups. The groups who pursued subsistence fishing did so illegally or had limited

access to coastal resources. They operated under recreational regulations (Branch, et al., 2002; Hara, et al., 2008; Isaacs and Gervasio, 2011).

Poverty, inequality, and the uneven distribution of natural resources and other related legacies of Apartheid are some of the issues with which the post-Apartheid government is still grappling with. One of the benchmarks of South Africa‟s Reconstruction Development Program (RDP, 1994), incoporated in the new fisheries policy, the Marine Living Resources Act of 1998 (MLRA, 1998), "is to improve the quality of living of the impoverished coastal communities through improved access" (Sunde and Isaacs, 2008, p.4). As a form of redress, subsistence fishing was legally recognised and defined in the Marine Living Resources Act of 1998 (Sowman, 2006; Hauck and Sowman, 2001).

2.7.3 Recreational fishers

Prior to the formal recognition of subsistence fisheries, most of the black fishers fell under the recreational fisheries category (van Sittert, et al., 2006). This meant that black fishers had to abide by rules and regulations which prescribed that their catches would be for personal use only, that there were closed seasons for various species, and bag limits. Although it was illegal to sell fish, there is evidence that some of the fishers sold their catches to sustain their livelihoods (Isaacs, 2011; Banvick, et al., 2014).

McLean and Glazewisk (2009) describe recreational fishing as an activity where fishing is undertaken to pass time or as a sport. Permits for recreational fishing can be obtained at the Post Office (Hara, et al., 2008). Fish caught are only for personal consumption, not for barter or sale, states Sowman (2006). Since recreational fishing is an activity engaged in for the purposes of fun and relaxation, it is not supposed to generate an income. It is further noted that recreational permits are not transferable (MLRA, 1998).

2.7.4 Subsistence fishers

A subsistence fisher is defined:

> "….as a natural person who regularly catches fish for personal consumption or for the consumption of his or her dependents, including one who engages from time to time in local sale or barter of excess catch, but does not include a person who engages on a substantial scale in the sale of fish on a commercial basis" (MLRA, 1998, p.11).

It was felt that this definition was inadequate as some of the conditions were ambiguous (Branch, et al., 2002). It was not possible to make a clear distinction between a fisher who extracted fish for household consumption and made a little extra income so as to be able afford basic necessities, and a fisher who engaged in fishing as a small business venture (Subsistence Fisheries Task Group [SFTG], 2000, p.12). Therefore a more holistic definition was formulated:

> "Subsistence fishers are poor people who personally harvest marine resources as a source of food or sell them to meet the basic needs of food security; they operate on, or near to, the shore or estuaries, live in close proximity to the resource, consume or sell the resources locally, use low-technology gear (often as part of long-standing community-based or cultural practices), and the kinds of resources they harvest generate only sufficient returns to meet the needs of food security" (SFTG, 2000, p.18).

It is clearly stated in the White Paper of 1997 that the main objective of subsistence fishing targets the poor, providing them with access to fisheries resources for household consumption or for making some profit (DEAT, 1997). The subsistence fishing sector is not designed for job creation or business ventures. It is meant to safeguard the rights of those who are poverty stricken, enabling them to derive nutritional benefits and generate some income (Branch, et al., 2002; Young, 2013). The income generated is not to be compared to what would be made if formally employed or running a business.

The subsistence permit stipulates that the daily limit of 10 fish per day not be exceeded; however there are different limits applicable to the various species, depending on their availability (MLRA, 1998). A catch must be consumed, providing food for the household first, and only then can excess be sold (Stern, 2012). Sowman (2006) draws attention to the provision that the permit holders are forbidden to sell their catch beyond the point at which they landed their catch, thus making this provision easy to monitor.

2.7.5 Small-scale fishers

Categorising artisanal and small-scale fishers under one umbrella definition of subsistence fishers has caused great havoc, resulting in non-compliance to fisheries management rules and regulations (Banvick, et al., 2014). Even with the revision of the subsistence fisheries definition by the SFTG, there is still no provision for fishers who have aspirations to progress

from subsistence to commercial fishing, and they are still being omitted (Sowman, 2006). As a result of the previous evidence that many fishers, particularly those in the north-eastern region of South Africa, were involved in small-scale fisheries (Banvick, et al., 2014) asserts that they should be legally recognised as such. The omission was an injustice, because regardless of whether a fisher was originally an artisanal, small-scale or subsistence fisher, they now had to operate under subsistence conditions, and subsistence fishers were allocated the low value species (Sunde and Pedersen, 2007). Since subsistence fishers were allocated the low value species, Isaacs (2011) reported that they remained in the poverty cycle. Classifying artisanal and small-scale fishers as subsistence fishers took away their opportunity to make a living from fishing.

Branch and Clark (2006) inform that subsistence, recreational and commercial fishers were recognised in South Africa in the MLRA Act No. 8 of 1998, however, little attention was given to small-scale fishers. Consequently in 2004, "the Masifundise Development Trust (MDT), the Artisanal Fishers Association and the Legal Resources Centre, with the aid of some scholars, filed a suit against the Minister of the Department of Environmental Affairs and Tourism (DEAT) report Isaacs (2011, p.222) and Sunde and Isaacs (2008, p.17). The Constitution (Republic of South Africa [RSA], 1996) and the Equality Act (RSA, 2000), were used in the Kenneth George and Others vs the Minister case, to contest the transformation process" (Isaacs, 2013), and are discussed below in the issues of governance. In June of 2012, the Small-Scale Fisheries Policy was published and is still in the implementation and planning stage (Sowman, et al., 2014b). A small-scale fisher is defined as:

> "persons that fish to meet food and basic livelihood needs, or are directly involved in harvesting or marketing of fish, traditionally operate on or near shore fishing grounds, predominately employ traditionally low technology or passive fishing gear, usually undertake single day fishing trips, and are engaged in the sale or barter or are involved in commercial activity" (RSA, 2012, pp.6-7).

Sunde and Pendersen (2007) express concerns about the challenges of characterising subsistence, recreational and small-scale fisheries individually, due to their overlapping and dynamic nature. Mansfield (2011) maintains that small-scale fisheries are low capital, less intensive gear and their catch per unit of effort is lower than that of commercial fisheries. According to Hauck (2008, p.637), about 90% of the world fishers are small-scale fishers living in developing countries. It is estimated that a significant percentage of people in the

world depend on fisheries for animal protein (RF, 2013). World fisheries are important as they provide food security, sustain livelihoods, create employment and income, more especially small-scale fisheries (Sowman, 2011). In spite of the aforementioned roles of small-scale fisheries in coastal communities, they are still neglected and marginalised throughout the world. In South Africa this is particularly true in KZN and the Eastern Cape (EC), (Sowman, et al., 2014a). The latter is evident in the fisheries management policies that still prioritise the capitalist interests of the commercial fisheries over small scale fisheries. For example, the monopolisation of the hake fishery industry (Ponte, 2008)

2.8 Ecological based fisheries management approach (EBFM)

Traditional fisheries management focuses on "single species or stock, assuming that productivity of a stock is a function of only the inherent population characteristics" (Pomeroy, 2005, p.1). This means that this type of fisheries management approach only pays attention to the single fishery or species derived measures on how to better manage and improve it, as if external factors have minimal or no impact on its productivity. This cannot, however, be true as external factors also impact on the productivity of the stock. For example, because of climate change, water temperatures are altered. If water is too cold, particular species will not be productive because they thrive most in warm waters. A decline in the species of fish that they feed on is another problem, and the illegal dumping of hazardous waste at sea by industries affects fish species. "Fish stocks are part of marine ecosystems. These ecosystems are complex and involve myriad interactions across species." (Grafton, et al., 2010b, p.8). Pomeroy (2005, p.1) concurs, stating that fisheries populations are just one facet of a multifaceted marine ecosystem and are "affected by human and natural induced factors".

It has become evident that a single species or single fishery approach is inadequate for fisheries management, and there is a need for an approach which is ecosystem centered (Cochrane, 2005; Basson, 2011). The single-species approach has short comings which are in the following areas: "target species effects on ecosystem, socio-economic concerns and human induced factors on land and in the ocean" (Al-Masroori and Bose, 2011, p.13). This is articulated in the examples made in the above paragraph. Pomeroy (2005, p1) argues that the above-mentioned approach to "fisheries management has been at best only partially successful".

Due to the limitations of the single species fisheries management approach, it was realised that there is a need for a holistic approach. Consequently, there is growing interest in Ecosystem Based Management (EBM) or the Ecosystem Based Approach (EBA) in South Africa. The EBA‟s overriding mandate is the wellbeing of the ecosystems and human communities (Al-Masroori and Bose, 2011). An EBA to fisheries can be defined as:

> "….geographically specified fisheries management that takes account knowledge and uncertainties about, and among, biotic, abiotic and human components of ecosystems, and strives to balance diverse societal objectives" (Sissenwine and Mace, 2003, p.364).

According to the Ecosystem Principles Advisory Panel [EPAP] (1999, p.10) the decisions in fisheries practices that people engage in are firstly determined by the"cultural, social, political and economic context and only secondly by the ecological context that supports the fisheries". This means that although nature is valuable and people are dependent on it to derive a variety of benefits, what will be a priority for a poor household is having one meal per day through catching fish and consuming it, and selling the excess, if they will still be more fish stock next week or in the future comes secondary.

Link (2002, p.18) argues that "technically we cannot manage an ecosystem…" and that "ecosystem based fishery management is effectively shorthand for more holistic approaches to resource allocation and management". EPAP (1999) notes that EBFM does not require that we fully comprehend the elements of the ecosystem. The single species fisheries management approach is a model that is flexible, adaptable and that works; however it is not sufficient as it has failed to take into account the socio-economic concerns of communities, which is believed to have led to the overexploitation of resources (McPhee, 2008). Whilst the EBFM takes into account all elements of the ecosystem, in an integrated manner, the human and environmental aspects are given equivalent attention (Al-Masroori and Bose, 2011). Rather than looking at a resource or an issue individually they are taken as elements which are interrelated, which means that what affects one resource could potentially have an impact on the other. EBFM recognises that fisheries do not function in a vacuum, but rather form part of an entire system consisting of the ecological and socio-economic systems that influence each other (Levin, et al., 2009).

The holistic view highlights the importance of acknowledging fisheries management and exploitation as constituents of marine ecosystems (McPhee, 2008). As a result of fishing, a portion of the marine species are taken away and that could "affect predators or prey of those species, their physical habitat" and "it can change the growth, and mortality rates of target and non-target species alike" (EPAP, 1999, p.10). When specific high valued species such as the ECR are caught while they are immature, their reproductive rate is reduced. "Fishing can alter the structure and functions of marine ecosystems" according to the EPAP (1999, p.10). It is thus important that it be regulated to prevent depletion of the resources and degradation of the habitat. "Homo sapiens are at the top of the marine food chain" (Desonie, 2008, p.24), therefore when they catch, sell and consume the fish there is a need to be considerate and be good stewards of, and have positive effects on the marine ecosystem. If the marine ecosystem is well taken care of, the communities will benefit now and into the future. EBFM "is the interacting effect of fishery on ecosystem and of ecosystem on fishery" (Al-Masroori and Bose, 2011, p.130)

2.9 Conservation in global fisheries management

Camp and Camp (2009) define conservation as the use of natural resources in a way that allows future generations to derive the same benefits that the current generation enjoys. Most of the earlier conservationists were mainly foresters, who perceived protecting the forest and water resources as the best way to protect the environment; even it meant displacing people add Jepson and Ladle (2012). Pungetti, et al. (2012) report, however, that this conventional way of conservation has been accused of missing the bigger picture, in that human beings are part of the ecosystem and, as much as they derive benefits from ecosystem services, they are also custodians. Applying a top down approach to conservation creates an imbalance in the ecosystem which has often caused more environmental problems than solved them. Terminski (2015) maintains that communities were previously part of the natural environment, and their removal from the area thus created an imbalance in the ecosystem. Colchester (2004) cites the forceful removal of the Maasai communities from the surrounding wildlife as another example of the resulting imbalance in the ecosystem of the area.

Greer and Harvey (2004, p.114) warn of the "dangers of romanticising the historical relationship of rural indigenous communities with their natural environment, and to oversimplifying changes to that relationship." However, a different view could be a valuable one as it will be looking at conservation from a different angle, without an agenda, not to be

influenced by outside perspectives, or capital driven. This is because the local people, even if they want to benefit, are not like the capitalists from outside of the community and would not want to take as much as they could.

Glavovic (2006, p.889) declares that there has been a "global paradigm shift in the management of natural resources from a „conservation discourse", top-down, centralised, resource based approach to a more holistic", sustainable development, system oriented, people centred approach. This move towards a participatory approach is being prompted by the better comprehension of the abstract interactions and interdependent relationships that exist between natural and socio-economic systems (Hauck and Sowman, 2003). This paradigm shift is being influenced and shaped by concepts such as sustainable livelihoods; people centered development and sustainable development (Nyikahadzoi, et al., 2010).

Moreover, as Hauck and Sowman (2003) note, there is "a growing realisation that the long term sustainable use of resource and management is ultimately dependent on managing human impact in a manner that is broadly supported"(p.2). Furthermore, Arlinghaus (2004) supports this statement by stating that it is acknowledged that fisheries management nowadays is more people management than fish management. Moreover, the scholarship which informs conventional fisheries management was solely concerned about the biology and ecology of species and food web dynamics; however this knowledge is insufficient for successful and sustainable fisheries management (Berkes, 2002). Therefore, there is a need for a better comprehension of the social and economic aspect in order to improve fisheries management (OECD and FAO, 2015).

As Hauck and Sowman (2003) note, some of the issues challenging fisheries management are the "ongoing overexploitation of fisheries resources, degradation of coastal areas, and conflict amongst coastal resources users" (p.2). The antecedent issues are an indication that current fisheries management approaches are not effective. From the issues stated above it is clear to see that fisheries management is a complex and multifaceted area of study therefore effective solutions will come from a multidisciplinary or interdisciplinary approach (Hutton and Pitcher, 1998; Cochrane, 2005; Sowman, et al., 2014a). The existing organisational arrangements are inadequate to manage fisheries as they fail to take into account the effects of environmental variability and uncertainty (Hutton and Pitcher, 1998).

There is a need for revolutionary fisheries management approaches that will deal with "issues of social equity, economic efficiency and ecological sustainability in an integrated way" (Hauck and Sowman, 2003, p.2). This is owing to how flawed the conventional „conservation discourse" is, which primarily focuses on the sustainability of natural resources by seeking measures\strategies on how to preserve and conserve natural resources, while neglecting the users of the resources and their needs and inputs on how best to manage these resources (Glavovic, 2006). These conservation measures restricted or denied people access to the fisheries resources which sustain the livelihoods of the communities and have made them vulnerable and potentially desperate. As a result, they might be encouraged to seek loopholes in the system. They will find other ways to access the fisheries resources, at a time when monitoring and security levels are low, and when they do they will harvest as much as they can because they are not sure when they will find another chance. There are a number of cases studies (Berkes, et al., 2000; Jentoft, 1989) evidencing that conventional fisheries management approaches are not working according to Hauck and Sowman (2006) and Ruckelhaus, et al. (2008).

Communities need to be part and parcel of the management process, be actively involved in decision making, their needs must take priority, and it is essential that fisheries management supports sustainable livelihoods (Nyikahadzoi, et al., 2010, p.664). People are just as important as the location in which they live. For a fisheries management system to be effective, it must not be swayed towards anthropocentrism or biocentrism. There is a need for a move towards ecocentrism. As a result there has been a shift from single species methodology, to a more holistic EBFM (Basson, 2011). Otherwise there will always be this resentful, „do not care" attitude towards conservation noted in the Russell and Kuiper (2003, p.152) case study, where a respondent stated that:

> *"*The resources are actually ours, but the government has taken them. We therefore deserve to be able to use them and if we break the government rules it is only fair. If we cheat and overharvest resources, then we are cheating the government and other outsiders of what should be ours in any case".

2.10 Main controls for conservation of fisheries resources

2.10.1 Total allowable catch (TAC)

It is noted that in South Africa the main management controls that are used to promote fisheries conservation include: total allowable catch (TAC), total allowable effort (TAE), closed areas, „no take" areas, marine protected areas (MPA), and minimum size (Clark and Heydorn, 2014; Hara, et al., 2008; MLRA, 1998). Total Allowable Catch (TAC) is the quota of the species that can be caught in the area annually, depending on the total catch available, and is divided equivalently among rights holders according to the MLRA (1998). Moreover, the TAC regulation is in place to: limit and regulate catch, produce statistics on the abundance of the stock and allow for adjustments of the catch as there sometimes variations with resources (Winter, 2009). The hake fishery is an example that corroborates these facts; in 1999 there was evidence that the numbers of hake might be depleting, therefore safety measures had to be put in place and the TAC was decreased to between 2000 to 3000 tonnes every year from 2003 onwards (McLean and Glazewisk, 2009, p.469). Such measures can be difficult to implement and enforce because the costs of doing so are high. In addition, the OECD (2011) warns that TACs may promote the discarding of the excess catch and the less desirable catches as they permit the targeting of by-catch species, seeing as they are only concerned with a single species, not the entire ecosystem. Despite the shortcomings of the TAC, it is still the most common method used (Branch and Clark, 2006).

2.10.2 Total allowable effort (TAE)

Total allowable effort (TAE) is used to restrict the number of people, boats, and traps operating at sea and in designated fishing areas (Janssen, et al., 2014). Advancing technology is a challenge because improved fishing techniques mean that fishers can catch their fish and other desired marine species at a much faster rate, thus undermining effort control states Harris (2001). Branch and Clark (2006) explain that this encourages over-capitalisation because it provides more capital investment opportunities which in turn decreases the amount of effort required to catch the same quota and can lead to overexploitation and depletion of the fisheries resource. Malak, et al. (2011) point out that regardless of how advanced technology is, the issue of by-catch still remains, for example, when by mistake the fishing gear catches non-targeted species. By-catch makes up forty percent of the world"s total fish catch. As this by-catch is legally not permitted, it is thrown back into the sea. Not only does

this have an adverse impact on marine life numbers, it is a great misuse and waste of resources, given that billions of individuals are impoverished and starving worldwide (Keledjian, et al., 2014).

2.10.3 Seasonal closures

Seasonal closures of a variety of species are enforced to prevent harvesting during the breeding season, to allow for reproduction (MLRA, 1998). Seasonal closure is important in that harvesting could interfere with the breeding process, making it less successful and result in the decline and, possibly, even the eventual eradication of a species (Branch and Clark, 2006). Seasonal closures assist in accomplishing biological, as well as economic objectives add Kangas, et al. (2008). As an example of a biological objective, Mann (2013) cites the stock collapse of garrick which resulted in the proposal to close the fishing season for that species for a two month period from the 1st of October to the 30th of November 2013. On the other hand, Roberts, et al. (2005) suggest that seasonal closures can impact negatively on economic objectives. When fishing efforts are concentrated in short periods of time, it creates competition amongst fishers, inundating the market with stocks. This might drive fishers to drop their prices as they try to sell their fish faster than their competitors, but they will ultimately generate less income than desired.

2.10.4 Marine protected areas

Marine protected areas (MPAs) in the fisheries context are areas specially selected so as to protect aquatic life and are isolated from human interference; there may or may not be fishing restrictions in place (Hamilton, 2012). MPAs are demarcated for the purposes of "protecting spawning stock, allowing stock recovery, enhancing stock abundance in adjacent areas, and providing pristine communities for research" as stipulated in the MLRA (1998, p.34). Due to overexploitation of a fishery, MPAs are often declared as closed areas or no take zones, where no fishing vessels or persons are allowed to fish. Pauly and Maclean (2003) explain further that this is expected to allow the marine stocks to recover. The significant role that the surrounding coastal communities play in MPAs has been recognised, however they are still neglected (Sesabo, 2007). According to Sunder and Isaacs (2008), local communities are often not involved in decision making concerning the conservation of fisheries resources which are part of their livelihoods and lifestyle. Agencies carrying out this conservation mandate often take a bottom-up approach in which they merely inform communities of how

things are going to be done (Ferse, et al., 2010), with instructions to comply with the new set of rules and regulations. Local communities need rather to be active participants in the decision making process, so as to understand the conservation goals and long term benefits. Understanding of a vision only comes if involved from the foundation stages of any plan. By being involved right from the start, the community members get an understanding of what the problem is, why certain measures and sacrifices need to be made, and they are given the opportunity to have their say in the matter.

The type of gear required to be used for a specific fishery depends on the permit issued, as it determines the rules and regulations to be abided by (MLRA, 1998). The consummate fishing gear, advises Walker (2005), is that which is multipurpose, and which captures the target species while leaving behind the smaller fish, allowing them to reach their productive age. The choice of gear also depends on the regulations, i.e. the regulations may state the minimum size allowable, below which fish of that particular species may not be caught. Fishing gear that will allow for the release of by-catch back into the sea unharmed is preferable as it reduces waste, and the extractive method must not reduce the quality of food. Fishing gear should also ensure that minimum destruction is caused to the environment and the ecosystem (Branch and Clark, 2006).

Fishing gear is categorised into passive and active, based on how the gear captures the target species (Govorushko, 2012). Passive gear includes fish traps, pots, gillnets and long lines; while active gear includes spears, dredges, and demersal trawls among others (Cochrane and Garcia, 2009). In the Sokhulu community, for example, members of the community initially used a bush knife (panga) to harvest mussels as it made the process faster and they could collect more in the limited time they had since they were collecting illegally (Harris, et al., 2003). The use of a screwdriver was introduced under the subsistence fisheries permit to encourage the move away from using bush knives, and it was the ideal gear, as harvested mussels found to be under the minimum size could be reattached to the rocks and they would continue to grow as they suffered very little damage from screwdrivers (United Nations Development Programme, United Nations Environment Programme, World Bank, and World Resources Institute [UNDP, UNEP, WB, and WRI], 2003). This is an example of governance where the community members and the authorities, after realising there was a problem, were able to come together and propose a solution to the use of such damaging fishing gear.

2.11 Governance in fisheries management

Banvick, et al. (2005, p.7) define governance "as the interactions between public and private stakeholders, instigated to solve societal problems and create societal opportunities". This includes the design and application of rules and regulations which will guide these interactions, and taking care of the institutions that enable them. Furthermore, Chakalall, et al. (2007, p.93) assert that:

> "Governance is much broader than management, and has many dimensions, including the interactions among all stakeholders that influence resource use outcomes as well as the principles that guide these interactions and the institutional arrangements within which they take place".

Mihyo (2005, p.165) states that the decentralisation of power by government does not render it irrelevant or mean that it should be absent in the process of solving societal problems and creating opportunities. Decentralisation means recognising that other stakeholders are just as important in the decision making process. Decentralisation limits government‟s command and control form of governing (Fleishman, 2006).

According to Stern (2012), the MLRA was developed to redress the legacy of Apartheid and integrate the previously disadvantaged communities into the fishing industry. The Individual Transferrable Quota (ITQ) rights allocation system was one of the strategies. One of the short comings of South Africa‟s democratic government in rectifying the injustices of the Apartheid government was to give the opportunity to every citizen to obtain access rights to fisheries. In the government‟s quest to fast track the process of issuing subsistence permits, some obvious loopholes remained as there was limited oversight (Hara, et al., 2008).

Measures for identifying those who were historically involved in fishing were not included in their process; hence the failure to integrate the previously disadvantaged in the fishing industry (Branch and Clark, 2006). The government‟s process opened the opportunity to everyone, resulting in new entrants gaining more permits because they understood the provisions of the permit system better than those involved historically as fishers (Isaacs, 2013). In addition to this, some of the fishers who had a history in the industry were excluded as they faced problems such as inadequate literacy, and the lack of finance and the required

skills due to their improvished backgrounds. Their exclusion runs contrary to the main objective of integrating this formerly excluded group.

It is thus evident that the new government failed to recognise the needs of very people the new legislature was supposed to help, thus creating an inevitable poverty trap when these community fishers were pitted against companies who had a long standing presence in the industry (Isaacs and Gervasio, 2011). Policies and regulations for fisheries management adopted by the colonial government in the 1890‟s were meant to favour and further develop the commercial industry at the cost of the small-scale fisheries sector (RSA, 2012). It is ironic that the democratic government introduced policies and legislation that further marginalised the previously disadvantaged, which neglected food security and poverty in favour of "economic growth, efficiency and stability" (van Sittert, et al., 2006, p.98). Sunde and Isaacs (2008, p.15) corroborate this by stating that:

> "Government adopted a more neoliberal stance by overlooking community participation in the redistribution of rights and promoting a large, commercially and export orientated macroeconomic strategy".

As a result, the transformation process in fishing has yielded minimal positive outcomes for the coastal communities to date.

2.12 Reconstruction Developmental Program (RDP)

The new democratic South African government introduced the Reconstruction Developmental Program (RDP) while still in its infancy in 1994 Isaacs (2011). The RDP is a policy framework that is people centered, and meant to redress the socio-economic issues brought about by Apartheid, such as the uneven distribution of resources, poverty, and inequality (Hersoug and Holm, 2000; Young, 2013). In the fisheries sector, the state was tasked with the facilitation of transformation through the "redistribution of rights, broadening of company ownership" and "governance reforms" (Nyikahadzoi, et al., 2010, p.670). This program was short lived (Banvick, et al., 2014), and as such, yielded minimal results, if any, in the transformation process. The fear of losing existing and future foreign investments persuaded government to embrace the free market ideologies (Isaacs and Gervasio, 2011). Free market ideologies put local businesses in jeopardy as they are generally unable to compete with multinational conglomerates that generally have better marketing strategies and well known, trusted brand names.

2.13 Growth employment and redistribution (GEAR) influences

In 1996, the RDP was abandoned for the Growth Employment and Redistribution (GEAR) programme, which was a neo-liberal, market orientated approach to socio-economic development (Isaacs, 2011). This shift from RDP to GEAR was due to "global influences and forces succeeding the collapse of socialism in the former Eastern Europe" (Nyikahadzoi, et al., 2010, p.670). The second reason for the above-mentioned shift was that it was one of the negotiation conditions for ending Apartheid; there was a fear that during the transition to democratic freedom there might be a mass departure of capital or brain drain (Nyikahadzoi, et al., 2010).

Sowman, et al. (2014b) explain that GEAR was devised to minimise government‟s intervention in the nation‟s socio-economic development and let the market forces determine the direction and pace of the nation‟s development. This meant that the government would "reduce fiscal deficits, liberalise trade and deregulate domestic markets" (Nyikahadzoi, et al., 2010, p.671). GEAR was adopted to increase economic growth and create new jobs, and it was believed that it would cause a „trickle-down‟ effect, whereby as the rich became richer by accumulating more wealth, then the poor would also stand to benefit through jobs that would be offered (Thurlow, 2006; Isaacs, 2011; Isaacs and Gervasio, 2011). The trickle-down effect proved to be a misconception, however, and van der Burgt (2012) described the situation as one where the poor basically got scraps or bread crumbs from the rich feasting at the main table and accumulating wealth. GEAR failed to benefit the poor because the jobs offered to them were most often for basic or minimum wages. The poor often lacked the skills or necessary education to secure jobs that would enable them to improve themselves and become part of the working or middle class.

GEAR was meant to ensure that the "emphasis was on market mechanisms to regulate access rights" (Nyikahadzoi, et al., 2010, p.671). As discussed in the recreational fishing section, an attempt was made to redress the inequality in the fisheries by providing opportunities for anyone and everyone to be able to obtain access rights. This failed as only those already privileged benefitted, due to the fact that they were the only ones who understood the workings of the markets and the requirements necessary to obtain these access rights (Stern, 2012). Hersoug and Holm (2000) essentially agreed that the transformation process mostly benefitted the already existing white businesses rather than the black owned businesses.

The adoption of GEAR required that those who were interested in actively participating in the fisheries industry be inventive, creative and business savvy (Isaacs, 2011). The new respondents/applicants were unsuccessful, as they were lacking in the following areas: finances, management skills, networking and business acumen (Janssen, et al., 2014). Moreover, these new entrants lacked financial backing from the local financial organisations as they had rules and regulations which made it difficult for these people trying to access funding to help start up or maintain their businesses. The fact that they did not have collateral to secure loans only exacerbated the situation (Nyikahadzoi, et al., 2010). The unfortunate circumstances of black owned businesses being inept at entering the fisheries industry was advantageous to the established businesses and allowed them to further advance themselves (Isaacs and Gervasio, 2011). As a result, the conglomerate businesses entered into a partnership with the new entrants into the market, whereby they (the conglomerates) would use their harvesting, processing and marketing skills to gain more business and the new entrants simply provided a facade to gain Black Economic Empowerment (BEE) status, and there was therefore no equality in this partnership (Ashman, et al., 2010).

As a result, black fishers‟ only hope was that the government would reclaim their access rights from the white owned companies and give them back to the previously disadvantaged individuals (Janssen, et al., 2014). In response, Nyikahadzoi, et al. (2010) attest that the government adopted the „willing buyer-willing seller‟ approach. In this instance, the white owned companies were „unwilling sellers‟ as they felt that they had invested too much into their businesses to just hand their companies over without fighting to keep them. The historically disadvantaged fishers were „unwilling buyers‟, who felt aggrieved that they had to negotiate to have back what was stolen from them and inherently theirs to claim and own (Isaacs, et al., 2007). Consequently the white companies fought, using their power and financial advantage to drag the government through legal battles, challenging the transformation recommendations made in policies and regulations that were aimed at redressing inequality in the distribution of resources in the fisheries industry (Hersoug and Holm, 2000).

2.14 Broad Based Black Economic Empowerment (BBBEE)/ Black Economic Empowerment (BEE)

The Broad Based Black Economic Empowerment (BBBEE) policy was formulated in order to support black people, so that more black people could become part of the economy of their nation (Greene, 2010). BEE was not a new strategy in South Africa; it was first introduced in 1955 under the Freedom Charter, however, adjustments had to be made as it only advanced a handful of well-connected politicians and business people (Ponte and van Stittert, 2007). Getting more black individuals placed in the management structures of companies and to own companies was aimed at reducing the income inequalities across all races and classes (Schneiderman, 2013). The main obstacle preventing black owned enterprises from competing in the markets was access to credit. So when capital was available, white owned companies would only let black enterprises in through offering them shares (Nyikahadzoi, et al., 2010). However these shares did not give them a voice in decision making, it was simply for window dressing purposes (Isaacs and Gervasio, 2011).

2.15 Challenges to the governance of fisheries management

2.15.1 Overexploitation of the fisheries

The current governance approach in the fisheries faces several problems that need to be addressed going forward. Overexploitation of the fisheries is one of the problems (Burks, 2006; Garcia, 2008). Sowman (2011) reveals that fisheries resources are in great demand globally. Local communities and outsiders stand to benefit as more opportunities open up for them, however in most cases, it is the outsiders/industrial companies that benefit more from these opportunities as they have advanced technology which enables them to access the marine resources efficiently and effectively (Neilsen, et al., 2004). The local communities, on the other hand, lack organisational resources, finance capital and a secure future access to fisheries resources, which are requirements for operating at an international level (Isaacs and Gervasio, 2011). Local communities thus end up harvesting just enough to be consumed by their family, utilising basic tools, and the excess is exchanged between neighbours. The competition between the foreign fleet and local fishers on the Mozambican coast is a case in point.

2.15.2 International agreements and conventions

When governments sign international agreements and conventions on environment and fisheries management, they disadvantage local fishers because there are standards to abide by (Sowman, 2011). These agreements and conventions predominantly prioritise the protection of ecosystems over the well-being of local communities (Grafton et al., 2010b). In addition, there are market-driven agreements such as green labeling or certification of fisheries products and Neilsen, et al. (2004) state that these are also ecosystem driven, once again neglecting the local communities. It is acknowledged that some of the objectives of these agreements, when looking at the long term benefits, will probably benefit the ecosystem and the community because of the sustainability of their resources. However, neglecting what the community needs in the short term, which is obtaining food and income, results in the government losing the support of the community in complying with the regulations and laws brought forth by the agreements and conventions. In many instances these agreements fail to take into consideration the local interests. They instead take into account issues at a macro level, compromising regulations that protect individual or small scale fisheries.

2.15.3 Competition for space

Fisheries are also under pressure from other users of the environment, such as infrastructure, aquaculture, irrigation, agriculture, and industrial development (Burks, 2006). All these users are in competition for space. In addition, there is a risk that these other users could bring about environmental changes. For example, lower productivity of fisheries resources because of what these other users might be emitting or producing as a byproduct of their industry. Neilsen, et al. (2004) cite the development of tourism in Lake Kariba in Zimbabwe as an example of this. Tourism has led to large areas of the lake being closed to the local fisheries. When communities are excluded in this way, it reduces their access to resources and increases conflict within the community and also with the government.

Members of inland communities may also migrate to the coast in search of possible job opportunities and infrastructure development (Nandakumar, 2007), but this migration then puts pressure on the coastal resources and space. The resultant growth in population leads to the overexploitation of the resources, thus reducing the production of fish stocks (Neilsen, et al., 2004). The rise in population growth leads to conflict between fishers over equipment, markets and access to resources. Globalisation and competition among the users poses a

threat to the control and access to a dwindling fisheries resource (Grafton, et al., 2010b), thus necessitating more innovative management strategies.

2.15.4 Modern fishery management

Modern fishery management has often failed to meet its own objectives as management usually use a top-down approach, alienating communities from decision making processes (Mihyo, 2005). It is also noted that biological institutions and universities conduct studies and collect data that often pays little attention to the concerns of the communities. The main priority of these institutions in fisheries management is the sustainability of the resources (Degnbol, et al., 2006) following their study. Sustainability of the resources is vital; however, the communities surrounding the resources are just as important. These communities are dependent on the resources, but for them their main priorities are their socio-economic concerns like food and income. Neilsen, et al. (2004) refers to the need to find a balance between conservation and socio-economic concerns, and warns that failure to find an amicable solution might lead the users to overexploit the resource due to uncertainty as to when a similar opportunity to harvest marine resources will present itself.

2.15.5 Indigenous knowledge

Indigenous knowledge that could potentially add more value to the body of scientific knowledge and also be used in the decision making about the marine resource management is often not sought after (Sunde and Isaacs, 2008). Most institutions were established long before the contemporary fisheries management concepts (Chakalall, et al., 2007). Therefore, in most cases explains Neilsen, et al. (2004), the issue is not that there are no institutions for fisheries management, but that the existing institutions were established for specific objectives for that time. There is a new set of problems facing these fisheries institutions. It is noted that they currently do not have the capacity to handle them. Their incapacity and inefficiencies make them inadequate, impotent and inappropriate to deal with these challenges. The only viable option is to establish alternative structures which will be endowed with capacity and expertise to resolve current challenges.

Degnbol, et al. (2006) notes that in order for fisheries governance to be effective there is a need to take into consideration the complex, diverse and dynamic the nature of these challenges mentioned above. The fisheries industry is made up of a vast number of stakeholders who are limited or enabled by their structures when taking action on any issues.

These stakeholders are inclusive of the government, non-governmental organisations (NGOs), individuals, companies, households, international organisations, the community and political parties Structure refers to the framework on which the individuals act (Banvick, et al., 2005) and they take into account the law, culture, agreements, and technical possibilities. Stakeholders continuously change the structure to fit with their day to day lives and times, while at the same time they are influenced by it (Kalanda-Sabola, et al., 2007).

2.15.6 A dynamic society

Society is dynamic, hence there is never equilibrium, and governance is driven by so many different stakeholders that their point of departure in addressing the issues at hand is not always the same (OECD and FAO, 2015). Governance is made of the interactions between those who are governing and those being governed (Hara, et al., 2015). The number of stakeholders involved in governance is viewed as a problem, as it is perceived as brewing conflict. Since stakeholders generally come from different backgrounds, they have diverse beliefs and aspirations which influence their decision-making process, resulting in opposing views. However, Banvick, et al. (2005) states that if the interests, agendas and capacities of these stakeholders were to be properly guided and directed, there are prospects of a synergy which could benefit governance. From the diversity of stakeholders new innovative ideas could be produced. It is deemed important to view issues from different angles and diversity, thus creating and maximising resilience in natural ecosystems.

2.16 Fisheries compliance

From an economic perspective, Stern (2012) argues that it makes more sense to allocate rights to the community members for the efficiency of fisheries management because when it comes to the law‟s enforcement, government resources are often limited. Furthermore, the issue of monitoring the South African coast is most difficult because of the government‟s limited resources. If the community is involved in monitoring, it would make it more effective (Pomeroy, et al., 2011). This is, of course, based on the provisions that fisheries resources are common property and they are of an open access nature.

According to Hardin‟s Tragedy of the Commons (1968), the open access nature of such common resources will eventually lead to overexploitation. However, the commons oppose Hardin‟s view by arguing that the issue is not that the resource is common, but rather the open access nature of it (Allison and Ellis, 2001). Though Hardin‟s view is insightful, the

solution lies in establishing institutions which include the cultural factor and institutional arrangements. The groups who are more likely to deal with this problem effectively are the ones that will ensure that guidelines take into consideration the needs and conditions of the community.

According to Stern (2012), a co-management strategy only works if it is supported by those whom the scheme is meant to assist. Hauck and Kroese (2006, p.79) support this statement by arguing that "from a compliance perspective, it is argued that granting legal rights to resources provides an incentive to users to manage the resources more sustainably." A sense of ownership gives people an inherent sense of responsibility and it comes naturally to them to take care of that resource because they depend on it. It encourages them to utilise the resource in moderation, bearing the future in mind, and knowing that they have a stake in the ownership gives them a sense of pride in the resources. Pinkerton (2009) agrees that community based monitoring is one method that could help alleviate overfishing and illegal poaching in impoverished fishing communities.

According to Defeo, et al. (2007), there is a world crisis in fisheries. This is due to the open access nature of fisheries resources (Jamie and Betchel, 2010). Hardin therefore argues that fisheries are in crisis because of the „tragedy of the commons", that is, people maximising their individual benefit without taking into consideration other resource users. The government, at different levels and using its institution and policies, takes the responsibility of protecting and managing the natural resources (Pinkerton, 2009). This applies to the country"s marine stock. Another school of thought argues that there has to be other alternatives to Hardin"s model because individuals can be cooperative in collective action for resource governance (Ngoitiko, et al., 2010). As a result it is stated that one of the key characteristics to effective common resource governance is rule compliance. Regardless of which strategies are developed to improve compliance, those who enforce the rules which are put in place must be seen as legitimate and effective (Pomeroy, et al., 2011), otherwise the implementation and development of these strategies will be in vain.

2.17 The link between socio-economic and ecological systems in fisheries

Conventionally, scientific expertise is used to allocate and manage fisheries resources, prioritising the national economic objectives over the communities‟ interests and livelihoods that are affected (Neilsen, et al., 2004). In most countries and regions fisheries management is predominantly the responsibility of the biologists and economists who, according to Petersen (2006), mainly prioritise high catches, the utilisation of all resources and social goals such as employment and food security. Community well-being receives little attention (Clark and Heydorn, 2014). The need for social scientists in fisheries management has been recognised. It is needed because social science is more likely to broaden the scope of fisheries management, and bridging the relevant disciplines will ensure a better understanding of the social issues and secure both people and resources.

In order to resolve complexities and difficulties faced by the fisheries, there is a need to recognise the "interconnectivity of concerns for economic health, social justice, livelihoods, food security and food safety" (Banvick, et al., 2005, p.20). The connection between social and ecological systems is deemed important to understand and achieve resource sustainability, but the multifaceted nature of the social and natural systems makes the link more complex (Hauck, 2008). Britton (2014) elaborates on this, stating that a multidisciplinary approach is favoured as it bridges the disciplines, and blends theories and practices, thus enabling the understanding of the link between these complex arrangements by proposing more effective governance systems.

The linkages between social and economic systems are becoming more obvious as poor coastal communities are becoming more dependent on diminishing fishing stocks claims (Banvick, et al., 2005). This inseparable and inextricable link between the environment and human rights is enshrined in South Africa‟s Constitution Bill of Rights. The Constitution of the Bill of Rights of South Africa stipulates "that everyone has a right to an environment which is not harmful to their health and wellbeing" (RSA, 1996, p.9). The responsibility tolls on government to develop measures to ensure such a conducive and enabling environment. Nonetheless, there is an ordeal in the development of policies and regulations by different segments of government, who interpret constitutional divisions in different ways, sometimes giving conflicting standpoints and versions (Stern, 2012). Hauck (2008) notes that social development; equity, macro-economic policy and environmental sustainability, and the goals of economic efficiency are influenced by the conflicting objectives of national frameworks.

In view of the lack of cohesiveness in the national frameworks principles of social equity and environmental sustainability, the goals of economic efficiency have been neglected. Economic growth, efficiency and stability have been prioritised over issues of poverty and food security (van der Burgt, 2012)

2.18 Provisions for the previously disadvantaged to benefit from fisheries resources

Prior to the passing of the MLRA (1998), the small-scale fishers were characterised as illegal or fell under regulations for recreational fishers (Hara, et al., 2008). Subsistence fisheries were not recognised. In areas where there was effective monitoring, they would be fined or imprisoned if caught fishing (Sowman, 2006). In the areas where there was a lack of effective monitoring, the subsistence fishers were just ignored, but in keeping with the laws and regulations of the Apartheid regime, these fishers were „non complaint". Since 1998 subsistence fisheries were legally recognised and limited commercial rights were granted. The process of the redistribution of access rights to those in the subsistence fisheries meant that there was an increase in the number of entrants operating along the 300 km of coastline, and this necessitated the need for monitoring and management to ensure compliance (Hauck, 2008).

As opposed to solving the issues of inequality and marginalisation of the previously disadvantaged communities, Clark and Heydorn (2014) confirm that the redistribution of access rights in fisheries exacerbated them. Undeniably, the redistribution of access rights increased the number of entrants in the fisheries with legal rights, however many of the traditional fishers were still excluded according to the findings of the study conducted by Hara, et al. (2008). This came about as a result of inequitable policy implementation and the powerful local elites who robbed the bonafide fishers of opportunities which were rightfully theirs (Hauck, 2008). Stern (2012) asserts that though the democratic government has attempted to include those who were previously disadvantaged into the fisheries sectors, current environmental policies restrict their access to the fisheries resources. As a result, a sizeable number still lack access to fisheries to sustain their livelihoods. Additionally, the government and capital industries have been prioritising all efforts that would yield high profits, rather than focus on the socio-economic concerns of the traditional fishers.

2.19 Co-management in fisheries

Carlsson and Berkes (2005, p.66) argue that "co-management should be seen as an approach to governance". Defeo, et al. (2014) argues that co-management is "emerging as a powerful governance model to redress fisheries paradigm failures" (p2). Numerous writers (Jentoft, 1989; Degnbol, et al., 2006; Pomeroy and Rivera-Guieb, 2006; Defeo, et al., 2014) stress that co-management is not a panacea to the problems regarding fisheries resource management; rather it is a platform to create solutions.

According to Berkes (2009a) there is no universally accepted definition of co-management, rather there are many definitions. Generally, co-management is defined as the shared responsibility and power of the management of a specific area or resource, in the form of a partnership between the public-private-civil stakeholders (Neilsen, et al., 2004; Carlsson and Berkes, 2005; Berkes, 2009a; Evans, et al., 2011; Grover and Kranzberg, 2013, Ayers and Kittinger, 2014; Defeo, et al., 2014). Grover and Kranzberg (2013) add that the civil stakeholders, namely the community members, need to be actively involved in every decision making step, but they are generally excluded. Berkes (2009b) stresses that they need to have a voice in management decisions which affects their livelihoods, as this is considered good governance.

Co-management promotes a decentralisation of power (Bown, et al., 2013). In most countries, the government is the authority in resource management though the power and responsibility might be shared with other stakeholders (Berkes, 2004). As noted in Carlsson and Berkes (2005), co-management can viewed as a continuum, where at one end there is a simple exchange of information and at the other end there is a formal partnership. Co-management, as described by Ayers and Kittinger (2014) is not a definite solution; it is rather a process where the partners learn by doing, and all stakeholders/partners in the process bear the brunt and share the gains of their decisions. When referring to power here, it is perceived as "an institutional sense" including the power to create and modify rules, to make decisions about how resources are used to implement and enforce rules, and to adjudicate disputes (Fischer, et al., 2014). One of challenges in power sharing is that within communities, it is the elite members who yield more influence and receive more benefits, consequently disadvantaging the less privileged (Burnley et al., 2014). Capacity building at the various levels of government and in the fishing communities can alternatively strengthen power sharing (Neilsen, et al., 2004). When consensus is reached, power sharing can improve the

legitimacy of management, accountability and transparency (Carlsson and Berkes, 2005). As different parties work together, their weaknesses are made up for by their combined strengths. Mihyo (2005) agrees that decentralization and power sharing strengthens institutions.

Most governments have taken the „instrumental co-management approach", where they only include the community members at the implementation stage (Jentoft, 2007). The involvement of community members at every stage of the decision-making process is crucial as it broadens their scope of knowledge, empowering them with information (Hermans et al., 2013). When community members are equipped with the necessary information and they are not just bystanders, they feel a sense of responsibility to play their part and preserve the fisheries resources. Mihyo (2005) reports that indigenous knowledge of fisheries resources is often disregarded. Indeed, Nielsen, et al. (2004) reports that there is no documentation in the literature indicating that indigenous knowledge was viewed as being as credible as acknowledged scientific knowledge and therefore used as the basis for a management decision. There are documented examples of instrumental co-management approaches, and these include "the Administrative Management Design for Game Management Areas in Zambia, the Communal Areas Management Program for Indigenous Resources in Zimbabwe, the development of marine parks in Malaysia and the co-management arrangement in San Miguel Bay in the Philippines" (Neilsen, et al., 2004, p.154).

2.19.1 Institutional building through co-management

Co-management is an opportunity for institutional building, however, governments seldom works with local institutions (Berkes, 2004). Governments are usually unprepared to enter into partnership with local institutions, and Grover and Krantzberg (2013) explain that in most of the cases it is the lack of capacity to network that hinders the partnership. It is argued by Fischer, et al. (2014) that co-management develops through feedback learning from simple management mechanisms. Ayers and Kittinger (2014) debated that it occurred as a result of recognising the relevant local institutions and building on their strengths, or alternatively of coming up with new institutions where the existing ones no longer served the purpose of the current objectives. The latter has been achieved through the transformation process. For example, KwaZulu-Natal is the province which has had the most success with co-

management; Ezemvelo KwaZulu-Natal Wildlife is the provincial agency that grants subsistence fisheries permits to the members of the community that qualify. According to Berkes (2009b), the existence of a constructive policy environment helps in the development of workable and effective co-management arrangements.

According to Berkes (2009a), building trust between different stakeholders is imperative. In the absence of trust there is generally a failure in the co-management arrangement. Grover and Krantzberg (2013) agree with Berkes (2009a), stating that in order to resolve issues and conflicts that will arise from the co-management of a resource, there needs to be some level of trust. When trust is lacking, it makes it difficult to ensure that all stakeholders comply with the rules and regulations set for fisheries management. Stakeholders may feel obliged to agree to one thing to save face, and do something else entirely when away from the watchful eye of their partners. An example of a lack of trust was revealed in the study conducted by Sundstrom (2012) on small-scale fishers in South Africa, where some fishers were discouraged from abiding by the rules and lost respect for the authorities because other fishers illegally caught species like lobster and abalone, and paid bribes for monitors to turn a blind eye. The absence of trust therefore made the efforts to come up with solutions fruitless in that instance.

Co-management is a learning process of trial and error, and Fischer, et al. (2014) terms it as adaptive co-management. Grover and Krantzberg (2013) describe this as an unending process in which the relationships between the stakeholders are constantly changing, as they learn what does and doesn‟t work. Projects require thorough planning and evaluation prior to implementation and then ongoing evaluation as the project progresses. Extensive negotiations are required and Cundill and Fabricius (2009) advise a return to the drawing board to facilitate adjustments when failures are encountered. Many parties are discouraged by co-management as the process can take a very long time and be fraught with difficulty (Neilsen, et al., 2004); and Berkes (2009a) advises that the process will differ from one case to another.

2.20 Alternative livelihoods

According to Kashorte (2003, p.9), 30% of the population of South Africa lives within 60 km of the coast. The current increase in population growth puts pressure on the marine resources as they are being harvested at a rate faster than they can recover from, with some fisheries species being harvested before they are mature (Branch and Clark, 2006). The growth in the

population, together with the rise in the unemployment rate and the rise in poverty in the coastal communities are some of the contributing factors attributed by Pomeroy (2011), as putting pressure on the coastal and marine resources in an unsustainable manner. It is thus encouraged that coastal communities pursue alternative livelihoods so as to offset the pressure on the natural resources.

2.20.1 What are the alternative livelihoods?

The world‟s fisheries stocks are declining at a rapid rate due to overexploitation, poverty and an increase in the population (Merino, et al., 2012; Monteiro and Salvador, 2014). The demand is higher than what the fisheries industry is able to deliver, as it is expected to cater for nutritional needs and create employment and entrepreneurial opportunities for coastal communities (Kawarazuka and Bene, 2010). The fish stock is not reproducing at a rate fast enough to meet this demand (Walker and Sal, 2006). Given that coastal communities tend to depend solely on fishing for their livelihoods, they will continue fishing until the last available fish is caught if they do not have any other means to provide for their households (Asiedu and Nanoo, 2013). The above will happen despite the rules and regulations in place to ensure sustainable fisheries management.

Bakarr, et al. (2013) state that overexploitation of any fisheries species creates food insecurity, increases the levels of poverty and puts a strain on the economy of the nation. In addition Badjeck, et al. (2010) state that the levels of poverty, in conjunction with the specialisation trap, make fishing households incapable of adapting to environmental changes. When a fisher depends on one species or fishing activity it leaves them vulnerable, and if that dependence is on a species with closed seasons, then that fisher‟s livelihood will be compromised during that time.

Alternative livelihoods are income generating activities, devised to reduce pressure on the marine resources by persuading fishers to diversify and take up other activities as a means to generate income (Asiedu and Nunoo, 2013; Crawford, 2002; Ireland, et al., 2004). The RF (2013) agrees that alternative livelihoods are recommended as a solution to curb overexploitation and reduce poverty. The reality, unfortunately, is that the people inevitably return to fishing as they discover that the alternative livelihoods do not generate as much income as the fishing industry. Alternative livelihoods have thus generally not proved to be a successful solution to the problem of overexploitation of the fisheries.

2.21 Reasons why the alternatives livelihoods are important

2.21.1 Population pressure

Ahmed (2008, p.45) reports, that "50% of the world"s population inhabits coastal zones". Some of this population comprises of people who have specifically migrated to the coastal communities in the hopes of finding better employment opportunities (Mitchell, et al., 2008) however this puts excessive pressure on the coastal resources. To reduce this pressure, alternative livelihood activities must be introduced. Nonetheless, an increase in population does not only have negative effects. An increase in population means an increase in human capital, with a potential increase in innovations which would boost the economy, an increase in opportunities and possibly even different and valuable ideas for environmental management (Ireland, et al., 2004).

2.21.2 Illegal exploitation of coastal resources

Ireland, et al. (2004) convey that rules and regulations are set out for the fisheries industry which stipulates how the fisheries are to be managed. This is done in order to ensure the sustainability of the resources, but Grafton, et al. (2009) reports that these rules and regulations are rarely actively enforced. There are daily bag limits for certain species, and this causes dissatisfaction among community members as they are faced with a dilemma: They can choose to abide by the limits and conserve the fisheries, or they can break the law and catch more than their quota in order to put food on the table and have extra for sale, given that their livelihood relies entirely on this resource (Te Lintelo, 2008)

Illegal fishing remains high for species like rock lobster, line fish and abalone (Sundstrom, 2012). Abalone in particular, is a highly valued species and fetches a good price, thus providing a better income for the household. Nevertheless, overexploitation translates into depletion of the fisheries resources and long term environmental degradation. This in turn translates into the idea that the community members ultimately stand to lose their livelihoods if they continue with this practice (Berkes, 2009b).

2.21.3 Emergence of unsustainable practices

Community members resort to unsustainable harvesting practices as their immediate concern is the short term benefits for them as individuals, affording them the basic necessities for their households (OECD and FAO, 2015). This, however, causes long term immutable damage to

the environment, with a decline in fisheries stock and possibly even the extinction of the resource in the long term. Harris, et al. (2003) cite the Sokhulu community in KwaZulu-Natal as an example of an unsustainable harvesting practice. This community had been harvesting mussels for many years. When the recreational permits were introduced, they were legally obliged to purchase permits and their individual catch was significantly reduced and limited to 50 mussels per day. Unemployment levels were high in the area and people found it difficult to afford the permit. In addition to this, the daily bag limit of mussels did not generate sufficient income. People therefore took it upon themselves to risk fines and arrest, and began harvesting at night using spades and knives (UNDP, UNEP, WB, and WRI, 2003) in an effort to collect as many mussels as they could in the absence of monitors.

2.21.4 Poverty

Coastal communities cannot be perceived as the sole reason for coastal environmental degradation, but given their state of poverty it does increase their rate of dependence on fisheries resources to sustain their livelihoods (Ireland, et al., 2004). They are, however, solely responsible for the degradation as a result of unsustainable harvesting practices such as those of the Sokhulu community. Commercial companies who catch higher quotas share their portion of the blame. A large proportion of the livelihood of poor coastal residents is derived from fisheries resources, but even then they cannot attain a better quality of life and remain in poverty (van der Burgt, 2012). Greer and Harvey (2004, p.117) argue that "biodiversity conservation cannot be achieved unless the poverty cycle is broken".

2.21.5 Political agenda

According to Ireland et al. (2004) the majority of the coastlines are administered by democratic processes. Most political parties include combating poverty as a priority objective on their manifestos so as to win and gain political power, but unfortunately do not fulfill their promises when they do get elected. In rare cases these parties have a genuine commitment and believe that alternatives will aid in the reduction of poverty.

The reason why alternative livelihoods are developed may differ from one project to the next, however they all have two broad goals. Crawford (2002) reports that the first goal is to restrict access to fisheries resources in order to protect and preserve them. The second goal is based on recognising that in some coastal communities, the inhabitants are solely dependent on fisheries resources for their income (Burks, 2006). It is therefore vital to ensure the

sustainable use of these fisheries resources so as not to comprise their future use. The second goal is in line with the Jakarta Mandate which advocates for the sustainable use of fisheries resources reports van Houtte (2004). The Jakarta Mandate takes into consideration that fisheries resources are a source of nutrition and it is where millions of people derive their livelihoods. It is consequently unjustified to stop people from accessing them. Through the sustainable use of fisheries resources, the nutritional needs of the communities are met, while concurrently fulfilling the social obligation of conserving biological diversity (Link, 2010). Ireland, et al. (2004) suggests that the goals of sustainable coastal livelihoods be based on the vision of the Jarkata Mandate.

2.22 Different alternative livelihood activities

2.22.1 Ecotourism

Alternative livelihood activities include: agriculture, tourism activities, and aquaculture projects amongst others (Sievanen, et al., 2005). According to Sadovy (2005) ecotourism is one of the alternative livelihoods in most developing countries. Activities could be linked directly or indirectly to coastal tourism. It is noted that "….trading and catering sector in KZN is one of the sectors contributes 15.8% to the economy base of the province making it one of major contributors and it is indirectly linked to coastal tourism" (Glavovic and Boonzaier, 2007, p.10).

Savody, et al. (2005) state that there are only a few examples where the benefits of ecotourism go directly to the coastal communities. In most cases it is the investors from outside of the communities that reap the benefits, together with a selected few who are well connected in the community, and construction workers (Tunley, 2009). The Mabibi community is a classic example of this; where in 2002 the Wetland Parks Authority started an ecotourism project and "entered into an agreement with a private company to establish the Thonga Lodge and the Mabibi campsite" (Jury, et al., 2008, p.377). Through the Mabibi Community Trust, the local community owns 68%, or R6.5 million worth of shares in the "Thonga Lodge and a 51% share in the campsite" (Zeppel, 2006, p.196). The community, however, is unaware of these benefits, and Sunde and Isaacs (2008) assert that this is due to the fact that it was not included in the planning process and decision making, and therefore do not know what they are entitled to in this whole transaction. Mabibi remains underdeveloped with poor infrastructure and lacks essential facilities and this suggests a

mismanagement of the funds from the Trust meant for community development; there is no trickle down effect of these benefits (Guyot, 2002).

2.22.2 Agriculture

Agriculture plays a crucial role in achieving food security and as a result, alleviates poverty (Ghosh, 2014). Consequently, agriculture creates employment opportunities, reduces food prices, increases farm income and raises wages (Karanja, 2010). Vink (2015) argues that it is vital that agriculture be at the heart of policy approaches to food security, as it contributes to promoting economic growth and reducing food insecurity. As people are able to grow their own food it is another alternative livelihood strategy enabling them to generate income and also provide nutritional value for their household. Farming becomes difficult, however, without proper farmer support programs and as result, people remain poverty stricken and their livelihood options restricted (OECD, 2012). There have been cases where people had access to fertile land but were unable to use it to its maximum potential as they lacked the required farming skills (du Toit, 2011). Asiedu and Nunoo (2013) support the need for proper training by stating that an alternative livelihood scheme is properly designed if it has outlined how it will go about improving or providing skills among fishers.

Te Lintelo (2008) conducted a study in Lake Victoria and concluded that the agriculture industry, the fishing industry and other livelihood strategies are interrelated. These researchers determined that only a few people engaged in livelihood activities from both the agriculture and fishing sectors. However, trends in agriculture influenced the fish market and the opposite was found to be true as well (Bokea and Ikiara, 2000). Consumer prices rose in the lake side region of Bukoba in Tanzania during the coffee harvests (Kessy, 2005). Likewise, in the event that the catch was good, fishers spent their income on agriculture and other consumer goods. That is why, during the time of one of the European Union bans on fish exports, fishers received lower incomes and agriculture was affected in numerous communities. Farmers in Kiboto mentioned that there was excess produce, but people were not buying as they did not have money (Geheb, et al., 2008).

According to Geheb, et al. (2008), farming is not a perfect alternative livelihood for fishing. Unlike in the fishing sector, where income is earned as soon as the fish are caught and sold, farming takes time and profits, in cash and in kind, are not available for use immediately. In

most cases therefore, people opt rather to cut expenditure, for example eating meat only once a week, rather than venture into agriculture as an alternative livelihood.

2.22.3 Aquaculture

Africa‟s fisheries resources have been considerably overexploited, however the demand for fish in Africa is still rising (Te Lintelo, 2008). Fish is one of the main animal protein contributors to people‟s nutrition; “in Africa 17.4% of animal protein intake is in the form of fish”, (Brummett, et al., 2008, p.372). Therefore, given that marine resources are currently already overexploited and that the demand for fish is still high, aquaculture is an option well worth exploring. In addition, it will also help in alleviating poverty and creating other alternative income generating activities.

Aquaculture has been practiced in Africa for over 50 years, however seldom successfully (Machena and Moehl, 2001). One of contributing factors that hinders aquaculture‟s success as an alternative livelihood option is that its policy makers are generally placed in departments such as the Ministries of Agriculture, Natural Resources, and Fisheries (Blow and Leonard, 2007). Brummet et al. (2008) explains that aquaculture extension services are managed by people from the Ministry of Agriculture, who have minimal or no formal training in fish culture and lack contact with fisheries specialists in research facilities and those specialists placed in other departments.

Policy makers and fisheries specialists responsible for aquaculture research generally fall under different departments and institutions. There is a lot of red tape involved when they work together to debate issues and make decisions to achieve common goals and visions (Mwangi, 2008). This results in the waste of an exorbitant amount of money from the public purse, and technical information is lost when passed between tax-payers, government officials, researchers to extension officers and farmers (de Voe and Hodges, 2002). Policy makers are also misinformed regarding the challenges and necessities of the farmers, and this prevents this sector from moving forward. Brummet et al. (2008) poses the question: If the policy makers are not aware of the weaknesses of the sector, how are they supposed to come up with strategies which work and promote its further development? These researchers add that in order for this sector to be successful, the government will need to invest in capacity building.

Aquaculture generally does not directly contribute to the household‟s food consumption; as its production is mostly steered towards high valued species (Kawarazuka and Bene, 2010). Even the money generated from selling them is not necessarily used to buy smaller fish for household consumption. Small-scale fishers may find this livelihood alternative difficult, as with high value species they might have to compete with commercial fisheries for the target market, and end up selling at lower prices just to ensure that they generate income.

According to Asiedu and Nunoo (2013), fishers view alternative livelihood activities such as farming, ecotourism and fishing processing as limited; therefore it is essential that future alternative livelihood programs look beyond the fishing industry. It is recommended that alternative livelihoods are built from existing identified skills and capital assets in the community (Ireland et al., 2004).

2.23 Alternative livelihoods reducing overexploitation

Giving a resource a high value status is one of the alternative initiatives used to entice better management and control efforts (Sadovy, 2005). Due to a lack of effective and efficient management in these luxury markets, communities find themselves engaging in poaching, disputes, corruption and destructive fishing (Sundstrom, 2012). Such management efforts result in long term resource degradation and social and environmental abuse. ECRL in KZN are an example. According to Reylonds and Souty-Grosset (2012) poaching levels of ECRL are high because of their commercial value and the high demand. Although their sale is not permitted, they are sold because they are highly sought after. They continue to be sold illegally to tourists, to passersby on the national roads, and to resorts and restaurants; and in most cases these sales involve undersized lobsters, due to the lack of efficient management. Even though current stocks are stable, there are concerns that if this overexploitation continues, the stocks level will eventually decline, leading to the extinction of the resource (Steyn et al., 2008).

2.24 Conclusion

Fisheries resources play a significant role in the lives of the global community but they are more significant to the adjacent coastal communities. The vulnerable groups in poverty stricken coastal communities generally depend on fishing to sustain their livelihoods, as they lack alternative livelihood strategies and are mostly unemployed. Moreover, fish species provide essential nutrients to the diet of these fishers, and the money they generate from

selling their catch is used to buy some form of carbohydrate because in the African household, a meal is some form of starch and a protein. The money may also be used to buy other household needs. For a long period these struggling fishers in South Africa fell into two categories: recreational or subsistence fisheries, which robbed those who wanted to pursue small businesses of the opportunity to do so. With a recreational permit fishers are permitted to catch high value species but are not allowed to sell their catch. In most cases however, fishers do sell as it is the only way to generate more income, since they are struggling financially. A subsistence permit allows fishers to catch low value species and they are supposed to consume the majority of the catch and sell what is left over around their community, which means that they cannot meet the basic needs of their families. With the passing of the Small-Scale Fisheries Policy in 2012 (which has yet to be implemented) fishers have high hopes as they will be able to sell the majority of their catch, which includes high valued species. This might mean more income and a better quality of life for them and their families. There has been constant debate over co-management and fisheries governance, and although there has been a decentralisation of power from the government, the communities still feel like it is merely window dressing and that their views and concerns are still not being heard. This is partly why there are sometimes issues with fisheries compliance, as fishers feel aggrieved that they should be obliged to abide by rules and regulations which are forced on them, when they are not part of the decision making process. Fish stocks are declining worldwide so there is a need to explore other alternative livelihoods, otherwise fisheries resources will be depleted, with no chance of recovery, as the coastal environment will have been too degraded and therefore not be a suitable environment for any reproduction. As result coastal communities will sink deeper into poverty.

Chapter Three: Conceptual Framework

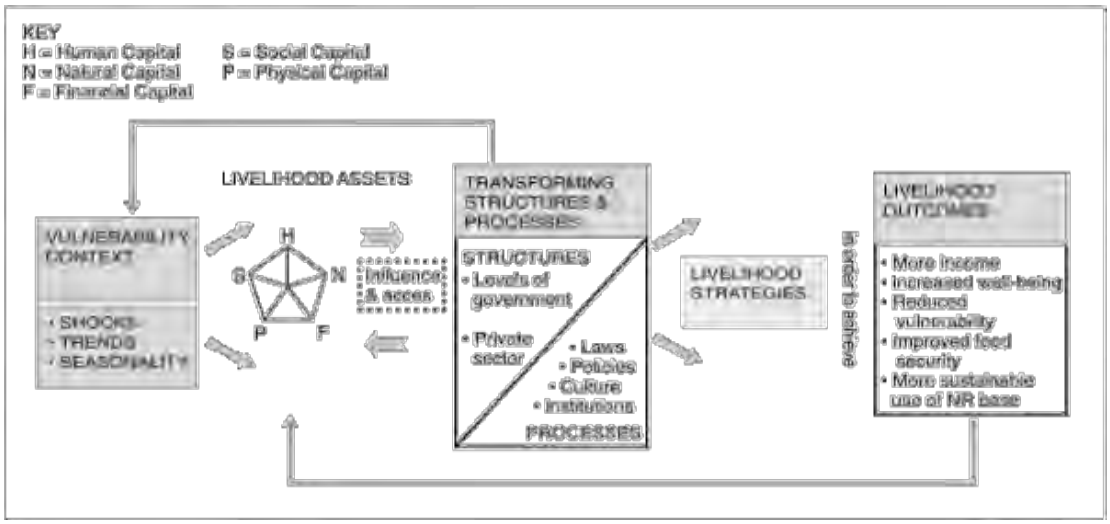
3.1 Introduction

This chapter presents a discussion around the use of the SLA in analysing and understanding how coastal communities utilise, access and manage fisheries resources. The SLA plays a vital role in the development debate and in practice. The chapter discusses various livelihood strategies using the concepts that are pursued by locals, together with their outcomes, demonstrated in the SLF (Figure 3.1). The chapter also focuses on rural development and poverty challenges that are encountered by coastal rural households. In this study, SLA and SLF will be used interchangeably. SLA:

> "draws on the improved understanding of poverty and other streams of analysis relating to households, gender, and governance and fishing patterns bring together relevant concepts that allow poverty to be understood more holistically" (Farrington et al., 1999, no pp.).

SLF illustrated below in Figure 3.1 provides a conceptual and analytical framework for understanding the complex and diverse ways in which the resource poor and marginalised communities use different assets to sustain their livelihoods (Farrington, et al., 2002; Pokharel, 2010).

Figure 3. 1 Sustainable livellihoods framework



Source: Department for International Development [DFID] (1999)

3.2 Sustainable livelihoods approach

SLA is a people-centred approach (Baumann, 2002; Gutierrez-Montes et al., 2009). This is evident when community members are involved in identifying issues that should be addressed, and participate actively and voluntarily in the process (from cradle to grave) of trying to improve their livelihoods. SLA attempts to ensure that the community members are integrated in all decision making processes, in a manner that it is not merely a case of window dressing.

Conventional conservation takes a top-down approach, mainly focusing on the sustainability of the natural resources, and neglecting the resources‟ users (Camp and Camp, 2009). It has been realised that proposed policy recommendations fail to examine the role that fisheries play in the broader coastal economy (Allison and Ellis, 2001). For example, increasing the permit fees as a measure to reduce the number of fishers, forces those who catch in order to sell, to increase their selling prices. Ehrich, et al. (2006) note that specific fish species stay for a long time in a particular area and some migrate to other areas at certain times of the year. An example is the sardine run in Durban, which under normal circumstances occurs between June and July. This is one of the main attractions drawing tourists to visit that destination. If fishers inflate their prices due to the high permit fee, the tourists might be deterred from visiting again. This will affect the local economy if the tourists take their money somewhere else. This in turn might mean that the fishers have to cut the working hours of their employees or even retrench some in the long run when the business is no longer sustainable. Those in the tourism industry might also be retrenched from their jobs or minimise the hours their employees work, or they might also be forced to retrench them when their businesses are no longer economically viable.

3.3 Livelihoods

According to Chambers and Conway (1991, p.7) the concept „livelihoods‟ comprises of the:

> “….capabilities, assets which incorporate stores, resources, claims, access and activities required for a means of living. A person or family‟s livelihoods are sustainable when they can cope with, recover from stresses and shocks and maintain or enhance their capabilities and assets, now and in the future, without undermining environmental resources.”

Coastal rural households engage in various livelihood strategies in order to produce their desired outcomes (Fofana, 2010). The Sustainable Livelihoods Framework (SLF) is therefore utilised to understand these different activities in which households participate. Clarke and Grundy (2004) note that these livelihood activities might not be easily identifiable to an outsider. Pokharel (2010) also concurs that SLF supports poverty eradication and is used as a yardstick to measure the improvement or decline in the livelihoods of the poor, and as a central goal for development.

3.4 What is meant by capitals?

Households engage in diverse livelihood strategies and achieve a variety of livelihood outcomes. What determines the livelihood strategies that can be pursued are the potential assets accessible to the household, for example land, finance and skills. The SLF has five capitals: human, social, financial, physical and natural capitals, displayed in Figure 3.1 (Hanninen, 2014).

Gutierrez-Montes, et al. (2009) define capitals as the means of production a household owns or that are accessible to them. Baumann and Sihna (2001) argue that the influence that the power relations have on who accesses the assets and entitlements is not fully explored by the policies, institutions, and processes in the framework. As a result it was proposed that there is a need for the addition of the political capital. It is believed that political influence determines the people who have accessibility to the assets (Cephas and Bernard, 2012). Hence, it is generally the elite who benefit more as they are usually entrusted with the power to facilitate the redistribution of resources meant to empower those who were previously marginalised (Berkes, 2009b). This is problematic in the sense that the needs of the marginalised citizens do not take priority, given that the individuals who have the power to bring about change have little understanding or sense of urgency to solve the real challenges that the community faces. Similarly, cultural capital it broadens and improves the understanding of people‟s livelihoods, thus developing and advancing these livelihoods (Abdulai and Shamshiry, 2014; Sseguya, et al., 2009).

3.5 Relevance of the SLF to the study

The SLF is deemed to be the appropriate framework to examine access and utilisation of the role of fisheries and fisheries management. The SLF presents capital assets which households own and access, enabling them to pursue a variety of livelihood strategies (Datta and

Sengupta, 2014). Furthermore, this framework recognises the role that social networks, institutions, processes and organisations play in determining whether households can access assets or not (Sseguya et al., 2009). This is achieved through examining the role the above-mentioned stakeholders play in the access to assets. Therefore, an individual is placed in a better position to comprehend how their access to a variety of assets informs the choices in livelihood strategies that can be pursued by them in, order to achieve the desired positive livelihood outcomes. Clarke and Grundy (2004, p.171) corroborate this by stating that "livelihood security depends on having access to various types of capital assets." Conversely, a lack of access to assets causes a household to be vulnerable to shocks and trends such as climate change and fluctuating food prices.

As a result of a lack of access to assets, a household is unable to provide basic needs for the family. A family might resort to seeking help from other relatives or social networks to survive (Thieme, 2006). For example, if a fisher does not possess the financial means to purchase bait, they might not be able to engage in fishing unless they seek assistance from their social networks. This illustrates how a lack of access to a financial capital impacts on an individual‟s access to natural assets. It also demonstrates how social networks‟ interventions can ward off vulnerability.

Fishing is a seasonal activity (Salagrama, 2006). Therefore, a household cannot solely depend on fishing as their only source of income. Consequently, households engage in diverse activities such as farming and livestock breeding to sustain their livelihoods, especially during times when the catch is low or during the closed season for certain species. Accordint to Allison and Ellis (2001, p.378) that the SLF assists in "recognising the seasonal and cyclical complexity of livelihood strategies". Mitchell, et al. (2008) observe that the appreciation of the dynamic nature of the livelihood strategies, allows for the identification of the different trends and shocks affecting livelihoods, such as fluctuating food prices and natural disasters, which households have to survive or recover from. In devising an effective fisheries management strategy, it is necessary to deal with the problem of access to fisheries and the coping mechanisms for seasonality, trends and shocks.

3.6 Capitals

3.6.1 Natural capital

Natural capital is described by Kuntjoro (2013) as the quality and the quantity of the natural resources at the people‟s disposal, and their access and control over it. It represents natural resource stocks (such as soil, water, biodiversity etc.) (Ahmed, et al., 2010). Moreover, natural capital includes "environmental services such as hydrological cycle; pollution sinks" (Kollmair and Juli, 2002, p.7). Most poor households are dependent on natural capital which forms the foundation of their rural economies.

Communities living in coastal rural areas, such as Mthwalume, do not depend solely on fishing to sustain their livelihoods, but rather on a combination of natural resources (Kleih, et al., 2003a). For instance, they use the waterway system to transport people and produce. The freshwater is used for consumption purposes and to perform household activities like cooking and cleaning (Kleih et al., 2003b). Tanner et al. (2014) report that forests offer materials for building houses and boats, and firewood for fuel and fish smoking. Non-timber products are equally important. They are used to mend fishing nets, fishing traps and baskets. There are also edible fruits, leaves and medicinal herbs available (Braun and Saroar, 2012). Fish is generally harvested for household consumption and some of the catch is sold to generate cash income. Madzudzo, et al. (2013) note that fishing is a seasonal activity, therefore, access to land for agricultural activities is an ideal alternative to supplement a household livelihood as it might also supply food. Land is also utilised in the processing of fish, for example, drying of fish so that it is consumable over a longer period of time.

Fishing may be considered as the key resource for fishing communities. However, fishing stocks are declining in both quantity and quality worldwide (Sowman, 2011; Grafton, et al., 2010a). This poses a great challenge as it has been observed that most fishing communities lack access to adequate land, which further limits them in pursuing alternative livelihood strategies (Salagrama, 2006).

3.6.2 Human capital

Human capital can be defined "as the skills, knowledge, ability to work and good health that collaboratively enable a person to successfully pursue different livelihood strategies" (Ahmed, et al., 2010, p.223). According to Senaratna-Sellamuttu, et al. (2008), access to a combination of the above mentioned components is a precondition for an individual to be able to utilise the other four capitals. For a fisher to obtain a good catch, he/she needs to be a good judge of weather conditions; know the location of the fishing grounds where he/she can attain the most catch, have knowledge on how to operate a boat for those going offshore and be able to access and maintain fishing equipment such as "fishing nets, boats and engines" (Giuliani, 2007, p.107).

The people involved in the marketing of fish need to be knowledgeable about their target market in terms of what type of fish they are looking for and how they prefer to have it prepared (Hishamunda and Manning, 2002). They also need to know how to assess the quality of fish, and have general negotiating skills as this is important in determining the price at which they sell the fish to their customers. The aim is not to sell at such a low price in order to beat their competition that they end up working at a loss. They also need to have an idea of where best to market the fish. Community members involved in the processing of fish by means of salting, drying or smoking them need to have these necessary skills to maintain the quality of the fish in order to build a loyal customer base (Hall, 2011).

Kalanda-Sabola, et al. (2007) found that fishers for whom fishing runs in their ancestral lineage are generally at an advantage because of the knowledge passed on from one generation to the next and their skills are usually acquired from a young age. Kleih, et al. (2003b) confirm that these fishers are usually more skilled in the sense that their expertise was harnessed at a tender age. The opposite is seen with new entrees into the fishing industry as they lack a background in fishing and have to learn from their mistakes as they go along.

Good health is also an important aspect (Giuliani, 2007), as fishers need to be physically fit; some of the activities might require body strength and they have to survive unfavourable, sometimes unpredictable weather conditions when fishing. Formal education is not a prerequisite for fishing; however, it is an advantage as it gives them an option to seek alternative ways to sustain their livelihood (Watson and van Binsbergen, 2008).

3.6.3 Social capital

Social capitals are social resources such as social networks, social claims savings clubs (stokvels) used in South African townships and in the rural context, funeral burial groups and support structures which may be determined by age, gender and enthicity (Serrat, 2010; Scoones, 1998). The above-mentioned are utilised by individuals when pursuing different livelihood strategies and are mandatory for coordinated actions.

According to Hall (2012), social networks impact on who has access to and utilises assets. Social networks are based on trust, trade-offs and exchange. They contribute to the quality of life and sense of belonging of the communities (Allison, 2003). For example, for a young man wanting to enter the fishing industry, having a father or relatives experienced in the industry could put him in a better position to have a fish net loaned to him to enter the industry. This makes the transition process into the industry smoother than that of a new entrant who knows no one in the sector.

Good relations between fishers and traders are important. It ensures that the fish is of good quality and a regular and consistent supply makes or breaks a business (Giuliani, 2007). Furthermore, mutual trust between the traders and fishers opens up more opportunities for business to thrive. The new entrants often need to be introduced to the suppliers and customers by fellow traders; otherwise they are at a disadvantage as there is no trust (Kleih, et al., 2003b). Moreover, fishers also share resources such as boats and fish nets. This is done to share costs and to counter the high expenditures that come with fishing. The practice of cost cutting generally happens between brothers, sons and fathers.

A study conducted by Weeratunge, et al. (2012) revealed that the type and impact that social capital has varies amongst ethnic groups, gender and age. In some ethnic groups, women are only involved in domestic activities which limit their opportunities of generating an income. As a result of this, there is an increased dependency on the male members of the family to sustain the livelihood. According to Kleih, et al. (2003b), marital status also influences the opportunities available to an individual for livelihood strategies that he/she can pursue. It is noted that a married woman can pursue more livelihood strategies compared to widowed and divorced women. It was noted in Chapter 2 that in the African culture it is perceived as going against social conventions if a women is involved in line fishing; this industry is still dominated by men (Castine, et al., 2013). It may so happen that when there is no male head

of the household, a women might miss the opportunity to be involved in trading and processing fish as there is no-one to provide the fish.

Social capital can also be through formal organisations such as the traders/fishers association or committee, religious groups and groups formed by the NGOs (Newton, 2008; Giuliani, 2007). The foundations of these organisations are informal social relations. When it is realised that they have issues that need attention, Kleih, et al (2003a) report that an organisation is formed to prioritise and deal with the issues. These groups are able to influence policies beyond the community by acting as the voice of the locals, standing on their behalf to articulate their concerns and opinions on what affects them on national and international platforms. These organisations are also used for knowledge sharing and community-based initiatives to develop individual access to financial services.

3.6.4 Financial capital

Financial capital is crucial for one to pursue any livelihood strategy to meet one‟s objectives. It denotes credit, debt, savings and income (Scoones, 1998; Ahmed, et al., 2010). Other forms of financial capital could be grants, remittances and processes of stokvel payoffs. According to Senaratta-Sellamuttu, et al. (2008) other societies prefer to save in kind with resources which are perceived to be of high value, such as cattle and jewellery, and which are less risky than cash. These are usually exchanged for cash in times of emergencies such as funerals, illness and weddings.

Financial capital is seen to be the most flexible form of asset as it can be used to obtain the other capitals; for example money can be used to buy or access land which could be used for agricultural activities (Kishore, et al., 2006). Another example could be the use of funds to further a person‟s education and advance their skills, making them eligible to pursue alternative livelihoods besides those that are associated with natural resources. In addition Kleih, et al. (2003a) state that financial capital can influence and improve an individual‟s social capital. If a person is perceived to be wealthy, they are automatically viewed as wielding an element of influence and are respected or feared. When in possession of financial capital, a person is well-positioned to lend money to the less fortunate for profit, and this creates some obligations to those who are dependent. Islam and Chunenpadge (2013) reported that loan sharks/money lenders are respected and feared in communities because they are relied upon during times when money is scarce. Wealthy members of the community

use this privilege to their advantage, for cheap or free labour and also buy political power in the form of votes reveal Kleih, et al. (2003b).

Formal and informal credit is a vital part of the financial capital as it allows people to pursue other livelihood strategies states Seratt (2010). In most instances, people who reside in rural areas do not have a credit history, regular income or collateral amongst these assets that are requirements of the formal credit institutions (Masifundise Development Trust [MDT], 2011; Clarke and Grundy, 2004). Consequently, rural dwellers are unable to access loans from formal banks or any other credit facilities. They therefore form their own local saving clubs or „stokvels" that offer them loans, depending on the terms and conditions of the „stokvel". Other forms of informal loans could be from neighbours, relatives, or money lenders.

Kleih, et al. (2003a) submit that fishing is a seasonal income generating activity. Accordingly, most of the fishers depend on informal credit. Informal credit enables them to invest in or find alternative occupation during the lean season, in order that they still be able to sustain their livelihoods. Informal credit obtained from the local money lender is often viewed as exploitative. However, it is flexible in the sense that it can be used it buy consumption and production necessities. It is easily accessible, even after normal business hours; with limited red tape (Seratt, 2010). As a result of the above-mentioned relationship that fishers have with moneylenders, they have secured buyers daily. Senaratna-Sellamutti (2008) discloses that this informal finance arrangement disadvantages the fishers because they have to sell a significant percentage of their catch to the money lenders at lower than market prices. This in turn prevents them from having consistent sources of income that would enable them to service the loan without incurring heavy interest. Also, this system acts as a barrier for other groups such as traders and processers who want to enter the market. Their suppliers are sometimes limited as they also compete against large scale operators.

3.6.5 Physical capital

Physical capital is the basic infrastructure that is used to produce goods or provide services, for example: roads, sanitation and healthcare (Scoones, 1998; Kollmair and Juli, 2002; Seratt, 2010). Appropriate infrastructure, such as tarred roads, makes it easier for the traders to reach their market. Access to healthcare and proper sanitation has a positive impact on the health of the fishers and it increases their ability to work (Salagrama, 2006).

Fishing accessories such "as fishing gear, boats and fishing nets; processing equipment such as cooler boxers, smoking ovens and drying racks; and modes of transport are vital in supporting livelihood strategies" (Iwasaki and Shaw, 2010, p.95). Fishers may not possess all the necessary fishing gear; therefore, they might borrow from one another, share or rent them. Possession of more physical capital does not necessarily mean a fisher is better off (Kleih, et al., 2003a). A fisher owning a motorised boat might be paying off a loan that was used to purchase this vessel. Such a fisher is likely to have low returns, when compared to the owner who rents a boat. The latter fisher might be generating more as he does have to pay off the loan or the interest charges thereof.

3.6.6 Political capital

According Baumann and Sihna (2001, p.1) political capital is defined as the:

> "…ability to use power in support of political or economic positions and so enhance livelihoods, it refers to both the legitimate distribution of rights and power as well as the illicit operation of power which generally frustrates efforts by the poor to access and defend entitlements and use them to build up capital assets."

For instance, a tourism developer who makes a donation, either officially or unofficially, to ensure that he/she is favoured when a tender is adjudicated. This is an example of a scenario in which even though the community might be against the development, it might proceed because of the incentives provided. The local government and/or the administrator find it difficult to dispute the matter because they rely on the funds received from the donation. The aim is to eke out livelihoods that are sustainable as they would cope with short term shocks and stresses or long term coping mechanisms (Clarke and Grundy, 2004).

3.7 Principles of the Sustainable Livelihood Approach

3.7. 1 Prioritising people's needs in fisheries management

According to Glavovic and Boonzaier (2007), it is important to prioritise the rural community members before the resources they utilise. In order to have effective fisheries management tools, there is a need to understand the community members utilising the fisheries resources (Allison, 2003). For example, instead of focusing on fishing efforts, their lifestyle, history, and the culture of the community members should be studied. From this, a researcher is able

to determine the socio-economic status of the community, and thus understand how dependent they are on fisheries resources. Thereafter, individuals can explore the assets they possess and/or lack, and potential alternative livelihoods accessible to fishers. The kind of knowledge mentioned here enables a person to build their knowledge from the bottom-up (Allison and Horemans, 2006). The SLA is opposed to top-down development; it is seen as disempowering to community members. Leselink (2002, p.1) argues:

> "….active involvement of fishers themselves (as well other stakeholders groups) is an essential element in responsible fisheries so as to ensure that the interests of those whose livelihoods depend on fisheries as protected and that the management measures will gain wide acceptance among fishers."

3.7.2 Making micro-macro links

Allison (2003, p.26) asserts that "development activity tends to focus on either the macro or the micro level; whereas the SLA tries to bridge this gap by stressing the links between the two ranks". The communities are often affected by the decisions that are made at the macro policy level and vice-versa. This relationship needs to be considered in order to achieve sustainable development (Abdulai and Shamiry, 2014). For example, the adoption of GEAR affected fisheries policies through trade liberalisation. This macro-economic policy also affected small-scale fishers at the local level. They could not compete with conglomerate fishing companies that were well equipped and had financial muscle (Hersoug and Holm, 2000). As result, small-scale fishers were found to be working at a loss, selling their catch at a rate lower than the market value to eke out a living; the above exposes their livelihoods to vulnerability. Clarke and Grundy (2004, p.172) corroborate this by saying that:

> "The livelihood framework explicitly recognises the linkages between household level processes and the broader economic, policy and institutional context. The external environment dictates the opportunities available to people, poses constraints and influences the types of livelihood strategies adopted."

3.7.3 Being responsive and participatory

Allison and Horemans (2006) recommend a dynamic, adaptive and learning approach to fisheries management. They refer to a need for active engagement by all stakeholders (fishers, private and public entities) in the decisions made with regards to fisheries

management (Leselink, 2002). Every member of the community should have an opportunity to voice his/her opinions and concerns and they should be taken into consideration equally. The fishers/communities know what their needs are. They should therefore be allowed to identify what takes priority in achieving their livelihoods, and be assisted in developing the strategies that are likely to improve their livelihoods suggest Glavovic and Boonzaier (2007).

3.7.4 Building on strengths

Development generally aims at the betterment of the quality of life of the communities. The latter could be achieved by *"*reducing the rates of low incomes, poor health and lack of education among many other things" Allison, et al. (2011, p.220). The livelihood approach recommends a solution which builds on the existing capabilities of the community to resolve its problems (Glavovic and Boonzaier, 2007). For the fishing communities, it could be extensive local or indigenous technical knowledge, or diverse and alternative livelihood strategies (Allison and Horemans, 2006). For example, using existing indigenous knowledge to identify how natural resources were conserved in the past and determining how these methods can be improved to deal with current challenges. From this illustration it can be established what alternative species of fish were caught during the reproduction stage of certain species of fish, and what are other livelihood strategies were pursued during this time. Kalanda-Sabola, et al. (2007, p.10) support this and use Malawi as an example, where the chiefs monitored which fishing tools were used and were uncompromising during the closed season. Nets were not permitted; only fishing rods were allowed, and this ensured that the fishers caught less fish and utilised little species like utaka. During the breeding season their livelihoods were diversified and they were mainly reliant on farming instead fishing. The conservation practices mentioned here gave the various species a chance to breed and to reach a mature size before the fishing season re-opened, thus promoting sustainable fisheries management.

3.7.5 Taking a broad view to sustainability

According to Allison (2003), sustainability comprises of economic, social, institutional and environmental aspects. Carney (2002) asserts that all four attributes mentioned above play a significant role, therefore the SLA tries to find equilibrium between them. In the SLA, these dimensions are laid out clearly. According to Davies (2013, p.111), "the meaning of sustainability is contested: Dobson (1996) noted that there are over 300 definitions of

sustainability." This is because sustainability is a multifarious concept and is constantly being developed, hence the challenge to find a universal definition (Redclift, 2005). In the livelihood context, Scoones (2009, p.182) states, that, sustainability "refers to coping with immediate shocks and stresses, where local capacities and knowledge, if effectively supported, might be enough." For example, in cases where climate change leads to higher water temperatures, this translates to the decline of fish stocks and incomes can be substituted by alternative livelihood activities. The World Commission on Environment and Development [WCED] (1987, p.111) defines sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." For this social science study, the above definition is acceptable as communities can access and utilise fisheries resources to meet current socio-economic needs, whilst not compromising biodiversity and the ecological status of the natural capital. Through the use of an effective fisheries management structure it is possible to ensure that these resources will also be conserved and not be depleted.

3.8 The vulnerability context

The vulnerability context represents the trends, shocks and seasonality which the people are restricted to or have no control over, but which directly or indirectly impact their livelihood and accessibility to assets (Baumann, 2002). Vulnerability context aids in determining how resilient communities are when external factors affect their access to livelihood assets (Serrat, 2010). External factors such as shocks (disease, storms, and conflict), seasonality (prices, job opportunities), and trends (demographic, economic), limit a community"s access to assets which they rely on to sustain their livelihoods. Smith (2013) informs that for most rural poor communities, the capitals are important in the sense that their livelihoods depend on them. In most cases the communities do not have other alternatives to these assets; therefore the effect that external factors such as those stated above have on capitals threatens their livelihoods, making them vulnerable (Salas, et al., 2011).

In addition, Kollmair and Juli (2002) assert that the SLF recognises that there is an existing relationship between vulnerability context and natural capital. For example, if there are no longer fish species to catch, or limited agricultural produce was harvested, possibly due to drought. It is noted that pressure is exerted on the other forms of capital for households to sustain their livelihoods. Therefore, the relationship mentioned above needs to be taken into

consideration as natural capital generally forms the basis for most livelihood strategies in rural communities.

Fish stock has been declining consistently worldwide, resulting in some species being overexploited and others on the verge of becoming extinct (Burks, 2006; Roberts et al., 2005; Sherman, et al., 2009). Furthermore, a loss of biodiversity poses a threat to the marine and coastal ecosystem (Nag, 2008). Factors such as rapid human population growth, poverty and industrialisation have contributed to the amplified demand for fisheries resources, leading to fish stock decline (Palma, et al., 2010; Merino, et al., 2012). A decline in the fish stocks has dire consequences for the subsistence of coastal communities. It increases unemployment, limiting alternative livelihood opportunities available to fisher communities (Olivier, et al., 2013).

In addition, there are institutional related trends such as trade liberalisation and change in consumer preferences (Kleih, et al., 2003a). For example, an increase in demand for fresh fish increases the pressure for use of advanced technology to preserve the fish. The latter poses a threat for the small-scale fishers, who use low cost processing methods such as salting, sun drying and smoking.

Serrat (2010) reports, that shocks are the unforeseeable events that affect the livelihood of communities such as conflict, natural disaster like floods and droughts, economic shock such as currency depreciation and disease epidemics. Phenomena such cyclones and floods have adverse impacts on people‟s lives and their properties. Physical infrastructure such as houses and fishing equipment maybe lost or damaged. Transport linkages such as roads and bridges may be damaged or washed away; making it difficult for people to access the necessary services such healthcare, education and alternative employment (Tuan and The, 2013). Loss in biodiversity has lowered nature‟s resilience, decreasing its natural ability to deal with natural disasters such as floods (Nag, 2008), and natural barriers such as mangrove forests have been degraded due to factors like deforestation (Michel and Pandya, 2010). Mangrove forests are habitats for species such as crabs and shrimps, and are nurseries for a variety of species. If these mangroves are destroyed, the communities who depend on these fisheries resources to support their livelihoods also suffer. Another result of the loss in biodiversity is a shortage in building material, and loss of income influenced by the decline in fish stocks. The losses mentioned here limit the livelihood alternatives that communities can pursue, as they cannot maintain a buffer zone against such disasters.

According to Landridge, et al. (2006), when rating how vulnerable the livelihood is, one has to examine the nature of the stress and the resilience of the system. Stress is exogenous to the system and considered as the disturbance or shock that the system can withstand before it comes to its brink (Smith, 2013). McDonald (2014) characterises stress as a disturbance or shock relative to a threshold. Resilience is the internal ability of the system that enables it to cope with and adapt to the stress (Nagar and Bhatia, 2010).

In order to evaluate whether a household‟s livelihood is resilient and has the ability to positively cope and adapt successfully, it is necessary to investigate a variety of factors, such as the historical experiences of responses to various shocks and stresses (Scoones, 1998). Understanding and evaluating different types of stress and shocks from past experiences empowers the communities and households to develop different responses, such as avoidance; resistance and tolerance mechanisms. This means that when shocks and stresses threaten their livelihood, they are not caught off guard (Turnunova, 2014), since they already have possible mechanisms which can assist them in adapting to, and coping with, shocks and stresses. If these possible mechanisms are not put to use, however, they are left vulnerable and unable to cope. Therefore, the role which the resources play in reducing the risk and vulnerability enhances livelihood security, which goes beyond the direct consumption role which is derived from them (Clarke and Grundy, 2004).

Kleih, et al. (2003a) defines seasonality as the reoccurring changes during the course of the year that impact access to assets and livelihood outcomes. An example of seasonal change is weather (Tuan and The, 2013). The highest catch rate could be during the rainy season. This means that for a few months individuals will generate income from fishing, but means that food security is threatened for the rest of the year. Guillou and Matheron (2011) reveal that those involved in food processing during the rainy season tend to lose out on some of the stock due to the high humidity and insect prevalence. In addition, it is difficult to transport fresh fish to markets because of floods. Seasonality also brings about changes in prices, food availability and alternative employment opportunities, among many other things (Lorenzen, et al., 2007).

A household‟s livelihood is sustainable when it has the ability to cope and recover after being impacted by shocks and seasonality; otherwise it becomes vulnerable (Kleih, et al., 2003a). Vulnerability differs with each community, depending on the combinations of assets they have access to and their livelihood outcomes (Abdalla, 2012). Therefore, the best way to

examine a vulnerability context is to evaluate key problems, changes, observed risk factors, possible solutions and probable coping strategies. According to Clarke and Grundy (2004), policy interventions could assist in preventing communities from becoming vulnerable to shocks and seasonality. For example, introducing alternative livelihood programs in fishing communities during closed seasons; they could engage in farming activities which will substitute their income.

3.9 Policies, institution and processes

The power that communities or organisations wield in the different structures impacts on their access to livelihood resources (Halberg and Muller, 2013). Institutional arrangements, organisational issues, power and politics are determinants of who has access, the terms and conditions of access to resources, and how much of the resources communities can access (Twyan, 2000). Generally, a few elites in the community have more access to resources whilst the rest of community make do with the little they have. Scoones (1998, p.18) concurs with this and states that:

> "…unless we understand the social structures and processes through which sustainable livelihoods are achieved, a description of the relationship between variables and outcomes is somewhat limiting."

It therefore recommended that when evaluating a livelihood, a socially differentiated view be utilised. The latter could be achieved by dividing a community, village or household and appraising the individuals or groups of social actors. Moreover, the individual or group relationships in relation to various factors such as wealth and gender also divide communities into different strata. Therefore, using the above-mentioned factors in an analysis can broaden understanding.

According to Davies (1997, p.24) the institutions:

> "….are the social cement which link stakeholders to access capital of different kinds to the means of exercising powers and so define the gateways through which they pass on the route to positive and negative (livelihood)."

The institutions are of importance for the policy and practice of development for sustainable livelihoods for numerous interrelated reasons. If one understands the institutional processes, one is in a position to identify the barriers and opportunities to sustainable livelihoods, and is

therefore able to strategically remove the hindrance or know which avenues to take to further development (Allison and Springate-Baginski, 2009). For example, a small-scale fisher might generate less income compared to previous times because of the competition by external stakeholders, which could be conglomerate companies. Both stakeholders competing for the same fisheries resources might lead to over-harvesting and over-exploitation, resulting in unsustainable livelihoods for the local community. Unlike the conglomerate companies, small-scale fishers usually do not have advanced fishing technology and intensive labour input. They usually harvest small quantities compared to these fishing companies. Therefore, the institutions (formal or informal) are necessary as they are able to mediate access to resources and make trade-offs on behalf of the different stakeholders (Peters, et al., 2009). Consequently, the understanding of institutions and organisations is important in designing interventions to improve sustainable livelihood outcomes.

According to Tan (2008) an institutional approach is important because it brings clarity and understanding on social processes which underlie livelihood sustainability. Lewins (2004) established that the differences in opinions and disputes between the stakeholders need attention because trade-offs and negotiations occur at almost every stage. Therefore, an in-depth understanding into social relationships and the power dynamics embedded in these is essential. Consequently, interventions which are in support of sustainable livelihoods have to be in tune to such complexity if suitable entry points are to be found (Scoones, 1998). The SLA is:

> "…an approach which emphasises both informal and formal institutions and underlying rules and norms suggests a complex and „messy" institutional matrix mediating the process of livelihood change" (Scoones, 1998, p.12).

From this statement, it can be deduced that an analysis is done on the combinations of a variety of formal and informal institutions and organisations, which operate at different levels from local (from within household) to national level and even international level. MLRA which was signed following Agenda 21 is implemented in areas which might be high in biodiversity or where the wildlife is under threat of extinction. Nevertheless, what need to be taken into consideration is the neighbouring community, whose livelihood may be dependent on the natural resources such as hunting, firewood and gathering wild fruit. As decisions are made at the top they have a way of filtering through and affecting the people at the lower levels (Bunting, 2013). If it is a decision that is taken about resources which are of interest to

them, then the stakeholders at different levels need to be represented and their views and concerns taken into account (Banvick, et al., 2005). Note must be taken of the complexity of "planned interventions at different levels, going beyond the conventional support for formal organisations or institutional mechanisms, to look at combinations of formal and informal approaches" (Allison and Springate-Baginski, 2009, p.62).

3.10 Conclusion

The SLA is a people-centred rather than resource-centred approach. The institutions, policies and processes are important in that they determine the community‟s access to fisheries resources under the Marine Living Resources Act (MLRA, 1998). In order to alleviate poverty, development agencies need to commit themselves to improve the rural poor‟s livelihoods over a longer period of time. The SLA is holistic as it incorporates interdisciplinary ideas across time and space, thereby integrating livelihood strategies that will develop and improve the livelihood of the poor and marginalised. The inherent idea is that no matter how deprived individuals or communities are, they possess a number of assets that can be combined in order to reach a better standard of living that is characterised by sustainable sustenance. The adoption of international policies in many African countries, RDP and GEAR in the case of South Africa, have created confusion, difficulties, and yielded limited positive results to promote poverty alleviation. The SLA may be a flexible approach, but it is demanding in terms of expertise and finance. This chapter has outlined the sustainable livelihoods approach, and highlighted the importance and role fisheries resources play in coastal rural households.

Chapter Four: Methodology

4.1 Introduction

This chapter explains a variety of methods which were utilised to explore this research study. This study‟s foundation rested on the humanistic strand of Geography. Mixed methods research was incorporated, where both qualitative and quantitative methodologies were employed. The sample was selected using the purposive sampling technique, and data was analysed thematically and through the use of SPSS.

Primary data was collected through the distribution of questionnaires, and in total, 80 questionnaires were completed. Questionnaires were then numbered from 1-80 in order to protect the anonymity of the respondents. Questionnaires were administered from the 14th of September 2015 to the 26th of September 2015. During the process of administrating questionnaires, the researcher also took the opportunity to ask respondents if they would be willing to participate in focus group discussions to further explain certain key issues and themes. A time, date and venue were agreed upon with the respondents who were willing to participate. The week of the 5th of October 2015 to the 10th of October 2015 was when the focus group discussions took place. There were 3 focus groups, 2 focus groups were males and one group was females, as presented in table 4.1.

Table 4.1: The age of respondents that parrticipated in the different focus groups

Respondent	**Focus Group 1- Age** (FG1/5Oct-10Oct2015) Venue: Community Hall	**Focus Group 2-Age** (FG2/5Oct-10Oct2015) Venue: Community Hall	**Focus Group 3- Age** (FG3/5Oct-10Oct2015) Venue: Community Hall
1	67	43	34
2	50	60	54
3	23	55	49
4	33	70	40
5	28	45	28
6	24		54
7			67

1. Manager of the Small-scale Fisheries Unit (MSSFU/15 October2015),
2. Senior scientist from the Oceanographic Research Institute (ORI) (SS-ORI/10September2015),
3. Supervisor of the monitors in Mthwalume from Department of Agriculture, Forestry and Fisheries (DAFF) (SMDAFF/25September 2015),
4. Staff member from DAFF (SDAFF/1October2015),
5. Representative from Coastal Links/Masifundise Development Trust (RCL/MDT/21October2015),
6. Life guard who is a full time fisher in Mthwalume (LGF/25September2015),
7. Headman from Mthwalume (HM/8October2015),
8. Committee member of Coastal Links/Masifundise Development Trust (CM-CL/MDT/27October2015),
9. Law enforcement officer number 1 from EKZNW (LEO-EKZNW1/27September2015),
10. Law enforcement officer number 2 from EKZNW (LEO-EKZNW2/12October2015),
11. Coastal Links/Masifundise Development Trust committee members (CL/MDT-CM/23October2015),
12. Mthwalume Intertidal Committee members (MIC/9September2015),
13. Representative from the Tribal Authority of Mathulini (RTAM/8October2015),
14. Representative from the Thanda Organisation (RTO/14September2015), and
15. Coastal Links/Mafundise Development Trust committee member (key informant) (CL/MDT-CM-KI/3November2015)
16. Manager from DAFF (MDAFF/16-17Feb2015)

Furthermore, primary data was collected through stakeholder and key informant interviews. In total, fifteen interviews were conducted and were coded to insure the anonymity of the respondents, as per the agreement:

In addition, the researcher attended a community meeting on the 23rd of October 2015, hosted by Coastal Links (CL)/Masifundise Development Trust (MDT) in Mthwalume, where community members from these sub villages: kwaNomakhanza, kwaMakhoso, eMgageni, eGcilima, Port Edward, eMfazazane, eMnafu, and eSihlonyaneni were present. Lastly, the researcher attended a Small-Scale Fisheries Policy Workshop hosted by EKZNW and DAFF on the 16th and 17th of February 2015 in the Diakona Centre.

4.2 Background of uMthwalume

The study area for this research endeavour was uMthwalume, a rural community which falls under the uMzumbe Local Municipality. This is one of the six local municipalities of the uGu District Municipality. UMthwalume does not have an established town. The closest town is Hibberdene, which is approximately 100 kilometres away (uMzumbe Municipality Integrated Development Plans [IDP], 2011/2012). The population of the uMzumbe municipality comprises of (black Africans, coloureds, Indians/Asians, whites and others) and they total 160288, 194, 181, 171, and 141 respectively (uMzumbe Municipality IDP 2014/2015). The black racial group, which is the majority, falls in the category of the previously disadvantaged. As an attempt at remedying the unjust, skewed redistribution of resources between races, the municipality is mandated to work towards equality. This could be achieved by utilising strategies such as economic development, infrastructural development, housing and social services (uMzumbe Municipality IDP, 2012/2013-2016/2017).

There is a backlog in the provision of basic services in the communities, resulting in high levels of poverty and virtually no economic base (uMzumbe Municipality IDP, 2011/2012). Out of the six municipalities under the uGu District, uMzumbe has one of the highest levels of poverty in the district. In the uMzumbe municipality the current unemployment rate is 51, 9%, and the youth unemployment rate is 62, 6% (Statistic South Africa [SSA], 2011, no page numbers,). This could be attributed to irregular and limited household income, and inadequate levels of education and training (uMzumbe Municipality IDP, 2014/2015). In addition to high levels of poverty and unemployment, this municipality has low economic growth. Although uMzumbe has great economic potential, the challenges mentioned above

have blurred the lines between local economic and community development (uMzumbe Municipality IDP, 2012/2013-2016/2017). It becomes difficult to decide which projects to prioritise with regards to those which help in alleviating poverty or the ones which create and strengthen the economic base, since they are both quite important. According to the IDP, the economic strengths of this municipality are in agriculture, tourism, small-scale farming and manufacturing, with potential in the "retail, trade and services sectors" (uMzumbe Municipality IDP, 2014/2015, p.63).

"It is stated that the two kilometres stretch of uMthwalume beach is the best fishing spot and it sustains 10% of the households of uMzumbe which have no breadwinners" (uMzumbe Municipality IDP, 2014/2015, p.97). These fisheries resources that are harvested are sold to the restaurants along the coast and to passing motorists along the N2 freeway (uMzumbe Municipality IDP, 2012/2013-2016/2017). Due to the high levels of unemployment and the low levels of education and training in the community, the fisheries resources are the main potential source of livelihood for the inhabitants. Given the exponential human population growth, and the other socio-economic problems experienced in the area, it is very possible that the dependence on the fisheries leads to over exploitation and degradation of the resource stock.

4.2.1 Historical background of uMthwalume

uMthwalume is a community under the leadership of Chief Luthuli. It is therefore important to summarise their history as it may bring to light the type of activities they are engaged in as a community, and the links it has to their culture and current livelihood activities. Community members who live in uMthwalume are from the AmaThuli clan; they also refer to themselves as abasemaThulini. AbasemaThulini denotes that they are from the amaThuli clan, demonstrating their sense of belonging and where their roots are. A study conducted by Webb and Wright (1982) determined that they are believed to be a splinter group of the amaQwabe clan, but there is insufficient evidence to prove this; their praise/clan names do not reveal a connection. This separation of the clan is said to have taken place in uMhlathuze across uThukela River, according to the study by Eldredge (2014, p.311). Prior to King Shaka‟s era, the amaThuli clan left amaTigulu for Port Natal (Durban). The amaThuli chiefs were Ntaba kaMyebu, kaTshatwa, kaSivuba, kaMayiya, kaLuthuli, kaNkomo, KaZuba, kaMqayana, kaNcamuza, kaNcane (RTAM/8October2015). It is believed that the name

amaThuli is derived from the name of their ancestor chief, Chief Luthuli. King Shaka‟s father was from this chiefdom.

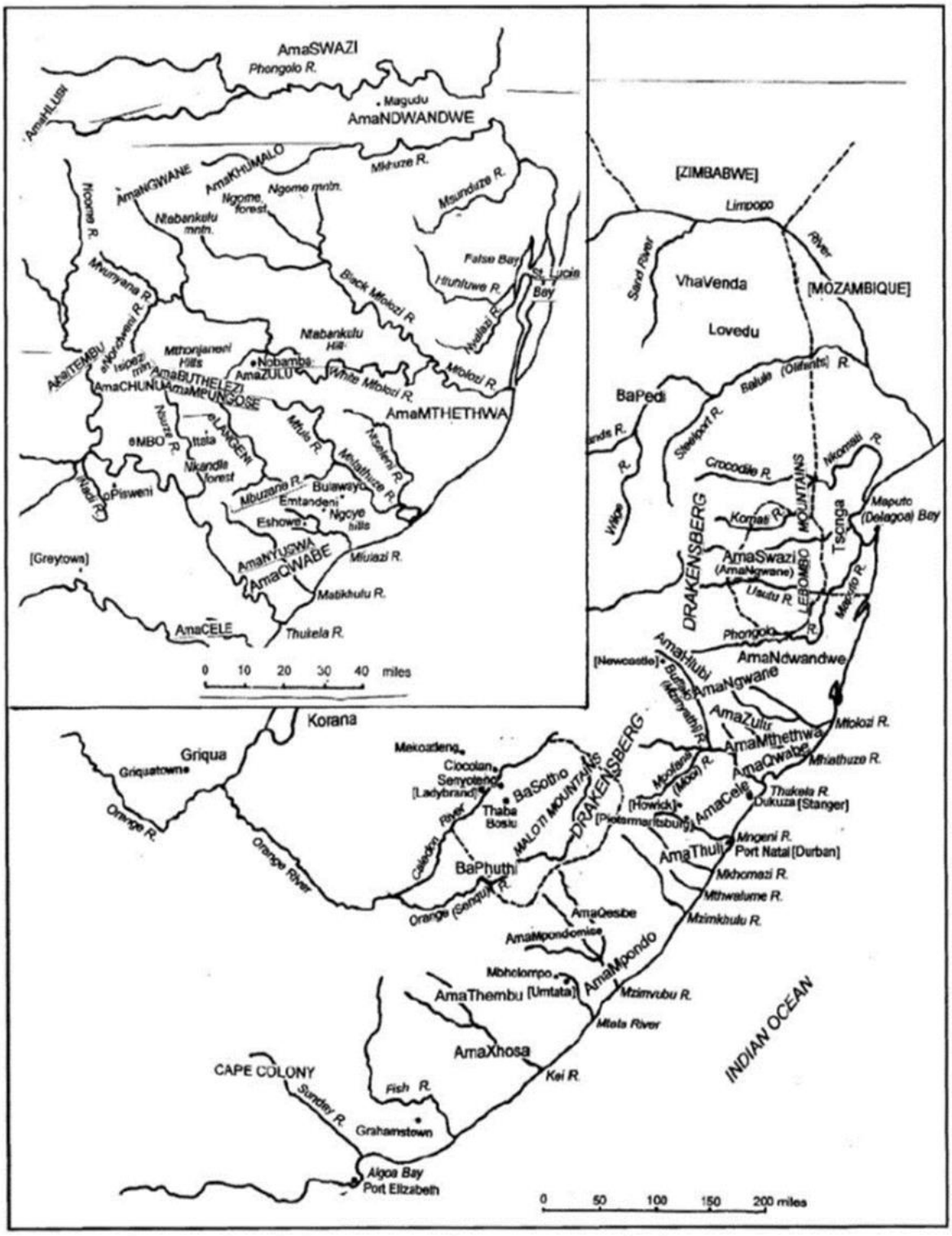
According to Houston and Mbele (2011), the amaThuli previously occupied land between the uMngeni and UMkhomazi Rivers. However, between 1818-1820 there was an altercation between them and King Shaka, where some of his cattle were unaccounted for and the amaThuli, being the herders and keepers, had to take responsibility for them (uLwazi: Sharing Indigenous Knowledge, nd). King Shaka then sent his troops to kill the people from the amaThuli clan and those who survived migrated to the uMlazi River region according to Eldredge‟s study (2011). When the amaThuli crossed over to the uMlazi river, the amaTigulu left Zululand because of the unrest, and the amaMbili and amaKhomo clans left with them (Masina, 2006). The latter mentioned clan was formerly called uTshaba loNgodi, because they killed people as they came south (Webb and Wright, 1982). The name uTshaba loNgodi was not the name of the kraal; however, it was fitting for the character of the clan.

The amaThuli arrived before the amaCele in Port Natal (Durban), on the Bluff to be exact, and found the amaMpofana (Eldredge, 2014). The amaMpofana had fenced „fishing ponds“ in the bay; they used wave reeds to create an enclosure to catch fish when the tide went out. Webb and Wright (1982) reported that the amaMpofana lived in uMhlathuzana, uMlaza and on the isiBubulungu [a name which was given as it was the highest peninsula]. The amaThuli then defeated the amaMpofana and took over their land. The amaThuli had land at uMgababa, which was previously under their chief Ntaba (Eldredge, 2011).

When the amaPhofana fled their land, pursued by the amaThuli warriors, they left their fences for catching fish (izintango). The amaThuli then adopted their strategies for catching fish (Webb and Wright, 1982) and became consumers of fish. From then on fish featured prominently in their diet. When the amaThuli were at amaTigulu they were far from the sea. It is believed that at that time they could not have known much about fishing and lacked the strategy and skills to catch them. There was nothing odd, however, about this sudden taking to fish in this new land, as it was common with other clans who lived on the coast, such as the aMakanya, abakwaCele, abakwaMaphumulo, amaMbili, abaseZembeni and the abaseMalangeni, to name but a few (Eldredge, 2014). When the white settlers arrived by sea and on the Bluff, which is where the amaThuli were settled, they forcefully removed them and seized their land to build a town. The amaThuli moved to the south and settled in an area called eMnini, under Chief Mbabane; who had to two sons, Mnini and Magwini

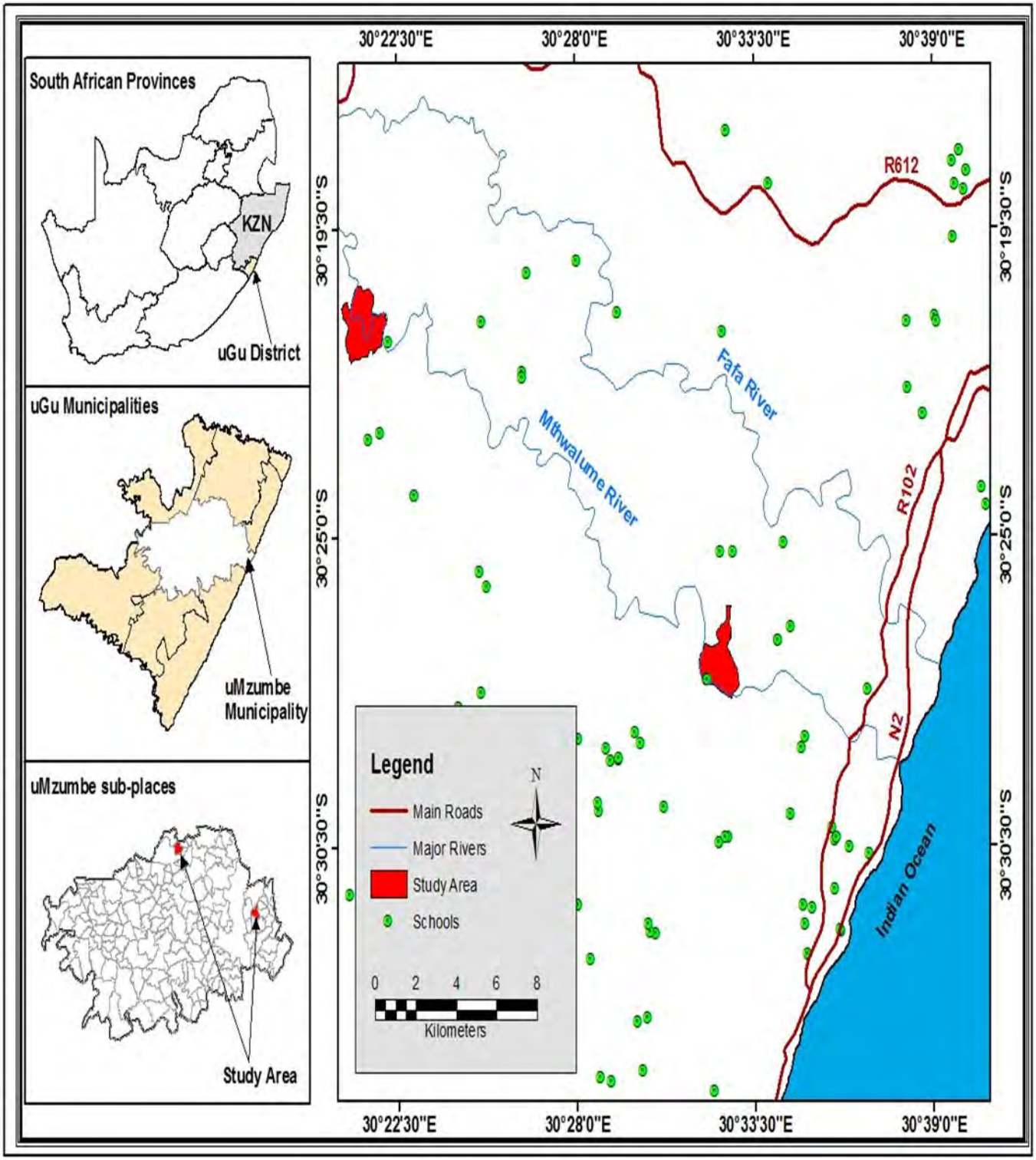
(RTAM/8October2015). The chiefdom of the amaThuli split into into two houses, one of which was called abakwaNkukhu, and they eventually moved to uMzumbe, which is where this study was conducted. Figure 4.1 shows where the amaThuli abakwaNkukhu eventually settled and still currently live (Eldredge, 2011). The other house moved to the Natal Midlands in Hlangakazi, and subsequently converted their surname from Luthuli to Mthuli, according to Houston and Mbele (2011).

Figure 4. 1: Map demostrating wehere the amaThuli clan are located in uMthwalume (South Coast)



Adapted in Eldredge (2011, p. 213)

Figure 4. 2: Map showing the location of the uMthwalume study area inrelation to KZN



Source: University of KwaZulu-Natal (2015)

4.3 Approaches to Human Geography Research

4.3.1 Humanist Geography

Humanistic geography is “a reaction against what they believe to be an overly objective, narrow, mechanic and deterministic view of the human being presented in much of contemporary research in the human science” (Entrikin, 1976, p.616). According to the World Wildlife Fund Report (WWF, 2011), current fisheries management is in need of a paradigm shift; a move away from focusing solely on biological management strategies to those that include social and economic aspects. Humanistic geography is a fitting approach for this study. It challenges positivism because it separates man from their world (Quinney, 2012).

Tuan (1976, p.274) argues that humanistic geography “builds critically on scientific knowledge” and “contribution to science lies in disclosing material of which the scientist may not be aware.” Conventionally, the research that informs decisions and strategies in fisheries management is knowledge generated by universities and institutions (Neilsen, et al., 2004). It has been noted, from the above-mentioned establishments that their research generally draws inspiration from positivism. Researchers conduct their research in communities as outsiders who perceive both the communities and fisheries resources as subjects. In doing so, they fail to take into account the values, beliefs, practices and experiences of the fishers within their studies (Hauck, 2008).This deprives the body of knowledge of a broader and in-depth understanding of fisheries management from the communities‟ perspective. Pauly (2006, p.8) supports this by stating that “sustainability of coastal fisheries are political problems therefore they ought to be mainly informed by social scientists not biologists.” Ley (1977) indicates that humanistic geography stresses the importance of the perceptions, creativity and personal beliefs of communities, as well as their experiences in developing attitudes towards their environments.

All the human activities are believed to be economic and functional to support the social system, otherwise people will be incapable of living meaningful lives (Tuan, 1976). Jackson and Robinson (2009) report that black South Africans were forcefully removed from their productive lands, their means of production and their social networks. Coastal communities lost productive land on which they practiced agriculture (Chikolu, 2016). In addition, the lack of, or restricted access to fisheries resources denied them the source of nutrients which they

could not get from agricultural products. Alternatively, agriculture supplements the livelihoods during the closed season of some fisheries species. Humanistic geography seeks to get an understanding of the relationship between the human world and nature, and their geographical behaviour, meaning their feelings towards space and place (Kitchin and Tate, 2013). A humainistic geography approach can play a significant role in unpacking fisheries management from a South African perspective, examining fishers‟ lived experiences; when they started fishing; how different fisheries management approaches impact the community; how fishing has changed over time and how communities derive a livelihood from fisheries resources. It is also important to note that daily interactions with the marine environment may determine the potential causes of the declining fish stock.

4.4 Pragmatic Research

Pragmatism holds the stance that qualitative and quantitative methodologies can be utilised in one study, according to Lodico, et al. (2010). This perspective refutes the notion that the latter and former methodologies are incompatible. It focuses the attention on finding solutions to specific problems. Pragmatism is of the belief that the use of different research designs, various analyses/explanations of events and assorted concepts are all important for a better understanding of the phenomena under investigation (Klenke, 2008). Teddlie and Tashakkori (2009, p.7) then define pragmatism as “a deconstructive paradigm that debunks concepts such as „truth‟ and „reality‟ and focuses instead on „what works‟ as the truth regarding the research questions in the inquiry.” Theories and practices employed in a study are informed or influenced by the research foundation\philosophy it rests on. Davis (2014, p.78) notes that “the way that one thinks and the assumptions that one makes about knowledge and reality in other words, lead one to question what is true and how one will find or create knowledge that is credible.”

Teddlie and Tashakkori (2003, p.713) indicate that pragmatism *“*rejects the either/or choices associated with the paradigm wars, advocates for the use of mixed methods in research, and acknowledges that the researcher‟s values play an important role in the interpretation of results.” Ihuah and Eaton (2013, p.938) further elaborate that “values play a vital role to interpret using subjective and objective reasoning.” For example, one of the questions in the study was that between males and females, who was engaged in fishing the most? The result was that it is generally the males. From the researcher‟s personal experience, being an

African, household chores, social activities and livelihood strategies are still divided based on gender.

Literature and findings of the study provide evidence that line fishing is dominated by males because it is regarded as a taboo in the African culture for females to do it (Te Lintelo, 2008; Castine, et al., 2013). This therefore assisted the researcher to make the decision to divide the focus groups according to gender (discussed further in Focus group discussions). This, in turn, supports why this study‟s foundations rested on humanistic Geography, as it is a critique of the positivist approach which treats humans as „things‟ in the inquiry. It also addresses dehumanisation that is linked to the failure of the approach to take into consideration important aspects that distinguish a human being from other subjects in an inquiry, such as human values, beliefs and meanings.

Pragmatism emphasises the need to examine different interpretations of the phenomena that one can derive from various research designs, theories and tools stemming from the two different methodologies (Klenke, 2008). The above-mentioned communicate that when selecting the tools to be utilised, they would need to assist in fulfilling the goals of the study. Pragmatic research differs from other kinds of research, "it does not simply employ qualitative and quantitative methods but selects specific methods in a complementary way to find answers and solutions to problems" (Davis, 2014, p.79). In this study, the above-mentioned methods were employed to examine the challenges faced in accessing fisheries and the respondents‟ opinions on fisheries management. They selected their responses from a formulated/prepared list of responses in the questionnaire. However, in order to gain an in-depth understanding of what the causes of the challenges were and what recommendations they would like to put forward, the researcher conducted focus groups discussions. These discussions enabled the researcher to reach a deeper understanding about issues that were discussed, and how different individuals in a group felt about them. Such details are unlikely to be generated when one uses a questionnaire.

4.5.1 Quantitative methodology

According to Davis (2014, p.14) quantitative approaches "present numerical and statistical data". Quantitative methodology is also defined as techniques used in investigation, interpretation, and presentation, and collecting of numerical data (Teddlie and Tashakkori, 2009). Furthermore, this methodology rests on the foundations of positivism, which

objectifies humans being studied; it includes the practices and norms of a scientific model assert Bryman (2012) and Hesse-Biber (2010). The latter is achieved by keeping distance between the researcher and the subjects; this averts the researcher‟s opinion and experiences influencing the analysing and interpretation of data (Taylor, 2005). Moreover, it is influenced by the deductive approach, in order to comprehend the theory there is a need to test the research hypotheses (Muijs, 2011). However, Ashley and Boyd (2006, p.73) argue that "quantitative researchers set themselves apart from that being studied to remain objectively remote". Silverman (1993, p.21) submits that the quantitative researchers being distant, "might result in neglecting the cultural and social construction of the variables which they seek to correlate". Given that the researcher has minimal contact with the respondents, they will miss the opportunity to ask follow up questions. However, the latter has generally resulted in fewer questionnaires given back to researchers than those which were administered. Therefore investigator-administered method was adopted to prevent the former, even though this method might generally cause the respondents to be "less open and honest in the responses" (Mitchell and Jolley, 2010, p.265). This study used other research tools such as interviews and focus groups to complement the quantitative methodology, and to make up for its potential shortcomings.

4.5.2 Qualitative methodology

On the other hand, qualitative methodology takes an inductive approach whereby the connection between theory and research is made by putting weight in the generation of theories (Bryman, 2012). Qualitative methodology "assists one to understand how respondents attach meaning to the social world" (Dantzker and Hunter, 2012, p.56). Furthermore, it empowers respondents in the research by giving a voice to their life stories and experiences. Strydom and Bezuidenhout (2014) explain that qualitative methodology identifies underlying factors that influence the meanings people attach to their social world. In addition, subjectively derived knowledge is favoured over the neutrality and objectivity of the quantitative methodology. Trell and van Hoven (2012, p.30) state that:

> "….places, the physical and social context in which people spend their daily lives, are sources of identity and strong emotions/feelings evoked in people. Through their experience in/with places people develop a connection with and feelings towards those locations".

It is because of the above that qualitative methodology was also utilised in this study: fishing is an activity that fishers generally engage in daily; it is part of their culture therefore one cannot divorce the social aspects when investigating fisheries management. Data collection techniques take into consideration among human values, beliefs and meanings. The latter makes writing a qualitative report a challenging process as the researcher needs to consolidate a significant percentage (Ashley and Boyd, 2006). As a result the researcher's chosen style of writing is generally narrative. Focus groups discussions, observations and interviews are the techniques that were used in this inquiry.

4.5.3 Mixed methods

Ashley and Boyd (2006) relate that regardless of the differences between quantitative and qualitative methodologies stated above, what is always important is the reliability and validity of data collected using the various techniques. Neumann (2003, p.439) supports this by stating that researchers from both methodologies aim to "avoid errors, false conclusions and misleading inferences." It is therefore acknowledged that using a combination of methods from the two methodologies is possible, so long as they strive for similar goals, conceding that they take different directions to achieve them. As a result, this study employs both quantitative and qualitative methods, often referred to as mixed methods. Mixed methods may be described "as the use of both quantitative (surveys and experiments) and qualitative methods (interviews and observations) to answer the questions of the study being conducted" (Hesse-Biber, 2010, p.3). Greene (2007, p.20) refers to mixed methods as:

> "….a form of inquiry that actively invites us to participate in dialogue about multiple ways of seeing and hearing, multiple ways of making sense of the social world and multiple standpoints on what is important, to be valued and cherished".

The combination of methods was used at various levels of the study during data collection and analysis.

Ivankova (2014) discusses five objectives of mixed method evaluation design. They are triangulation, complementarity, development, initiation and expansion. Triangulation assesses the same dimensions/scope of a research problem using different techniques (O'Cathain, et al., 2007). Triangulation increases the credibility of the study as one manages to determine if there is any convergence, corroboration or correspondence from the findings of the different methods utilised in the study (Hesse-Biber, 2010). Curry, et al. (2009,

p.1442) state that the “complementarity method refers to the utilisation of results from one method as a foundation for another research technique” to improve and obtain a better understanding of the same research problem (Sale, et al., 2002). Onwuegbuze and Leech (2005) state that one finds that responding to a facet of a research question can be appropriately explored by using a quantitative method, as it was in this study where questionnaires were first conducted. Issues that came up during the questionnaire survey that needed further clarity and discussion were assigned to focus groups. A broader and in-depth understanding of the research problem was obtained by utilising both the narrative and numerical explanation.

The full understanding attained in complementarity of methods leads to the third objective development. In the unfolding research of the study, the mixed method assists as one is able to use the results of the one method to develop another method (Greene, 2008). For example, in this study the key theme, issues, and definitions which were initially overlooked during the formulation of the questionnaire or needed more clarification were utilised as topics in focus group discussions. The latter were conducted after collecting questionnaire surveys. The researcher used the outcomes of the discussions to identify issues respondents found most challenging.

A research study may raise more questions or ambiguities in areas which have not been examined (Johnson, et al., 2007). This may provide new insight to broaden and deepen the body of knowledge. A need for further exploration is called initiation. The latter leads to expansion, where there is a need to broaden the scope of inquiry (O‟Cathain, et al., 2007). This communicates that producing detailed findings in one‟s study allows for other researchers to fully understand what the study is about and identify the research gaps for future research endeavours.

The five discussed objectives of using mixed methods have their individual strengths that are likely to make the study more credible and valid. However, these methods are not without their shortcomings. Brewer and Hunter (2005) note that, from the diversity of imperfections, the different methods compensate for the limitations of the other methods. As Onwuegbuzie and Leech (2005) reveal qualitative and quantitative methods have strengths and weaknesses, the researchers should utilise the strengths of the two approaches to fully comprehend the social phenomena.

4.6 Case study method

The case study research method is utilised to gain insight into individuals, groups, social and organisational phenomena (Blankenship, 2010). Yin (2014) expands on this, adding that the case study method allows one to unpack and understand multifaceted and complicated social phenomena. In this context, the inquiry revolves around fishers in the community of uMthwalume. This method helps one to understand in-depth issues such as how fishers access and utilise fisheries resources, how these resources are managed and the relationship dynamics between different stakeholders in the community. These are unique in this community. The case study method, according to Gagnon (2010), enables one to get a thorough understanding of the topic under investigation, using detailed data collected from a limited number of people.

Strydom and Bezuidenhout (2014, p.179) note that "it is an attempt to understand a phenomenon within specific circumstances". This communicates that it is perceived as a method which gives a voice to ordinary people (Woodside, 2010). Furthermore, Blankenship (2010, p.35) states that the method presents background knowledge about "the group which has not been studied before". Since the group under study has not been investigated before, relevant information about them in the current literature will be shallow. The acquired knowledge helps the researcher to draw conclusions. These conclusions are then used to inform and guide future research efforts on the same group of individuals.

Swanborn (2010, p.7) notes that "case studies are not limited to just individuals", there are other types of cases, or unit of analysis such as the decision making process in fisheries management. A decision could be a case, for an example, the decisions that inform adopted fisheries management strategies. According to Yin (2014), a case study gives a researcher an opportunity "to focus a „case" and retain a holistic and real world perspective." De Vaus (2005, p.220) therefore defines "case as the object of the study." The researcher gained knowledge of fisheries management and how fisheries resources are utilised and accessed from a global perspective through the use of secondary data. However, the case of uMthwalume is unique in the sense that communities are not homogenous (Agrawal and Gibson, 1999). It is significant to acknowledge that their gender, class, socio-economic status, and their ethnic group make their community heterogeneous. It therefore becomes imperative that such a community be studied from its own stand point.

4.7 Primary and secondary data

There are two main geographical data types: pre-constructed/secondary and self-constructed/primary data. The researchers use both secondary and primary data, depending on what their research questions require and the solutions to the research problem (Salkind, 2010). In some instances, one finds that there is a research gap in a field of study, where the available data does not appropriately respond to the research question (Cloke, et al., 2004). The researcher is therefore required to actively engage in fieldwork. This type of data generation is called primary data.

Beer and Faulkner (2014) add that the researcher is not only in control of the collection of data and the study design, but also the analysis and reporting the data. In addition, Sahu (2013) states that since the data is just „fresh" from fieldwork, it is referred to as raw data as it has not been processed, analysed or manipulated in any way. Examples are focus groups, interviews and ethnographies. Some research questions are raised and this „fresh" data is utilised to respond to them, providing solutions to the research problem (Davis, 2014). Since the investigator, who is the one who formulates the research question is available, they are in a position to explain why and how the data was collected and what purpose the research design serves (Kothari, 2004). For example, primary data incorporate interviews and other aspects such as direct observations.

Goodwin (2012, p.XXI) comments that "the central and enduring image of the social science researcher is of an individual who commits a great deal of time and energy to collecting original, primary data from a field of inquiry." He further argues that the prevailing notion in the social sciences with the trainees, and also the trainers of the future researchers, is that research questions can only be explored by collecting more „new" data. This also applies in cases where data exists within that area of study; however, it is believed that it is insufficient to answer or resolve the research problem they want to explore. Although there are exceptions to this, the use of primary data is prominent and the study is perceived credible with the utilisation of it (Blankenship, 2010).

Beer and Faulkner (2014) discredits this notion by stating that reusing already existing data is as sensible as collecting primary data but can be expensive and time consuming. It requires amongst other things, "the development of research tools, the identification of samples, and time spent in the field" (Goodwin, 2012, p.XXII). Research funds to perform the data

collection are not accessible to every researcher and it is a waste when the data already exists and secondary analysis is possible. Sahu (2013) warns that it is not always possible for the primary researcher (s) such as governments and NGOs to fully examine the data. This approach was used in this study by using primary data from institutions such as SSA and different municipalities in the data analysis.

Salkind (2010) describes secondary data as that collected by another individual or organisation with a specific reason or agenda, in a particular area. It is then utilised by different individuals for their own goals. According to Sahu (2013, p.63), "secondary data are processed facts to a certain degree". In meeting the objectives of any project, data is analysed, thus enabling one to draw conclusions from it. Prior to utilising any secondary data, one needs to know if it is of good quality, reliable and accurate enough, and will serve the purpose the researcher intends it to serve (Cloke, et al., 2004). The researcher therefore needs to understand why, how, when and where the data was assembled, to make an informed decision (Bertram and Christiansen, 2014). Secondary data include, among other sources, government reports, newspaper articles and census data.

4.8 Sampling

A purposive design was utilised in this study to select the sample. Through purposive sampling respondents are selected, based on the researcher"s judgement of whether they will be suited for their study (Alder and Clark, 2011; Paler-Calmorin and Calmorin, 2007; Parscoe, 2014; Ritchie, et al., 2014; Bertram and Christiansen, 2014). Ritchie et al. (2014) report, that this serves two main objectives; that of ensuring that all the principal stakeholders significant to the study are covered; and that there is diversity in each main criteria of the study. For instance, in this study 80 respondents took part. It was a fair distribution of men and women involved in the fishing sector that had the opportunity to participate in the study, and the participants were from across all age groups. This distribution assisted in obtaining different points of view, therefore acquiring a deeper and richer understanding of the issue. In addition, bias was reduced.

According to Parscoe (2014), a purposive sample is selected by examining the population and the research question, and then deciding which characteristics are essential for the research. Respondents are then chosen based on their significance to the study (Petty, et al. (2012). Ritchie, et al. (2014) however, comments that other scholars debate that the term „purposive"

is inappropriate, as all sampling is purposive to a certain extent. The former is true because with each study a sampling method is chosen, with an aim in mind that by using this method it will assist the researcher to meet specific goals and provide answers to their objectives. Some scholars such as Hagan (2006, cited in Ritchie, et al. 2014) refer to this research method as judgement sampling. However, purposive remains a regularly utilised term.

Purposive sampling targets individuals who have in-depth knowledge about the issues under study (Engel and Schutt, 2010). According to Paler-Calmorin and Calmorin (2007), a respondent is selected based on good evidence that he/she is a relevant representation of the total population. In this study, the respondents were those who are involved or have extensive knowledge of fishing and fishing management in uMthwalume. The advantage of purposive sampling is that the respondents will, in all likelihood, contribute knowledge as they are experts in the researcher‟s study (Parscoe, 2014; Bertram and Christiansen, 2014). Moreover, individuals who do not fit the list of required characteristics can be excluded from the study. This saves time as the researcher will not engage with someone and find out half way through the study that he/she does not have adequate knowledge of the issues under investigation.

4.9 Data Collection

4.9.1 Observations

One‟s ability to notice things on a daily basis is what enables one to make common sense judgements about things (Angrosino, 2007). Landon (2010, p.302) comments further, adding that “a majority of what forms part of one‟s knowledge is acquired from a lifetime observation”. Nevertheless, in research, observations are slightly different as they are more systematic and formal. This is because there is a theoretical question about the nature of behaviour or social organisation in mind that needs evaluation. The researcher makes note of “respondents‟ behaviours, the gestures, and facial expressions” (Cargan, 2007, p.142), that happen subconsciously as the researcher listens to their responses to the questions. A researcher is not compelled to ask questions during observations, they can watch how people interact and engage in a number of activities (Bertram and Christiansen, 2014). Walliman and Appleton (2009, p.178) assert that:

> “Observation is not limited to the visual sense. Any sense smell, touch, hearing can be involved and these need to be restricted to the range perceptible by human senses, for examples, a microscope can be used to extend the capacity of the eye.”

Observation, Cargan (2007) advises, is usually used to supplement and enhance data collection methods such as questionnaires and focus group discussions. Additionally, observation aids the researcher to make a better interpretation of a situation. Newman and Newman (2015) suggest that making notes on the way people react as they respond to questions might bring to light why they responded in the way that they did. This is due to the fact that there are usually disparities in what respondents say they promise or what they actually end up doing. The respondents often project a better image of them self or are humbled at how the researcher reacts to hearing their honest opinion. Alternatively, they might be uncomfortable about questions and try to give the quickest response so that the researcher can move on to other issues (Bertram and Christiansen, 2014). Respondents may modify their responses to what they perceive that the researcher wishes to hear.

According to Axann and Pearce (2006), observation has the same advantage as focus group discussions and structured interviews, as it is to some extent unstructured. During a direct observation, a researcher participates in everyday activities of the respondents‟ experiences, observing how they would feel in particular circumstances and making note of how they interact with each other (Brewer, 2008). Bertram and Christiansen (2014) mention that when respondents are aware that they are being observed, they tend to change their behaviour. This is called the Hawthorne Effect. According to Harrison, the Hawthorne effect is:

> "…so named because it was identified for the first time by a group of researchers led by Elton Mayo. The researchers were investigating the impact of various social and environmental conditions at a Western Electric Hawthorne plant. The researcher found that whatever they did (improve lighting and dim lighting) resulted in increases in productivity. It was later determined that the increases actually were due to the increased attention that the workers were getting from the researcher, rather than the changes to social and environmental conditions in the workplace" (Harrison, 2011, p.25)

The respondents are likely to present themselves in a manner which they think the observer is expecting. Wood and Ross-Kerr (2011) note the difficulty recording everything observed; it is selective as it is possible to miss taking all minutes of the discussion as they pay attention to the facial expressions of the respondents. For example, in a fisher‟s focus group discussion, when a member gives his/her views, it is difficult to observe their facial

expressions and determine whether they are being honest and examine the other respondents‟ behaviour as they listen.

Observation, in some cases, takes an unobstructive approach where the observed are unknowingly participating in the study (Blackman and Kvaska, 2011). This means that the researcher partakes in daily activities with those under study, appearing as an ordinary individual, and obtains information about the respondents without announcing to them that they are observing them for research purposes. Cargan (2007) explains the point of doing so: The researcher obtains the respondent‟s genuine and honest response to different situations and an unpretentious behaviour in their natural setting. This could, however, be an invasion of privacy to some extent, which violates their rights or puts them in harm‟s way. In order to avoid this, the researcher should not take the respondents‟ names and should not observe what they do in their private settings. Since the researcher does not directly communicate with the respondent Hair, et al. (2011, p.188) caution that the researcher could miss the chance to "observe unseen thoughts and attitudes".

4.9.2 Questionnaires

Keele (2011, p.28) states that questionnaires are "the instruments that are used to collect data in a quantitative research". A questionnaire is composed of a set of questions based on the research problem of the study that is being conducted (Sahu, 2013). They could be open and closed-ended questions or statements to which respondents are requested to respond. The questionnaires are used to gather the facts and opinions of the respondents who are familiar with the issues under investigation, state Bertram and Christiansen (2014).

The space that the researcher gives the respondent to go through and answer the questions is an honest reflection of their thoughts (Kothari, 2004). Moreover, the absence of the researcher minimises the interviewer bias and influence as the participant responds without reservation or concern over how their answers will be received/perceived by the researcher. They are free to express themselves as they please without feeling like they will be scrutinised or if their answers sound correct or not. Sahu (2013) also adds that an allowance is given to a respondent to go through a questionnaire. Like any other method, however, the questionnaires also have their shortcomings. It is noted that those who are illiterate are unable to participate as a questionnaire requires that they be able to read the questions and then respond in writing (Blankenship, 2010). Bertram and Christiansen (2014) add that in this

instance, and with the respondent‟s consent, it could be administered as an interview. Zikmund, et al. (2013) also mention that a questionnaire is time consuming. If it is lengthy, respondents may lose interest along the way and leave some of the questions unanswered.

A pilot study was conducted before the original fieldwork. A pilot study is a trial run where the questionnaire is tested on a small number of people similar to the intended sample, (Walliman, 2001). It is used to anticipate potential problems where questions might be unclear, ambiguous or confusing (Bertram and Christiansen, 2014). Blessings and Chakrabarti (2009), state that a pilot survey is a carbon copy or rehearsal of the main survey. By conducting a pilot study, a researcher is able to establish if there are any weaknesses in the questionnaires or a survey technique (Kothari, 2004). If there are weaknesses, a researcher may take the necessary measures to rectify them. Questionnaires were piloted in the uMthwalume community.

4.9.3 Stakeholder interview

An interview is a "research tool utilised to obtain information which might be difficult to gather through questionnaires and observation" (Phillips and Stawarski, 2008, p.24). According to Seidman (2013), interviews are where the interviewer and interviewee possibly share what they know and their lived experiences. Moreover, one taps into one‟s consciousness, extracting details of that lived experience, through a process of reflecting and making sense, providing meaning to that experience (Freund, et al., 2015). Acquiring insightful detailed knowledge that is useful to one‟s research through an interview is dependent on the researcher‟s skills and techniques (Kothari, 2004). The researcher needs to possess a technique of keeping the conversation going smoothly; probing where they feel there is a need for more clarity and detailed information from a respondent (Teddlie and Tashakkori, 2009).

The interviews can be conducted in a structured, semi-structured or unstructured manner. Bhattacharyya (2006, p.156) explains that in a structured interview, the researcher sets up questions and anticipates responses prior to the interview. The respondent‟s answers are chosen from predetermined responses; for example responses such as yes or no, agree, neutral, and disagree. It is closed-ended questions which do not allow one to elaborate on the response. Structured interviews are strict, and questions are asked in the same order for every respondent (Lodico, et al., 2010). The order that questions are arranged in is a measure that

tries to prevent the respondents from discussing anything outside of the research topic. Klenke (2008, p.125) states that since the respondents are not using their own words and ideas their responses therefore "do not reflect their true feelings…not unless there are open-ended questions". The above-mentioned limitation might lead to less insightful findings and provide a narrow understanding of the topic, as there is little room for the respondent to share their thoughts and experiences which might provide in-depth information (Qu and Dumay, 2011).

Sahu (2013) describe unstructured interviews as a free style approach. There are no set questions and pre-set responses that respondents will answer, and the conservation needs to be about issues pertaining to the research topic (Bertram and Christiansen, 2014). Qu and Dumay (2011, p.245) note that the "unstructured interview process shapes to the individual situation and context, intending to make the interviewee feel relaxed and unassessed". They are more flexible; however, they are time consuming to conduct and analysis of the collected data is also time consuming (Covington, 2008).

Stakeholder interviews were set up with traditional leaders, and staff of the following departments and institutions; the Department of Agriculture, Forestry and Fisheries, the Oceanographic Institute, Ezemvelo KwaZulu-Natal Wildlife, Coastal Links/Masifundise Development Trust, the Thanda Organisation, and fishing committee members. The stakeholder interview is categorised as an in-depth interview. In an in-depth interview a researcher seeks more detailed and specific information beyond what they obtain in surveys, informal interviews and focus groups (Johnson, 2001; Sahu, 2013). Generally, this information touches on issues such as personal matters, lived experiences, values and decisions, and cultural knowledge (Phillips and Stawarski, 2008). In an in-depth interview, the researcher talks directly with an informant or a stakeholder.

A stakeholder interview is the most flexible type of survey method and as Geoldner and Richie (2006) assert, the researcher is able to adapt to the situation and the respondent. During the interview, the researcher can read the facial expressions and gestures of the respondents (Bhattarcharyya, 2006). From this, the researcher can then tell if the respondent is uncomfortable with the issue under discussion or if there is a possibility that the respondent is evasive or holding something back. It is acknowledged that some of these observations may be misleading. People behave differently in distinct circumstances. The researcher may be prompted to ask the question in a different manner, assuming that a particular behaviour

indicates that there is something unclear about that part or the whole question. Kothari (2004) alleges that through stakeholder interviews, the researcher obtains more in-depth information as compared to other types of survey methods like telephone or mail surveys. In addition, Sahu (2013) mentions, that through the sharing of knowledge during the interview, an opportunity presents itself for the respondent and interviewer to become more learned and understand each other.

Interviews can either be open or closed-ended questions. This study uses open-ended questions. According to Klenke (2008), interviews with open-ended questions allow the respondent to use their own choice of words, thus providing in-depth information. This avoids bias and can reveal unexpected dynamics and astonishing revelations about the topic. Moreover, the researcher may be in a better position to ensure that the respondents answer all the questions (Teddlie and Tashakorri, 2009). The disadvantage with the open-ended questions caution Philliphs and Stawarski (2006) is that a respondent can provide a lengthy response, making it difficult to analyse it. Sometimes people derail from the gist of the topic, giving answers that have little to do with the question asked (Cournoyer, 2014). This could be time consuming and an expensive process. When scheduling a meeting Sahu (2013) stipulates that the researcher must give the respondent enough time to see when they can be available to see them. In addition, when a respondent provides information that is irrelevant, the researcher might need to seek another respondent.

An interview using closed-ended questions saves time and is easier to analyse (Cournoyer, 2014). Closed-ended questions "can produce a standardised response and make short and precise answers" (Johnson and Christensen, 2013, p.119). Whitetaker, et al. (2009, p.133) cautions that a downside to using closed-ended questions in interviews is that they "can produce superficial answers". The specified answers in a questionnaire constrain and guide the (responses) answers of the respondents. Seidman (2013) elaborates that this is based on the fact that they can only use the interviewer"s words.

4.9.4 Focus group discussions

Focus groups are formulated by having respondents that have some similarities, so that they are able to engage with each other in dialogue and debate issues, while having diverse experiences and perspectives (Barbour, 2007). For example, having focus group discussions with students from one university, their similarities might be that they are from the same institute, and are around the same age. However, they are from different backgrounds, racial groups, and courses; discussing issues around fee increments. Strydom and Bezuidenhout (2014) acknowledge that when respondents have different perspectives on the same topic, their views add different dimensions in resolving issues and they are able to learn from one another. Moreover, the respondents gain greater insight into why particular opinions are held. Differences can be resolved by brainstorming from different angles and possibly gaining solutions (Litosseltiti, 2003). Generally, the recommended number of respondents in a focus group discussion is between six to eight respondents (Bhattacharyya, 2006; Catterall and Maclaran, 2007).

O‟Grady and O‟Grady (2009) note that in focus group discussions, individuals are comfortable enough to communicate with each other and feel safe. Liamputtong (2011, p.3) describes the interview environment as "where the respondents can feel comfortable to discuss their opinions and experiences without fear that they will be judged or ridiculed by others in the group". For example, a focus group discussion between women on issues around multitasking household chores, child bearing and employment. In such instances, the researcher gains access to different views and perceptions about an issue that they discuss. Additionally, one understands the attitudes and detailed information that enhances one‟s knowledge about local histories, activities and potential solutions to the challenges the group members face.

Focus groups have disadvantages; in some cases the respondents with strong characters dominate the discussion (Neuman, 2011). As a result, other respondents become less or un-involved in the debate and their opinions are not heard. In such a situation the researcher must ensure that the conversation with the respondents is not only directed at the researcher, but they should be interacting with each other (Barbour, 2007). This gives each respondent a fair chance to have their say, and the researcher is able to get diverse perspectives.

Focus group discussions are open, allowing the respondents to voice their opinions freely. This may entice the respondents to give information outside the scope of what the researcher wanted to focus on (Litosseliti, 2003). It is challenging to examine and construe the data and identify themes. Another problem is setting a time and place which will fit into the schedule for all respondents and the researcher (Dantzker and Hunter, 2012). In some cases respondents agree to the meeting but fail to arrive at the specified time and place date and time then the researcher has to reschedule which costly and time consuming.

In this study, as the researcher was collecting data through questionnaire surveys, the respondents would be asked if they would be interested in participating in an informal discussion on some issue pertaining to fishing and fisheries management. The time, place and date were agreed upon with key informants and respondents who are involved in fishing in uMthwalume. Three focus groups were used; two consisted of males and the other, females, all from different age groups. It is recommended that an environment conducive for the discussion to take place be set up, as this allows the respondents to confide comfortably, without any fear of being judged or of being unable to voice their opinion (Catterall and Maclaran, 2007). Kwashimbisa and Puskur (2014) note that gender also plays a role in which livelihood strategies an individual can pursue, and it is generally a taboo for women to be involved in line fishing in some cultures like the African societies. The majority of the women were thus generally involved in agriculture. As a result of the taboo and as fishing is regarded as a male activity, the groups were divided based on gender. If this was not done, the females could feel and be regarded as not having much to say in the matter. Additionally, one might find that if a wife is in the same focus group as her husband, she would contribute less or nothing to the conversation as it might be considered as undermining her spouse if she was too expressive, since culturally the man is the head of the household.

4.10 Data Analysis

According to Teddlie and Tashakkori (2009, p.7) “mixed method data analysis involves the integration of statistical and thematic analysis techniques, and other techniques”. This study utilised the SPSS and thematic analyses to access the data. In this study the data collected using questionnaires was coded and entered into the SPSS. It is utilised to analyse and create tables and charts. It assists one to draw conclusions from a set of data (Kleih, et al., 2003). SPSS is capable of handling large data sets without encountering problems, thus enabling one to perform complex analyses (Wagner, 2010).

The rest of the data collected through interviews and focus group discussions were analysed using a thematic analysis technique. The researcher identifies which issues or themes that were most reccurring in the data collected and in the literature reviewed (Pope, et al., 2007). Caulfield and Hill (2014) point out that it is very important that the researcher is familiar with the data before engaging in the analysis. It is therefore recommended that the researcher conducts their own interviews and focus group discussions, transcribe their own data and read the transcripts carefully before the analysis.

4.11 Conclusion

This study has its foundation on the humanistic strand of Geography. Secondary data extracted from journal articles, books, and newspaper articles assisted in contextualising fisheries management in South Africa. In understanding the unique case of uMthwalume the primary data was collected, using mixed methodology, where tools from quantitative (questionnaires) and qualitative (observations, focus group discussions, interviews) were utilised.

Chapter Five: Data Analysis and Discussion

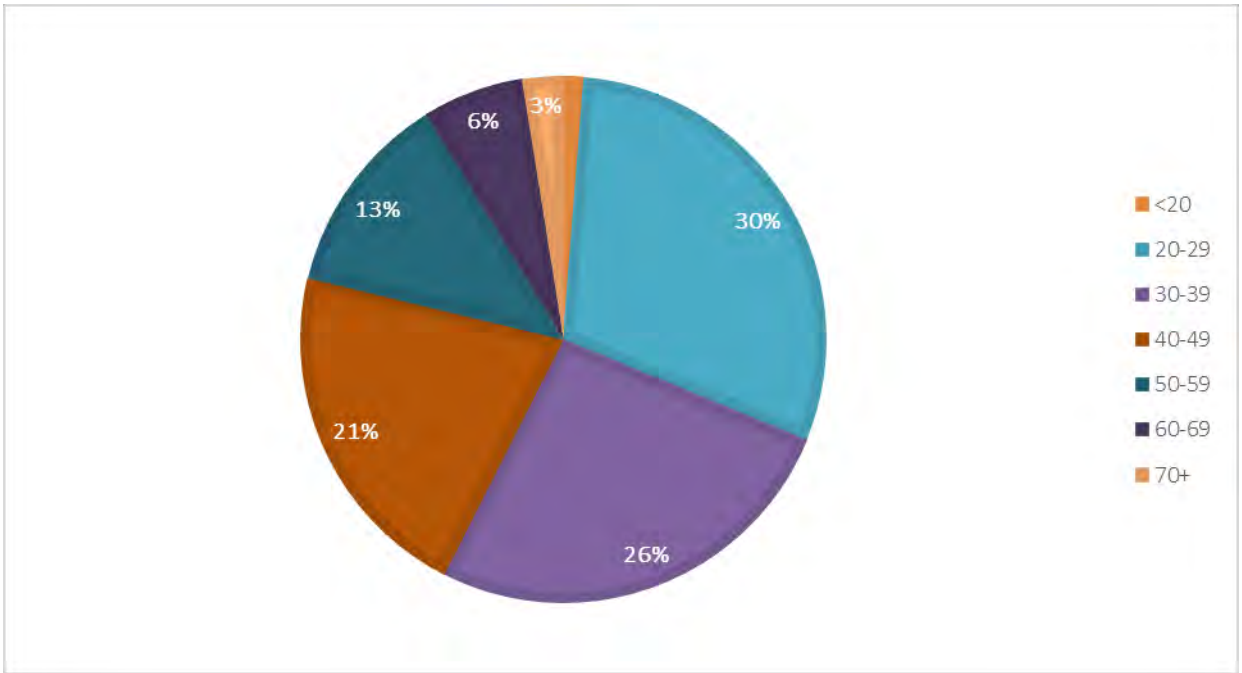
5.1 Introduction

This chapter presents the findings of this study, which was aimed at assessing community access, utilisation and management of fisheries resource in uMthwalume. Data was analysed through the use of primary and secondary data. The sustainable livelihood framework (discussed in detail in chapter 4) was used to analyse the data, mainly quantitative data collected using a questionnaire survey. The literature review (chapter 2) aided in thematic analysis, mainly of the qualitative data which was collected through focus groups, observations, and stakeholder and informant interviews.

Data was analysed thematically under these subsections; demographic information, human capital, community access to financial capital physical capital, natural capital, livelihood strategies, authority, authority in charge, value of indigenous knowledge, social capital perceptions of local authority in community, government structrures, non-government structures, regulations, policies, status of fisheries resources in KZN, gender in the fisheries resources industry, compliance in fisheries management, perceptions of fisheries manamgement, co-management, alternative livelihoods and vulnerability context.

5.2 Demographic information

Figure 5. 1: Age of Respondents (n=80)



The demographic information presented below in Figure 5.1 and the location of the respondents who participated in this study was collected through questionnaires. uMthwalume is a big village with numerous sub-villages involved in fishing. The percentage of respondents from the sub-villages who participated in the questionnaire survey which was carried out for this study are reflected in percentages, eSihlonyaneni (23.8%), eMathulini (22.5%), eMfazazane (17.5%), eGcilima (5.0%), oThuthwini (5.0%), uMzumbe (3.8%) and Hibberdene (1.3%).

Results in Figure 5.1 show that 24% of the respondents were between the ages of 20-29; 21% were between the ages of 30-39; 17% were between the ages of 40-49; 10% were between the ages of 50-59; 5% were between the ages 60-69; only 1% were over the age of 70; and 2% were under the age of 20. The possible reason for why the majority of the fishers are from a younger age group could be due to the fact that weather conditions at sea might be harsh and unpredictable at times, therefore one requires being physical fit so as to withstand them. As fishers get older they might be less interested in fishing, as shown in the figure.

5.3.1. Human capital

Figure 5. 2: Level of education (n=80)

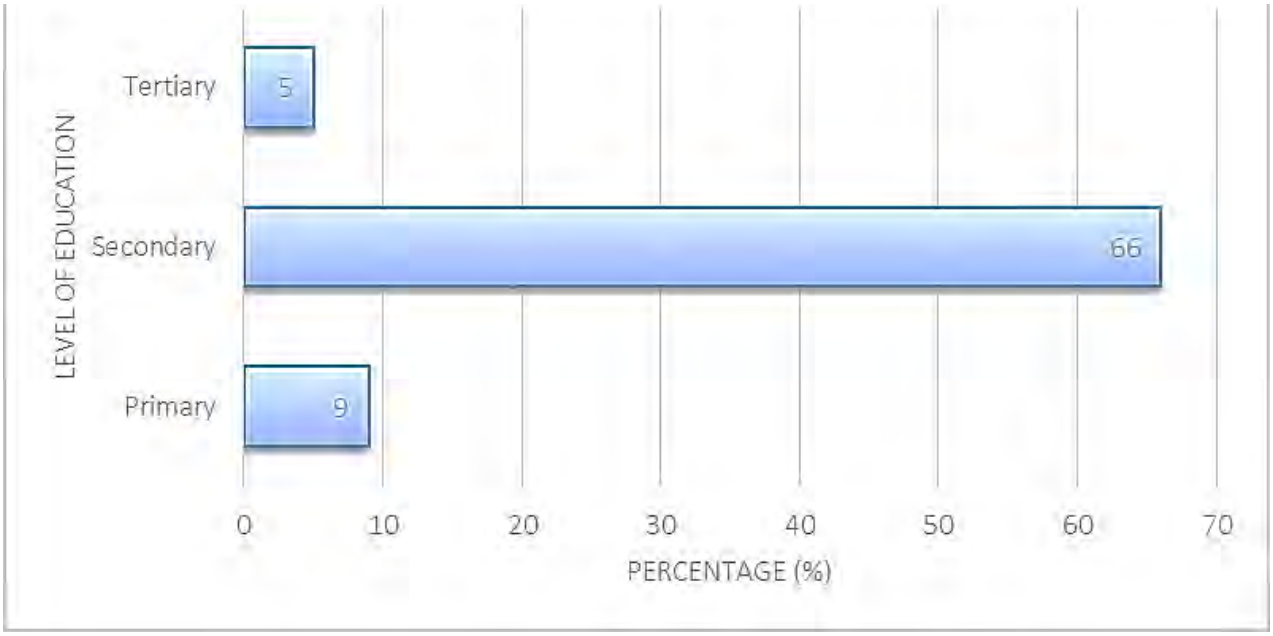


Figure 5.2 illustrates that 83 % of the respondents have some secondary level of education, while 11% of the respondents have some primary level of education. The above statistics partially concur with Harris et al. (2007) who asserts that the fisher community members generally have low levels of education. However, in this study the situation is slightly different as the majority of the respondents had some primary or secondary level of schooling, as indicated in figure 5.2. Six percent of the respondents have some tertiary education. According to the SSA (2012, p.23) only 9.1% of KwaZulu-Natal citizens have a tertiary level of education. Thus, it is plausible to infer that the low educational attainment in uMthwalume acts as an impediment for community members to diversify their livelihood activities beyond fishing. This means that there is a paucity of human capital in the area under study if livelihood diversification was a possibility. Ahmed, et al. (2010) defines human capital as the skills, knowledge, and ability to labour together with good education, which enables one to successfully pursue different livelihood strategies, and which evidently the fishers in uMthwalume lack.

Figure 5. 3: Total number of members in each household (n=80)

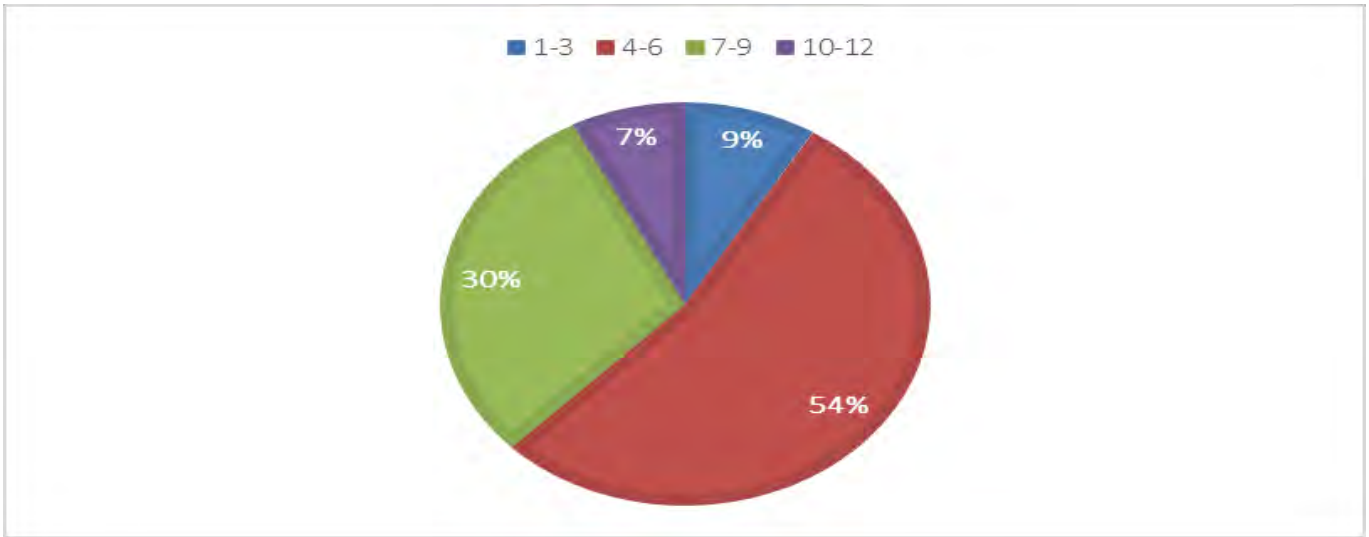
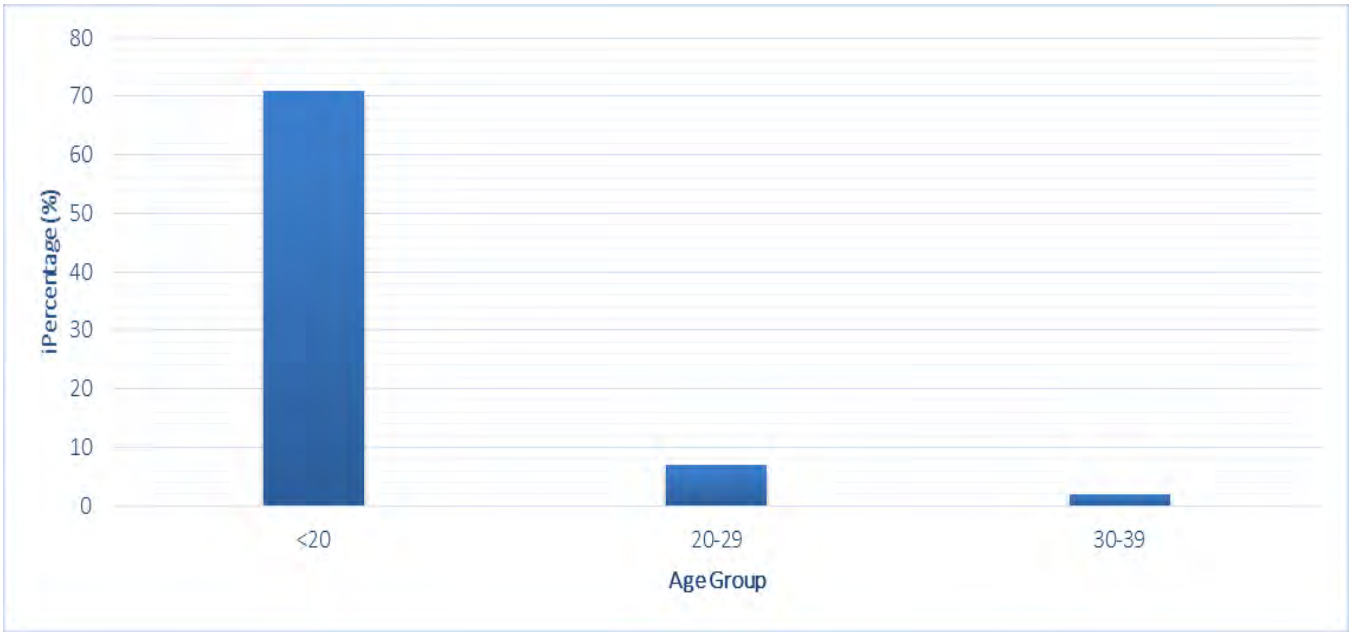


Figure 5.3 illustrates that more than half (54%) of the respondents stated that there were 4-5 members in their household in total. The remaining respondents (30%, 9%, and 7%) stated that the total number of members in their households were 7-9, 10-12 and 1-3, respectively. Furthermore, 46.3%, 38.8%, 11.3%, and 3.8% of the respondents stated the total number of females in their household was 4-6, 1-3, 7-9, and 0, respectively. The majority of the respondents (93.8%) stated the total number of males in their household was 1-3. The rest of the respondents (5%, and 1.3%) stated that the number of males in there was 4-6 and 0, respectively.

Figure 5. 4: Starting age for those involved in fishing activities (n=80)



The respondents were also asked to state their ages when they started getting involved in fishing (Figure 5.4). The majority of the respondents (71%) stated that they started getting involved in fishing when younger than 20 years of age, 7% said they started between the ages 20-29, whilst 2% stated it was between ages of 30-39.

As indicated above, the majority of the fishers started being involved in fishing at an early age. For the majority of coastal communities in South Africa like uMthwalume, fishing is an activity that can be traced back many years. Steyn and Scheyler (2009) support the above evaluation by arguing that indigenous people have been harvesting fisheries resources alongside the coast for many years to support their livelihoods. However, others such as Branch, et al. (2002) believe that it goes back as far as 100 000 years.

One cannot, however, view fishing purely through the economic lens, as just an income generating activity, as one would find that different practices and experiences were passed down from one generation to the next, and fishing is therefore part of their culture. One would find that fishers have extensive knowledge of various fishing skills, weather and sea conditions without being formally trained in any institutions of higher learning. The majority of the respondents (98%) stated that they have been fishing for over six years, while the rest of the respondents (2%) indicated it was between 1 and 3 years since they had started fishing. These figures indicate that the majority of the fishers have years of experience in fishing, and possibly extensive knowledge in the field.

5.3.2 Community access to financial capital

Figure 5. 5: Age at which fishing activities contribute to livelihood (n=80)

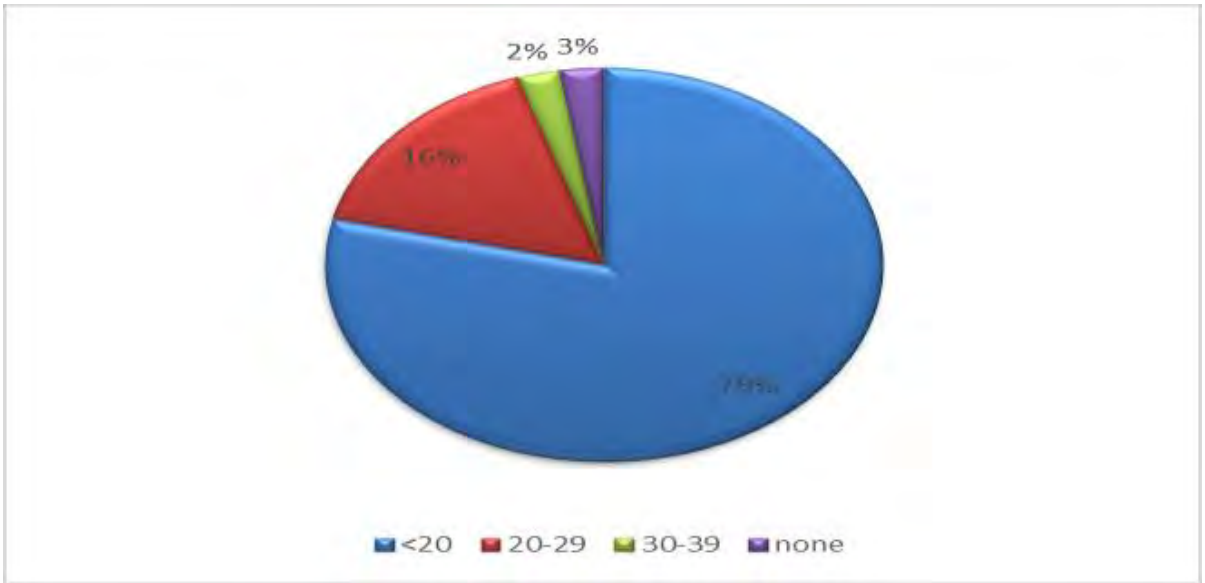


Figure 5.5 demonstrates that the majority of the respondents (79%) stated that their involvement in fishing started to contribute to the household needs when they were younger than 20 years of age. The fishers‟s contribution to the household at a young age could indicate how every cent counts in most households; any activity that could contribute to their livelihood is of great of assistance as they struggle to get out of the cycle of poverty. From a young age (younger than 20 years) fishers generally understand their financial situation at home and do what they can to help. Salagrama (2006) supports this finding by stating that the majority of the population living in coastal communities can be categorised as poor. Other respondents, 16% and 2% stated that their involvement in fishing started when they were between the ages of 20-29, 30-39 years, respectively. Only 3% of the respondents stated that their involvement in fishing did not contribute to the household; they use what they obtained to take care of their individual needs

Most of the respondents (87.5%) expressed that they have financial problems which is directly linked to the high unemployment rate (discussed further below) and limited diversification of livelihood strategies. According to Senaratta-Sellamuttu, et al. (2008) financial capital is one of most important capitals as it enables one to pursue different livelihood strategies. It denotes credit, debt, savings and income (Scoones, 1998). Other forms could be grants, remittances and stokvels. According to Giuliani (2007) financial capital is the most flexible asset as it can be used to obtain the other capitals. For example, it

can be utilised access or purchase physical capitals such as boats, fishing rods, and natural capitals such as bait and land. As the majority of the respondents stated that they have financial problems, they struggle to buy some of the things they require to fish. A respondent in FG1/5Oct-10Oct2015 stated the "bag limit is too small, while bait is expensive". From the statement made by FG1/5Oct-10Oct2015 one can assume that fishers feel they are working at a loss, they buy expensive bait only to catch a few fish and therefore generate less income. Bene and Friend (2011) argue that fishers are not poor because they are fishers; rather they are poor but it is their lack of diversification of livelihoods activities that makes them poor.

5.3.2.1 Unemployment

The majority of the respondents indicated that the lack of employment opportunities is the main problem in their household. The majority of the respondents (97.5%) stated that unemployment is a major issue in uMthwalume. According to SSA (2012, p.42), 33% of the economically active group between the ages of 15-64 in KZN are unemployed. Yunusa (2006, p.195) agrees, asserting that unemployment in KZN is between 30-40%. In the uMzumbe Municipality within which the uMthwalume community falls, the unemployment rate for the working age of 15-64 years is even higher; it is estimated at 56.3% and youth unemployment is approximately 62.6% (SSA, 2011, no page numbers). Bailey (2000) argues that unemployment is one of the most pressing matters that policymakers have to tackle. Furthermore, residents in coastal communities generally lack necessary skills, limiting the alternative livelihood opportunities they can explore and thus confining them to fishing. Due to the high unemployment rate and an increase in levels of poverty, communities become extremely vulnerable as they are not resilient to shocks and stresses (Jepson and Colburn, 2013). According to Chetty (2014, p.33), 41.8% of KZN residents are prone to poverty, with limited alternative livelihood opportunities and diminishing resources.

The respondents (23.8%) also indicated that there are challenges with accessing loans. MDT (2011) coincides with the latter, stating that fishers are generally unable to secure loans with formal financial institutions for their small business enterprises. This could be because they normally do not have collateral. According to the United Nations (UN, 2009), women in South Africa struggle with „red tape" the most. It was found two years into the establishment of the Black Economic Empowerment Equity Fund in one of prominant banks that only 5% of the customers were women (UN, 2009, p.65). Fishers end up seeking loans from informal unscrupulous loan sharks or „omashonisa" that have unreasonably high interest rates.

Moreover, these informal institutions practice unorthodox ways of ensuring the clients repay the loan as per agreement, such as one having to leave their identity document, bank card, and for pensioners or individuals who obtain child or disability grants their SASSA (South African Social Security Agency) cards. One can only imagine the kinds of predicament and desperate position that one would have to be in to succumb to such terms and conditions. These informal institutions end up having access to the people‟s most confidential information and valuables, causing them to be highly vulnerable as there is no guarantee of how their items will be utilised, and if they will find them in the same location upon their return.

5.3.3 Physical Capital

Figure 5. 6: Service available for the household (n=80)

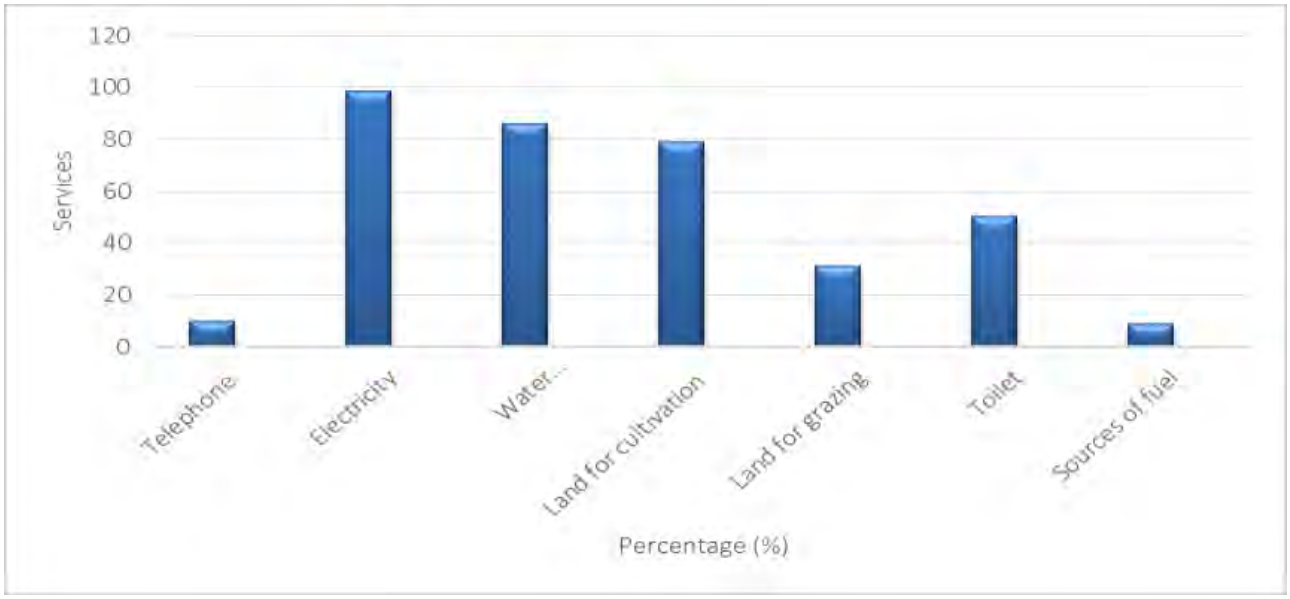


Figure 5.6 show that 10% of the respondents have landline telephones in their households. SSA (2012) state that 16% of the citizens in KwaZulu-Natal have landline telephones. The majority (98.8%) of the respondents stated that their households have electricity. According to the uMzumbe Municipality IDP though, only 67% of the households have electricity. The above distinction can be attributed to the fact that the uMzumbe Municipality covers a number of villages; therefore uMthwalume is one of the villages that have been fortunate to have this particular service.

Some literature substantiates some of the findings that relate to physical capital as illustrated in figure 5.6 above. For instance, Abrahams, et al. (2011, p.76) have charged that

approximately 84.5% households in KZN have access to piped water, either through communal shared taps or in their yards. Further, according to the uMzumbe IDP there has been a backlog in water supply in the municipality, in some areas more than 35% of the households are without piped water. Water is a scarce resource in South Africa and the uMthwalume community is not any different. The majority of the respondents indicated that they do not have internal piping or yard taps in their household. However, they indicated that they have access to communal taps. "No taps in the yard people still share taps, sometimes there are long queues" (Respondent 9). Most of the households rely on communal taps which are not reliable sources of water. A respondent supported the latter by stating "sometimes we are unable to get water at exact time you want it, you have to wait*."* (Respondent 8). It was clear that access to water was one of main issues in uMthwalume, as a respondent expressed their grievance, stating that "taps for every household must be made available" (Respondent 33).

SSA (2011) reports that besides communal taps, community members in the uMzumbe Municipality also depend on sources such as boreholes and river springs. However, these sources provide unsafe drinking water as they are not treated (Wright, et al., 2012). KwaZulu-Natal has experienced a number of cholera outbreaks annually as result of the sources mentioned above (Eales, 2011, Roma, et al., 2013).

Half (50%) of the respondents stated that their household have toilets provided by the municipality; however these are just pit toilets. According to SSA (2011) only 2% of the households in the uMzumbe Municipality have flushed toilets which are connected to sewerage. Atkison (2007) argues that there have been concerns over poor service delivery of proper sanitation in KwaZulu-Natal, and there have been cases where due to leakages or congested pipes, sewage waste has contaminated natural water sources and also reaching public spaces. The uMzumbe Municipality IDP 2014/2015 corroborates this by stating that, "inadequate access to sanitation infrastructure affects water quality" (p.44). In some cases it is not necessarily the issue of provision of services but the quality of that service. As is the case in uMthwalume some residents have pit toilets provided by the municipality, however they are not good quality. A respondent expressed: "we need proper toilets, because you find that sometimes the toilets we have are washed down by the rain since there is sand in area and it is sloppy in the area" (Respondent 10). Roma, et al. (2013) argues that communities like uMthwalume who still lack basic services such as water and proper sanitation still suffer from social exclusion as they previously did during Apartheid. Moreover, to some extent this

lack of facilities strips away their dignity as in such areas there are still prevalent cases where community members defecate in public spaces like bushes.

Figure 5. 7: Energy sources (n=80)

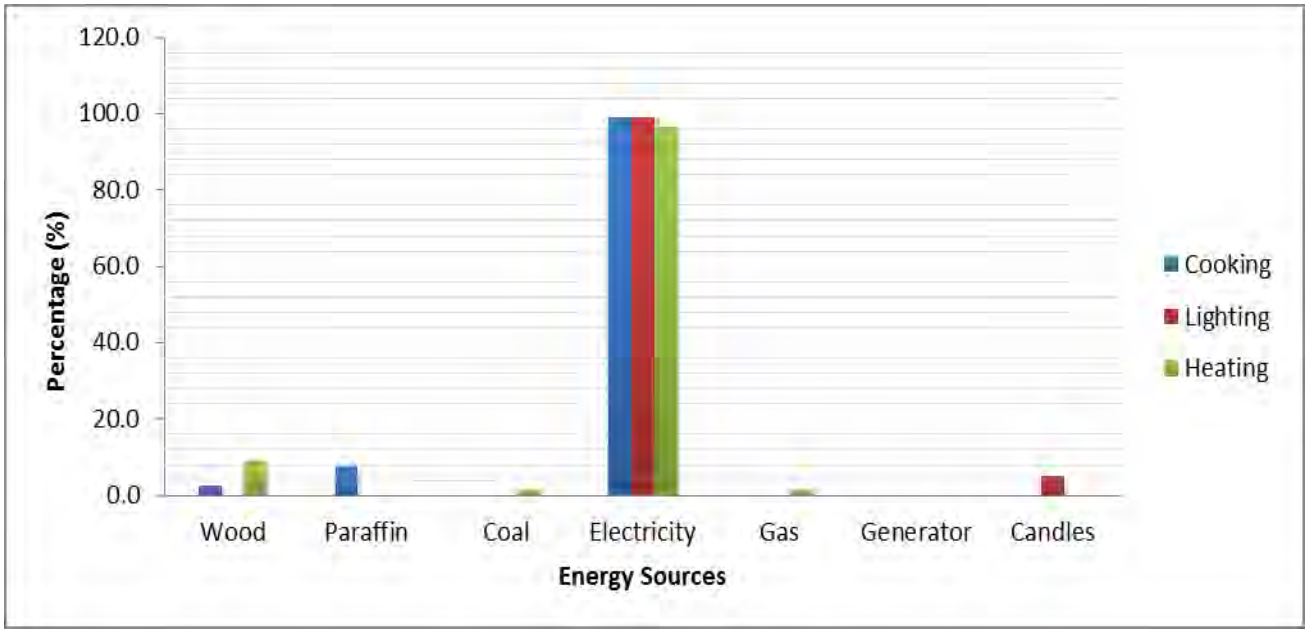


Figure 5.7 provides a summary of results on primary sources of fuel: A few respondents (8.8%) stated that they had access to other sources of fuel such wood, paraffin and coal. Owing to how expensive electricity is, rural communities turn to other sources of fuel such as those listed above. The preceding finding is buttressed by Stock (2013), who argues that wood and coal remain the cheapest sources of fuel, hence their being common sources of fuel. More especially fuel wood, since in the past it has been free and good quality; and even now the fees paid for a permit to collect it are generally low. Unfortunately, high dependence on fuel wood, deforestation, natural habitat destruction and soil erosion are some of the factors leading to the insufficient supply of wood (O"Keefe, 2013).

Figure 5.7 demonstrates that electricity as the primary resource of energy used in uMthwalume. The majority of the respondents (98.8 %) stated that they used electricity for cooking, which is slightly higher than that which was found by SSA (2012, p.36) where 68.6% of the households in KZN use electricity for cooking. The majority of the respondents (98.8%) use electricity for lighting. These statistics are marginally higher than those of SSA (2012:38), which states that 77.9% of the households in KZN utilise it for lighting. The majority (96.3%) of the respondents stated they use electricity for heating. The findings are higher than those of SSA (2012, p.37) which states that 57.5% of the households in KZN

utilise it for the heating. The probable reason for this trend could be due to the lack of availability of, and access to, common pool resources such as wood. Thus, given the limited choices at their disposal, community members depend mainly on electricity. Utilising resources such as paraffin is expensive as it currently costs R 14.0938 per litre (Department of Energy [DOE], 2015). Some 7.5 % of the respondents said they use it for cooking, whilst 1.3 % of the respondents said they use coal and gas for heating, and 5.0 % of the respondents said they use candles for lighting. These last resources could possibly be used in cases of load shedding or during times when income is low, as a means of saving.

Figure 5.8: Type/of material used for building and maintaining homes (n=80)

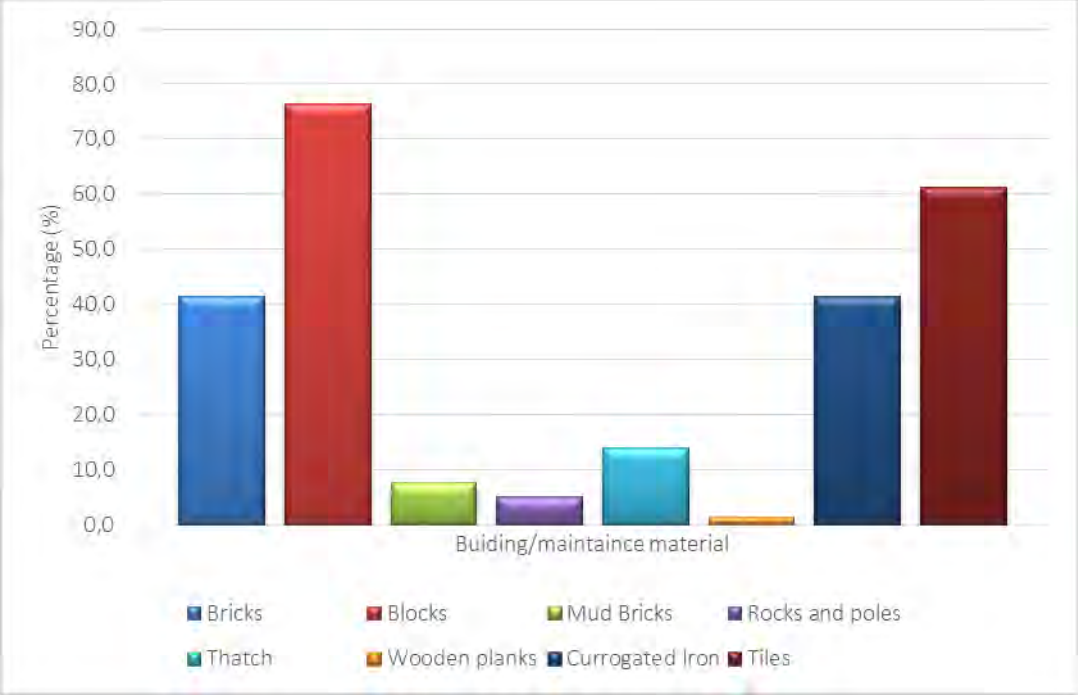
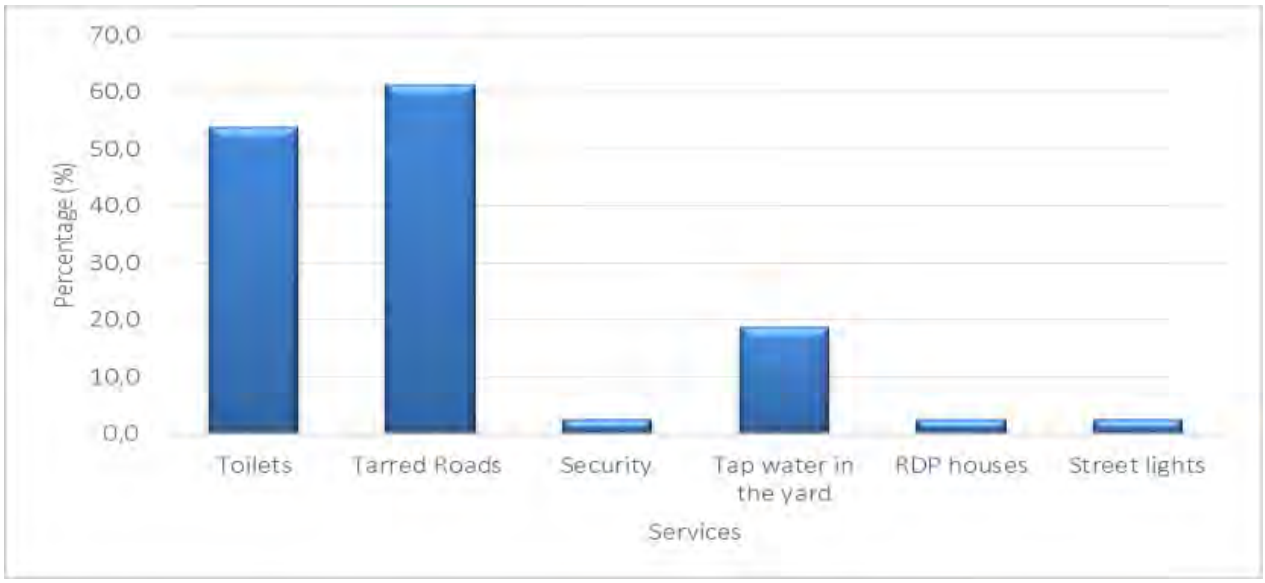


Figure 5.8 illustrates that 76.8%, 61.3%, 41.3%, 13.8%, and 7.5% of the respondents stated that they have used blocks, tiles, corrugated iron, thatch, and mud bricks, respectively, to build and maintain their houses. The majority (83.8%) of the respondents advanced that there is inadequate infrastructure such as tarred roads which are the most important services that respondents felt should be provided by the community.

Providing proper tarred roads for fishers to travel to the sea and back home for the purposes of fishing would make it easier and quicker to reach the destination. In addition, they are less likely to encounter dangers such as snakes and wild animals on tarred roads. Moreover, even in cases when they need certain merchandise delivered to their homes they are inaccessible. One of the respondents expressed that there are difficulties transporting building material into

their homes: “when the trucks getting in with material, the roads are not so proper” (Respondent 19). Other respondents (61.3%) stated that there are environmental problems. Since the area is mostly steep, residents sometimes encounter difficulty. One of the respondents mentions that: that area is in a“steep slope, where we are built, so if it rains the soil from the house above yours gets to yard and you have to remove it” (Respondent 3). Therefore, in cases when heavy rains occur the sand can be eroded from the yard of one household to the next one due to how close these homes are and where they are positioned. UMzumbe Municipality IDP (2014/2015, p.44) supports the above by stating that “most settlements are associated with low lying areas, which are also high rainfall areas. It exposes them to flood risks”.

Figure 5. 9: Other services the household should be provided by government/municipality (n=80)



Other services the household should be provided with by the municipality or government are shown in Figure 5.9. Tarred roads were the most important service that respondents felt the community (municipality/government) should provide as 61.3% responded affirmatively on it being delivered. Other respondents (53.6%) said that they needed toilets, as discussed above. Proper sanitation is vital to the health, quality of life and well-being of any living human being.

To substantiate some of the findings in this section, Whiteford and Padros (2015) emphasis the need for the provision of decent sanitation, as improper sanitation is associated with poor hygiene, which leads to serious diseases such as diarrhoea. Other respondents (18.8%; and

2.5%) said they should be provided with tap water in their yards and with street lights, RDP houses and security, respectively.

The kind of difficulties that households encountered when trying to access or obtain building materials varied; 12.5% of the respondents stated that the material was expensive. Other respondents (7.5%) mentioned that they couldn‟t afford to purchase the building materials since there were only a few members of the household who were employed. Some respondents (2.5%) stated that since the road is not tarred, it makes it difficult for trucks carrying heavy material to enter into the village. Lastly, 8.8% of the respondents stated that when it rains non-stop and grass gets wet, therefore they are unable to use it for the roof as they have to wait for it to dry which delays the construction of one‟s house.

5.3.4. Natural Capital

Figure 5. 10: Accessibility of fishery resources to households (n=80)

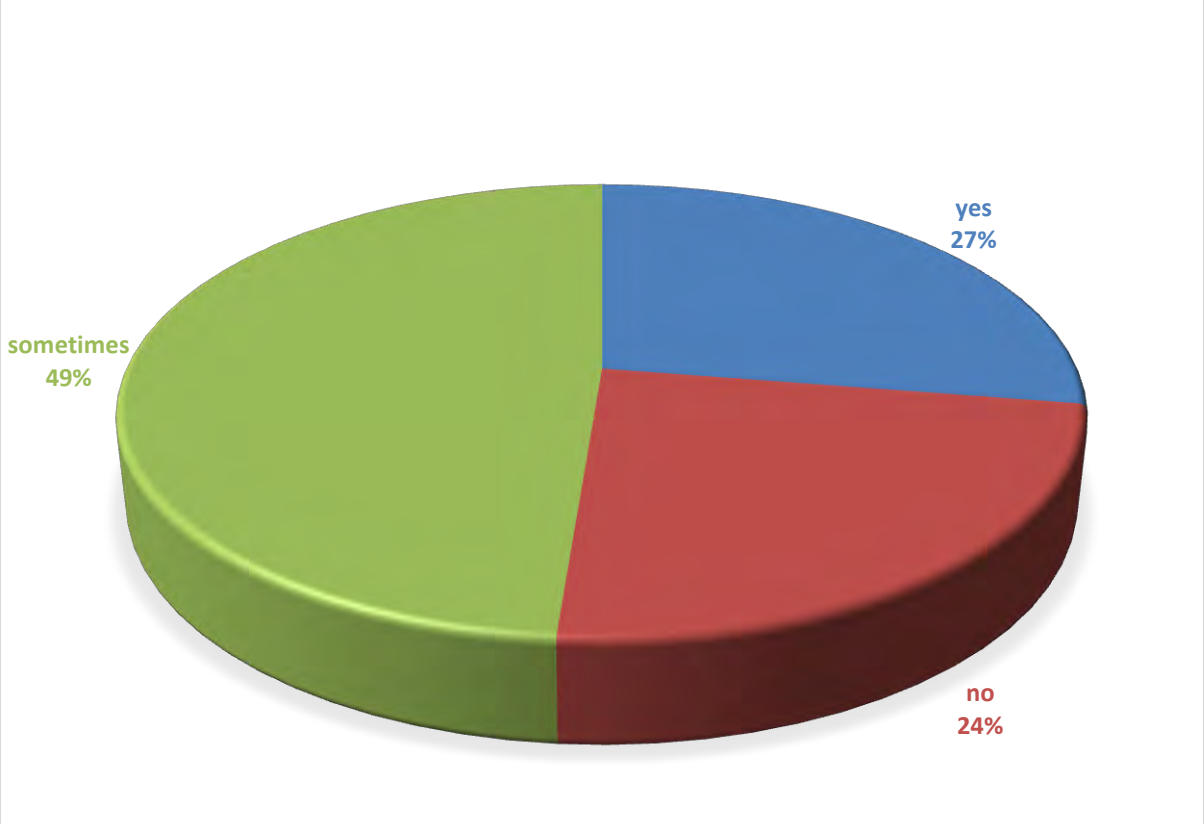


Figure 5.10 reflects that (49%, 24%, and 27%) of the respondents stated that fisheries resources are sometimes accessible, are not accessible and are accessible to them when the household needs them, respectively. According to Jamie and Betchel (2010), fisheries resources are of an open access nature. This creates competition among the different stakeholders involved in fishing. The most privileged fishers can obtain larger quantities of the catch at a fast rate due to the sophisticated fishing equipment towhich they have access to.

As discussed above, the majority of the fishers in uMthwalume identified unemployment as a major challenge for their household, making them susceptible to poverty. Given this scenario, it means that they are only able to afford rudimentary fishing tools. This limits the amount of catch they can obtain and prolongs their process of fishing. In uMthwalume, there are two main fisheries, namely brown mussels and line fish that are accessible to members of the community who have subsistence and recreational permits.

Figure 5. 111: Rate of adequacy access to natural resources (n=80)

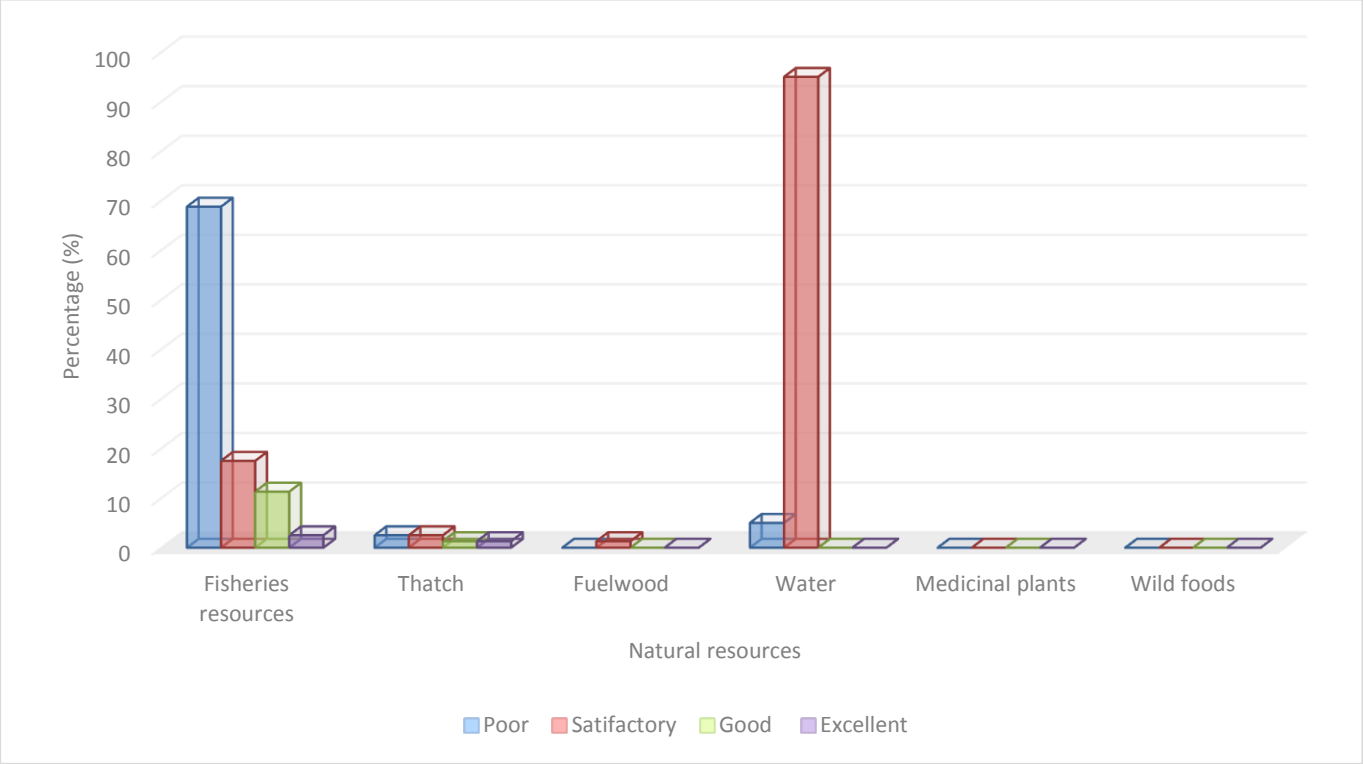


Figure 5.11 show how respondents rated the adequacy of fisheries: 68.8% said it was poor, 17.5% regarded it as satisfactory and 11.3% stated it was good, while 2.5% said it was excellent. The lack of satisfaction with access to fisheries could be because of the limited fish stock in KZN.

According to Roberts, et al. (2005) globally, fish stocks are dwindling and some fisheries have no hope of recovery. The above findings are supported by The, et al. (2008) asserting that the global decline in fisheries resources since the 1980s and therefore the downward trend, is not exclusive to uMthwalume. This deterioration in fishery resources is mainly attributed to the overexploitation of the stock as coastal communities depend mainly on it because it is the only available livelihood strategy at their disposal. It is estimated that 1.5 billion inhabitants of coastal communities in developing countries rely on fishery resources as the main animal source of protein (Garcia and Rosenberg, 2010, p.2872). Fishing may be considered as the key natural resource for coastal communities, however worldwide fishing stocks are declining in both quantity and quality (Sowman, 2011; Grafton, et al., 2010a). This poses a great threat as it has been observed that most fishing communities lack access to adequate land, which further limits them in pursuing alternative livelihood strategies (Kleih, et al., 2003b).

Respondents rated the adequacy of thatch as poor (2.5%), others (2.5%) stated it was satisfactory, 1.3% said it was good and another 1.3% thought it was excellent. It was found that there were only a few community members who use fuel wood, and as a result 1.3% of the respondents rated the adequacy of fuel wood as satisfactory. Water seemed not be a major challenge as respondents did mention that although they do not have taps in their yards, there are communal taps. The majority of the respondents (95%) rated the adequacy of water as satisfactory and 5% regarded it as poor. Activities in the household that require the use of water such as cooking, bathing the children, and cleaning are generally performed by women. According to Abrahams, et al. (2011), in society men generally have more power and influence on which matters to prioritise in the development of the community. Therefore the latter statement might explain why water is not regarded as a vital resource, especially having it in the yard, since the majority of the respondents were males and were therefore generally not involved in performing duties around the home which required water to be in as close a vicinity as possible to save time and make doing chores an easy process.

Figure 5. 12: Gender involvement in fishing (n=80)

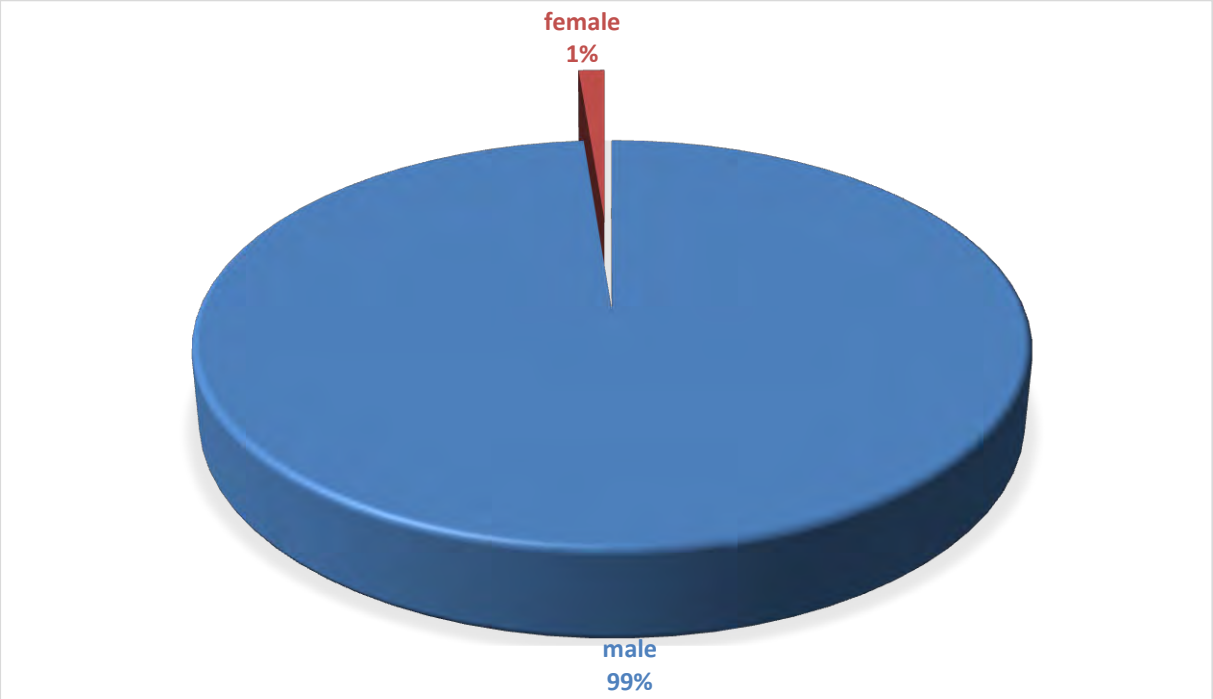


Figure 5.12 show that 99% of the respondents who are predominantly males collect the most fishery resources while a meagre 1% was female. The above finding is possibly due to socialisation, which portrays males as the breadwinners in society. Nunan (2006) corroborates the above by asserting that in some countries and cultures, it is considered a

taboo for a woman to wade in water fishing. It is regarded as the men‟s activity (Kher, 2008). According to Williams (2002), it is perceived to be a physically challenging activity and that is why fishing is a „man‟s job‟.

5.3.4.1 Trends in fisheries resources

Figure 5. 13: Catch trend in fishing (n=80)

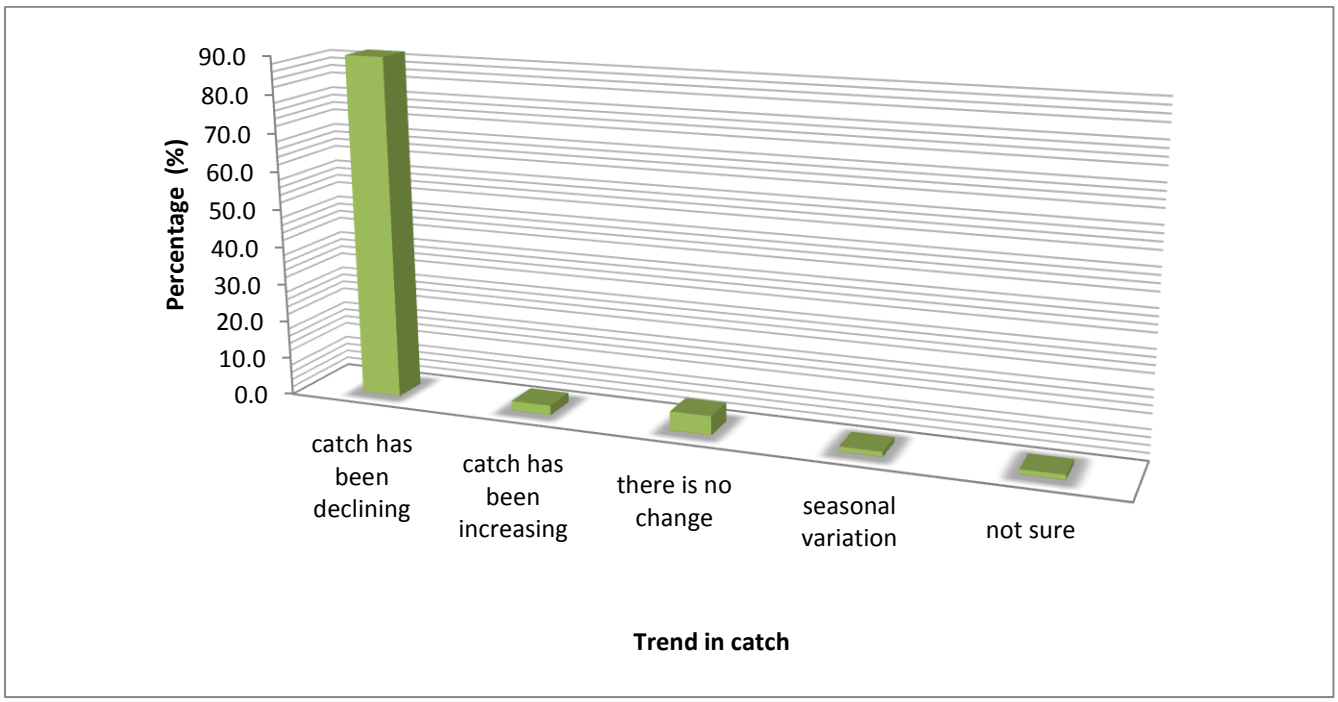


Figure 5.13 shows that 90% of the respondents stated that since they had started fishing the stock has declined. Some respondents stated that it has been increasing (2.5%) and others (5.0%) said there is no change. One respondent commented further saying “there is always enough fish at the moment” (Respondent 29). However, other respondents (1.3%) attributed the decline to seasonal variation, while 1.3% were not sure.

Sherman, et al. (2009) supports the above, asserting that fish stock has been constantly declining worldwide, resulting in some species being overexploited and on the verge of becoming extinct. Various factors were put forward by respondents as to why they believe there is a decline in fish stocks. Changing water conditions is believed to be one of the contributing factors causing fish stock to decline, as some respondents expressed that the “water is sometimes too cold” *(*Respondents 11 and 32), *“*tides have changed” (Respondent 29). Oil spills were also mentioned as a contributing factor as it is believed that fish might

migrate to other areas with a better environment. In addition, oil spills are believed to have adverse effects on fish and may lead to mortality. According to data collected, 98% of the respondents stated that they have been fishing for over six years. The rest of the respondents (2%) stated that is has been between 1 to 3 years since they started being involved in fishing. Considering how long the majority of the respondents have been fishers, it makes sense for them to have valuable knowledge and input on the fisheries resources trends. The increase in the numbers of fishers in the area is thought to be the leading cause of overfishing and perceived as another factor that is causing a decline in fish stocks.

Subsistence fishers are not the only group responsible for the decline in fish stocks, commercial fishers are also liveable. Commercial fishers might be more accountable for the decline than subsistence fishers since their quotas are much higher. Some respondents stated that the commercial fishers catch a higher quota as they use boats and advanced fishing equipment, enabling them to detect catch easily and faster. Some respondents said “Chinese businessmen are allowed by our government who chase us away, preventing us from going into the sea to catch as much fish as possible” (Respondent 33). Respondent 25 added that “Chinese businessmen are allowed to go further in the sea unlike us”.

5.3.4.2 Factors impacting fishing

Figure 5. 14: The impact of various factors on fishing (n=80)

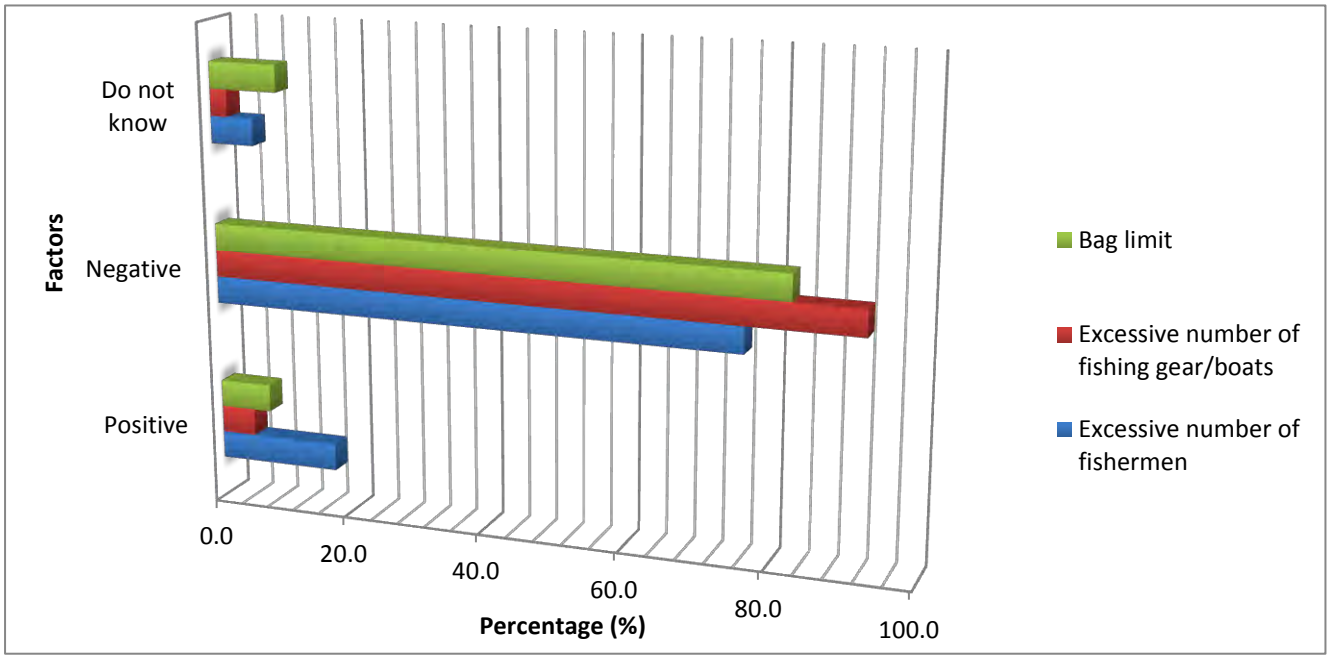


Figure 5.14 demonstrates that 92.5% of the respondents stated excessive numbers of fishing gear and boats have a negative impact on fishing, whilst 6% of the respondents stated that they do not know what impacted on the resource. About 82% of the respondents stated that bag limits have a negative impact on fishing, whilst 7.5% of the respondents stated that bag limits have a positive impact on fishing. The minority of the respondents (10%) stated that they do not know if bag limits have a negative or positive impact on fishing. The majority of the respondents (76.3%) stated that excessive numbers of fishers have a negative impact on fishing, whereas 7.5% stated that this has a positive impact on fishing. The rest of the fishers (6.3%) stated that they were not sure whether the excessive number of fishers had a negative or positive impact on fishing.

Figure 5. 15: Fishing activities (n=80)

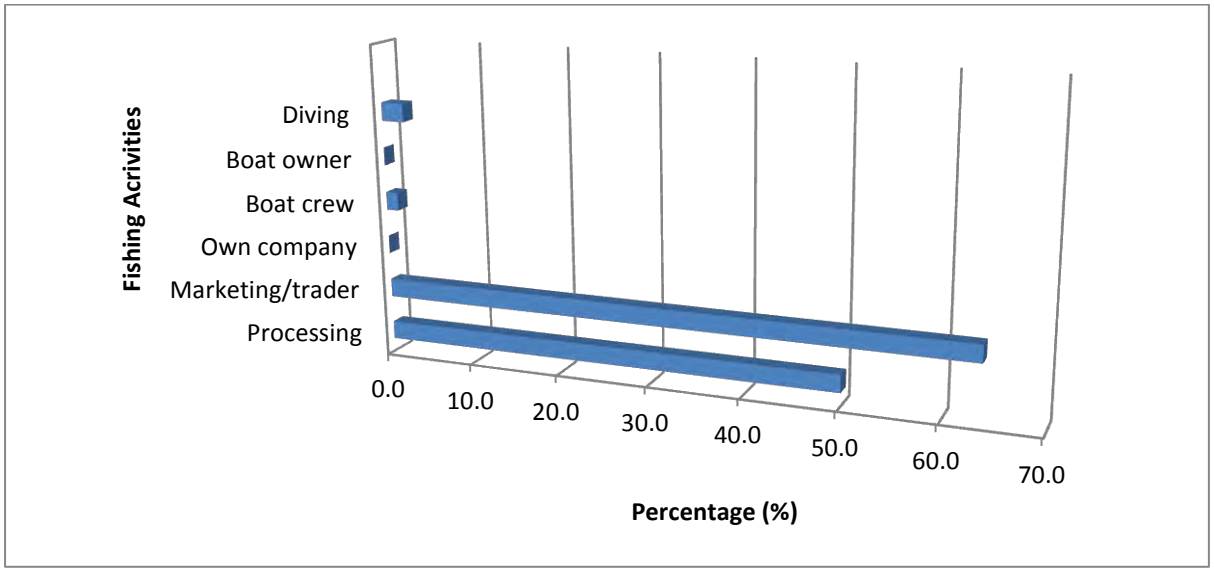


Figure 5.15 illustrates that 63.8% of the respondents are involved in the marketing/trading of fisheries resources, and 50% of the respondents stated they are involved in the processing of fisheries resources. Some of the respondents (2.5%) are involved in diving and 1.3% of them are boat crew members.

Figure 5. 16: Fishing duration (n=80)

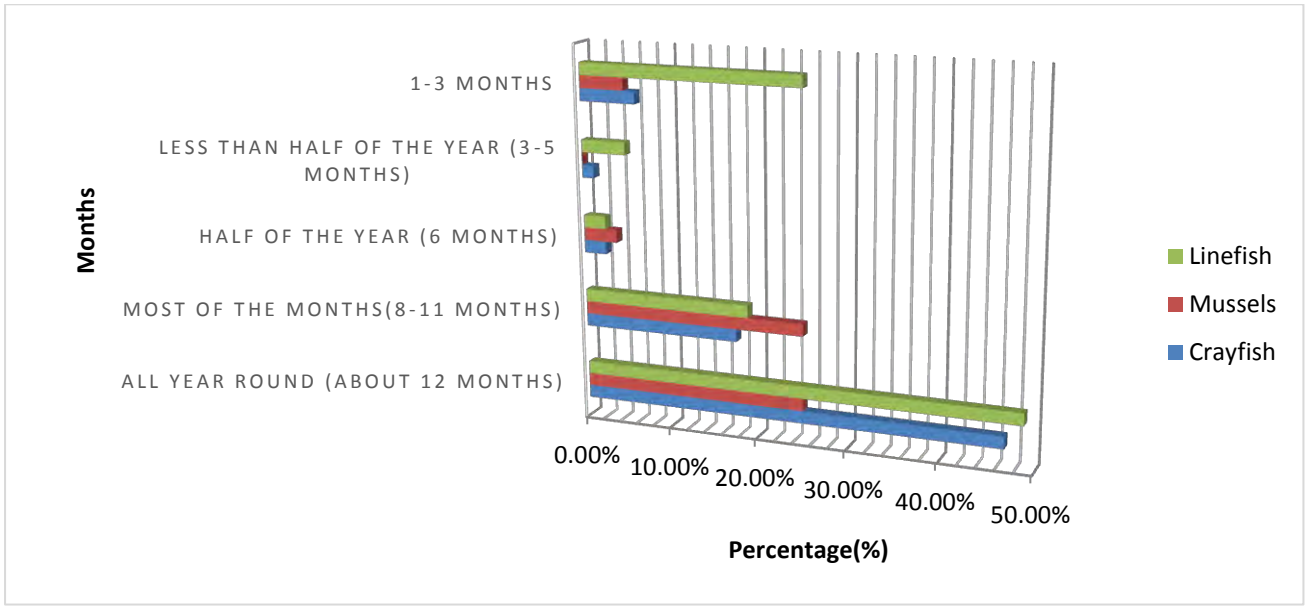
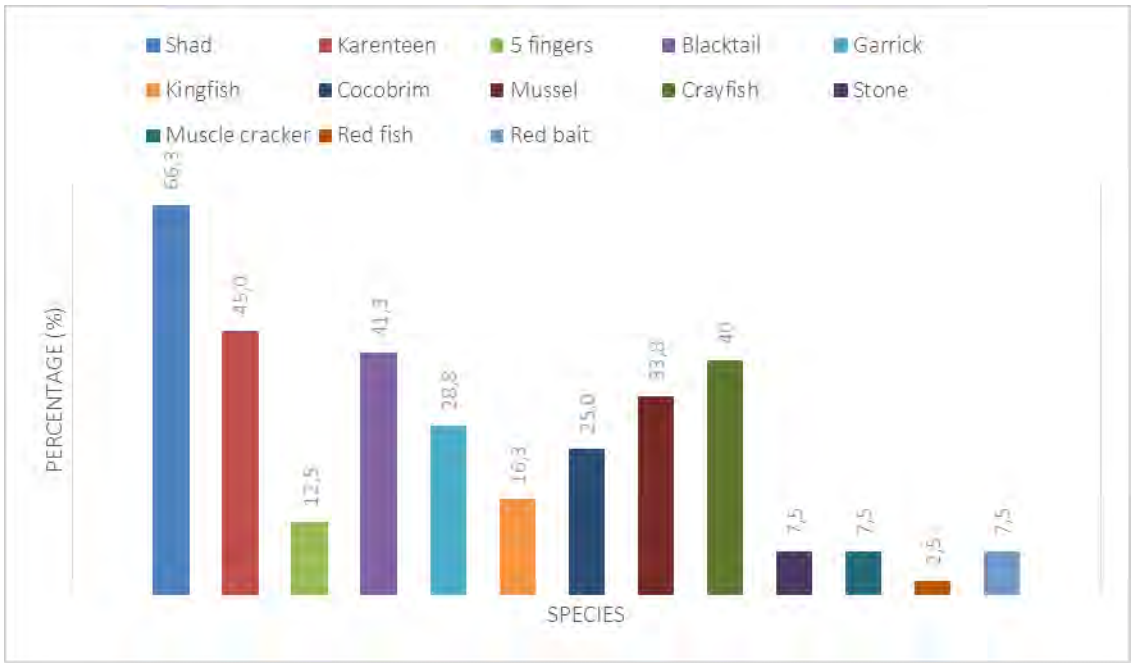


Figure 5.16 demonstrates that 46.3%, 17.5%, 2.5%, 1.3%, and 6.3% of the respondents stated that they catch crayfish all year round, most months, half of the year, less than half of the year, and for 1-3 months of the year, respectively. It was mentioned by 25%, 25%, 3.8%, and

5% of the respondents that they harvest mussels all year round, most months of the year, half of the year, and 1-3 months respectively. It was stated by 48.8%, 18.8%. 2.5%, 5%, and 25% of the respondents that they catch line fish all year round, most months of the year, half of the year, less than half of the year, and for 1-3 months respectively. Eighty four percent of the respondents stated they are always fishing. Sixty percent of the respondents stated that they are not always fishing.

Figure 5. 17: Species caught the most (n=80)



The MSSFU/15 October2015 stated that the two main fisheries in uMthwalume were brown mussels and line fish. The top five line fish that fishers in uMthwalume catch are shad, karenteen, banded galjoen, and stone bream (MSSFU/15 October2015). Figure 5.17 demonstrates that 66.3%, 45%, 41.3%, 40%, 33.8%, 28.8%, 25%, 16.3%, 12.5%, 7.5%, 7.5%, 7.5%, and finally 2.5% of the respondents stated that they catch shad, karenteen, blacktail, crayfish, mussels, garrick, cocobrim, kingfish, 5 fingers, stone bream, muscle cracker, and red bait, respectively. From the findings of this study, the majority of the respondents catch high value species such as shad, black tail and crayfish, which are generally sold even though it is illegal for some of these species to be caught and sold. Other species which were caught by most of the respondents were small species such as karanteen and mussels which are generally for household consumption.

Figure 5. 18: Primary uses of species (n=80)

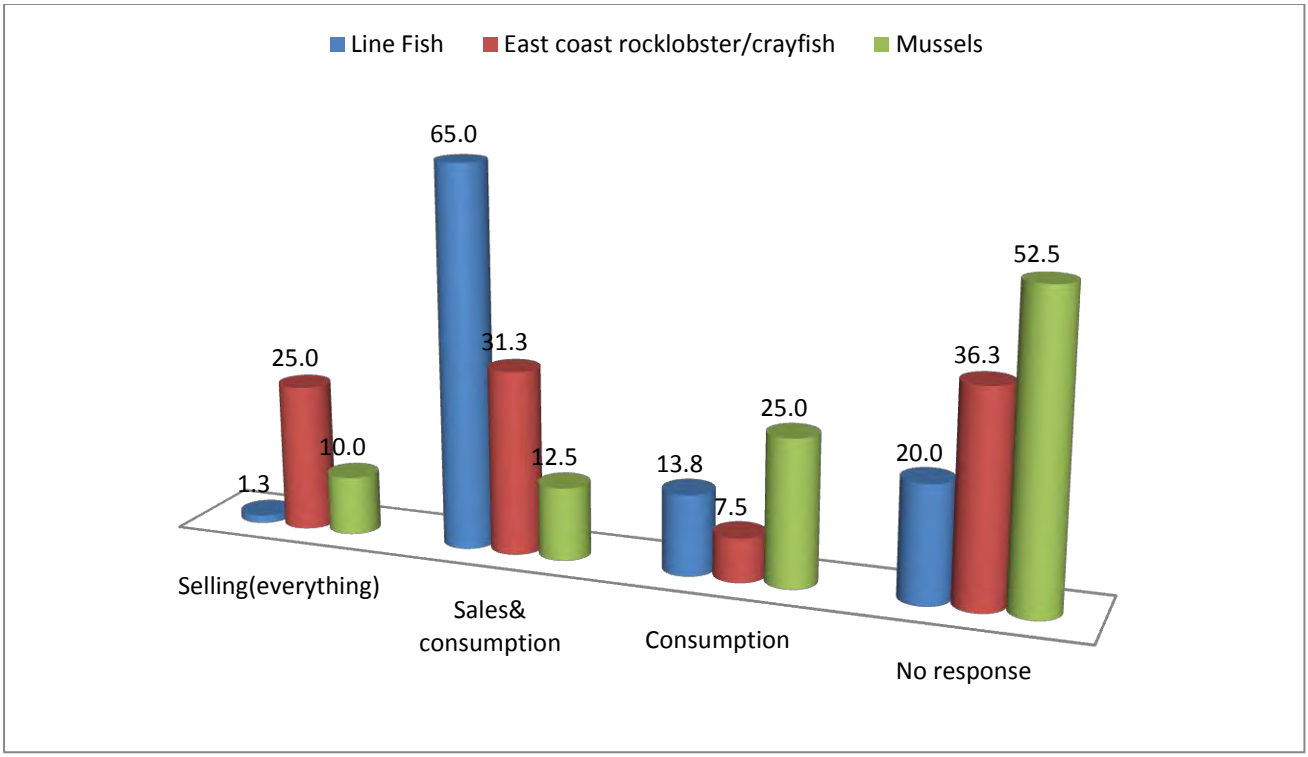


Figure 5.18 shows that 65% of the respondents use line fish (line fish species refers to shad, karenteen, 5 fingers, blacktail, garrick, kingfish, and cocobrim, which are the mostly caught in uMthwalume for sales and consumption (MSSFU/15 October2015 and the CL/MDT-CM-KI/3November2015). About 1% of the respondents sell all the line fish they catch. Roughly 13% of the respondents use line fish strictly for consumption. Approximately 31% of the respondents stated that they use crayfish for sales and consumption. Twenty five percent of the respondents stated that they sell all the crayfish they catch. Around 7% of the respondents stated that they consume all the crayfish they catch. Twenty five percent of the respondents stated that they consume all the mussels they harvest. Nearly 12% of the respondents stated that they sell and consume of the harvest. Finally, 10% of the respondents stated that they sell everything. Fisheries resources are essential sources of lipids, vitamins, protein and micronutrients (Garcia and Rosenberg, 2010).

Figure 5. 19: Species purchasers (n=80)

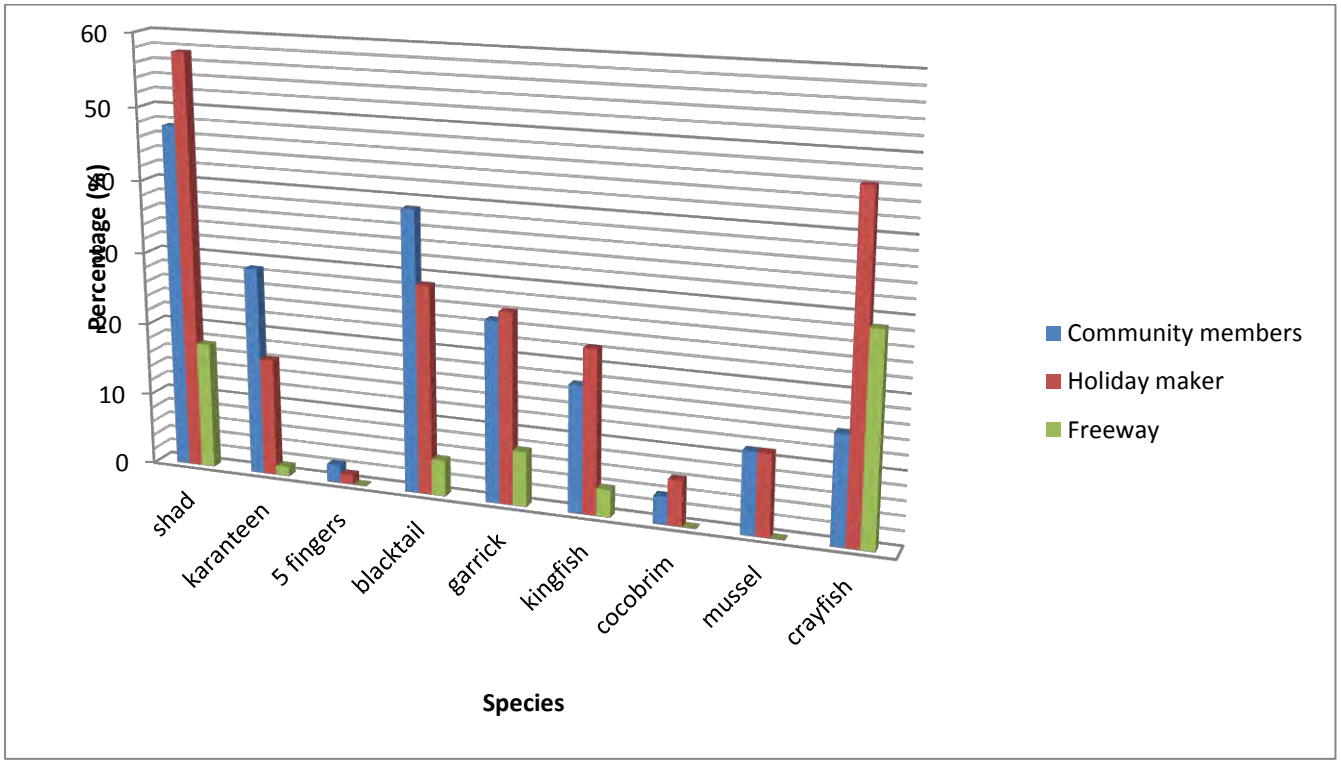


Figure 5.19 shows that 47.5%, 57.5%, and 17.5% of the respondents stated that they sell shad to the community members, holidaymakers and on the freeway, respectively. Some of the respondents, 28.8%, 16.3%, and 1.3% stated that they sell karenteen to community members, holiday makers and on the freeway, respectively. It was mentioned that 2.5%, and 1.3% of the respondents sold 5 fingers to the community members and to holiday makers, respectively. Moreover, 38.8%, 28.8%, 5% of the respondents stated that they sell black tail to the community members, to holidaymakers and on the freeway, respectively. One of the larger species is garrick and 25%, 26.3%, and 7.6% of the respondents stated that they sell garrick to community members, to holiday makers, and on the freeway, respectively. It was said by 17.5%, and 6.3% of the respondents that they sell kingfish to community members and to holiday makers, respectively. Some of the respondents (11.3%) stated that they sell mussels to community members and 11.3% of them sell their catch to holiday makers. Crayfish is a popular in uMthwalume, hence the sales to community members (15%), holidaymakers (46.3%) and passing motorists on the freeway (28.8%).

Ten percent of the respondents stated they sell fisheries even though they are not allowed to because most of them are unemployed. About 2% said Chinese businesses are taking fish.

Approximately 1% of the respondents said that they sell their fish stock to the Indians. It is evident from the respondents that they do not sell to shops or hotels as this is illegal.

Figure 5. 20: Laws/guidelines set for accessibility to fisheries resources (n=80)

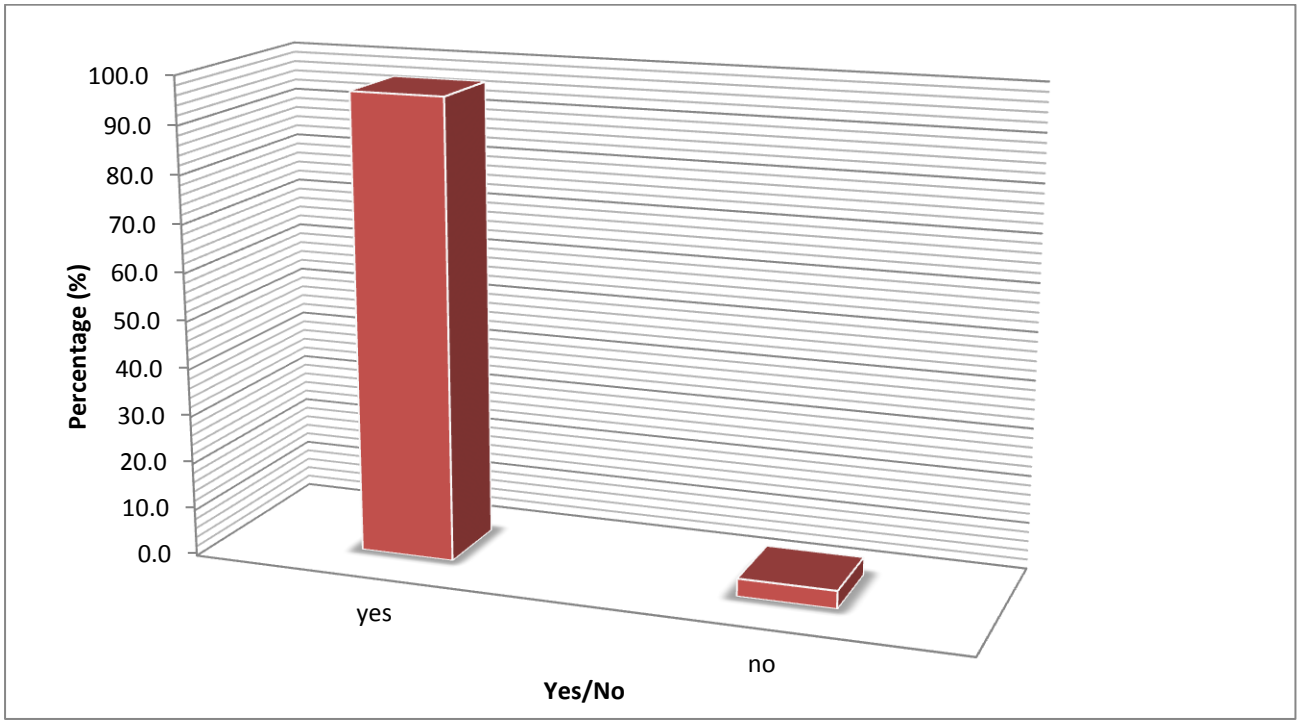


Figure 5.20 illustrates that 96% of the respondents indicated that there are laws and guidelines set for accessibility to fisheries resources. Four percent of the respondents stated that there are no laws and guidelines for accessibility of fisheries resources. Furthermore, in order for a fisher to catch any species legally they are required to have either a commercial, recreational, or subsistence permit. Each permit has its own terms and conditions which guide the fishers in terms what and how much they can catch, bag limit, open/closed season and quota. The majority (98.8%) of the respondents stated that they have a fishing permit and 1.3% of the respondents stated they do not have fishing permits. The majority (81.3%) of the respondents stated that they have subsistence fisheries permits and 21.3% of the respondents stated that they have a recreational permit.

Figure 5. 21: Authorities who allocate fishing permits (n=80)

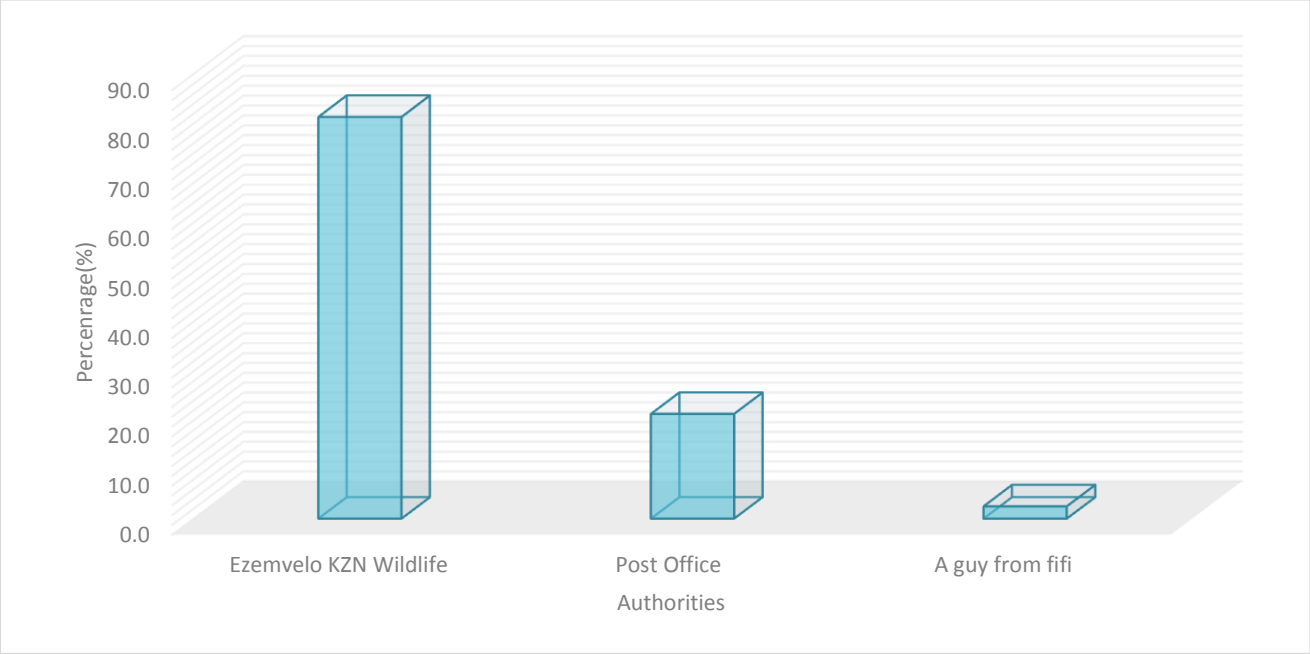


Figure 5.21 demonstrate that 81.3% of the respondents stated that the EKZNW is the agency that allocates permits for fishing. However, it is the Small-scale Fisheries Unit (SSFU), formerly known as the Subsistence and Artisanal Fisheries Unit which issues subsistence permits and in the near future will issue the small-scale fisheries permits (MSSFU/15 October2015). Some respondents (21.3%) stated that it is the Post Office that allocates permits for fishing and 2.5% of the respondents stated that it is a guy from Fifi (Fifi‟s fish and chips shop) who allocates permits.

Figure 5. 22: Perception of permit allocating system (n=80)

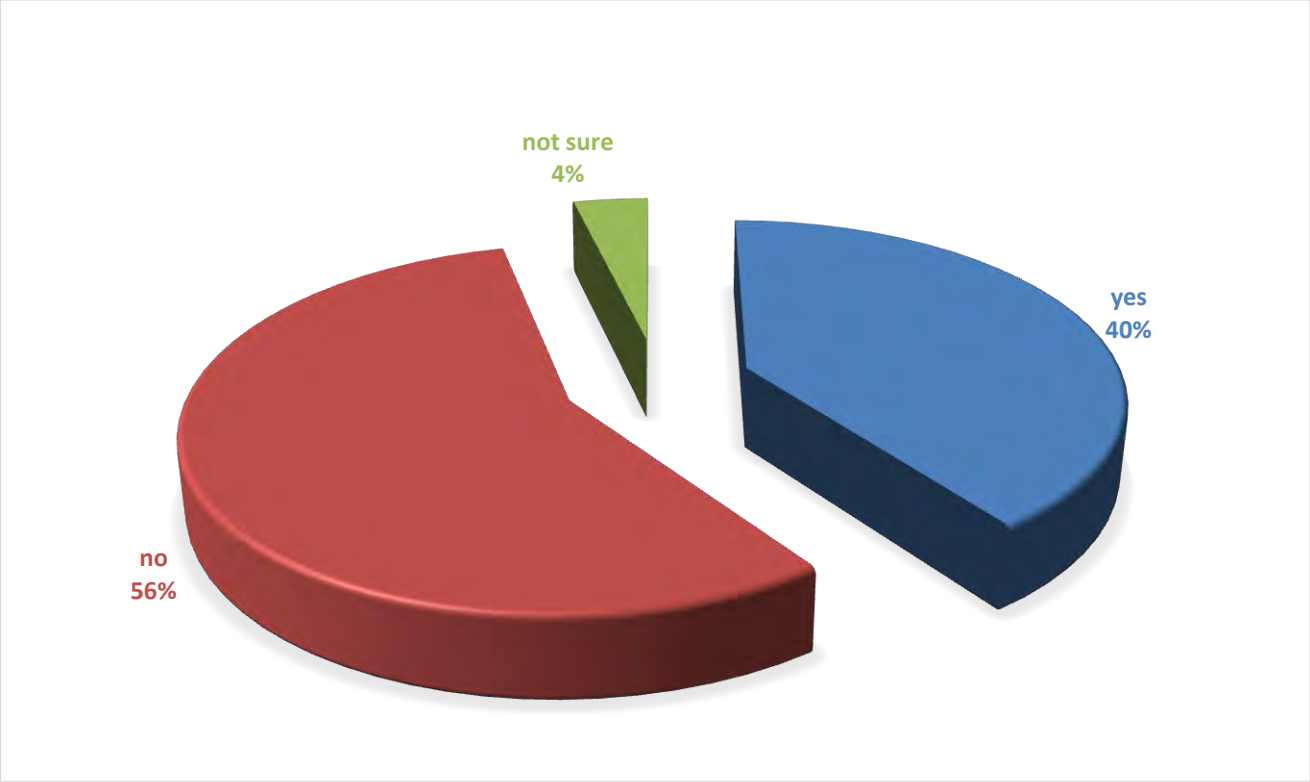


Figure 5.22 shows that 40% of the respondents stated that they are satisfied with the permit allocating system, whilst 4% of the respondents stated that they are not sure how they feel. Most of the respondents (56%) stated that they are not satisfied with the current permit allocating system. The main issue that kept on coming up is that the bag limit is too low. About 12% of the respondents stated they are not satisfied with the current permit system because they are limited to where and what they can sell. Subsistence fishers are allocated the low value species (Sunde and Pedersen, 2007). However, fishers would prefer to catch and sell species such as crayfish which are high value species (discussed in more detail on page 147).

Catch obtained using a subsistence permit is strictly for consumption and the leftover fish can be sold so as to generate enough income to meet the household‟s basic needs (Schumann and Macinko, 2007).Those allocated a recreational fishing permit strictly catch fish for their own consumption and cannot trade it. However, since subsistence fishers are allocated the low value species they remain in the poverty cycle (Sowman, 2006). Most fishers in rural coastal communities have bought recreational permits so that they can legally access the high value species, but illegally sell their catch in order to generate income, as is the case in

uMthwalume. Classifying artisanal and small-scale fishers as subsistence and recreational fishers took away their opportunity to make a living from fishing (Isaacs, 2011).

Respondents (7.5%) stated that they are not satisfied with the current permit system because of the closed season. Another 7.5% of the respondents stated they are not satisfied with the current permit system as it restricts them. A few respondents (1.3%) stated that they are not satisfied with the current permit because it should be free because it is the natural environment and belongs to everyone. Another 1.3 % of the respondents that work as boat crew members stated that they are not satisfied with the current permit system as they are not paid for injuries. Other respondents (1.3%) expressed that currently they do not have the permits to legally sell fisheries resources. Another 1.3% of the respondents stated that they are not satisfied with the current permit system because permits are expensive at R75. In this instance the respondents were referring to the recreational permit, as subsistence permits are free.

5.3.4.3 Seasonality

Seasonal variation is one of the issues that respondents (1.3%) stated as being an obstacle to having fishing as an activity that can successfully sustain their livelihoods. Fishing is affected by seasonal changes such as the weather. There is high rainfall during the rainy season and this is when fishers have the highest catch rate (Kleih, et al., 2003a). The catch rate is low for the rest of the year. Food security is threatened during the periods with the low catch rates, making the fishers vulnerable as they do not catch enough for consumption or to generate enough income to provide for all the needs of the household. Some respondents (7.5%) stated that they are not satisfied with the current permit system because of the closed season. Respondents previously mentioned that because of bag limit and the species allocated to them, they are unable to sustain their livelihoods, and seasonality just makes matters worse.

Shoals of shad travel from the EC/Western Cape (WC), arrive on the KZN coast in May/June and stay until November/December. The bag limit for them is 4 per day; open season is from the 1st of December till the 30th of September; closed season is from the 1st of October until the 30th of November and sale is not permitted.

For crayfish, the bag limit is 8 per day; open season is from the 1st of April until the 30th of September; closed season is from the 1st of November until the end of February. Crayfish and shad are popular high value species in uMthwalume, and the respondents mentioned that they

sell them even though they are not allowed to do so. The fact that the closed seasons for both of these species occur around the same time means that they make less income. Fisher‟s livelihoods suffer immensely during the closed seasons and they are vulnerable to food insecurity.

5.3.4.4 Safety when accessing fisheries resources

Thirty percent of the respondents stated that they have been victims of crime or heard of such incidents when trying to access fisheries resources. Several respondents attested to the latter: “Criminals steal fishing equipment” (Respondent 29), “At night no parking, cars get damaged” (Respondent 30), “Break into cars and stealing people‟s belongings” (Respondent 51). Even as the researcher was administering questionnaires around the beach, the fishers recognised that the researcher was not a member of the community and not familiar with the area. They warned of no go areas that they deemed as dangerous as there were criminals who would take material possessions such as cell phones and cameras. This came as no surprise as crime is a major societal challenge and South Africa is one of the countries ranked in the top crime ridden countries worldwide (Demombynes and Ozler, 2006).

5.4 Livelihood Strategies

Figure 5. 23: Livelihood actvities (n=80)

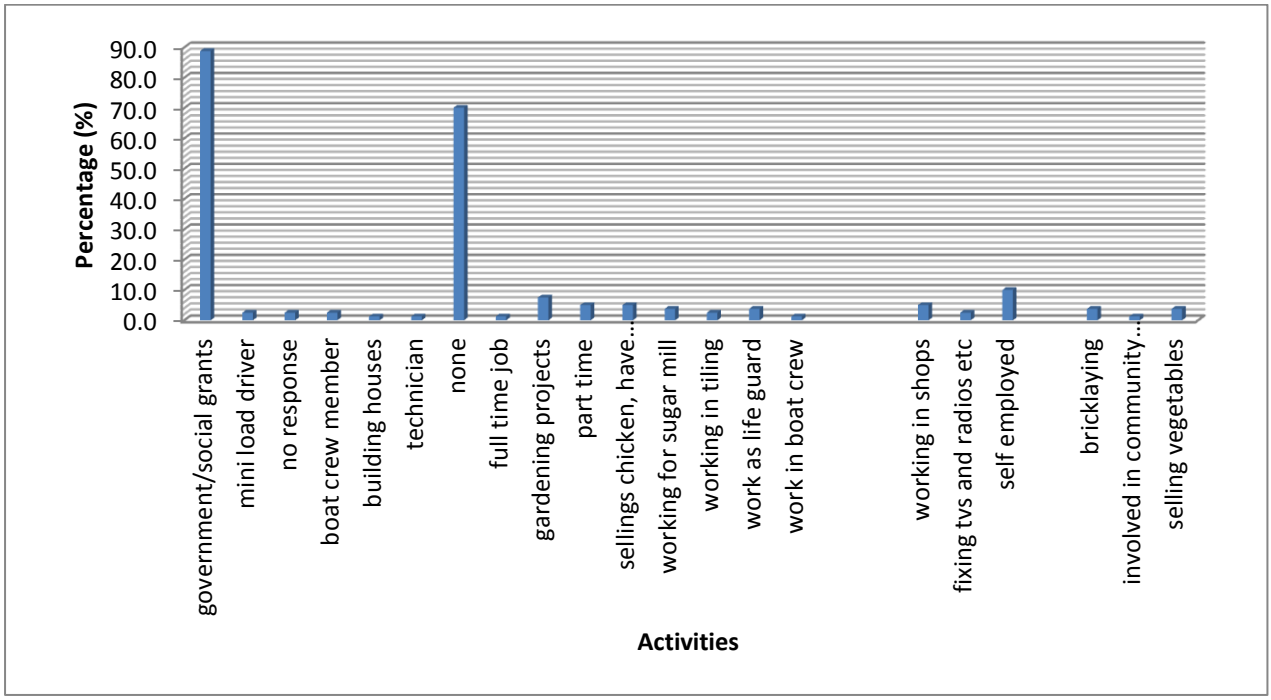
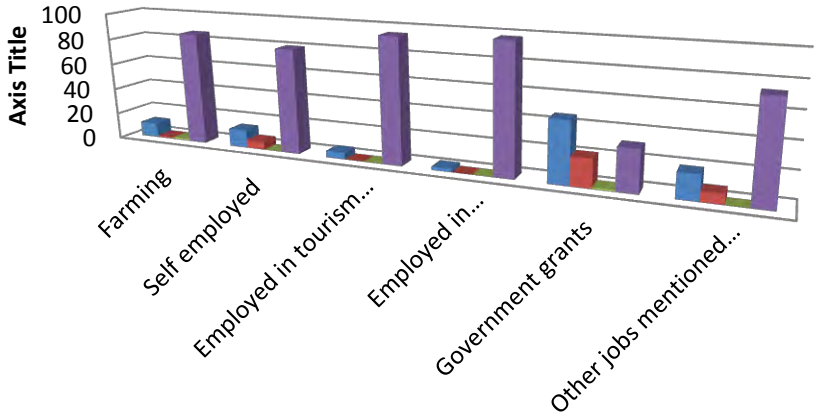


Figure 5.23 demostrates that the majority (88.8%) of the respondents indicated that social grants contributed to the total income of their households. The other 10% of the respondents listed self-employment as the activity that contributed to their household. When asked what type of activities they referred to, the respondents mentioned running their own spaza shops and selling fruit, snacks and food at schools during tea and lunch breaks. Local garden projects were found to contribute 7.5% of the household total income. Tiling seemed to be a popular income generating activity. The respondents claimed that it contributed that 7.5% of their income. Electrical and electronic backyard artisans perceived that their activities contributed 7.5% of their household income.

Some respondents (5%) stated that selling chickens was the activity that contributed to the total income of their household, as opposed to 5% contribution that was generated by those who work in retail sector. The activities of the boat crew members, (sugar mill) factory workers, life guards, fruit and vegetable sellers, bricklayers were found to contribute 3.8% of the total income of their household. The incomes of other artisans (those involved in roofing and carpentry), qualified technicians, those in full time employment and those who partake in

agricultural community projects accounted for 1.3%. Mini-load drivers contributed 2.5% of of the total income of their households.

Figure 5. 24: Rating of importance of other economic activities (n=80)



	Farming	Self employed	Employed in tourism industry	Employed in government	Government grants	Other jobs mentioned above
Most important	11.3	13.8	5	2.5	46.3	18.8
Important	1.3	6.3	0	0	21.3	7.5
Least important	1.3	0	0	0	1.3	0
No	86.3	80	95	97.5	31.3	73.8

Figure 5.24 shows that of the activities besides fishing that contribute to the income of the household, 46.3% of the respondents cited government grants as the most important source of income. Government grants (pension and child support) account for 21.3% of the household income which is seen as important. Notwistanding the above status quo, 1.3% of the respondents perceived that government grants make the least important contribution. A number of respondents (18.8%) stated that they work on part time basis as artisans, for example bricklayers and plumbers. This form of employment makes a very important contribution to the household income, while 7.5% regard part-time jobs as important source of income. The above differs significantly from 13.8% of the respondents whose income is derived from self-employment and entrepreneurship activities. They regard these acvitities as the most important addition to their income. On the flip side, 6.3 % of the respondents who were self-employmed conduct spaza shop and poultry businesses. These activities are regarded as important contributors to the household income.

About 11% of the respondents stated that farming is the most important activity that contributes to the income of the family; 1.3% of the respondents stated that farming is an important activity that contributes to the income of the family, and 1.3% of the respondents stated that farming is the least important activity that contributes to the income of the family. Five percent of the respondents stated that being employed in the tourism industry is the most important activity that contributes to the income of the family; 2.5% of the respondents stated that being employed by the government is the most important activity that contributes to the income of the family and finally; fishers mentioned that since they hardly generated enough income to sustain their livelihoods because of the restrictions placed on the bag limit, limiting which species they can sell and where they can trade, they also rely on other livelihood strategies.

5.5 Authority

The majority (80%) of the respondents stated that the councillor has authority in the community. Whilst 10%, 5%, 3.8%, and 1.8% of the respondents stated that the inkosi and induna, the elected committee, the Parks Board, and government officials respectively have authority in the community. Even though the majority of the respondents (80%) stated that it is the councillors who have authority in the community, these councillors are not actively involved in fisheries management.

5.5.1 Authority in charge of resolving problems

Figure 5. 25: Who do you consult when encountering a problem (n=80)

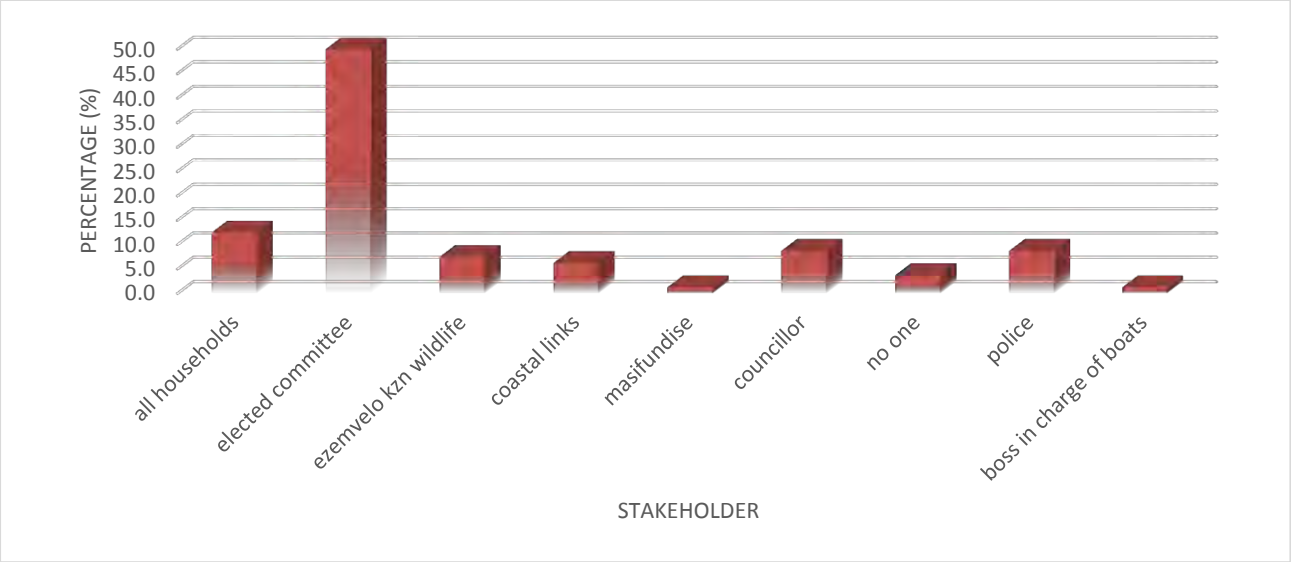


Figure 5.25 illustrates that 50% of the respondents stated that they consult the elected committee when they encounter problems in fishing. Some respondents (12.5%) stated that all households have a meeting when they encounter a problem in fishing. Other respondents (8.8%) stated that they consult the police or the councillor when they encounter problems in fishing. According to 7.5% of the respondents, they consult the EKZNW when they encounter problems in fishing. About 6% of the respondents stated that they consult CL when they encounter problems in fishing. Another 3.8% of the respondents stated that they do not consult anyone when they encounter problems. The rest of the respondents (1.3%) stated that they consult Masifundise or the boss in charge of the boats.

There are a number of conflict resolution procedures in place in uMthwalume and for this question, respondents could select multiple responses. The majority (97.5%) of the respondents believed that an elected committee handles conflict issues, whilst other respondents (67.5%) stated that an elected committee meets the parties involved in the dispute. Another 48.8% of the respondents said that the parties involved are told to resolve their differences. Approximately 32% of the respondents stated that a community meeting is held to resolve disputes and 26.3% of the respondents stated that all male household heads discuss the problem or the police handle the dispute. A few respondents (5%) stated that EKZNW attends to disputes. Another 2.5% of the respondents stated that a government

official or the local councillor intervenes to resolve disputes, and the last 1.3% of the respondents stated that the boat crew handles disputes.

Figure 5. 26: Most important person/group in charge of settling disputes (n=80)

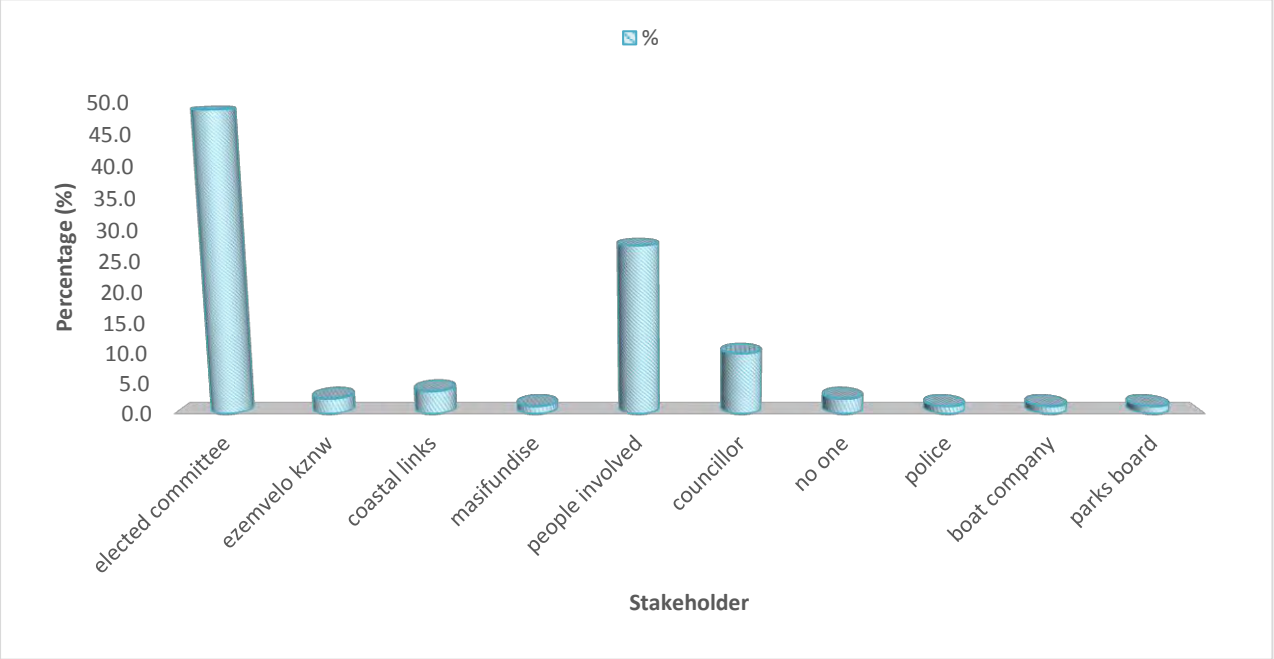


Figure 5.26 demonstrates that 48.8% of the respondents stated that an elected committee is the group mostly in charge of settling disputes. Other respondents (27.5%) stated that the people involved in the dispute are the most important persons responsible for its resolution. Ten percent of the respondents believed that a councillor is the most important person involved in resolving the disputes. A further 3.8% of the respondents stated that CL is the group most involved in resolving disputes. The EKZNW was selected as the most important party in resolving disputes by 2.5% of the respondents, while 1.3% of the respondents stated that it was either Masifundise, the Parks Board, the police or the Boat Company that are the most important groups to handle disputes.

5.6 Value of indigenous knowledge

According to Webb and Wright (1982) the amaThuli began catching fish between 1818–1820, after fighting the amaPhofana clan for their land (and utilising their fishing traps), having fled Zululand and a vengeful King Shaka. Thereafter the amaThuli became consumers of fish and it featured prominently in their diet. In support of community experience of the sea an elder said:

> "Older men who were born in coastal areas and know the sea very well. They will tell you about all its conditions and high and low tides. These conditions sometimes determine the type of fish species you might find for an example, without a scientific investigation during the high tide one might expect to possible catch the mussels. Therefore we ask scientist to stop looking down on indigenous knowledge of people who grew up in coastal area cannot be outweighed by people who were only taught at school about the sea" (Respondent 1 in the Small-scale Fisheries Policy Training Workshop [SSFPTW, 17 February 2015]

The community elder further stated that "sometimes we are told according to the chart at a certain time it would be ideal to harvest mussels and when we get there, no mussels is available for harvest" (Respondent 1 at the SSFPTW, 17 February 2015)

The above highlights the importance of incorporating indigenous knowledge into every scientific inquiry. The older members of the indigenous communities have invaluable knowledge which is equally as important as the scientific knowledge of the sea, the environment and the marine resources. They should be consulted and involved in the fisheries management and research projects in their communities. Sunde and Isaacs (2008:41) concur with this idea as they assert that indigenous knowledge, which could potentially add more value to the body of scientific knowledge and also be used in the decision making about the fisheries resource management, is often not sought after.

5.7 Social Capital

During the focus group discussion with the female focus group (FG3/5-10Oct2015) and meeting with the headman from uMthwalume (HM/8October2015) it emerged that respondents felt safe when going fishing and harvesting fishery resources as they always walk in groups. Banding together in groups provided security for them because there are criminal incidents. One respondent cited the breaking of car windows by criminals in order to steal valuables. The researcher was reminded of the warning given by the fishers when distributing questionnaires of the potential for criminal activity. Thus, the beach where the fishers catch their fish is not completely safe; however being in groups has mitigated the problem. In one of male focus groups, (FG1/5Oct-10Oct2015) one of the respondents mentioned that if a fisher is allergic to a particular species, they exchange with each other. Therefore, when fishers have a healthy relationship with each other, that bond allows them to look after each other in every way possible.

Social issues are also dealt with in afterschool and outreach programs:

> "We have self-esteem, critical thinking; when I say critical thinking it"s when children/youth are able to think for themselves, saying even though my friend is doing it, is it right for me. Saying okay, they are going out at night its not bad. But what will be bad is what you did and its not bad if it makes you happy and the consequences of it, if they make you happy its not bad, because it is the perspective that use to look at the situation that counts"(RTO/14September2015).

Thanda organisation gives the members of the community a session on critical thinking, where they are encouraged to think independently, and make decisions for themselves, without any pressure. They learn that if they associate themselves with a bad crowd and become involved in unsavoury behaviour, that they will have consequences to deal with and therefore this allows them to make decisions for themselves without any pressure.

5.8 Perceptions of local authority in the community

In a community meeting hosted by CL/MDT on the 23rd of October 2015 a community member shared their views and experience in dealing with local authority about a fisheries management matter:

> "It is all good and well to see ward councillors present. But let us hope that there are not just there to campaign to say they were there in fisher"s meeting so that they will be able to get our votes. Just like an incident that occurred some years back where fishing equipment, came but were given to just anyone without proper procedure being following and verification of those really involved in fishing. Fishing equipment was just given to anyone in order to win votes" (Respondent 1 in the CL/MDT meeting/23October2015).

It is clear that there is a level of distrust between the community members in uMthwalume and the councillors because of the above-mentioned incident, among others. Distrust existing between the fishers and councillors is potentially aproblematic. If there are issues arising they might not be able to tackle efficiently the fishers would not believe that the councillors have their interests at heart. Indeed, the fishers have no confidence in their councillors, as they believe they pursue their own agendas and do not follow proper procedures. In fact, these fishers believe that any action taken or programs implemented by these councillors is done

purely to gain votes for the next election. Consequently, the community members and fishers who should be benefitting end up losing.

A representative from the uMzumbe Municipality was present at this meeting and stated that they were not previously actively involved in fisheries management, but are currently working on incorporating it into their structures. According to the chief of uMthwalume (RTAM/8October2015) and (HM/8October2015), the tribal authorities are not involved in fisheries management either. While the authorities will meet with the fishers, hear them out and give them advice, they are not really part of the fisheries management structure. A respondent, who is also a fisher in uMthwalume concurred with the above by stating that:

> "Currently fishing is being regulated by the government. The chief and his headmen are not really involved, expect for cases where we are part of fishing committees. Fishing is being regulated by EKZNW and so on" (HM/8October2015).

5.9 Government structures the Department of Agriculture, Forestry and Fisheries (DAFF)

Currently, the DAFF in all coastal provinces, including KZN, are awaiting the implementation of the small-scale fisheries policy which was passed in 2012. A small-scale Fisheries Policy Workshop hosted by the EKZNW and the DAFF was held on the 16th and 17th of February 2015 in the Diakona Centre. A manager from DAFF (MDAFF/16-17Feb2015) had this to say:

> "The policy was drafted in 2004, then Masifundise had issues and took DAFF to court. The court ruling stated that DAFF must work on issues. In 2007 we had a workshop in Port Elizabeth. It was stated the policy will alleviate poverty and work with government organisations to develop communities. The 2010 Policy was gazetted so that people can have a chance to voice their opinions. Comments were put in the policy" (MDAFF/16-17Feb2015).

In 2013 the task teams were commissioned by the government in the Northern Cape (NC), WC, EC and KZN to begin working on implementation drafts. A target date of 31 December 2013 was set for the implementation process of the policy and for permits to be issued, but the process had been delayed. The MDAFF/16-17Feb2015 stated:

> "It was not the fault of the fishers. But as government we saw it was not realistic timing; the outcomes would be mediocre. So it was delayed a bit so that when permits

> are sent out no injustice will be done. Some decisions are beyond are just DG, Minister Joetman Peterson left".

It was stated that a few weeks ago (which means in January 2015 sometime, since this workshop was on 16-17 February 2015) that an implementation was signed. The MDAFF/16-17Feb2015 at the meeting on the 16th of February stated that "We understand the people"s frustration with fishing they are struggling"

Development workers were employed as part of the program for the small-scale fisheries policy: They organise, mobilise, inform communities, distribute pamphlets and organise location. At a meeting held with a staff member from the DAFF, this representative (SDAFF/1October2015) had this to say when summarising the roles of developmental workers:

> "…to oversee process, as faces of the Department in KZN employed by the national office. They listen to challenges from communities, give these DAFF Director to take to stakeholder engagement in order to resolve the problems e.g. looking for equipment they can buy it or refer to units" (DAFF/1October, 2015).

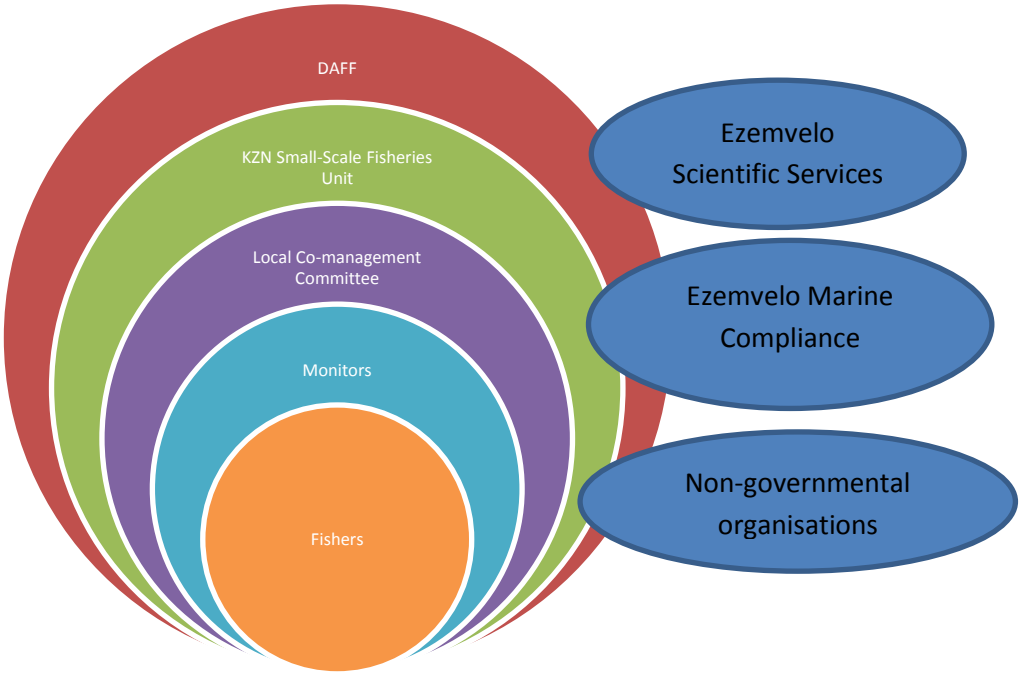
Roles and responsibilities Developmental Workers (DWs)

- Conducting community outreach programs and events,
- Conducting statutory activities for each representative area,
- Establish community forums,
- Establish a database of all internal and external stakeholders, and
- Act as departmental representatives and link between communities and departments.

5.10. Government structures DAFF and KZN Small-Scale Fisheries

The Small-Scale Fisheries Unit (SSFU), formerly known as the Subsistence and Artisanal Fisheries Unit, is funded by the DAFF and implemented by the EKZNW an agreement was concluded between DAFF and the EKZNW, for the EKZNW to do the work in the province on their behalf. Figure 5.26 shows the different stakeholders involved in the KZN small-scale fisheries management structure (MSSFU/15 October2015). Under the agreement mentioned above, a business plan is to be finalised and the SSFU staff, including monitors are to be employed (MSSFU/15 October2015). The DAFF oversees and agrees to this business plan if they are happy with it, to ensure that it is aligned with,. and addresses, their mandate (MSSFU/15 October2015).

Figure 5. 27: KZN Small-Scale Fisheries Manangement structure



Adapted from Gillian Rhodes‟s (Manager of the Small-scale Fisheries Unit) presentation at the Small-scale Fisheries Policy Training Workshop 16-17 February 2015, Diakona Centre, Durban**.**

5.11 Government structures Ezemvelo KwaZulu-Natal Wildlife (EKZNW)

LEO-EKZNW1/27September2015 stated that the EKZNW, as the provincial authority in KwaZulu-Natal responsible for nature conservation and biodiversity management, enforces the MLRA Act of 1998. The Act mentioned previously in the study stipulates various rules and regulations that need to be followed in order to ensure that there is sustainable fisheries management such as closed seasons, bag limits, prohibited species and shell collections. According to LEO-EKZNW2/12October2015:

- Compliance staff on patrol always carries brochures in their patrol vehicle for issue to fishers.
- Those who buy permits from the Post Office are given the rules and regulations when they purchase the permits.
- Subsistence permits always come with permit conditions.

- During meetings that are held every three months, the fishers are informed about policies and regulation then issued with brochures.
- Local newspapers are being used from time to time and local radio stations.

5.12 Connection between the SSFU and the EKZNW

In the small-scale fisheries training workshop hosted by the DAFF (16-17 February 2015), committee representatives asked if the SSFU and the EKZNW are the same organisation, and if not, then why are the SSFU vehicles using „NCS" number plates? The designation „NCS" is used on official EKZNW vehicles. The committee representatives stated that they have brought this issue up in a number of meetings; that the SSFU staff member/unit should change this number plate because the members of the communities feel like they are being sold out by the SSFU working for the EKZNW. This is not necessarily the case as the SSFU is just a facilitator. Committee representatives argued that the continued use of these number plates creates doubts and is causing community members not to fully trust that the SSFU has the best intentions for them in discussions they have had and programs put forward. The same sentiments were shared by MCL-CM-KI/3November2015:

> "Another issue is that DAFF always comes with Ezemvelo, as if it"s their crutch. We do not understand why they do not come alone, as we do not see eye to eye with Ezemvelo. And we have told them to stop coming with Ezemvelo otherwise they will see what will happen if they do. After all they are coming to us, to hear our needs". (MCL-CM, 25 September 2015)

This tension was also evident in a meeting hosted by CoastalLinks/Masifundise Development Trust on the 23rd of October that the researcher attended; where they mentioned names of some of the SSFU staff members who are from the community and whom they regarded as „sell outs". Some community members tried to bring calm to the situation by saying that some of the names brought up are those of their relatives, and for the community to understand that they are just doing their jobs. The members asked that their relatives names not be mentioned as it was the EKNZ organisation that was oppressing them and not the staff members.

5.13 Community Based Organisation/ Non-Governmental Organisations- Coastal/Masifundise Development (CL).

Coastal Links (CL) is a community based organisation which has partnered with the Masifundise Development Trust (MDT) which is an NGO. They educate 21 coastal communities in the Western Cape and Northern Cape about their human rights and advocate for their sustainable livelihoods. They have been working for over 10 years with small-scale fishers. They have been negotiating and fighting for the recognition for small-scale fishers for the past six years and even attended court cases on their behalf (RMCL/21October2015). In 2004, after realising that there was no provision made for small-scale fishers in the fisheries policy, the Masifundise Development Trust, the Artisanal Fishers Association and the Legal Resources Centre, with the aid of some scholars, took the Minister of the Department of Environmental Affairs and Tourism (DEAT) to the Equality court (Isaacs, 2013). The drafting of the small-scale fisheries policy started in 2007 and was passed in June 2012.

Initially MDT/CL was not operating in KZN and the EC, however due to the development of the small-scale fisheries policy they ended up including these provinces. They paid KZN a visit in 2008 and officially started working KZN and the EC in June 2011. During the drafting of the small-scale fisheries policy, interim relief was granted for the small-scale fishers in the WC and NC while waiting for permits and exemptions. The KZN fishers were, however, not afforded the same opportunity of interim relief; they remained operating with subsistence permits. After listening to the issues and challenges that coastal communities in the EC and KZN had, the MDT/CL representatives in KZN had a meeting with the EKZNW representatives in August 2012 (RMCL/21October2015). On the agenda for discussion was the:

- Increase of the bag limit so that fishers can sell their catch;
- Mistreatment of fishers in the community, as they complained that they are harassed by rangers. (RMCL/21October2015)

A solution or way forward could not be reached. As a result the MDT/CL went back to the national government and had a meeting with the Director General and the Manager of the Department of Agriculture and Fisheries to discuss the way forward. The agenda was similar to that of the meeting with the EKZNW:

- Allow fishers to sell their catch;

- Stop the harassment by the rangers;
- Increase the package/basket/bag limit; and
- There should be more communication between the EKZNW and fishers so that they will not be arrested or fined without being properly informed and educated about the regulations and policies.

Respondents from FG2/5-10Oct2015 agreed with the points put forward as they still felt much oppressed and stated:

> "We were not formally informed of the policies, and legislations are made without our input in the decision making; then what is expected of us is to oblige to the rules we were not part. The small-scale policy is a promising one" (FG2/5-10Oct2015).

The outcomes from that meeting were:

- The small-scale fisheries policy has been tabled in parliament and has been signed by the president;
- From the 15th September 2013 the timetable started for the verification process by the Department of Agriculture and Fisheries to create a profile of fishers in every coastal community in order to identify how many fishers each community has and which fish species they catch;
- Implementation of the small-scale fisheries policy will begin after 31st December of 2013.

5.14 Non-Governmental Organisations -Thanda Organisations

One of the respondents from the CM-MCL/27October2015 mentioned that in order to sustain her livelihood, besides harvesting mussels she is also part of a garden project which is run by the Thanda organisation. The Thanda organisation is based in uMthwalume. There are four projects that they are currently focusing on: An art centre, organic agriculture training, and after school training program and the community library. The Thanda Organisation has been a success so far:

> "The community has been responding very well to the projects. And before all of this started Angela conducted research to find out what are the needs of the community. Because you cannot say what is happening in Pietermaritzburg is the same thing that

is happening here, you have to conduct research for that particular area. That it is how it happened and ended up forming this organisation. So the things that we are doing are those four things, so that is how we got to started it" (RTO/14September2015).

5.15 Regulations

There are monitors that collect data from fishers in uMthwalume. There are 5 monitors in the area. They patrol in uMnamfu, eMfazazane and uMzumbe. Every day they check to see if the fishers have permits, and whether the fishers are using legal bait. They measure the fisher‟s catch with a ruler to see if it is too small, meaning it is below the legal size that fishers are allowed to catch. If the fish species is found to be too small, they ask the fisher to put the undersize resource back into the sea. They do not force the fishers to throw the fish species back, they just provide awareness of the regulation (SMDAFF/25September 2015).

The above-mentioned efforts are made by the EKZNW to educate and help keep the community of uMthwalume up to date with the rules and regulations of fisheries management. Upon reviewing the printed pamphlets and charts which are issued annually and meant to educate the community of the rules and regulations, it was realised that they are in English and (LEO-EKZNW1/27September2015) was asked if they are also available in isiZulu, given that isiZulu is the predominant spoken and indigenous language in uMthwalume. The response was there are documents are not yet available in isiZulu; however it is a matter that the EKZNW has tabled. Due to limited funds and high costs they have not been able to make them available yet. Given that the documents are meant to educate a community that speaks predominantly isiZulu, and that they are only available in the English language, this could be one of the impediments to having effective fisheries management.

Random routine inspections of bait licences and permits are carried out frequently by EKZNW compliance officers to enforce the above-mentioned rules and regulations of fisheries management. These compliance officers have the authority to either fine or arrest fishers who are not adhering to the rules. Fishers who are arrested are taken to the police station where a J534 form is filled, and the alleged suspect is then charged. The kind of punishment for the offender is dependent on the offence committed. Sometimes the fishers are just requested to a pay a fine, and (LEO-EKZNW1/27September2015) stated that it can either be paid on the same day or over a period of 21 days. When fines are not paid the offender is required to appear in court. The offender is granted 14 days to make an

appearance in court, and if this period elapses without any appearance a summons of arrest is issued. The maximum fine that the EKZNW compliance officers can issue is R 2500.

(LEO-EKZNW1/27September2015) explained the fining process by using crayfish as an example of how fines are issued. Crayfish is one of the main species which the compliance unit is having difficulties with. “Crayfish stocks are under immense pressure, as it takes 8 years to reach the legal size. The fishers might not have the patience to wait for fish to mature in size” (.LEO-EKZNW1/27September2015) as result they catch it prematurely. Crayfish are a high value species and there is a great demand for it. One of the reasons why crayfish are in demand is due to the fact it is difficult to catch. In order to catch crayfish, fishers have to have deep sea diving skills. The fishers also require deep diving gear such as specialised goggles, a catch bag, an underwater torch, and a diving suit to catch crayfish. The above-mentioned gear may not be affordable to every fisher, and not every fisher has diving skills. If caught with crayfish, without a licence to legally catch it, the fishers are fined R1000 per species caught. During the closed season, which is from the 1st of November to the end of February, the fine is R500 per crayfish, and if they have eggs it is R1000 each. The offender may be charged up to R5000 and for anything above that a docket is opened and the fisher is arrested and taken to court (LEO-EKZNW2/12October2015).

5.16 Policies

Subsistence and recreational fishers have an assortment of restrictions, depending on which permit they have, stipulating the various bag limits of species that can be caught each day; the closed seasons for the various species; acceptable fishing gear; and limitations for the sale of the catch. Subsistence fishers are allocated the low value species according to Sunde and Pedersen (2007). Subsistence fisheries are strictly for consumption and the leftover fish can be sold up to 20 km away from the place of landing (Schumann and Macinko, 2007). This will allow the fishers to go and seek out customers in order to generate enough income to meet their household‟s basic needs. Since subsistence fishers are allocated the low value species, they are unfortunately not able to generate enough income from the sale of their catch, and they remain trapped in the cycle of poverty (Sowman, 2006; Isaacs, 2011). One respondent concured with the above statement by asserting that:

> “What happens from my limited understanding is that to be a subsistence fishers is not something that anybody wants to be. It should never be a desire of yours to be a subsistence fisher because it means you are on the bones of your bottoms. You do not

have any other source of livelihood; you are dredging a living from natural resources that you find around to feed yourself and your family"(SS- ORI/10September2015).

Most fishers in the rural coastal communities buy recreational permits so that they can legally access the high value species, and then illegally sell their catch in order to generate more income. Isaacs (2011) points out lack of clear definition and the use of terminology in different contexts lead to the confusion about the meanings and characterictics of artisanal and small-scale fishers. The consequences of categorising them as subsistence and recreational fishers, took away their opportunity to make a living from fishing.

It is because of the above-mentioned reasons that fishers in uMthwalume sought assistance outside of the EKZNW. The fishers‟ lack of satisfaction with current fisheries regulations, particularly being confined as subsistence and recreational fishers, has caused them to demand more from the DAFF, as the small-scale fisher permit promises a better quality of life. One of the respondents in the focus group expressed their dissatisfaction by stating that "MCM - is management but we want them to leave. That is why we have Masifundise" (FG1/5Oct-10Oct2015). Another fisher participating in a meeting held on the 23rd of October 2015 by the Coastal Links/Masifundise Development Trust (CL/MDT/21October 2015) expressed their gratitude to Coast Links for working with them by saying "we would like to thank you, seemingly there is a way forward. As EKZNW finalises its business at end of the year in this area, aren‟t they going to come with new tricks delaying the process? As we have been abused and disadvantaged for so long".

The response from RCL/MDT/21October2015 was:

> "We are talking to national government directly, but we are unsure of the future but we are planning ahead. There is a policy which deals with these issues brought up. EKZNW cannot go against it; we must be patient as the policy is in the implementation stage" (RCL/MDT/21October2015)

The policy discussed above is the small-scale fisheries policy, which is in the pipeline.

5.16.1 Small-Scale Fisheries Policy

A senior scientist from ORI (SS-ORI/10September2015) stated he is unsure about what will transpire from the proposed small-scale fisheries policy in KZN, given the province‟s limitations discussed below. He feels that KZN has been fortunate to have had a fairly organised institute like the EKZNW, which came into being in the 1990s, involved in the

process of drafting and implementing the subsistence fisheries policy. The small-scale fisheries policy is required because the Marine Living Resource Act which is the guideline controlling harvesting, for the first time recognised the subsistence sector as a subdivision of the fishing community. The Sea Fishery Act No. 12 of 1988 prior to MLRA only recognised the commercial and recreational sectors. A subsistence fisher is poor and has no other alternative but to catch fish and sell it illegally, as in a sense they are marginalised. And so it was realised that it was best these fishers be accommodated in the small-scale fisheries policy (SS-ORI/10September2015).

MSSFU/15October2015 said "our resources in KZN are unfortunately not very large. We have limited stocks due to the marine ecosystem; we have high biodiversity but low biomass". The latter can be attributed to the warm waters here unlike in other coastal provinces where they have colder, richer waters, like the Western Cape (MSSFU/15October2015). Mussels are an example of what is discussed here. KZN has small pockets of mussels which are quite vulnerable to exploitation, and that is why their sale is not permitted (MSSFU/15October2015). Opening up a vulnerable species like mussels for sale for the small-scale fisheries might lead to the rapid depletion of the resource.

MSSFU/15October2015 believes that the same goes for line fishery resources; the fish stock is not available in abundance. It is only during the shad run and the sardine run that there are vast amounts of fish. Neither of these runs last longer than a month, which means opening up the line fishery resources for small-scale fisheries is futile when fishers will only make the most out of it for approximately two months and struggle for the rest of the year. This will not do much towards alleviating poverty. Additionally, MSSFU/15October2015 stated that for the rest of the year, the stocks are not very large; fishers stand on the beach for the day and will rarely catch their daily limit of 10 fish a day. MSSFU/15 October2015 adds that "sale does not become a viable possibility. Small-scale fisheries never really existed in this province because the resources are really not there". KZN is unlike other provinces where the resources are plentiful, and there are a lot of small-scale fisheries that have been around for many, many years:

> "KZN always had subsistence fisheries, people fishing for the table, so that is one challenge that is a big thing for us because as our resources are limited" (MSSFU/15 October2015).

Another problem is the small-scale policy has been bandied about for numerous years since the consultation with the communities began in 2009, but to date there have been no tangible results or outcomes which will aid the fishing community to escape the cycle of poverty. The national government has raised high expectations in the communities in terms of what the small-scale fisheries policy will bring, and the difference it will make in their lives. SS-ORI/10September2015, stated "to me that is a problem with bringing politics into fisheries, is that you have raised expectations of the people", and this was possibly done to fulfil other political agendas. This stakeholder argued that: the term „subsistence" has been removed by the national government and now everything is small-scale fisheries. This has created a problem because:

> "I think fishers understand now that there will no longer be subsistence fishers. They will be small-scale commercial fishers and there is a difference between small-scale commercial fishers and small-scale fishers" (MSSFU/15October2015).

The fishers are now under the impression that all fishers are going to move into some sort of commercial role. The issue of low biomass in KZN will make this transition very difficult unless there is a plan to tap into the off shore resources, because as it stands there are not that many inshore resources that can be exploited further. Most of them are either fully subscribed or unsubscribed (MSSFU/15October2015).

MSSFU/15October2015 stated that SSFU does not have an issue with their unit changing from subsistence to small-scale fisheries. They are happy with that and have accepted it. In addition, it was stated that they do not want to be perceived as an organisation that does not want to change and accept new ways of doing things, as they are very happy and excited about the policy. SS-ORI/10September2015 shared the same sentiments as MSSFU/15October2015, and added that through small-scale fisheries, rural coastal communities can develop entrepreneurial and business skills. These skills can aid the fishers to sell their catch and accrue profits, which could in turn help them out of the constant cycle of poverty. There are a few concerns, however, one being the misconception of what the term „small-scale fisheries" in the policy entails. "We have always been a bit afraid of the misunderstanding that small-scale automatically means small-scale commercial" (MSSFU/15 October2015).

Even though having this policy is progressive, MSSFU/15October2015 feels it is not clear enough in that: a small-scale fishery caters for the continuum of fishing, starting from

subsistence and moving up to full-on small-scale commercial fishing. Moreover, the policy is designed very well for the WC fisheries but not for the KZN fisheries. Instead of having provincial implementation plans, the national government produced national implementation plans to cater for all provinces. The latter is where problem arises as provinces are all different: as already mentioned, KZN has warm water, low biomass and high biodiversity and the WC has cold waters rich in nutrients, high biomass and low biodiversity. From these characteristics of just two of the provinces, it is clear that a universal implementation plan for small-scale fisheries cannot be the solution.

SS-ORI/10September2015 believes that one of the things that could prevent the small-scale fisheries starting up from being sustainable in the long term is that *"*there is not enough understanding from sociologists and politicians on the side of the people and biologist the people who actually do assessments". There is a need for an open dialogue where the sociologists and politicians can put forward their perspectives from the social sciences angle, objective that will be prioritising food security for communities while helping them not to sink deeper into poverty whilst utilising natural resources at sustainable rate. Communities need to be included in decision making. The biologists (scientists) need to work with communities from a place of recognising that communities are not clueless they are aware of what is happening to the environment around them, they might not have scientific facts but their knowledge can add value. There is a need for amicable solutions, where fisheries resources can be harvested at a sustainable rate; in this way the community will not suffer the scourge of food insecurity and fisheries resources will not become depleted to the point of no recovery (SS-ORI/10September2015).

According to SS-ORI/10September2015, "there is no real opportunity to develop small-scale fisheries". The only possible exception is the Kosi Bay fish trap. There is great concern though, because there are too many fish traps from the numerous fishers already in the area, which in the long term could be unsustainable. As a result it has already been found that fishers" catches keep on decreasing. Therefore SS-ORI/10September2015 asserts that "there is hardly the viability of that fishery being good and the more people who fish it becomes worse"; and further states that they do not believe that there is an opportunity for developing small-scale commercial fishing in this province. *"*The only ones which are there, are the line-fishery, which those are long term rights that we talked about" (SS-ORI/10September2015). It has been realised that our offshore line fishery stock are heavily exploited and during the:

> "2003, 2006 rights allocation process, we cut the number of commercial boats on the KZN coast from about over 100 to 50, 52 boats that can get rights of those only 38 to 40 have actually activated their right" (SS-ORI/10September2015).

There are only about 43 boats on the whole of the KZN coast that have been fishing commercially over the last 8 years during the rights allocation process (SS-ORI/10September2015). During the most recent allocation of rights, only half of the 50 boat owners originally granted access rights were able to renew their rights. Some owners lost them as they were reallocated to someone else and the rest were reserved by the government for issue to the potential small-scale fishers (SS-ORI/10September2015). The potential small-scale fishers will need to have access to a boat, and have extensive knowledge and experience of fishing offshore and launching a boat. A boat crew depends on the size of the boat, and normally comprises of 5-6 crew members, but can increase up to 10 crew members. There is usually one skipper and then the crew harvesting the line-fish and selling them (SS-ORI/10September2015).

There is a set criteria to be applied for the allocation of small-scale fisheries rights, most importantly it includes transformation: One has to have been previously disadvantaged, one has to give proof of the job opportunities to be provided for crew, money has to be invested wisely, and the applicant must have a skipper and a boat, or access to them (SS-ORI/10September2015). This stakeholder expressed concern saying:

> "All those criteria are insane, the only way I can see it happening is if they form an agreements or partnership with people who already have boats, but the problem there is that you get this thing called fronting" (SS-ORI/10September2015).

Fronting is explained as follows: A white company and/or boat owner will get a black person to apply for the access right in their name, in order to get the right. The black person will be the owner of that fishing right in name only, with the white owner behind the scene taking their cut. The relationship could, however, be a legitimate partnership providing job opportunities, but such issues are tricky and therefore require thorough evaluation (SS-ORI/10September2015).

SS-ORI/10September2015 stated that in their opinion, the approach utilised in KZN to identify subsistence fishing communities and allow them to fish for subsistence purposes is the right approach. It is felt that raising them up to the level of small-scale commercial

fisheries is not going to succeed, as the resources available will not sustain these fisheries: it is not ideal for our coastline. This stakeholder further added that:

> "It may work on the west coast where there is a resource that can sustain a full scale commercial operation, but in this coast where the resources base is too small, the penny will drop" (SS-ORI/10September2015).

MSSFU/15October2015 asserted they believe that small-scale fisheries will not be a success in KZN and should it be pursued it will fail and "we are gonna remain with fisheries we have got basically, and its primarily recreational fishery in this coast". SS-ORI/10September2015 further stated that 90% of the fishing that happens along the KZN coast is for fun, and that there are not many people who fish for a living. Those people who fish for a living fall into two categories: One is the commercial fisher who sells fish for a living. These fishers are catered for in terms of the line fishery permits, which also cover commercial oyster fishery and offshore fishery operating out to sea. Those are the only viable fisheries that can sustain commercial fishery. Those operators who are really ascribed the rights have been issued with them, and they are all managed (SS-ORI/10September2015). The second category is subsistence fishers and the stakeholder adds:

> "I don"t believe there is the opportunity to raise that subsistence up to small-scale fisheries. I do not think it can happen; it has been promised to them, their expectations are raised but I don"t think it is going to work in the long term" (SS-ORI/10September2015).

SS-ORI/10September2015 stated that there are already rumours that the DAFF is bringing in freezer facilities from which the fishers will sell their catch but, "it is a recipe for disaster I am very concerned about both from the resource side and the people side because I don"t think it is viable".

5.16.2. East coast rock lobster (crayfish), a species of great concern

Crayfish, as illustrated in figure 5.28, is one of the high value species which the respondents indicated would improve their livelihood status if the bag limit was raised. One of the unemployed fishers, in the meeting on 23rd of October 2015 hosted by Coastal Links/Masifundise Development Trust, raised the question as to whether crayfish will be included in the basket of fish species they can catch with the small-scale fisheries permit. The

response from RCL/MDT/21October2015 was that crayfish is included in the basket of fish species that can be caught and sold in KZN once they have the small-scale fisheries permits.

Figure 5. 28: An image of a crayfish fresh out of the water, caught by one of the diveres that were interviewed

Source: Image captured by the researcher. 23rd September 2013.

There is a high demand for Crayfish in the market. A respondent agreed with this: “white people like them and also Indians enjoy them a lot” (HM/8October2015). The fisher expressed frustration that although there is a vibrant market as crayfish sells fast, their supply is reduced by the bag limit. Due to the high demand for crayfish, fishers could make more money from selling it; however they are unable to because of the restrictions stipulated in the permit. As a result of poverty, fishers become desperate and end up selling crayfish, even though it is regarded as illegal and being involved in poaching. The bag limit for crayfish is 8 per day, some fishers show the correct amount while the monitor is still around and then later retrieve the extra that they buried in the sand, once the monitor has left (SMDAFF/25September 2015; Dlamini, 2014).

According to extensive research conducted by scientists at the ORI on crayfish, the current management system in place in KwaZulu-Natal is a success (Steyn et al., 2008). Current regulations stipulate the need to have a recreational permit in order to catch crayfish.

Moreover, the minimum size of the crayfish carapace is stipulated at 65 mm, and the closed season starts from the 1st day of November till the last day of February (DAFF, 2013). SS-ORI/10September2015 stated that it is because of these regulations that crayfish stock has been managed so well and goes as far as saying "crayfish stock in this province is managed very well; probably one of our best managed marine animals" (SS- ORI/10September2015).

SS-ORI/10September2015 expressed great concern at crayfish being on the list of species which will be open for small-scale fishing, and added that allowing it to be sold might work if it is a done in a small area and can be contained. A question from one community member at the meeting on the 23rd of October 2015, hosted by Coastal Links/Masifundise Development Trust, "is crayfish included in the permit*?"* showed the deep interest in this high value species. "Taking into consideration that small-scale fishing is a small business venture the aim is to make some profits thus making it almost unattainable to contain such an activity" (SS-ORI/10September2015). Instead a high demand might motivate fishers to increase their catch trying to meet it. Meeting the increased demand might encourage overexploitation of the resource, which might lead to depletion, and the collapse and degradation of the fish stock. The law of supply and demand states that the lower the supply, the higher the demand and the higher the price. Given the number of the small-scale fishers that will be given this opportunity, the market would be flooded with suppliers and this might be creating competition amongst them. Keeping a healthy competition in KZN is a challenge and it would be at grave cost to the marine environment, since our waters/oceans have a high biodiversity and low biomass. MSSFU/15 October2015 concurs with the above stating that:

> "Unfortunately our marine resources are not very large. We have limited stocks due our marine ecosystem we have high biodiversity but low biomass because we have warm waters in KZN unlike other provinces where they have colder richer waters such as WC" (MSSFU/15 October2015).

In the face of competition in the market, the desperate need to make a sale and generate income to survive and to buy fuel for the boat in order to continue fishing might force fishers to reduce prices just to make a sale and they would end up working at a loss.

As a result, SS-ORI/10September2015 stated that their recommendations, based on the stock assessments they have conducted, are that crayfish should not be opened for sale. It should be kept for recreational and subsistence use for food, rather than allow it to be sold

commercially. SS-ORI/10September2015 further elaborated that the above recommendations are “based on our knowledge of the growth rate, reception etc. of the crayfish”.

5.17 Status of fisheries resources in KZN

The sale of fisheries resources is non-viable. As a result, the “possibility of small-scale fisheries never really existed in this province because resources are not really there” (MSSFU/15October2015). In other provinces where the marine resources are abundant, small-scale fisheries have been around for many years. This is true even though the small-scale fisheries policy was only passed in 2012, as it was already a vibrant industry (MSSFU/15October2015). There have always been subsistence fisheries in KZN. According to SS-ORI/10September2015, “as resources are limited, as much as we like people using resources in order to have a better livelihood, to get some kind of income it is not easy, that is our biggest problem.”

MSSFU/15October2015 concurs that there is a decline in fish stocks, and emphasised that there is a notable decline in shad. According to MSSFU/15October2015, shad was declared as overexploited 20 years ago and the species has still not recovered. Strydom and King (2009: 472) concur that shad are overexploited. SS-ORI/10September2015adds that shad is a „fast growing species“, which means it reproduces at a fast rate so could withstand the pressure of overexploitation; however it is a highly migratory species. It migrates from the WC to KZN annually to spawn. On their arrival in KZN they are caught at a high rate, as shad is one of the most popular and loved fish along the Natal coast, especially by the Indian community, “its their bread and butter fish” (SS-ORI/10September2015).

SS-ORI/10September2015 states that over time the management of shad has become more complex. In the EC and WC it is legal to catch and sell shad commercially, for fishers who possess commercial rights (SS-ORI/10September2015). However in KZN, shad arrives on this coast from May/June till November/December, and then migrates back to the EC/WC. During the period that the shad are off the KZN coast, they spawn and swim in shoals. This makes them highly vulnerable to overfishing as they are easy to catch in large numbers and as a result, sales of shad are not permitted in the province. SS-ORI/10September2015 said that not allowing the sale of shad is a preventative measure to ensure that they will not be further depleted and possibly face extinction; if the spawning population is wiped out in KZN that will have dire consequences for the other provinces.

Grafton, et al. (2010:6) states that the nature of migratory species such as shad makes monitoring and evaluation difficult - determining when, where and how much stock was caught. Furthermore, they state that monitoring and evaluation is only affordable for high value species such as shad.

KZN has a long history of managing shad; it dates back to 1970s. There was realisation among the fishers that stocks of shad were declining rapidly and action had to be taken in order to resolve this problem. Research was then conducted and recommendations made and passed on to the government. SS-ORI/10September2015 stated that it was recommended that there be a closed season for shad, for four months, and a strict bag limit - each fisher could catch 2 shad per day. These recommendations caused conflict and tension between the fishers and the government, which resulted in a commission of enquiry held in court in Durban (SS-ORI/10September2015). At the hearing the judge ruled in favour of the management, based on the research that was conducted; it was best available at the time. The fishers had to abide by the regulations even though they were against them; they believed that it was another form of racism: "The white man is making these regulations, there is enough fish for him, obviously he is not worried about the Indian fishers….so all these things get tainted with racism" (SS-ORI/10September2015).

5.18 Gender in the fisheries resources industry

HM/8October2015 stated that females generally do not partake in line fishing, "in most cases for us they not are involved in fishing, and it sometimes happens that there are one or two. They are not enthusiastic; it is mostly men who are enthusiastic". From an early age fishing is one of the activities that boys are engaged in, they start by fishing in dams and as they get older, more experienced and strong enough physically to withstand the sea conditions, then join other older fishers. Some of the respondents stated: "females involvement in line fishing is not common amongst blacks" (FG2/5-10Oct2015). A similar view was shared: "women who actively participate are white or Indian women, those you see fishing. But with us black people not so much" (HM/8October2015).

The FG2/5-10Oct2015 supported the statement above: "males [are] stronger than females, females [are] unable to stand the harsh conditions at sea that men are able to withstand". A woman‟s place is still regarded as being at home where they perform domestic and reproductive duties (Kabonesa and Kindi, 2013). An activity such a fishing which can be time consuming could lead to women failing to perform the latter mentioned roles effectively. As

a result, women are usually involved in the post harvesting fishing activities such as processing, salting and marketing (Kawarazuka, 2010). Williams (2010), however, reports that this has been gradually changing; in South Africa in 1999 the women involved in fishing were nearly 20% of the industry.

Women generally harvest invertebrates such as mussels (MIC/9September2015). Women are not as actively involved when it comes to line fishing (MCL-CM/23October2015). They harvest mussels to be eaten at home. In 2005 women were given an opportunity to access fish rights, which allowed them catch high valued species like lobsters, but they were unable to take advantage of the chance as they lacked the advanced skills, organisation and information to take part (Williams, 2010). This is supported by the statement "women generally do not have the skill to do so" (MIC/9September2015).

5.19 Compliance in Fisheries Management

According to LEO-EKZNW2/12October2015, in uMthwalume fishers do comply with the fisheries management rules and regulations. He further stated that 95% of the elders and 70% of the youth comply with the rules and regulations. SMDAFF/25September 2015 differs, stating that it is „50/50" in terms of compliance; some follow the rules, and some do not. "In front of our eyes they will seem like they are following rules and regulations afterwards when we are gone they do what they want" (SMDAFF/25September 2015). LGF/25September2015 further elaborated stating that "people who are desperate do not respect closed seasons". In instances where fishers do not abide by the rules, monitors give them a warning. If monitors feel that the warning was not taken seriously and fishers repeat the same offense, they then report the matter to the committee so that they take the necessary action and discipline that fisher. If the matter cannot be handled or resolved by the committee, it forwarded to the EKZNW Compliance Unit.

LEO-EKZNW2/12October2015 believes that:

> "The people that are not complying within that area are criminals because 90% of people being arrested for not complying with Marine Living Resources Act are found to be having other criminal cases pending or previous convictions".

Furthermore, LEO-EKZNW2/12October2015 stated that fishers who poach because they need to put food on the table as they poverty stricken are not aggressive when they are caught. However, those who are criminals are very aggressive as they know that if they get

arrested that previous suspended sentences might come up or they will not get bail if arrested again. A few years the back the latter proved to be true as "one suspect was arrested by FCO (Fisheries Control Officers) and at the police station it was discovered that the suspect was wanted for murder and was not given bail" (LEO-EKZNW2/12October2015).

According to LEO-EKZNW1/27September2015, shop inspections are done at random, whereby they inspect the retailers‟ freezers to check if they have recreational species. An invoice is needed from a commercial fisher, clearly stating how much and what kind of stock they obtained. This is to ensure that they obtained their fish stock legally. Moreover, they also check for undersize fish species and when the shop keeper has an invoice they are able to charge the commercial fisher who sold it to them, as the invoice has the necessary details of who sold the catch to them. The latter is conducted for the following reason:

> "There is need to be fair to the commercial fishers who pay a lot of money for permits, maintenance of equipment/ gear, their tools. So they cannot be competing with recreational fishers for sales who don‟t abide the same rules. This provides proper regulations" (LEO-EKZNW1/27September2015).

Skiboats, vessels off shore, and boats in the harbour are inspected for undersized species and for species which are not allowed to be caught on our shores or in foreign waters. Steyn et al. (2008) informs that it is not sufficient to look at the written evidence as the catch, as this might not be a true reflection. Fishers sometimes hide the undersized fish and sell it on the side. Community members selling on the side of the road are also checked for an invoice from a commercial supplier; if they do not have it they are either fined or arrested.

Unfortunately, due to non-compliance, there was an incident in uMfazazana on the 8th of October 2014, where a fisher was allegedly shot for attacking an EKZNW ranger. According to the Daily Sun, 9 October 2014, 33year old Mzi Nombika and his friends would often sell crayfish to passing motorists. Fisheries Compliance Officers (FCOs) would constantly tell them that they were not allowed to sell them or have more than eight per person. On Tuesday the 8th of October 2014 there was an apparent altercation between the FCO and Mzi‟s group, where the FCO ended up saying that they should stop selling on the freeway. One of the friends from Mzi‟s group said "the ranger promised that he would come back the following day and shoot us. The following day he met the fishers and opened fire before driving off" (Dlamini, 2014, no page numbers.). On the day of the shooting incident Mzi was apparently not even on the highway, however after hearing gun shots (firing at other fishers) he went to

investigate and that was when he was shot. He was then taken to the nearby clinic in a bakkie by a community leader. He was transferred to Port Shepstone Hospital, where he later passed away.

According to MCL-CM-KI/3November2015, the community is unhappy with how the authorities handled this matter. They believe that justice was not served and that there was some degree of corruption:

> "We have a problem and we are finding out that the investigators were bribed, because the FCO who did this was not arrested. Nothing happened to him. There is no action was taken what so ever in this matter" (MCL-CM-KI/3November2015).

As a result the community is still very angry. MCL-CM-KI/3November2015 added that there is even more tension now as the EKZNW did not come to address this issue and apologise; there was no action taken and it was as if nothing had happened. This respondent believes that the relationship between the community and the EKZNW will never be healthy again.

LEO-EKZNW2/12October2015 stated that the poacher was not shot for selling fish but rather for attacking the FCO on duty. Staff members on duty had to defend themselves from the attackers and unfortunately one was fatally shot. LEO-EKZNW2/12October2015 explained that "in terms of MLRA no one is allowed to assault FCO while the FCO performing his duty".

LEO-EKZNW2/12October2015 reports that the trend for non-compliance fluctuates, as illustrated below in Table 5.1. It is believed that this fluctuation is caused by the availability of the fisheries resource each year. This could mean that in a year where fish stock is in abundance, that the fishers are able to catch their quota and are satisfied with their catch. As they do not have to catch more fish illegally the arrest rate for this offense is lower. In a year where there is less fish stock, the quota for catch per fisher might be reduced, meaning that they are unable to catch enough to support their families. This might push the fishers to catch extra illegally as they desperately try to make ends meet. According to SMDAFF/25September 2015, "people believe that the ocean is ours", and that sometimes makes them ignorant. This respondent elaborates further, saying they do not take into consideration the future generations who will not have the species in 10-15 years to come. They forget that the regulations that they are there to protect the environment. Some of the fishers, however, do not abide by the rules and regulations because they are trying to

"provide for their family, and they end up doing something wrong whilst trying to correct their economic situation" (SMDAFF/25September 2015).

Table 5. 1: Number of arrests

Year	Number of arrests in uMthwalume
• 2008 – 2009	50
• 2009 – 2010	34
• 2010 – 2011	26
• 2011 – 2012	27
• 2012 – 2013	37
• 2013 – 2014	16
• 2014 – 2015	31

Source: Ezemvelo KwaZulu-Natal Wildlife-Compliance Unit database, provided to the researcher by LEO-EKZNW2/12October2015.

SMDAFF/25September 2015 stated that some of the fishers fail to understand their role as monitors and see them as spies. The above-mentioned shooting incident has driven the wedge further between the fishers in the community and the monitors. "You find that now we are wary where to work and patrol, so we try not work in isolated areas" (SMDAFF/25September 2015). The monitors now only patrol in areas where there are people as they fear they could be followed and attacked. Since the shooting incident they feel like their lives as monitors are "in danger, as the person who shot this boy was not caught" (SMDAFF/25September 2015). Following the incident in 2014, the monitors stopped patrolling in the area where Mzi was shot for a while, as they were threatened. The monitors are threatened even though they are all from the community where the incident took place. It was further stated:

> *"*So far nothing has been done to physically abuse us, but emotionally we are abused; that you feel not comfortable going back to work and your family worries if you will come back and whether you are still okay" (SMDAFF/25September 2015).

According to SMDAFF/25September 2015, there is a rumour going around that the Masifundise/Coast Links organisation told the fishers to stop buying the permits

(subsistence/small-scale) provided by the Small-Scale Fisheries Unit. It is believed that Masifundise/Coast Links said that they will now provide those permits. This is concerning because fishers are generally poor. If fishers are without permits they cannot obtain their catch legally. Without fisheries resources which the fishers‟s livelihoods mainly depend on they become more vulnerable, and are driven deeper into poverty.

5.20 Perceptions of fisheries management

MSSFU/15 October2015 supported the latter and stated that besides the above stated issues they are currently facing with bag limits and the illegal poaching of crayfish, the community members are generally satisfied. The respondent added “even the traditional leadership in the area has bought into the system that we use. I would say generally the community is happy with the way it is being managed” (MSSFU/15 October2015).

Some respondents (FG1/5Oct-10Oct2015, FG2/5Oct-10Oct2015, MCL-CM/23October2015 and MIC/9September2015) felt that what the fishers catch was not enough to sustain their livelihoods: “Bag limit is too small, while bait is expensive” (FG1/5Oct-10Oct2015). Fishers find that the current bag limit for the various species restricts them; it is not enough for selling and household consumption. The headman made an example of shad “that fish is one of the most caught. So now you need to catch four shads you cannot exceed four. So that is why people are complaining that it would better if maybe they would catch 8 or 10” (HM/8October2015).

HM/8October2015 and RTAM/8October2015 expressed their concern, as fishers generally voiced their disatisfaction with the current permit system. MSSFU/15 October2015 concurred: “I would say there is a level of satisfaction obviously there is always this kind degree of dissatisfaction at uMthwalume because of rock lobster fishery being opened or legal” (MSSFU/15 October2015).

A respondent in FG1/5Oct-10Oct2015 made an example of how the permit restricts them; “When we catch shad, then decide to go to the freeway to sell and EKZNW comes and takes your equipment and fish”. Recorded in the field notes was the fact that some fishers mentioned that they hardly ever eat the high valued species such as shad and crayfish themselves; some even commented that they can count the number of times they have consumed it in their life. Moreover, community members hardly buy these high value

species, so it is generally people from outside the community, which explains why fishers would want to sell on the freeway as it is another way to reach their market.

Respondents in FG2/5Oct-10Oct2015 agreed with this and added that “we were born here but we need to buy permits and we do not have jobs”. The dissatisfaction with the regulations and management leads community members to have this type of perception about them. This results in a lack of unity between the different stakeholders, since they are perceived as not being in an equal partnership. Russell and Kuiper (2003:152) support the above statement as they found this a common perception about fisheries resources in communities they conducted research in like Amadiba community.

5.21 Co-management structure

MSSFU/15 October2015 stated that there is a co-management partnership that exists between the SSFU, the EKZNW and the uMthwalume community. A democratically elected committee represents the community members in this partnership. Members of this committee are nominated in a meeting held every three years, where fishers from all wards of the community are present to ensure that it is a fair election process (MSSFU/15 October2015). This co-management structure consisting of the EKZNW‟s representative monitors and the elected committee holds an annual meeting with the fishers from all the wards (MSSFU/15 October2015). One of the responsibilities of the committee is to annually review the subsistence fishers‟ list to ensure that all fishers are still eligible to be in possession of the permit, and to allocate permits to new applicants who meet the criteria. The criteria are as follows: a person needs to be unemployed, be a South African citizen, and have a history of fishing. Currently members of the community do not own fishing rights as they are exempted from certain conditions in the MLRA (MSSFU/15 October2015).

A re-occurring issue when the committee evaluates the eligibility of the fishers on the list is that some community members stop using the permit without giving an indication as to why or stating that they no longer need it. In these instances these fishers are removed from the system. Other cases of exclusion from this subsistence fisher‟s permit list occur if the permit holder obtains permanent employment or they pass away. Moreover, MIC/9September2015 stated that the age of the potential permit applicant is one of the challenges fishers face. It is said that once one is over the age of 70, one is generally unable to have one‟s permit renewed.

The above becomes a challenge as in some households one finds that the elderly remain bread winners, therefore if they no longer have permits they cannot catch fish for consumption and earn some income. The elderly remaining breadwinners could be due to the high unemployment rate as discussed above. As a result, the livelihoods of the households discussed above might be mainly sustained by money earned by the elderly through pension and from selling fish.

Due to Apartheid South Africa has a history of high levels of migration. Segregation, coupled with industrialisation which forced adult males who are heads of the households to leave the rural areas in search for work in the urban areas has resulted in complex family structures (Nkosi and Daniels, 2012). The transformation that rural households have to make has been difficult and slow. From living off the land to a limited cash economy since they were forcefully removed from their arable land, losing livestock and having restricted access to fisheries resources. Rural households have had to depend on remittances sent by their family members who are migrant labourers. Due to the fact that the majority of the migrant labourers earn less than a standard living wage, it is almost impossible for households to obtain a decent standard of living solely from remittances. Therefore any individual, even the elderly, who can contribute a source of income, makes a difference in bringing them out of poverty.

5.22 Alternative livelihoods

uMthwalume‟s geographical location places it at a disadvantage for the small-scale fisheries ventures, as it is on the east coast and marine life is high in biodiversity and low in biomass. Moreover, fish stocks are declining globally at a rapid rate, and this is attributed to overexploitation, high population and poverty (Olivier et al., 2013). It therefore becomes crucial to explore alternative activities which will aid fishers in the community in diversifying their livelihoods. MSSFU/15 October2015 and SS- ORI/10September2015 agreed that there is a need to look at other activities besides fishing. MSSFU/15 October2015 said that even though they worked with the uMthwalume community they could not say which alternative livelihoods could be explored without conducting a thorough livelihood analysis.

According to SS-ORI/10September2015, as much as alternative livelihoods have been discussed in the academic realm and scholars have written extensively about them, it is difficult to implement. A study would need to be carried out, to look at the community‟s livelihood assets, what it has and the things they lack, using the Sustainable Livelihood

Framework (MSSFU/15 October2015). MSSFU/15 October2015 believed that this framework it very important and that if more time was spent investigating what would be suitable for that particular community and getting the members of the community actively involved in each every step of the project, then better outcomes could be achieved. MSSFU/15 October2015 felt that they were not in a position to answer the question as to which alternative livelihoods could be pursued.

According to MSSFU/15 October2015, there is a need for different government sectors that have the skills and expertise to examine and identify suitable livelihood options for coastal communities to work together. MSSFU/15 October2015 stated that "I do not think fisheries resources are the answer to alleviate poverty in KZN. We have small resources that are highly vulnerable to overexploitation". Mention was made by this respondent that opening fisheries resources for the small-scale fisheries would not be sustainable long term, thus leaving those community members who are poverty stricken more vulnerable. Rather there is a need for a proper sustainable livelihood analysis to be conducted, where appropriate time is dedicated to finding a suitable livelihood strategy. A livelihood practitioner, government and private stakeholders need to work together with that particular coastal community to identify different social and financial assets available to the community, and then identity alternative livelihood activities for household, in order to get the desired livelihood outcomes.

5.22.1. Agriculture

MSSFU/15 October2015 asserted that uMthwalume has fertile land: "I know that for a fact and every one of those community members should have a little community garden". The uMzumbe Municipality IDP (2014/2015, p.47) contradicts this by stating "the greater part of the land area falls within Class VI. This is non-arable land, which is generally unsuited to cultivation and mostly suited to grazing". Moreover, the uMzumbe Municipality IDP (2014/2015, p.48) stated that:

> "….land in Class VI has severe limitations that make it generally unsuited to cultivation and limit its use largely to pasture and range, woodland or wildlife food and cover; continuing limitations that cannot be corrected include steep slope, severe erosion hazard, effects of past erosion, stoniness, shallow rooting zone, excessive wetness or flooding, low water-holding capacity; salinity or sodicity and severe climate".

SS-ORI/10September2015 concurs with the above stating that:

> "My feelings would be alternative livelihoods for communities would vary from all sorts of terrestrial like agriculture, bearing in mind that they are living on the coastline which is high in rainfall and sandy soils that are leached because of the high rainfall, so a lot of highly productive soil" (SS-ORI/10September2015).

Therefore an ability to grow highly productive crops is limited. That will be the first step and they are already doing this as subsistence farmers; they are farming maize, madumbi, and they grow bananas and avocadoes. They sell their produce on the side of the road and produce beadwork for sale. SS-ORI/10September2015 is of the opinion that all of these avenues need to be explored to uplift the coastal communities. SS-ORI/10September2015 emphasised that "I really do not believe fisheries holds the future in this province, but that is my opinion and many fishers will disagree with me". The Thanda organisation (2015) supports SS-ORI/10September2015 on the matter of the quality and suitability of the land.

5.22.1.1 Organic agriculture project by Thanda Organisation

According to the RTO/14September2015, there is a generous amount of land accessible to the community and they have a good working relationship with the tribal authorities "free land, hectares and hectares but it is not being used clearly". MSSFU/15 October2015 stated that gardening is a skill that the community already possesses and would only need a little assistance to make it a success. The latter is true as 7.5% of the respondents stated they were involved in community garden projects and 78.8% of the respondents stated they have land to cultivate. The gardening projects referred to above is the ones facilitated by the Thanda Organisation. At the household level, however, the challenge might be that there are small plots of land for cultivation and the land is steep. The yield might be enough just to feed the family and sell in the community, but not necessarily sufficient to make a business venture out of it.

Initially the Thanda organisation was not focussed on agriculture, however after seeing there was so much land available "we saw how can we help communities to help themselves and so we saw that it could be through farming" (RTO/14September2015). In order to reduce the

costs of running a farming project, they decide to practice organic farming.They manufacture their own agricultural inputs such producing seeds and utilising kraal manure and organic compost. Organic farming allows farmers to use what is accessible to them such as compost, cow dung, and chicken manure. Another important factor is to identify land which is close enough to the river, the reason being that in order to sustain a garden, there needs to be a proper irrigation system. One of the ways to ensure that there is always enough water for the gardens is by using a cheap mechanism called the ram pump:

> "A ramp pump is a simple cup that you make and put it there the pressure of water is what makes the water to pump and it pumps 500 litres a day, which means it fills up one tank in 24 hours and what are going to do with so much water, so the next day the water is going to overflow if you do not use this water, overflowing into the garden it wants the nature take care of itself. Where it overflows to we plant banana, because banana will control water and be irrigated at the same time" (RTO/14September2015).

5.22.1.2 Agriculture Training and Mentorship

Thanda has three models for farming. The first being, Organic Farming Training and Business Skills Development: using a garden in the facility, community members are trained how to start and maintain an organic farm: "So we farm these gardens, take the produce to the kitchen, it gets cooked very nutritious food, organic" (RTO/14September2015). This cooked food is for the feeding scheme run by Thanda, which feeds approximately 460 school children every day.

According to RTO/14September2015, the knowledge that they share with the community members is something that they can go back and practice at home. Generally they use the clinic to meet with these farmers, or any other venues which are central and easily accessible (RTO/14September2015). Such meetings are used for training, sharing methods and practices which are useful to them, and the hand out of seeds and seedlings. When they go back home, the mentoring does not stop so as to make sure that what they are doing is sustainable. RTO/14September2015 gave an example of how they go about training farmers:

> "Maybe to get in detail with type of training that we are doing, we do double digging beds where we prepare the soil 30 metres depth, making sure we loosen it making it soft keeping in mind that the topsoil must remain on top. Even though this land is

> fertile it is just to make sure soil beds are prepared the way that they are supposed to. And again to be able to retain using tyres if the slope is too steep, we use tyres and vatifa so that soil will be well prepared" (RTO/14September2015).

Farmers get some training in bookkeeping to ensure that they keep track of what they cultivated, what they harvested and how much of the produce they sold. Bookkeeping is done to prevent cases where farmers might say:

> "We did grow a crop but we didn‟t get anything from it, because even when we are cultivating something we write it down, record what we were are growing here, we check it, what is going, what is affecting it, how do we assist it, so that we can see that this is the produce that we are going to have" (RTO/14September2015).

Therefore bookkeeping is to ensure that everything is above board, so that if there are any disputes or problems, there are records to go back to see where they went wrong.

Recycling is encouraged, which is why tyres are used to retain the soil; buying retaining blocks costs more whilst the tyres are free (RTO/14September2015). In addition, retaining blocks will put chemicals in the soil over time, which is not environmentally friendly. Similar beliefs are shared with the use of manure or pesticides: "It will cost them, with manure the amount that you use this year must be doubled the next year, triple it the following so it goes on and on in that pattern" (RTO/14September2015). Instead, compost is used since it is environmentally friendly as it penetrates the soil, and if the double digging was prepared adequately then the old plants would become the compost for the new crops planted: "Then you tend the soil again the second time then you replant and your produce (seeds) are able to grow. What we also encourage is crop rotation, so that insects…some crops attract some insects so that nature can take care of itself" (RTO/14September2015).

The RTO/14September2015 also mentioned ecosystem interdepencies:

> "If we say we use camprine for instance or blue death it will kill the ladybird, when it kills lady bird the other birds that feed on lady bird will have less to feed on. Since you were talking about fish it‟s a fact people are overharvesting and another two oil spills happen every day in the ocean, as result fish stock deteriorates/diminish" (RTO/14September2015).

It is things like the products mentioned above that tend to put chemicals in the soil, and in turn affect the whole ecosystem. That is why Thanda promotes organic farming, taking into consideration the long term effects of the products they use on the soil.

The Small-scale Farm Infrastructure Development is the second model: these gardens are in the community Thanda is notified by community members who wish to start a garden, but however say:

> "We do not know what are we going to use to fence, we don‟t know where we are going to get irrigation system and we do not have sufficient training to sustain our farming, we do not have money to start making seeds" (RTO/14September2015).

Thanda then meets with these prospective farmers: *"*What is most important is passion and the love, once they have passion and love they are covered" (RTO/14September2015). Thanda then applies for funding, since the organisation does not have funds itself. They receive funding from sponsors such as "…..SDI, the World Bank it is the organisation that normally fund our agricultural projects" (RTO/14September2015).

Currently Thanda has ten small-scale farms which are providing food for approximately 1,000 community members and generating an income for 167 previously unemployed persons. Examples of small-scale farms and how many hectares they covered were given were as follows: there is one close to Thanda which is 0.5 hectares, another one is 0.8 hectares, the one down the road from Thanda organisation facility is 1.3 hectares and there is one at Mhlabashane that is 3 hectares, and one in uMzumbe which is 22 hectares (RTO/14September2015).

5.22.1.3 Farming group formulation

Monthly farmer‟s day is hosted by Thanda, in partnership with the Department of Agriculture (DOA), on one of Thanda‟s farms. RTO/14September2015 stated these two organisations share the same goal for the community. If the department is short of funds and Thanda is short of resources, such as a tractor, they team up and pool their resources. Farmer‟s day is for all community members who are interested in farming but do not have equipment, material, fencing and an irrigation system. These are generally prerequisites for farming and prevent farmers from forging ahead if they lack them. They state that they find it a worthless process to cultivate crops when livestock or wild animals eat those crops because they do not

have fencing on their farm; therefore they find it unsustainable. Farmer‟s day therefore presents the opportunity for them to come as a group of five or 10 people to say they are interested in farming.

Thanda then writes a proposal letter to the funders, stating that there is a group of farmers interested in farming but who are faced with particular challenges. Part of the process of drafting the proposal is that Thanda will assess the land, and look at things like water accessibility: “Can we put a ramp pump, can we put diesel pump what can we do and then we apply for that” (RTO/14September2015). Furthermore:

> “We assess the situation that besides the challenges that you are facing what else is hindering. You find that they have been trained to farm and we do further training to help see what they can do in the meantime using things that can access such ad palm trees to fence in those spots. Because normally we apply for funding we take a picture of the land because the funders want to see the land and the activity that taking place/going on in the land” (RTO/14September2015).

The pictures mentioned above that Thanda takes act as evidence that those farmers really need fencing or an irrigation system, and that there is actually farming taking place, and a quotation is sent to the funders. RTO/14September2015 stated that Aqualima is the company that they usually work with; they do fencing and irrigation systems for them. Some jobs are outsourced because when they apply for funding the funders require a registered company that does what you are applying for, as they are in a position to give a formal quotation.

Community members are not restricted just to Farmer‟s Day, they can come to Thanda at any time as they are even open on weekends. Therefore they come there and leave their request for what they need help with. However:

> “To help them with everything is a problem to us because that we will mean we have to babysit them all the way. As long as they can identify we need 1,2,3, then it is easy to help that kind of a person because you can see if you help them this person can move forward/proceed” (RTO/14September2015).

5.22.1.4 Crops in uMthwalume

RTO/14September2015 stated that their number one crop is spinach, and the rest of the crops also grow well. The only crop that is a challenge are tomatoes; they do grow and they get a

fairly good yield, however they feel it is not up to its optimal level. RTO/14September2015 stated that:

> "It comes out okay but me as a farmer I can see we can do better. But I can see why we need a tunnel or a wire because in order for tomatoes to grow properly it needs something it can claw on and go up (unyoke futhi ubambelele)" (RTO/14September2015).

Onions, cabbage and green peppers also grow very well. Last year they tried broccoli, cauliflower, lettuce, and brinjal, all of which grows very well.

A respondent mentioned that most of the land in uMthwalume is steep; when there are heavy rains and floods, the soil erodes, and this raised the question of how this affected the agriculture in the area. The RTO/14September2015 stated that:

> "It depends on how prepare the land as I was we saying we banks with vatifa and tyres. And again when people come to us and say we want to farm, we check all those things is farmable looking at the land. Because they cannot take us to rocks, you cannt plant anything in rocks expect itchukululu plant" (RTO/14September2015).

It can be deduced that it can be a challenge to cultivate crops because of the hilly terrain, but when the soil is prepared appropriately it is a hurdle that can be overcome. There has never been an instance of a crop destroyed because of heavy rains and soil erosion. Another garden was cited as an example:

> "You see the one down here it is in a slope, slopey area, even when you are using a tractor even the low gear 1, it is straight up like a tree. We put vatifa it prevents erosion, its not erodible, you grow anything. Remember the vatifa that we put it goes back to the ground, we control the land using what is accessible, vatifa is available everywhere here" (RTO/14September2015).

The RTO/14September2015 described vatifa as a type of:

> "grass even cows don"t eat it, it something that is always available, even when it burns, even when put any chemical that you can think of it will burn leaves and then it will shoot up again. It is something that does not go anywhere even when rains come, it does not move, it does not get washed away. When it comes to control steeps we are

cool, we have never had a case where we get to a garden and find that all the potatoes which we plant were washed down" (RTO/14September2015).

Do they farm just for their household or to sell? When it comes to selling do they have markets already where they can make enough to sustain their livelihood?

There two types of farming which Thanda are involved in are subsistence and small-scale. The produce from household gardens is specifically for the household‟s consumption. However if farmers are interested in selling produce, then Thanda will purchase the crops from them at market price and then sell it to the Agric-Help market at retail price. Thanda will even collect and transport the produce for them, and the farmers are not cheated. There has never been an instance where their harvest was not bought in the market. December 2014 was one of their biggest harvests so far: 50 tonnes of potatoes were sold.

RTO/14September2015 believes that agriculture is reducing poverty in the community as it is another way that they are able to achieve food security. During field work it was observed that it was only old women who mentioned agriculture as an alternative livelihood that they pursued. Therefore the question was: Is the youth involved in the agricultural projects? RTO/14September2015 said the youth is involved but that there are very few. Farming is generally viewed or perceived as being for old people. There is this belief that when you are "old you are bored you have nothing to do and that is why you farm" (RTO/14September2015).

Lack of youth involvement in agricultural programs is one of the challenges that Thanda is facing, but they are working on it. RTO/14September2015 stated with conviction that as the facilitator of agricultural programs they were also a role model to the youth, and that the youth could do it. Currently there are 60 learners from the community are involved in agriculture through the afterschool programs. The number of the youth involved mentioned here is separate from the 167 previously stated. Youth are trained so that they are able to start a small garden at home if they wish. In the pipeline is a small-scale farm for the youth, which will be within the school premises and for the 60 learners from the Inqolobane Junior Secondary School and the Khathi High School. An additional 30 scholars from the Buhlebethu Secondary School will make up 90 for this pilot project. The youth currently involved appear to be very interested in the project (RTO/14September2015).

RTO/14September2015 stated that the agricultural industry is primarily dominated by women, with few men involved. The mentality behind this is believed to be: “woman/the mother has to go the fields carrying a hoe and the father has to go work and come back with money or go and herd the cattle if they don‟t have a job”, which was viewed by the respondent as backward thinking. Such gender inequality matters are addressed in the afterschool program Therefore they try to weed out the kind of mentality that certain household chores are just for women or men with the youth whilst they are still young, because it is believed to be a matter of ignorance. The latter is true given that agricultural activities can successfully sustain a household livelihood; confining it to women can limit the livelihood outcomes. If everyone in the family who is physically able would participate in farming they might increase their crop yield and have enough produce for consumption and sale.

5.22.1.5 Successes in agriculture for Thanda

The facilitation of organic farming projects without a single failed venture is regarded as a success. The harvests were so healthy that the vegetables smelled and looked fresher than usual. The biggest yield so far at Thanda was in 2014, with the production of 50 tonnes of potatoes produced from all of the combined gardens. RTO/14September2015 stated that: “It was rewarding to see community members generating an income from farming and taking it seriously”. In addition, proper conflict resolution measures were developed to deal with issues that arose and each challenge was viewed as a learning curve.

5.22.1.6 Challenges in agriculture Thanda

There are theft cases “where farmers say I planted but it wasn‟t me who harvested here, I don‟t know who harvested here” (RTO/14September2015). Livestock sometimes get in the field and destroy crops. Wild animals such as wild pigs, monkeys, rabbits, goose and birds are also a challenge as they destroy and eat crops. They have resolved this issue partially:

> “We have managed to control the pigs and monkeys…we tried….the thing which is currently a major challenge its birds, you cannot control a bird as you back into the house they come and what is so sad is that they even eat cabbage leaves they are hungry. They eat tomatoes, green peppers those types of crops that shoot on flowers but now that they are moving to cabbages. You see these animals are hungry” (RTO/14September2015).

Another challenge that is there is conflict, when community members are working together there is a bound to be a difference in opinion from time, as they come from diverse backgrounds. A conflict can brew because of theft, where farmers suspect that one of them is the culprit but an outsider is usually found to be responsible. Thanda has field mentors who are neutral and will assist in conflict resolution that it fair to all parties. Field mentors are employed by Thanda to be in the field, and they can also be called extension officers. Field mentors work with the farmers, getting day to day recordings, collecting data on whether Thanda is making difference or not. In order to determine whether if there is any difference in farmer‟s livelihoods and their lives they do monitoring and evaluation (RTO/14September2015).

Every farm that Thanda is working with has a signed memorandum of understanding (MOU) indicating agreement by all parties on the way forward. This MOU is amended as necessary. The MOU is to ensure that there is transparency, accountability and fairness in all the dealings, including how profits will be divided. RTO/14September2015 made an example of how share could be divided "let‟s say we work on week days this particular one person works even on weekends and if we get to work at 6 am that person gets there at 4 am", that person can be entitled to a few more shares compared to everyone else. Farmers decide when they will be remunerated; it may be on a weekly, monthly or yearly basis, however Thanda buys from them daily. Stokvels are also encouraged as a way of saving. RTO/14September2015 believes that if farmers get into the habit of saving money they are going to learn how to save seeds as well.

5.22.1.7 Social grants and agriculture

The uMzumbe Municipality IDP (2014/2015, p.52) stated that there is a decline in agricultural activities because people are dependent on social grants. Thanda therefore targets people who are still interested in farming besides their existing farmers, and community members in general. Their approach was to show interested people that farming is a viable option and help them to look past the challenges of the endeavour.

5.22.1.8 Aquaculture

MSSFU/15 October2015 stated that another option that could be considered is aquaculture, however it is a "very technical thing to get into and it reliance on consistency in supply of electricity are some of the things that one needs to consider". Any system requiring the

pumping of sea water ashore will need a lot of electricity. As a continued supply of electricity cannot currently be assured in South Africa it might be difficult to get a new venture like aquaculture of the ground.

According to SS-ORI/10September2015 to set up a facility for aquaculture, "one needs to breed marine organisms and farming them can be very, very tricky". Among the challenges faced with this endeavour are parasites, water quality and the prohibitive costs. The cost of producing fish commercially in a farm situation is such that only the top end of the market is going to be able to afford that fish; they are going to have to be sold at a very high price to recover the costs and make a profit.

According to SS-ORI/10September2015 the latter means that "government is investing a lot of money in agriculture, marine aquaculture the opportunities are very limited in this coast line". The KZN coastline is not suitable for fish farms; the coastline is high, there is wave action, strong current and very few sheltered bays where the cages required for these farms can be located. Aquaculture is therefore not a viable option at this point.

5.23 Vulnerability Context

Currently the matric pass rate in South Africa is 33%, which is perceived as having lowered the education standard. When a learner exits high school with that kind of average mark their chances of being accepted into any tertiary institution are minimal.

There are therefore discrepancies in terms of what is deemed an acceptable pass at high school and tertiary levels, where most people train for prospective careers. The inadequate education has created an uncertainty on where is the root of the problem:

> "What is the problem, is it the teachers, is it the curriculum, what is the problem is it the motivation of the children, and you find that it is all those factors. So how can you supplement that and elaborate on that?" (RTO/14September2015).

Seiler (2011) states, those learners from rural schools generally perform poorly because the schools are understaffed. There is usually a shortage of teaching materials, especially for science studies, and as a result, teachers end up improvising and using methods which they are not trained to use. To overcome this in uMthwalume, the Thanda Organisation has an after school and outreach program which aims to supplement the education system. Thanda has developed a curriculum, illustrated in table 5.2, which has four main streams: education, creative me, sustainable communities, and confident me, which cover a variety of subjects.

Table 5. 2: Creative Learning Curriculum by the Thanda Organisation

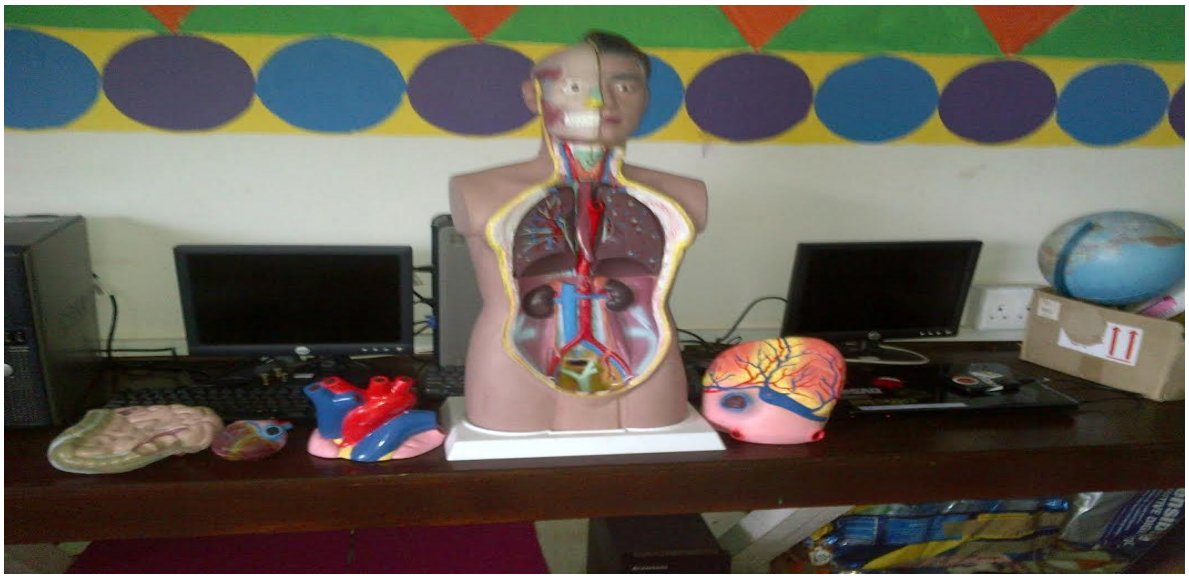
Creative Learning Curriculum			
Education	**Creative Me**	**Sustainable Communities**	**Confident Me**
Literacy: Zulu and English	Arts	Care for the environment	Healthy me
Science and Numeracy	Learning to express myself	Learning to garden	Respecting Others and Respecting Myself
World Cultures and History			

Source: Thanda Organisation (2015)

For two hours every day after school, sessions which cover the curriculum in table 5.2 are held in empty classrooms with facilitators which are community members trained by Thanda. They are currently working with nine schools in uMthwalume, with 460 learners in total, and Thanda offers the learners a home cooked meal during these afterschool lessons. RTO/14September2015 said that "we arrive there we work with children activities that build self-esteem and also promote critical thinking". With this curriculum, Thanda is trying to encourage learners to be independent thinkers in the near future, and not merely to be educated just to get a job. The aim is to encourage them to be innovative and create employment opportunities for themselves and their community.

Rural schools are often disadvantaged as they often do not have teaching resources such as a model of the brain, human body, and skeleton (as shown in figure 5.29). None of the schools in uMthwalume have them. Thanda has these teaching resources and students can come to their facility to view and learn more about these organs that they can physically see and touch. In some cases where the school is far away and has a large number of students, a facilitator from the organisation will bring these educational aids to the school.

Figure 5. 29: Some of the teaching resources available at Thanda used by schools in uMthwalume



Thanda has a library within the facility where learners can borrow a book for seven days and then return it. According to RTO/14September2015, it is the only library in the uMzumbe Municipality. If a learner is not finished with a book they have to return it and borrow it again; the RTO/14September2015 states that it a practice that gets them into the "habit that you must remember that you borrowed a book so you must return it". Access to the Thanda Library familiarises pupils with this kind of facility so that they will not be overwhelmed when they move from high school to institutions of higher learning.

There is also a computer laboratory where learners are trained by facilitators from Thanda, offering them basic computer skills; how to turn it on, how to type, Microsoft Word and Microsoft Excel (RTO/14September2015). Computer training is specifically for learners and since Thanda is already working with them in the afterschool program it is easy to identify that they need these sets of skills. In the past Thanda trained ordinary community members and it went well, but since they are not accredited to give certificates for completing computer skills/training courses they had to make it one of their projects. The community members cannot provide proof of an accredited training program when they enter the work environment, but they are still welcomed to come and gain knowledge.

There is also an art centre at Thanda where learners" creativity and knowledge is harnessed:

> "So what happens here we train children about art, even those who know nothing about it when they start training they get to understand it. So even these stools we

sitting in were made by children, everything interesting you see in this room was made by children" (RTO/14September2015).

Professional artists teach the children about art, and other members of the community are also welcome to join these sessions on the weekends.

5.25. Conclusion

Fishing is an activity that has been practiced for hundreds of thousands of years in South African coastal communities. uMthwalume has been depending on fishing to sustain their livelihoods and it has become part of their culture. Fishers themselves have realised that there has been fish stock decline over the years. However, because of the high rate of unemployment and limited livelihood strategies they can pursue outside the fishing industry, it makes it difficult for fishers to abandon their rods or be satisfied with a limited bag limit and closed seasons. The different stakeholders in uMthwalume (Ezemvelo KZN Wildlife, Department of Agriculture Fisheries and Forestry, eMathulini Traditional Authorities, Masifundise and Coast Links, Thanda Organisation, uMzumbe Municipality), instead of working against each other, shifting blame, or trying to win the community over to their side; can work with each other, sort out their differences and find solutions to alleviate poverty in this community.

Given that fishing is not a viable option for fishers in uMthwalume to generate income and start successful business ventures because of the global fish stock decline (Monteiro and Salvador, 2014) and KZN‟s high biodiversity and low biomass, there is a need to devise strategies and work out which alternative livelihoods this community can pursue. In the process of identifying alternatives, a bottom-up approach must be applied. This must not just be an exercise on paper; rather the community must actively be included as they best know their strengths, assets and skills, and can build on those to enhance what they lack. The resolution should not prevent fishers from fishing altogether but rather measure where they can still fish for consumption and generate some income, as fish is rich in nutrients and vitamins (RF, 2013).

Chapter Six: Conclusion and implications for further research

6.1 Evaluation

6.1.1 Introduction

The main objective of the study was assessing community access, utilisation and management of fisheries resources in uMthwalume. This chapter aims to further analyse the findings discussed in chapter five, citing the main points from the literature review. The chapter also presents recommendations fro, for this study and the overall conclusion.

This chapter provides an evaluation of the study in terms of the following objectives:

a) To investigate accessibility to the fisheries resources in the uMthwalume community;

b) To examine the effectiveness of management of the fisheries resources in the uMthwalume area;

c) To determine how the resources harvested contribute to the livelihoods in the uMthwalume community;

d) To assess the challenges and successes in the uMthwalume community with regards to fisheries resources;

e) To investigate other livelihood strategies the uMthwalume community engages in besides harvesting fisheries resources; and

f) To forward policy recommendations with regards to accessibility to, utilisation of, and management of fisheries resources in KwaZulu-Natal.

Currently, due to the bag limits, closed seasons and restrictions on the type of species that can be caught, fishers complained that the income they make cannot sustain their livelihood, which is why they are looking forward to obtaining their small-scale fisheries permit. They believe that the small-scale fisheries permit will improve their quality of life as they will be able to sell the majority of their catch and access the high value species such as crayfish and generate more income.

Alternative sources of income are mainly social grants, vegetable growing, spaza shops, and piece-meal jobs. Only a few households have a member of their household with a permanent

job. Fishers‟ households would not be able to make ends meet without these alternative livelihoods and as already established, they hardly make a decent income from fishing as subsistence fisheries are not geared for generating substantial income.

From this study it was evident that fishers in uMthwalume generally keep small fish for their household consumption, such as karanteen and mussels. Once fishers have their catch they would only require some sort of starch or vegetables, which are generally affordable as compared to meat or fish, in order to have a balanced meal. The rich nutrients that fish provides to poor communities reduce malnutrition and they will be less prone to illness and disease (Bene and Heck, 2005). Fish is not only for consumption as they are permitted to sell a small portion of their catch up to 20 kilometers away from where it landed under the subsistence permit regulations (Sowman, 2006). With a recreational permit which allows fishers to catch high value species sales are not permissible. Selling only a small portion, bag limits, and restrictions of where sales can be made are some of the issues driving the constant debate in this study, as community members still felt very limited by the regulations, with some even stating that authorities are oppressing them. As a result, fishers in uMthwalume are eagerly waiting for the implementation of the small-scale fisheries policy which was supposed to be operational since 2013, but has yet to materialize. Fishers in uMthwalume perceive the small-scale fisheries policy as their escape out of this circle of poverty.

6.2 Accessibility to the fisheries resources in the uMthwalume community

Almost half (49%) of the respondents stated that fisheries resources are not accessible in uMthwalume when needed, and 24% stated that they are sometimes accessible. MSSFU/15 October2015 supports the above findings by stating that “our resources in KZN are unfortunately not very large. We have limited stocks due to the marine ecosystem; we have high biodiversity but low biomass”. The majority of the respondents (90%) corroborated the statement that there has been a decline in fish stock over the past few years. MSSFU/15 October2015 further stated that fishers for the most of the year rarely obtain enough catch to meet their bag limit.

This sharp decline in fish stock is not exclusive to KZN or South Africa however, it is a worldwide problem, and according to The, et al. (2008) it has been occurring since the 1980s. Fisheries resources, being a common pool resource, means they are subtractable and non-excludable. Non-excludable communicates that it is expensive and challenging to prevent individuals from accessing fisheries resources (da Conceicao-Heldt, 2004). The open access

nature of the fisheries resource means they are accessible to all (Jamie and Betchel, 2010), leading to overexploitation and possible degradation of the fisheries resources. The rate at which the fish stock was declining brought about the realisation that if measures were not taken to regulate this matter, then the future generations would not enjoy the same benefits. As a result, fisheries management policies and regulations were introduced (Camp and Camp, 2009).

6.3 Effectiveness of management of the fisheries resources in the uMthwalume area;

6.3.1 Co-management in uMthwalume

There is a co-management structure that exists in uMthwalume, a partnership between fishers, the DAFF/SSFU and EKZNW. Bown, et al. (2013) states that co-management is meant to be a decentralisation of power for local communities to actively participate in the decision making process. The current co-management structure seems to be failing. Fishers participating in the Coastal Links/Masifundise Development Trust meeting and respondents who took part in a focus group discussion (FG2/5-10Oct2015) went as far as stating that the EKZNW is still oppressing them. The lack of satisfaction with the co-management structure is believed to be the reason why there are two fisher committees with Coastal Links/Masifundise Development Trust and the EKZNW, as mentioned in chapter 5. The community seems not to trust the existing co-management structure to have their best interests in decisions they make on their behalf. This co-management structure is believed to be struggling because it appears inclined to the instrumental co-management approach. According to Nielsen, et al. (2004) the latter mentioned approach means that communities are not included in the process of setting objectives for management, and their knowledge about the resources is usually not used in the development of objectives. As discussed below, there is a need to value the importance of indigenous knowledge, as fishers in uMthwalume mentioned that they feel like their traditional knowledge about fisheries resources is being undermined by the scientific body.

According to RCL/MDT/21October2015, Coastal Links/Masifundise Development Trust and the EKZNW have had meeting and discussions in light of the small-scale fisheries policy that is in the process of being implemented. On the agenda were these two issues:

• Increase of the bag limit so that fishers can sell their catch;

- Mistreatment of fishers in the community as they complained that they are harassed by rangers.

RCL/MDT/21October2015 stated that they could not find a common ground. They therefore took the matter to the national level of the DAFF, where they believe they had better outcomes, even though they were unsatisfied, since the small-scale policy is in the implementation stage.

Coastal Links/Masifundise Development Trust is advocating for fisher‟s rights and for the small-scale fisheries permit to be issued so that fishers can start small businesses and generate enough income to have a decent life. Common ground has yet to be found. One therefore finds fishers being pulled in opposite directions. The EKZNW is trying to conserve fisheries resources and Coastal Links/Masifundise Development Trust is fighting for the rights of community members to able to generate a living from fisheries resources. Some fishers mentioned that they go as far as attending meetings with the EKZNW and Coastal Links/Masifundise Development Trust as they are weighing their options, assessing where they will benefit the most. Nevertheless, the final decision as to where they will settle is where they will reap the most benefits. This friction between the two organisations leads to wasteful expenditure as resources might be utilised for the same goals; as a result the community‟s development is hindered. On the other hand, even unity between fishers themselves seems broken as it was found now that there are two fisher committees in uMthwalume, each working with different organisations.

Another factor that is hindering the success of the co-management structure in uMthwalume is that local government, municipality and traditional authorities are not involved, though the MSSFU/15 October2015 stated that they have a good relationship with them. One would assume that they only collaborate when they come to ask for permission to work with community members and do different activities in uMthwalume. In uMthwalume, co-management is just between the provincial government (DAFF/SSFU and the EKZNW) and local communities. According to Fleishman (2006), the latter should not be the case; local government should also be actively involved since they are closer to the community than other levels of government (closer in terms of being more accessible to them and probably find it more comfortable to talk to them about their issues). Moreover, local institutions understand communities‟ needs and struggles well, and considering the power and political

influence they have, they can advocate and ensure community members‟ voices are heard and truly empowered in co-management.

Co-management takes a learning process approach, trial and error (Fischer, et al., 2014). It is not an event; rather it is a process, whereby relationships among the stakeholders are constantly changing (Grover and Krantzberg, 2013). Through the latter experience one learns what works and what does not. Moreover, it is a process of extensive negotiations and planning. Therefore projects require monitoring throughout the process. When it fails, one must go back to the drawing board, making the necessary adjustments (Cundill and Fabricius, 2009). Pomeroy, et al. (2011) refer to the above discussed co-management as co-adaptive management. Co-management is not a quick solution but a process (Berkes, 2009a), that differs from one case to another.

One of the EKZNW‟s most successful co-management structures is with the Sokhulu community, with the example of the mussel group (Biggs et al., 2015). In a case study of Sokhulu, scientists and community members conducted an experiment to determine which tool was ideal and sustainable for mussel harvesting between a bush-knife and a screwdriver (UNDP, UNEP, WB, and WRI, 2003). After a series of tests, it was found that the bush-knife enabled members of the community to harvest at a fast rate. However, it caused environmental degradation as smaller mussels will be detached and in most instances unable to grow (Sunde and Isaacs, 2008). Through training and workshops, further learning and understanding the science behind all of the above, the community and the scientists agreed that the use of a screwdriver is the best tool as it ensures sustainability of the resource (Harris, et al., 2003). Through the utilisation of screwdrivers, harvesters could take mussels which are mature and of legal size, and if the smaller ones were moved minimal degradation was caused and they will easily reattach and grow to their optimal size.

6.3.2 Fisheries management compliance

Fisheries compliance is an issue because fishers stated they feel like they are being policed. If the instructions are coming from the top, fishers feel like they do not have much of a voice; they simply have to oblige and as a result they end up pretending like they are abiding by the law even when they are not. The supervisor of the monitors mentioned that in front of them fishers sometimes act like they are abiding by the law, but once they are gone the fishers might retrieve the extra catch they have hidden. Wick (2012) noted that an interviewee from Mfazazana asserted that they buried crayfish in the sand to hide it from the EKZNW

compliance officers. Crayfish is one of the main species which pose a challenge when it comes to fisheries compliance in uMthwalume, because of its high value. Thus fishers argued that they generate high financial returns when they sell it compared to any of the other catch. Respondents also revealed that prices for crayfish range from R50 to R90 each, depending on the size of the catch.

Once communities feel like equal partners with other stakeholders in fisheries management, as it should be with co-management, then that it is believed that they will start being accountable to each other and that transparency will be guaranteed (Carlsson and Berkes, 2005). Communities will take responsibility in ensuring that the environment is not exploited and degraded because they now understand that these fishery resources belong to them as well. One could argue that from the community members‟ perspectives, the goals of fisheries management still have not changed. According to Pauly (2006, p.9), the preceding valuation is still happening because "whatever the route that „development‟ took, the goals of fisheries development were generally „biological‟ (high catches, utilisation of all resources, etcetera), to the near complete neglect of social goals such as employment, community well-being, food security, etcetera." Neilsen, et al. (2004) stresses the need to try and find a balance between conservation and socio-economic concerns. Otherwise, when community members get the opportunity to access resources they will overexploit them, knowing this could be their very last chance.

6.3.3 Importance of indigenous knowledge in fisheries management

Community members seem to believe that their point of view and knowledge of fisheries resources is undermined by scientists and the EKZNW. As an old woman in the small-scale fisheries training workshop stated, scientists would not have adequate indigenous perspective of marine life. Their knowledge depends on what they have read from books and the research that may not have been conducted in local context. The above is short sighted in the sense that each area/ coastal area is unique. The former highlights the importance of incorporating indigenous knowledge in every scientific inquiry. Indigenous knowledge can be used to understand what happened in the past to cause the current fish stock decline being witnessed, and help project future trends. Nyong, et al. (2007) argues that there should not be competition between conventional scientific and indigenous knowledge, rather they should supplement each other.

Indigenous knowledge should not simply be for broadening the scientific body of knowledge however, it should be a way of passing on fish skills, lessons, experiences, the history of the community and cultural practices from one generation to next through storytelling. According to Hirsch and O‟Hanlon (1995, cited in Kapfudzaruwa and Sowman, 2009, p.683), indigenous knowledge systems are "intimately connected to the broader framework of people‟s cosmology and world view, which is embedded within their physical, spiritual and social landscape".

6.4 The resources harvested contribute to the livelihoods in the uMthwalume community

6.4.1 Poverty

This study revealed that unemployment was one of the main challenges facing their communities and families. As a result most of them depend on social grants in order to supplement their earnings from fishing to support their livelihood. One of the challenges is the multitude of people in the municipality depending on social grants. According to Lawson, et al. (2012), if the income that is generated by that particular household does not meet their basic needs then they are regarded as poor. Based on Lawson, et al.‟s (2012) economic perspective, fishers in uMthwalume are poverty stricken. However, poverty is too complex for one to solely look at it from the narrow lens of the economic interpretation. Buttressing this statement is Cinner et al.‟s (2010) definition of poverty which incorporates the lack of access to basic needs such as a political voice, education, and proper sanitation, which makes communities vulnerable. The latter mentioned services and needs are generally key for communities to access the resources which could potentially lead them to their economic freedom.

Most of fishers in uMthwalume have pursued their studies up to secondary education level and generally do not study further. This is a possible reason attributable to families not sending their children to tertiary institutions. FAO (2006) attest to the former statement by stating fishing communities are generally deprived of education because they are on the outskirts of the major cities and their poor socio-economic backgrounds. In uMthwalume and the surrounding areas, there are a few institutions of higher learning such as the uMthwalume FET College and the Hibberdene Academy. Consequently, pupils completing high school are compelled to go to higher education institutions in Durban, Pietermaritzburg or Richards Bay where they have more options. Studying at most tertiary institutions, however, requires a

generous amount of money for tuition, residences, meals and travel allowances; which the majority of households cannot afford. Limited skills also make livelihood diversification a challenge. According to the FAO (2006, no page numbers) in the times of global declining fish stocks, fishers find themselves stuck in the cycle of poverty as they are limited in alternative activities they can pursue, leading to further food insecurity and vulnerability.

6.5 Challenges and successes in the uMthwalume community with regards to fisheries resources

6.5.1 Dynamics between different stakeholders

There is an „us against them mentality" that seems to exist in the community of uMthwalume. The EKZNW/SSFU seems to think that the co-management structure that exists between them and fishers in uMthwalume is functioning well, except concerning the issue where they have picked up fishers wanting to sell crayfish. The problem, however, appears to be deeper: Some of the fishers are currently double dipping as they are part of the uMthwalume Intertidal Committee and the Coastal Links Committee. The EKZNW is advocating for conservation of the fisheries resources which are needed for sustainability, and so that future generation can also enjoy the same benefits as the current generation (Camp and Camp, 2009). There is, unfortunately, a break down in the chain where fishers in uMthwalume just see the EKZNW as an organisation which still limits and infringes on their rights as citizens of this coastal community who were locally born and bred and therefore have a right to the the resources. The relationship between EKZNW and fishers in uMthwalume is strained.

Committee members who go to represent community members in small-scale fisheries policy conferences and workshops come back with positive reports that an action plan has been drawn, and years go by with nothing materialising. As a result, it was expressed at the small-scale training workshops committee meeting that representatives are tired of the DAFF raising their hopes for nothing, given that a policy that was supposed to have been implemented in 2013 has not yielded any tangible results.

Coast Links/Masifundise Development Trust has come into uMthwalume and taught the fishers about their rights and explained the different regulations and policies in depth. Furthermore, it has been at the forefront in fighting for coastal communities (EC/WC/KZN), advocating that the small-scale fisheries policy be implemented. If the small-scale fisheries policy is implemented it will possibly afford subsistence fishers an opportunity to stop the

cycle of poverty and stalemate of being small-scale fishers. They could now start their small business venture, generate income and create job opportunities for other community members. Unemployment and the lack of alternative livelihood activities are some of the main problems facing uMthwalume, as the findings of this study demonstrate. MSSFU/15 October2015 and SS- ORI/10September2015 believe that politicians are using the small-scale fisheries to get more votes in the future. Moreover, one respondent who participated in the community meeting hosted by Coast Links/Masifundise Development Trust shared similar sentiments that they hope that the municipality is not present in the fisher‟s meeting just to get votes in the future. There is therefore concern about the agenda and credibility of some of the stakeholders in pushing for the small-scale fisheries policy.

MSSFU/15 October2015 and SS-ORI/10September2015 emphasised that the DAFF has not fully taken into consideration the scientific reports of the current fish stock assessment. KZN has small pockets of fisheries resources; however they have put some of the species such as crayfish and shad in the basket of species which will be open for small-scale fisheries. MSSFU/15 October2015 and SS- ORI/10September2015 believed this to be irresponsible and making false promises and setting up fishers for failure, as what is in the pipeline is to apply a standard implementation plan for small-scale fisheries in all coastal provinces which have different attributes. The odds are thus fisheries resources will be overexploited, with no chance of recovery, if stock assessments are not done prior to opening small-scale fisheries.

In the same breath, fishers have been waiting since 2013 for the small-fisheries policy to be implemented as then they can start earning a living from fishing. Thus, there is a need for all of the stakeholders to engage in an open dialogue about the small-scale fisheries and avoid pointing fingers at one another trying to score [political] points, remembering that doing so places coastal residents‟ livelihoods on a knife edge. There is a need for scientists and the EKZNW to present facts and their predictions of the various species proposed by the DAFF to be opened for small-scale fisheries to community leaders, politicians, all committees and Coast Links/Masifundise Development Trust. Thus, the current status of fish stock can be presented and the implications and predictions for small-scale fisheries discussed vis-à-vis the assessment and implementation of a strategy for KZN. Furthermore, stakeholders representing the socio-economic needs of community also come to the fore and become part of the debate. The community‟s needs cannot be neglected further as they are poverty stricken. Also given the high levels of unemployment it makes more challenging to provide food on the table and basic necessities. Thus, a compromise could possibly be reached based

on these realities on the ground, taking into consideration that this must work for both the community and the marine ecosystem.

6.5.2 Conservation and fisheries management

Bag limits, closed seasons, restrictions on what species (generally low value species) and where fishers can sell them are the main challenges that were revealed from this analysis. These challenges have created some conflict and mistrust between the fishers in uMthwalume and the EKZNW. Fishers do not seem to fully understand why some regulations exist as they stated that they did not completely grasp most of content contained in some of the fisheries policy documents until Coast Links/Masifundise came into the picture. A common belief that exists is that the ocean is for them as coastal residents, to catch whichever species they want. Therefore, the mistake that is being made by the „powerful" stakeholders is merely involving fishers in the decision making process of fisheries management for the sake of window dressing, which keeps development stagnant. As the fishers know very well that their opinions, even if given the platform to share them, will not be taken seriously, they have very little regard for rules and regulations. They might act as if they respect and abide by the law in front of the authorities however, when they find themselves in a financial predicament, they end up being desperate enough to catch fish illegally:

> "It is too often assumed that the traditional systems were characterised by a free for all anarchic exploitation of resources. While it is possible that in some exceptionally richly endowed regions with sparse populations the regulatory may have been minimal or even non-existent, most communities had evolved systems which in varying degrees conserved resources and ensured their equitable distribution among households" (Ghai, 1992, cited in Fabricius, 2004, p.3).

According to the Eurocentric persperctive natural resource management in local rural communities did not come into existence until after the European colonialists forcefully removed them from their land. Although it is not well documented, the traditional communities had some form of indigenous natural resource management system, and there is some evidence to support this. Traditional institutions such as kings, chiefs, headmen and healers did oversee and regulate natural resources. The royal hunting preserves of the amaZulu and amaSwati people (Coombes, 2003), and the Kgotla system of land management practiced by the Batswana people are some of the examples of traditional institutions

(Frabicius, 2004). According to Donda (2000) fisheries management was regulated by traditional authorities in Malawi.

Benard and Khumalo (2004) assert that generally rural communities relied heavily on natural resources for different uses, to support their livelihoods. Thus, they valued, respected and even incorporated them into their belief systems, world views, metaphors and folklore. This is evident in our surnames and clan names, particularly the Nguni ethnic groups. The majority of the Nguni clan names describe each household‟s identity/character using the environment and the characteristics of certain animals which are powerful. The latter shows that we take pride and are custodians of the environment. However, rural communities were forcefully removed from their rich land, lost livestock, and social networks (Kolkman, 2006). Furthermore, fishing communities restricted access to the fisheries resources. Given this displacement from their sources of livelihoods, as an act of rebellion they saw it fit to expropriate resources as they pleased. As mentioned above, there were traditional natural resource systems, through rules and laws, to ensure that the resources were managed and utilised in a sustainable manner (Coombes, 2003). Since the traditional natural management system was undermined, illegal harvesting of natural resources could be the major reason communities are fighting back for what was once theirs. As Colchester (2004) noted, the Masaai revolted against imperialists for removing them from their natural environment by destroying the wildlife.

Fishing „illegally‟ could be assumed as another act of anger, after coastal communities‟ access to fisheries resources was restricted. Regulations, permits and restrictions came along with the capitalism and commercialisation of natural resources. As some respondents noted: Chinese fishing businesses operating in uMthwalume and commercial fishers have high quotas which allow them to keep on getting richer, while the community fishers have small bag limits and are restricted when selling fisheries resources. Consequently, the degradation of the fish stock by the local community fishers is minimal, compared to that of their commercial counterparts. Local fishers remain in this vicious cycle of poverty. Hauck (2008) concurs with this and further argues that fisheries management policies still prioritise the capitalist interests of the commercial fisheries over small scale fisheries. An example which illustrates this is the monopolisation of the hake fishery industry with the introduction of the Total Allowable Catch (TAC): ninety percent of the TAC was controlled by three white companies, in a country where whites are a minority (Ponte, 2008:287)

Camp and Camp (2009) assert that when thinking of conservation, what automatically comes to the fore is nature and beauty; however the true test for conservation is how the poor benefit. The case of the fishers in uMthwalume highlights that while it is important to protect the marine environment, it does not have to be at the cost of the community who coexist with it; as that generally causes them to defy the very regulations that seem to prioritise nature over human lives. A top-down approach to fisheries management generally leads to this kind of attitude towards fisheries resources. One member in the Amadiba community expressed their grievance by saying:

> "….the resources are actually ours, but the government has taken them [away from us]. We therefore deserve to be able to use them and if we break the government rules it is only fair. If we cheat and overharvest resources, then we are cheating the government and other outsiders of what should be ours in any case" (Russell and Kuiper, 2003, p.152).

A great deal of work still needs to be done in conservation in ensuring that the preservation of ecosystems and biodiversity is not prioritised over communities‟ socio-economic needs. According to Mbatha (2011, p.138-139):

> "….livelihood needs of fishers change over time, and as a result, resource sustainability from co-management is decreasingly perceived as a benefit to fishers in KwaZulu-Natal, as they are increasingly seeking more economic and social benefits from resource use that can overcome their livelihood constraints".

As the majority of the respondents stated that the main challenge in their household is unemployment, the cost of living, and continually rising food prices, these fishers are forced to try and benefit more than the current restrictions allow. To this end, they are pushing for the implementation of the small-scale fisheries permit as they believe it will be more beneficial for them than the current subsistence and recreational permits.

6.6 Other livelihood strategies the uMthwalume community engages in besides harvesting fisheries resources

6.6.1 Diversification of livelihood strategies

Fishing is a seasonal activity (Salagrama, 2006) which means that fishers cannot generate sufficient income all year around, with this as their only means of earning a living. There is

therefore a need for all those involved in the fisheries sector to find alternative ways in which to generate income when they are restricted from fishing. That said, currently in uMthwalume they are restricted from pursuing most alternative activities due to limited skills, lack of education and poverty. Agriculture has so far been recognised as the most viable option, and training in this sector has been piloted by the Thanda organisation.

6.7 Policy recommendations with regards to accessibility to, utilisation of, and management of fisheries resources in KwaZulu-Natal

6.7.1 Recommendations and Conclusion

In KZN fishers cannot solely rely on fishing to generate sustainable income due to limited fish stocks. This means that there is a dire need for these communities to pursue other alternative livelihood strategies in order to survive, such as agriculture. Agriculture plays a crucial role in achieving food security and as a result it alleviates poverty (du Toit, 2011). It also creates employment opportunities, reduces food prices, increases farm income and raises wages (Karanja, 2010). According Vink (2015), investors are currently drawn to investing in agriculture in Africa because of food insecurity, due the constant rise in population. In 2005 the population of Africa was estimated to be 0.92 billion. Bongaarts (2009, p.2986) reports, that this figure is predicated to be over 2 billion by 2050. Investors are drawn to the African continent because it:

> "…has 39-million hectares of land physically suitable for irrigation, but only 7% of this is irrigated (and just 3.7% in sub-Saharan Africa), according to the Africa Infrastructure Country Diagnostic. Therefore, despite having some of the richest natural resources for agricultural production in the world, Africa currently spends more than $25-billion annually for food import" (Vink, 2015, no page numbers).

It is for all of these reasons that it is recommended that agriculture be one of the alternative livelihoods for uMthwalume to pursue. From the findings of this study agriculture in uMthwalume is predominantly dominated by older women. Sihlobo (2015) concurs with this, stressing the need to entice the youth into being actively involved in this field as the farmers currently involved are aging. If the baton is not passed to the youth now, when the older generation retires from the sector that contributes 3% to the GDP of the country as a whole, they will lose the majority of their work force and the economy of this country will suffer a great deal (Hachigonta et al., 2013; Ntuli, 2014).

An afterschool program run by the Thanda organisation is a way of bringing the youth of uMthwalume into the field. They offer agriculture training to learners, and currently have 60 learners on board. Since the learners are acquiring skills in agriculture from an early age (Thanda works with primary and high school pupils), if the pupils are interested this could then give them an opportunity to develop it into a career and when they leave school for tertiary education it could be a field that they can pursue. Learners demonstrating their passion and rich background in agriculture, and considering that the majority of the fisher‟s households are poverty stricken, could stand a good chance of obtaining bursaries and scholarships from private companies and organisations in the agricultural sector. Those who are unable to obtain funding for their studies, or are perhaps not interested in studying further can venture into entrepreneurship (agribusiness). Thanda already has a small-scale farming program; therefore they (Thanda) can further harness their (young people in the area of the study) skills. Thanda is not the only solution that uMthwalume potentially has, as there are others such as the DOA, Department of Trade and Industry (DTI) and the Small Enterprise Development Agency (SEDA). Thanda already works with the DOA, and thus a program could be developed in conjunction with other government sectors and private and non-government organisation to further develop small-scale farming. This will assist local farmers, as well as boost the economy of the uMzumbe municipality, and South Africa as whole.

There is a need for a conflict resolution in this community as the various stakeholders forming part of fisheries management seem to be pulling in different directions. According to Redpath (2013), conflict resolution management can be analysed using the game theory where in the scenario parties involved are not willing to come together to discuss their grievances, and that is termed as zero sum. Conversely there is the non-zero sum, where different groups talk about the issues as they realise that if they lose, then everyone loses, and if they win, it is win for all. The parties here try to make tradeoffs where there is an alteration, until they all feel that this is a fair opinion. Currently the fishers in uMthwalume and the EKZNW are at the zero sum stage, where they are not coming together to discuss matters and trying to find amicable solutions that will move them forward.

This study examined community access, utilisation and management of fisheries resources in uMthwalume. It was found that fishers currently have access to the fisheries resources, however due to low fish stock that KZN has as a result of the global decline in the resources and KZN‟s cold waters with high biodiversity and low biomass, fishers do not catch enough

fish to sustain their livelihoods during closed and open seasons. Factors such as bag limits, closed seasons, limited sales, and being unable to sell high valued species such as crayfish means that fishers are dissatisfied with the current regulation and fisheries management authorities. The stakeholders involved in fisheries management in uMthwalume do not appear to be united. Fishers in uMthwalume are anxiously waiting for the small-scale fisheries permit so that they can start selling high valued species legally and make a decent income. However, from the scientific view the latter could be a recipe for disaster for KZN‟s marine ecosystem, and as a result scientists suggest other alternative livelihood strategies to be evaluated and pursued.

References

Abdalla, G. A., 2012. The influence of financial relations on sustaining rural livelihood in Sudan: Reflecting the significance of social capital in the village Al Dagag, North *Kordofan.State Spektrum 108: Berlin series on society, economy and policies in developing countries*.[e-book] Zurich: LIT Verlag Available at: Google Books <https://books.google.co.za/books?id=2W_PAQAAQBAJ&pg=PA22&lpg=PA22&dq=The+influence+of+financial+relations+on+sustaining+rural+livelihood+in+Sudan:+Reflecting+the+significance+of+social+capital+in+the+village+Al+Dagag,+North&source=bl&ots=qrdZp8OgB&sig=6eULRv0lSH19IyZDpkJ7TklczhU&hl=en&sa=X&ved=0ahUKEwiQ38XNlMLKAhUDdQ8KHdFQByEQ6AEIGjAA#v=onepage&q=The%20influence%20of%20financial%20relations%20on%20sustaining%20rural%20livelihood%20in%20Sudan%3A%20Reflecting%20the%20significance%20of%20social%20capital%20in%20the%20village%20Al%20Dagag%2C%20North&f=false> [Accessed 2 August 2014].

Abdulai, A. M. and Shamshiry, E., 2014. *Linking sustainable livelihoods to natural resources and governance: The scale of poverty in the Muslim world.* Singapore: Springer.

Abrahams, Y., Mhlongo, S. and Napo, V., 2011. A gendered analysis of water and sanitation services policies and programmes in South Africa: 2006–2010. *Agenda: Empowering Women for Gender Equity,* 25(2), pp.71-79.

Acheson, J. M., 2003. *Capturing the commons: Devising institution to manage the marine lobster industry.* Hanover, New Hampshire: University of New England.

Agrawal, A. and Gibson, C. C., 1999. Enchantment and disenchantment: The role of community in nature resource in natural resource conservation. *World Development*, 27(4), pp.629-649.

Ahmed, F., 2008. Development pressure and management constraints in the coastal zone the case of KwaZulu-Natal North Coast. *Alternation*, 15(1), pp.45-65.

Ahmed, N., Troell, M., Allison, E. H. and Muir, J. F., 2010. Prawn post-larvae fishing in coastal Bangladesh: Challenges for sustainable livelihoods. *Marine Policy,* 34, pp.218-277.

Alder, E. S. and Clark, R., 2011. *An invitation to social research. How it is done*. 4th ed. Belmont: Wadworth CENGAGE Learning.

Allison, E. H. and Ellis, F., 2001. The livelihoods approach and management of small-scale fisheries. *Marine Policy*, 25, pp.377-388.

Allison, E. H., 2003. Potential applications of „sustainable livelihoods approach" to management and policy development for European inshore fisheries. In: P. J. B. Hart and M. Johnson, eds. 2003. *Who owns the sea?* Aberdeen: North Sea Commission. pp.25-43.

Allison, E. and Springate-Baginski, O., 2009. Livelihood assessment tools. In: O. Springate-Baginski, D. Allen and W. Darwall, eds. 2009. *An integrated wetland assessment toolkit: A guide to good practice*. Cambridge: International Union for Conservation of Nature. pp.57-74.

Allison, E. H., Bene, C. and Andrew, N. L., 2011. Poverty reduction as a means to enhance resilience in small-scale fisheries. In: R. S. Pomeroy and N. L. Andrew, eds. 2011. *Small-scale fisheries management: Frameworks and approaches for the developing world*. Wallingford: Centre for Biosciences and agriculture international.

Allison, E.H., 2011. Aquaculture, fisheries, poverty and food security. *Working paper 2011-65.* [e-book] Penang: The World Fish Center Available at: Google Books <https://books.google.co.za/books?id=76o__KToxqQC&pg=PA60&dq=Aquaculture,+fisheries,+poverty+and+food+security.+Working+paper+2011-65+.&hl=en&sa=X&ved=0ahUKEwi58pbnrMLKAhXD9w4KHeaMBSMQ6AEILjAA#v=onepage&q=Aquaculture%2C%20fisheries%2C%20poverty%20and%20food%20security.%20Working%20paper%202011-65%20.&f=false.> [Accessed 13 May 2013].

Al-Masroori, H. S. and Bose, S., 2011. Fisheries sustainability and sustainable development. *Journal of fisheries and aquatic science,* 6(1), pp.1-21.

Anderson, L. G. and Seijo, J. C., 2010. *Bioeconomics of fisheries.* New York: Blackwell Publishing.

Andrade, H. and Midre, G., 2011. The merits of consensus: small-scale fisheries as a livelihood buffer in Livingston, Gautemala. In: S. Jentoft and A. Eide, eds. 2011. *Poverty mosaics: Realities and prospects in small-scale fisheries*. Dordrecht: Springer. pp.427-450.

Angrosino, M., 2007. *Doing ethnographic and observational research*. London: SAGE Publications Ltd.

Arlinghaus, R., 2004. *A human dimensions approach towards sustainable recreational fisheries management*. London: Turnshare Limited.

Arlinghaus, R. and Cooke, S. J., 2009. Recreational fisheries socio-economic importance, conservation issues and management challenges. In: B. Dickson, J. Hutton and W.M. Adams, eds. 2009. *Conservation science and practice. Series No4: Recreational hunting conservation and rural livelihoods: science and practice*. Oxford: Blackwell Publishing Ltd. pp.39-58.

Ashley, P. and Boyd, B. W. E., 2006. Quantitative and qualitative approaches to research in environmental management. *Australasian Journal of Environmental Management*, 13(2), pp.70-78.

Ashman, S., Bene, F. and Newman, S., 2010. The developmental state and post-liberation South Africa. In: N. Misra-Dexter and J. February, eds. 2010. *Testing democracy: Which way is South Africa going?* Cape Town: Idasa Publishing. pp.23-45.

Asiedu, B. and Nunoo, F. K. E., 2013. Alternative livelihoods: A tool for sustainable fisheries management in Ghana. *International Journal of Fisheries and Aquatic Sciences,* 2(2), pp.21-28.

Atkison, D., 2007. Taking to the streets: Has developmental local government failed in South Africa? In: S. Buhlungu, J. Daniel, R. Southall and J. Lutchman, eds. 2007. *State of the Nation: South Africa 2007.* Cape Town: HSRC Press. pp.53-77..

Atkison, L. and Sink, K. 2008. User profiles for the South African offshore environment. *SANBI (South African National Biodiversity Institute) Biodiversity Series 10*. Pretoria: South African National Biodiversity Institute.

Axann, W. G. and Pearce, L. D., 2006. *Mixed method collection strategies: New perspectives on anthropological and social demography.* New York: Cambridge University Press.

Ayers, A. L. and Kittinger, J. N., 2014. Emergence of co-management governance for Hawaii coral reef fisheries*. Global Environmental Change*, 28, pp.251-262.

Badjeck, M. R., Allison, E. H., Halls, A. S. and Dulvy, N. K., 2010. Impacts of climate variability and change on fishery-based livelihoods. *Marine Policy*, 34, pp.375-383.

Bailey, D. J., 2000. South African perspectives on rights in fishing and implications for resources management. In: R. Shotton, Use of Property in Fisheries Management. Food and

Agriculture Organisation of the United Nations Fisheries Technical 404/2, *Fish Rights 99 Conference.* Fremantle, Western Australia, 11-19 November 1999. Workshop Presentations. Rome: The Food and Agriculture Organisation of the United Nations.

Bakarr, M. I., da Fonseca, G. A. B., Akhatova, A., Hume, A., Severin, C. H. and Shrestha, J., 2013. *Two decades of experience in the global environment facility: Investing in ecosystem services and adaptation for food security*. [e-book] Washington, DC: Global Environment Facility. Available at: Google Books <https://books.google.co.za/books?id=H56aAgAAQBAJ&printsec=frontcover&dq=Two+decades+of+experience+in+the+global+environment+facility:+Investing+in+ecosystem+services+and+adaptation+for+food+security&hl=en&sa=X&ved=0ahUKEwjLi_-6scLKAhUIKg4KHZ79C3cQ6AEIGzAA#v=onepage&q=Two%20decades%20of%20experience%20in%20the%20global%20environment%20facility%3A%20Investing%20in%20ecosystem%20services%20and%20adaptation%20for%20food%20security&f=false> [Accessed 1 May 2014].

Baland, J. M. and Platteau, J. P., 1999. The ambiguous impact of inequality on local resource management. *World Development,* 27(5), pp.773-788.

Banks, J. A., 2012. *Encyclopaedia of diversity in education*. Los Angeles: SAGE.

Banvick, M., Chuenpagdee, R., Diallo, M., van der Heyden, P., Kooiman, J., Mahom, R. and Williams, S., 2005. *Interactive fisheries governance: A guide to better practice.* Delft: Eburon Academic Publishers.

Banvick, M., Sowman, M. and Menon, A., 2014. Theorising participatory governance in contexts of legal pluralism - A conceptual reconnaissance of fishing conflicts and their resolutions. In: M. Banvick, L. Pellegrini and E. Mostert, eds. 2014. *Conflicts over natural resources in the global south - conceptual approaches.* Leiden: CRC Press and Balkema. pp.147-172.

Barbour, R., 2007. Introducing focus groups. In U. Flick, ed. *Doing focus groups: The SAGE qualitative research kit.* London: SAGE Publications Ltd. pp.1-14.

Barrow, E., Clarke, J., Grundy, I. and Jones, T.Y., 2002. Analysis of stakeholder power and responsibilities in community involvement in forest management in Eastern and Southern

Africa. Nairobi: International Union for Conservation of Nature and Natural Resources, Eastern African Regional Office.

Basson, J., 2011. Not all seafood is equal. *South African Journal of Science*, 17(5-6), pp.1-3.

Baumann, P. and Sinha, S., 2001. Linking development with democratic processes in India: Political capital and sustainable livelihoods analysis. *Natural Resources Perspectives*, 68, pp.1-4.

Baumann, P., 2002. Improving access to natural resources for the rural poor: A critical analysis of central concepts and emerging trends from a sustainable livelihoods perspective. *Livelihood Support Programme, Working Paper 1*. [online] Rome: The Food and Agriculture Organisation of the United Nations. Available at: <http://www.fao.org/docrep/006/ad683e/ad683e00.HTM> [Accessed 04 March 2013].

Beer, A. and Faulkner, D., 2014. How to use primary and secondary data. In: R. Stimson, ed. 2014. *Handbook of research methods and applications in spatially integrated social science*. Chelteham: Edward Elgar Publishing Limited. pp.192-209.

Bene, C. and Heck, S., 2005. Fish and food security in Africa. *NAGA, World Fish Center Quarterly,* 28(3), pp.8-13.

Bene, C. and Friend, R. M., 2011. Poverty in small-scale fisheries: old issues, new analysis. *Progress in Development Studies*, 11(2), pp.119-144.

Bene, C., 2013. Poverty in small-scale fisheries: a review and some further thoughts. In: A. E. Neiland and C. Bene, eds. 2013. *Poverty and small-scale fisheries in West Africa.* Dordrecht: Springer-Science and Business Media. pp.61-82.

Berkes, F. J., Colding, and C. Folke. 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecological Applications*, 10, pp.1251–1262.

Berkes, F. 2002. Social aspects of fisheries management. In: K.L. Cochrane, A fishery manager‟s guidebook. Management measures and their application. Food and Agricultural Organization. *Fisheries Technical Paper No 424*. Rome: Food and Agricultural Organization of United Nations. pp.52-74.

Berkes, F., 2004. Rethinking community-based conservation. *Conservation Biology*, 18(3), pp.621-630.

Berkes, F., 2009a. Review: Evolution of co-management: Role of knowledge generation bridging organisation and social learning. *Journal of Environmental Management*, 90, pp.1692-1702.

Berkes, F., 2009b. Social aspects of fisheries management. In: K.L. Cochrane and S. M. Garcia, 2009. A fishery manager‟s guidebook. 2nd ed. [pdf] Chichester: The Food and Agriculture Organisation of the United Nations (FAO) and Wiley-Blackwell. pp.52-74.. Available at: <http://www.fao.org/docrep/015/i0053e/i0053e.pdf> [Accessed 20 February 2013].

Bernard, P. and Khumalo, S., 2004. Community-based natural resource management, traditional governance and spiritual ecology in Southern Africa: The case of chiefs, diviners and spirit mediums. In: C. Fabricius, E. Koch, H. Magome, and S. Turner, eds. 2004. *Rights, Resources and Rural Development: Community-based Natural Resource Management in Southern Africa.* London: Earthscan. pp. 1-26.

Bertram, C. and Christiansen, I., 2014. *Understanding research: An introduction to reading research.* Pretoria: Van Schaik Publishers.

Bhattacharyya, D. K., 2006. *Research methodology*. 2nd ed. New Delhi: Anurag Jain for Excel Books.

Biggs, R. O., Rhode, C., Archibald, S., Kunene, L. M., Mutanga, S. S., Nkuna, N., Ocholla, P. O. and Phadima, L. J., 2015. Strategies for managing complex socio-ecological systems in the face of uncertainty: Examples from South Africa and beyond. *Ecology and Society,* 20(1), p.52.

Blackman, M. C. and Kvaska, C. A., 2011. *Nutrition psychology: Improving dietary adherence.* Sudbury: Jones and Bartlett Publishers.

Blankenship, D. C., 2010. *Applied research and evaluation methods in recreation*. United States: Library of Congress Cataloguing in Publication Data.

Blessing, L. T. M. and Chakrabarti, A., 2009. *A design research methodology*. London: Springer Verlag.

Blow, P. and Leonard, S. A., 2007. A review of cage aquaculture: sub-saharan Africa. In: M. Halwart, D. Soto and J. R. Aurthur. *Cage aquaculture: Regional reviews and global overview. FAO Fisheries Technical Paper 498*. [e-book] Rome: The Food and Agriculture Organisation of the United Nations. Available at: Google Books <https://books.google.co.za/books?hl=en&lr=&id=myCXhIIWeLoC&oi=fnd&pg=PP10&dq=Cage+aquaculture:+Regional+reviews+and+global+overview.&ots=E-HyB2PAF9&sig=Dbta1--tow77z0QejNzyMSYBMa4#v=onepage&q=Cage%20aquaculture%3A%20Regional%20reviews%20and%20global%20overview.&f=false> [Accessed 21 March 2012].

Blythe, J. L., Murray, G. and Flaherty, M., 2014. Strengthening threatened communities through adaptation: Insights from coastal Mozambique. *Ecology and Society*, 19(2), p.6.

Bohare, R. K., 1995. *Rural poverty and unemployment in India.* New Dehli: Northern Book Centre.

Bokea, C. and Ikiara, M. 200. *The macroeconomy of the export fishing industry in Lake Victoria (Kenya).* Socio-economics of the Lake Victoria Fisheries. [pdf] Available at: <https://portals.iucn.org/library/efiles/edocs/2000-059.pdf> [Accessed 6 April 2014].

Bongaarts, J., 2009. Human population growth and demographic transition. *Philosophical Transaction of the Royal Society,* 364, pp.2985-2990.

Bown, N. K., Gray, T. S. and Stead, S. M., 2013. Co-management and adaptive co-management: Two modes of governance in Honduran marine protected areas. *Marine Policy,* 39, pp.128-134.

Branch, G. M., Hauck, M., Siqwana-Ndulo, N. and Dye, A. H., 2002. Defining fishers in the South African context: Subsistence, artisanal and small-scale commercial sectors. *South African Journal of Marine Science*, 24, pp.475-487.

Branch, G. M. and Clark, B. M., 2006. Fish stocks and their management: The changing face of fisheries in South Africa. *Marine Policy*, 30, pp.13-17.

Branson, M., Leibbrandt, M. and Zuze, T. L., 2009. What are the benefits for tertiary education and who benefits? In: Cloete, N., 2009. *Responding to the educational needs of*

post-school youth: Determining the scope of the problem and developing a capacity-building model. Wyneberg: Centre for higher education transformation. pp.45-60.

Braun, M. and Saroar, M., 2012. Participatory action research on climate risk management, Bangladesh. *Studies and Reviews*, 2012-39. [pdf] Penang: World Fish. Available at: <http://pubs.iclarm.net/resource_centre/WF_3448.pdf> [16 December 2014].

Brewer, J. and Hunter, A., 2005. *Foundations of multi-method research.* Thousand Oaks: SAGE.

Brewer, K. 2008. *Some more applications and examples of research methods in Psychology*. Essex: Orsett Psychological Services.

Briassoulis, H., 2002. Sustainable tourism and the question of the commons. *Annals of Tourism Research,* 29(4), pp.1065-1085.

Britton, E., 2014. Ghost boats and human freight: The social wellbeing impacts of the salmon on Lough Foyle"s fishing communities. In: J. Urguhart, T. G. Acott, D. Symes and M. Zhao, eds. 2014. *Social issues in sustainable fisheries management. MARE Publication Series 9*. Dordrecht: Springer.

Brown, M. and Neku, R. J., 2005. A historical review of the South African social welfare system and social work practitioners" views on its current status. *International Social Work*, 48, pp.301-12.

Brummett, R. A., Lazard, J. and Moehl, J., 2008. African aquaculture: Realising the potential. *Food Policy,* 33, pp.371-385.

Bryman, A., 2012. *Social research methods*. 4th ed. Oxford: Oxford University Press Inc.

Bunting, S. N., 2013. *Principles of sustainable aquaculture: Promoting social, economic and environmental resilience.* London: Routledge and Taylors and Francis Group.

Burks, M. R., 2006. *Linking livelihoods and sustainable tourism for parks and people in Belize: Master of natural resource.* Virginia: Faculty of Virginia Polytechnic Institute and State University.

Burnley, C., Adriozola, P., Camardicea, J., Mugisha, S. and Mushabe, N., 2014. *Strengthening community roles in aquatic resource governance in Uganda, Program report,*

Collaborating for resilience. [pdf] Montpellier: Consultative Group for International Agricultural Research. <http://pubs.iclarm.net/resource_centre/Burnley.et.al.2014.Collaborating.for.resilience.Uganda.pdf> [Accessed 17 May 2014].

Camp, W. G., and Camp, B. H., 2009. *Managing our natural resources*. New York: Delmar CENGAGE Learning.

Cargan, L., 2007. *Doing Social Research*. Lanham, Maryland: Rowman and Little Field Publishers Inc.

Carlsson, L. and Berkes, F., 2005. Co-management: Concepts and methodological implications. *Journal of Environmental Management*, 75, pp.65-76.

Carney, D., 2002. *Sustainable livelihoods approaches: Progress and possibilities for change*. London: Department for International Development.

Castine, S. A., Sellamuttu, S. S., Cohen, P., Chandrabalan, D. and Philliphs, M., 2013. Increasing providing and improving livelihoods in aquatic agricultural systems: A review of Interventions. *Working Paper: AAS-2013-30*. Consultative Group for International Research: Research Program on Aquatic Agricultural Systems. [e-book] Penang: World Fish Center. Available at: Google Books <https://books.google.co.za/books?id=sQ-EBQAAQBAJ&pg=PA4&dq=Increasing+providing+and+improving+livelihoods+in+aquatic+agricultural+systems:+A+review+of+Interventions.%E2%80%9D&hl=en&sa=X&ved=0ahUKEwidzf_yt8LKAhVBcA8KHe1EDtkQ6AEIGzAA#v=onepage&q=Increasing%20providing%20and%20improving%20livelihoods%20in%20aquatic%20agricultural%20systems%3A%20A%20review%20of%20Interventions.%E2%80%9D&f=false> [Accessed 21 May 2014].

Catterall, M. and Maclaran, P., 2006. Focus groups in marketing research. In: R. W. Belk, ed. 2006. *Handbook of qualitative research methods in marketing*. Cheltenham: Edward Elgar Publishing Limited. pp.255-267.

Caulfield, L. and Hill, J., 2014. *Criminological research for beginners: A student"s guide.* Abingdon, Oxon: Routledge.

Cephas, M. and Bernard, C., 2012. Effective livelihood strategies in distressed environments: The Case of Mudzi District in Zimbabwe. *Current Research Journal of Social Sciences,* 4(5), pp.362-371.

Chakallal, B., Mahon, R., Mc Corney, P., Nurse, L. and Oderson, D., 2007. Governance of fisheries and other living marine resources in the Wider Caribbean. *Fisheries Resource*, 87, pp.92-99.

Chambers, R. and Conway, G., 1991. Sustainable rural livelihoods: Practical concepts for the 21st century. *IDS Discussion Paper 296*. [pdf] Brighton: Institute of Development Studies. Available at: Institute of Development Studies Website <http://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/775/Dp296.pdf?sequence=> [Accessed 04 May 2012].

Charles, A., 2011. Human rights and fishery rights in small-scale fisheries management. In: R. S. Pomeroy and N. Andrew, eds. 2011. *Small-scale fisheries management: Frameworks and approaches for the developing world.* Wallingford: Centre for Biosciences and Agriculture International. pp.59-74.

Chetty, A., 2014. Innovation and enterprise development: The case of the Ethekwini municipality. In: L. Worasinchai and V. Rubiere, eds. 2014. *Proceedings of the 2nd international conference on innovation and entreprenuership. The institute for knowledge and innovation, Southeast Asia.* Bangkok, Thailand, 6-7 February 2014. Reading: Academic Conference and Publishing International Limited.

Chikolu, B. C., 2016. Land reforms in South Africa: A review of progress and challenges. In: T. Lumumba-Kasongo, ed. 2016. *Land reforms and natural resource conflicts in Africa: New development paradigms in the era of global liberalisation.* New York: Routledge African Studies. pp.33-54.

Cinner, J. E., McClanahan, T. R. and Wamukota, A., 2010. Differences in livelihoods, socio-economic characteristics and knowledge about the sea between fishers and non-fishers living near and far from marine parks on the Kenyan coast. *Marine Policy*, 34, pp.22-28.

Clarke, J. and Grundy, I. M., 2004. The socio-economics of forest and woodland resource use: A hidden economy. In: M. J. Lawes, H. A. C. Eeley, C. M. Shackleton and B. G. S.

Geach, eds. 2004. *Indigenous forests and woodlands in South Africa: Policy, people and practice*. Pietermaritzburg: University of KwaZulu-Natal Press. pp.167-193.

Clark, B. and Heydorn, A., 2014. South Africa: Coastal-marine conservation and resource management in a dynamic socio-political environment. In: G. C. Ray and J. McCormick-Ray, eds. 2014. *Marine conservation: Science, policy and management*. Oxford: Wiley-Blackwell. no pp.

Cloke, P., Cook, I., Crang, P., Goodwin, M., Painter, J. and Philo, C., 2004. *Practising human geography.* London: SAGE Publications Ltd.

Cochrane, K. L., 2000. Reconciling sustainability, economic efficiency and equity in fisheries: The one that got away? *Fish and Fisheries*, 1, pp.3-21.

Cochrane, K. L., 2005. Fisheries management. In: K. L. Cochrane, ed. 2005. Fishery Manager‟s Guidebook. Management Measures and their Application. Food and Agricultural Organisation. *Fisheries Technical Paper No 424*. [e-book] Rome: The Food and Agriculture Organisation of the United Nations. . Available at: Google Books <https://books.google.co.za/books?id=htBkHph72mcC&printsec=frontcover&dq=Fishery+Manager%E2%80%99s+Guidebook.+Management+Measures+and+their+Application.+Food+and+Agricultural+Organisation.+Fisheries+Technical+Paper+No+424&hl=en&sa=X&ved=0ahUKEwjyn_6fv8LKAhXCgQ8KHXwtDToQ6AEILzAC#v=onepage&q&f=false> [Accessed 20 February 2012].

Cochrane, K. L. and Garcia, S. M., 2009. Introduction - Fisheries Management. In: K. L. ,Cochrane and S. M. Garcia. A fishery manager‟s guidebook. 2nd ed. [pdf] Chichester: The Food and Agriculture Organisation of the United Nations (FAO) and Wiley-Blackwell. pp.1-16. Available at: <http://www.fao.org/docrep/015/i0053e/i0053e.pdf> [Accessed 17 July 2013].

Colchester, M., 2004. Review: Conservation policy and indigenous peoples. *Environmental Science and Policy*, 7, pp.145-153.

Coombes, A. E., 2003. *History of Apartheid: Visual culture and public memory in democratic South Africa.* Durham: Duke University Press.

Cournoyer, B. R., 2014. *The social work skills workbook*. 7th ed. Belmoth: Brooks/Cole CENGAGE Learning.

Covington, P., 2008. *Success in sociology*. Haddenham: Frolens Publishers.

Craig-Smith, S.J., Tapper, R. and Font, X., 2006. The coastal and marine environment. In S. Gossling and C. M. Hall, eds. 2006. *Tourism and global environmental change: Ecological, social, economic and political interrelationships*. London: Routledge-Taylors and Francis Group.

Crawford, B., 2002. Seaweed farming: An alternative livelihoods for small-scale fisheries? *Working Paper*. [pdf] Narragansett: Coastal Resource Centre. Available at: <http://www.crc.uri.edu/download/Alt_Livelihood.pdf> [Accessed 30 June 2013].

Cundill, G. and Fabricius, C., 2009. Review: Monitoring in adaptive co-management: Toward learning a learning based approach. *Journal of Environmental Management*, 90, pp.3205-3211.

Curry, L. A., Nembhard, I. M. and Bradley, E. H., 2009. Key issues in outcomes research: Qualitative and mixed methods provide unique contributions to outcomes research. *Circulation*, 119, pp.1442-1452.

da Conceicao-Heldt, E., 2004. *The common fisheries policy in the European Union: A study in integrative distributive bargaining.* New York: Routledge.

DAFF (Department of Agriculture, Forestry and Fisheries), 2013. Marine recreational activity information brochure 2013/2014. Cape Town: Department of Agriculture, Forestry and Fisheries.

Dantzker, M. L. and Hunter, R. D., 2012. *Research methods: For criminology and criminal justice*. 3rd ed. Sudbury: Jones and Bartlett Learning.

Datta, S. K. and Sengupta, A. eds., 2014. *Development environment and sustainable livelihood.* Newcastle upon Tyne: Cambridge Scholars Publishing.

Davis, C., 2014. The aims of research. In: F. du Plooy-Cilliers, C. Davis, and R.M. Bezuidenhout, eds. 2014. *Research Matters*. Cape Town: Juta and Company Ltd. pp.72-81.

Davies, G. R., 2013. Appraising weak and strong sustainability: Searching for a middle ground. *Consilience: The journal of sustainable development*, 10(1), pp.111-124.

Davies, S., 1997. Livelihood adaptation. *Paper for workshop „Making livelihood work-women, men and children in Rajastan. Mimeo.* Date and place of draft unavailable. Brighton: Institute of Development Studies.

De Vaus, D., 2005. *Research design in social research*. London: SAGE Publications Ltd.

de Voe, M. R. and Hodges, C. E., 2002. Management of marine aquaculture: the sustainability challenge. In: R. R. Stickney, and J. P. McVey, eds. 2002. *Responsible marine aquaculture*. Wallingford: CABI Publishing.

DEAT (Department of Environmental Affairs and Tourism), 1997. *White Paper: A Marine Fisheries Policy for South Africa.* [online] Pretoria: Department of Environmental Affairs and Tourism. Available at: <http://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/3894/seafisheries.pdf?sequence=1> [Accessed 18 September 2012].

Defeo, O., McClanahan, T. R., and Castilla, J. C., 2007. A brief history of fisheries management with emphasis on societal participatory roles. In: T. R. McClanahan and J. C. Castilla, eds. 2007. *Fisheries Management: progress towards sustainability*. Oxford: Blackwell Publishing. pp. 3-21.

Defeo, O., Castrejon, M., Perez-Casteneda, R., Castilla, J. C., Gutierrez, N. L., Everton, T. E., and Folke, C., 2014. Co-management in Latin American small-scale shellfisheries: Assessment from long term case studies. *Fish and Fisheries*. pp.1-17.

Degnbol, P, Gislason, H., Hanna, S., Jentoft, S., Neilsen, J. R., Sverdrup-Jensen, S. and Wilson, D. C., 2006. Painting the poor with a hammer: Technical fixes in fisheries management. *Marine Policy*, 30, pp.534-543.

Demombynes, G. and Ozler, B., 2006. Crime and local inequality in South Africa. In: H. Bhorat, H. R. Kanbur, eds. 2006. *Poverty and policy in post-Apartheid South Africa*. Cape Town: Human science research council. pp. 288-296.

Desonie, D., 2008. *Our fragile planet-polar regions: Human impacts*. New York: Chelsea House Publishers.

DFID (Department for International Development), 1999. Sustainable livelihood guidance sheets, Number 2. [pdf]. London: Department for International Development. Available at:

<http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf> [Accessed 23 August 2012].

Dlamini, M., 2014. Mzi dies for selling crayfish. *Sunday Sun,* [online] 16 October 2014. Available at: <http://m24arg02.naspers.com/argief/berigte/dailysun/2014/10/17/6/DK%20He%20died%20for%20crayfish_32_0_84427286.html> [Accessed 10 March 2015].

DOE (Department of Energy), 2015. Petroleum price archives. [online]. Available at: <http://www.energy.gov.za/files/esources/petroleum/December2015/Basic-Fuel-Price.pdf> [Accessed 17 December 2015]

Donda, S., 2000. *Journey to sustainable fisheries management: Organisation and institutional limitations in fisheries co-management, the case of Lake Malome and Chiuta in Malawi*.[pdf] Oregon: International Institute for Fisheries Economics 2000 Proceedings. Available at: <https://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/30771/264.pdf?sequence=1> [Accessed 18 January 2014].

Dorondel, S., 2009. They should be killed: Forest restitution, ethnic groups and patronage in post-socialist Romania. In: D. Fay, and D. James, eds. 2009. *The rights and wrongs of land restitution: „Restoring what was ours*". New York: Routledge Cavendish. pp.43-66.

du Toit, D.C., 2011. Food Security. [pdf] Pretoria: Department of Agriculture, Forestry and Fisheries. Directorate Economic Services. Production Economics Unit. 1-22. Available at: <http://www.nda.agric.za/docs/genreports/foodsecurity.pdf> [13 February 2015].

Dukeshire, S. and Thurlow, J., 2002. Challenges and barriers to community participation in policy development. Rural Policy Working Group. [pdf] Halifax: Rural CommunitiesImpacting Policy Project. Available at: <http://www.ruralnovascotia.ca/documents/policy/challenges%20and%20barriers.pdf> [Accessed 16 September 2014].

Eales, K., 2011. Water services in South Africa 1994-2009. In: B. Schreiner and R. Hassan, eds. 2011. *Transforming water management in South Africa: Designing and implementing a new policy framework*. Dordrecht: Springer. pp.33-72.

Ehrich, S., Kloppman, M. H. F., Sell, A. F. and Bottcher, U., 2006. Distribution and assemblages of fish species in the German waters of North and Baltic seas and potential impact of wind parks. In: J. Koller, J. Koppel and W. Peters, eds. 2006. *Offshore wind energy: Research on environmental impacts.* Berlin: Springer-Verlag. pp.65-76.

Eldredge, E. A., 2011. Shaka‟s military expendition: Survival and mortality from Shaka‟s impis‟. In: P. S. Landua, ed. 2011. *The power of doubt: Essays in honor of David Henige.* Madison: Parallel/University of Wisconsin-Madison Libraries. pp.209-2039.

Eldredge, E. A., 2014. *The creation of the Zulu kingdom 1815-1828: War, Shaka and the consolidation of power.* New York: Cambridge University.

Engel, R. J. and Schutt, R. K., 2010. *Fundamentals of social work research.* California: SAGE Publications.

Entrikin, J. N., 1976. Contemporary humanism in Geography. *Annals of the Association of American Geographers, 66*(4), pp.615-32.

EPAP (Ecosystem Principles Advisory Panel), 1999. Ecosystem-Based Fishery Management. [pdf] Washington, DC: National Marine Fisheries Service. Available at: <http://www.nmfs.noaa.gov/sfa/EPAPrpt.pdf> [Accessed 20 June 2015].

eThekwini Municipality, 2013. Land use and the environment in tribal communities of the eThekwini municipality: Guideline document for tribal authorities. [pdf] Durban: Environmental Planning Climate Protection Department, Development Planning, Environment and Management Unit. Available at: <http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Publications/Documents/Amakhosi_Document_v4_PROOF.pdf> [Accessed on 11 November 2014].

Evans, L., Cherrett, N. and Pemsl, D., 2011. Assessing the impact of fisheries co-management interventions in developing countries: A meta-analysis. *Journal of Environmental Management.* pp.1-12.

Fabricius, C., 2004. The fundamentals of community-based natural resource management. In: C. Fabricius, E. Koch, H. Magome and S. Turner, eds. 2004. *Rights, resources and rural development: Community-based natural resource management in Southern Africa.* London: Earthscan, pp.3–43.

FAO (Food and Agriculture Organisation of the United Nations), 2006. Promoting literacy to improve livelihoods in fishing communities- Policies linking education to fisheries management. *New directions in fisheries-A Series of Policy on Developmental Issues, No 5*.[pdf] Rome: Food and Agriculture Organisation of the United Nations. Available at: <http://www.fao.org/3/a-a0610e.pdf> [Accessed 22 May 2013].

FAO (The Food and Agriculture Organisation of the United Nations), 2009. *The state of world fisheries and aquaculture* 2008.Rome: The Food and Agriculture Organisation of the United Nations. Available at: <http://www.fao.org/3/a-i0250e.pdf> [24 January 2013].

Farrington, J. Carney, D. Ashley, C. and Turton, C., 1999. Sustainable livelihoods in practice: Early applications of concepts in rural areas. *Overseas Development Institute Natural Resource Perspectives, 42.* [online] London: Overseas Development Institute. Available at: < http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2877.pdf> [Accessed 12 July 2013].

Farrington, J., Ramsut, T., Walker, J., 2002. Sustainable livelihoods approaches in urban areas: General lessons with illustrations from Indian cases. *Working Paper 162*.[pdf] London: Overseas Development Institute. Available at: http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2706.pdf [Accessed 22 February 2015].

Ferse, S. C. A., Manez-Costa, M., Manez, K. Z., Adhuri, D. S., Glaser, M., 2010. Allies, not aliens: Increasing the role of local communities in marine protected area implementation. *Environmental Conservation,* 37(1), pp.23-34.

Field, S., 2012. *Oral history, community, and displacement: Imagining memories in post-Apartheid South Africa*. New York: Palgrave Macmillan.

Fischer, A., Wakjira, D.T., Weldesemaet, Y. T. and Ashenati, Z. T., 2014. On the interplay of actors in the co-management of natural resources: A dynamic perspective. *World Development,* 64, pp.158-168.

Fleishman, R., 2006. Co-management as a solution to „Tragedy of the Common"? Lessons from Thai Fisheries. *Journal of Development and Social Transformation*. pp.13-25.

Flint, R. W., 2013. *Practice of sustainable community development: A participatory framework for change.* New York: Springer.

Fofana, N. B., 2010. Efficacy of micro-financial women‟s activities in Cote d‟Ivoire: Evidence from rural areas and HIV/AIDS affected women- African women leaders in agriculture and the environment. *AWLAE Series No. 8.* Wageningen: Wageningen Academic Publishers.

Freund, A., Llewellyn, K. R. and Reilly, N. eds., 2015. *The Canadian oral history reader.* Montreal: McGill-Queen‟s University Press.

Gagnon, Y. C., 2010. *The case study as research method: A practical handbook*. Quebec: Presses de l‟Universite‟ du Quebec.

Garcia, S. M., 2008. Fisheries assessment and decision making: Towards an integrated advisory process. In: G. Branch and H. R. Skjolda, eds. 2008. *The ecosystem approach to fisheries.* Wallingford and Rome: Centre for Biosciences and Agriculture International and Food and Agricultural Organisation of the United Nations. pp.158-196.

Garcia, S. M. and Rosenberg, A. A., 2010. Review: Food security and marine capture fisheries: Characteristics, trends, drivers and future perspectives. *Philosophical Transactions of the Royal Society B,* 365, pp.2869-2880.

Geheb, K., Kalloch,S., Medard, M., Nyaapendi, A.T., Lwenya, C. and Kyandwa, M., 2008. Nile perch and the hungry of Lake Victoria: Gender, status and food in an East African fishery. *Food Policy*, 33, pp.85-98.

Geoldner, C. R. and Richie, J. R. B., 2006. *Tourism, practices, philosophies*. 10th ed. Hoboken: John Wiley and Son.

Gezelius, S. S., 2008. The problem of implementing policies for sustainable fishing. In: S. S. Gezelius and J. Raakjaer, eds. 2008. *Reviews: Methods and technologies in fish biology and fisheries: Making fisheries management work: Implementation of policies for sustainable fishing.* Dordrecht: Springer. pp.1-26.

Ghosh, S., 2014. *Agriculture, human development and poverty: A study in Assam and Barak Valley.* New Delhi: Educreation Publishing.

Giuliani, A., 2007. *Developing markets for agro-biodiversity: Securing livelihoods in dry land areas.* London: Earthscan.

Glaeser, B., 2013. Linking partners in joint coastal management research: Strategies toward sustainability. In: G. Schenwerski and U. Schiewer, eds. 2013. *Baltic coastal ecosystems structure, function and coastal management*. [e-book] Berlin: Springer-Verlag. Available at: Google Books <https://books.google.co.za/books?id=wa6vBQAAQBAJ&printsec=frontcover&dq=Baltic+coastal+ecosystems+structure,+function+and+coastal+management&hl=en&sa=X&ved=0ahUKEwj4o4u7wrvKAhVHKA4KHdSkDEcQ6AEIJDAA#v=onepage&q=Baltic%20coastal%20ecosystems%20structure%2C%20function%20and%20coastal%20management&f=false> [Accessed 13 January 2014].

Glavovic, B. C., 2006. The evolution of coastal management in South Africa: Why blood is thicker than water. *Ocean and coastal management,* 49, pp.889-904.

Glavovic, B. C. and Boonzaier, S. 2007. Confronting coastal poverty: Building sustainable coastal livelihoods in South Africa. Ocean and Coastal Management, 50, pp.1-23.

Glavovic, B. C., 2008. Poverty and inequity at sea: Challenges for ecological economics. In: M. Patterson and B. Glavovic, eds. 2008. *Ecological economics of the oceans and coasts.* Cheltenham : Edward Elgar Publishing Limited. pp.244-268.

Goodwin, J., 2012. *SAGE secondary data analysis: Volume 1-4*. Los Angeles: SAGE.

Govorushko, S. M., 2012. *Natural processes and human impacts: Interactions between humanity and the environment*. Dordrecht: Springer.

Grafton, R. Q., Hilborn, R., Squires, D., Tait, M., Williams, M. eds., 2009. *Handbook of marine fisheries conservation and management.* Oxford: Oxford University Press.

Grafton, R. Q., Hanneson, R., Shallard, B., Sykes, D. and Terry. J., 2010a. The economics of allocation in tuna regional fisheries management organisation. In: R. Allen, J. Joseph and D. Squires, eds. 2010. *Conservation and management of transnational tuna fisheries*. Iowa: Wiley-Blackwell. pp.155-162.

Grafton, R. Q., Hilborn, R., Squires, D. and Williams, M. J., 2010b. Marine conservation and fisheries management: At the cross roads. In: R. Q. Grafton, R. Hilborn, D. Squires, M. Tait and M. J. Williams, eds. 2010. *Handbook of marine fisheries conservation and management.* New York: Oxford University Press Inc. pp. 3-19.

Grants, S. and Vilder, C., 2000. *Economics in context.* Oxford: Heinemann Educational Publishers.

Green, S., 2006. The impoverishment of a people: The aboriginal experience in Australia. In: K. Serr, eds. 2006. *Thinking about poverty*. Leichdart: The Federation Press. pp.118-130.

Greene, J. C., 2007. *Mixed methods in social inquiry*. San Francisco: Jossey-Bass.

Greene, J. C., 2008. Is mixed methods social inquiry a distinctive methodology. *Journal of Mixed Methods Research*, 2(1), pp.1-22.

Greene, K. T., 2010. Is it possible to overcome the „Tragedy of Ubuntu?" The journey of a black women"s economic empowerment group in South Africa. In: R. C. Marshal, ed. 2010. *Cooperation in economy and society.* Laham: AltaMira Press. pp.195-214.

Greer, D. and Harvey, B., 2004. *Blue genes: Showing and conserving the world"s aquatic biodiversity*. London: Earthscan and the International Development Research Centre.

Grover, V. I. and Krantzberg, G. eds., 2013. Co-management: Principles and complexities. In: V. I. Grover and G. Krantzberg, eds. 2013. *Water co-management.* Boca Raton: CRC Press. pp.1-15.

Guillou, M. and Mathenon, G., 2011. *The world"s challenge: Feeding 9 billion people*. Heidelberg: Springer.

Gulbrandsen, L. H., 2010. *Transnational environmental governance: The emergence and effects of the certification of forests and fisheries.* Cheltenham: Edward Elgar Publishing Limited.

Gutierrez-Montes, I., Emery, M. and Fernandez-Baca, E., 2009. The sustainable livelihoods approach and the community capitals framework: The importance of systemic approaches to community change efforts. *Community Development: The Journal of Community Development Society,* 40, pp.106-113.

Guyot, S., 2002. Spatial competition and new governance framework in Mabibi (Maputaland): Implications for development. *The Geographical Journal,* 168(11), pp.18-32

Hachigonta, S., Nelson, G. C., Thomas, T. S. and Sibanda, L. M., 2013. Overview. In: S. Hachigonta, G. C. Nelson, T. S. Thomas and L. M. Sibanda, eds. 2013. *Southern African*

agriculture and climate change: A comprehensive analysis. Washington, DC: International Food Policy Research Institute. pp.1-24.

Hackett, S. C., 2011. *Environmental and natural resources economics: Theory, policy and the sustainable society.* 4th ed. New York: M. E. Sharpe Inc.

Hair, J. F., Celsi, M. N., Money, A. H., Samouel, P. and Page, M. J., 2011. *Essentials of business research methods*. 2nd ed. New York: M.E. Sharpe Inc.

Halberg, N. and Muller, A., 2014. Organic agriculture for sustainable livelihoods. *Landscape Ecology,* 29, pp.1821-1823.

Hall, A., 2012. REDD Gold in Latin America: Blessing or curse? In: H. Haarstad, ed. 2012. *New political spaces in Latin American natural resource governance.* New York: Palgrave Macmillan. pp.61-82.

Hall, G. M., 2011. Introduction: Challenges to the fish-processing industry in resource-starved world. In: G. M. Hall, ed. Year. *Fish processing: Sustainability and new opportunities*. [e-book] Chichester: Wiley- Blackwell. No pp. Available at: Google Books <https://books.google.co.za/books?id=3t4SSWvwC9wC&printsec=frontcover&dq=Fish+processing:+Sustainability+and+new+opportunities.&hl=en&sa=X&ved=0ahUKEwj9wPPmksPKAhXBGA8KHc-KCfwQ6AEIJDAA#v=onepage&q=Fish%20processing%3A%20Sustainability%20and%20new%20opportunities.&f=false> [Accessed 05 June 2015].

Hamilton, M., 2012. Perceptions of fishers towards marine protected areas in Cambodia and the Philippines. *Bioscience Horizons,* 5, pp.1-24.

Hanninen, J.K., 2014. Livelihood space of an indigenous tribe: Gaddi community and its livelihood strategies. In: R. B. Singh and R. Hietala, eds. 2014. *Livelihood security in Northwestern Himalaya: Case studies from changing socio-economic environments in Himachal Pradesh, India.* Tokyo: Springer. pp. 221-238.

Hara, M., De Wit, M., Crookes, D. and Jayiya, T., 2008. Socio-economic contribution of South African fisheries and their current legal policy and management frameworks. *Working Paper 6*. [pdf] Bellvile: Institute for Poverty, Land and Agrarian Studies. Available at: <http://www.plaas.org.za/plaas-publication/wp-6> [Accessed 03 July 2014].

Hara, M., Donda, S.and Njaya, F., 2015. Lessons from existing modes of governance in Malawi‟s small-scale fisheries. In: S. Jentoft and R. Chueenpadgee, eds. 2015. *Interactive governance for small-scale fisheries: Global reflections.* Cham: Springer. pp135-156..

Hardin, G., 1968. The tragedy of the commons. *Science,* 162, pp.1243-1248.

Harris, J. M., 2001. Agriculture and renewable resources: Overview essay. In: J. M. Harris, T. Wise, K. Gallagher and N. R. Goodwin, eds. 2001. *A survey of sustainable development: Social and economic dimensions.* Washington, DC: Island Press. pp.155-167.

Harris, J., Branch, G., Sibiya, C. and Bill, C., 2003. The Sokhulu subsistence mussel-harvesting project co-management in action. In: M. Hauck and M. Sowman, eds. 2003. *Waves of change: Coastal and fisheries co-management in South Africa.* Lansdowne: University of Cape Town Press. pp.61-98.

Harris, J. M., Branch, G. M., Clark, B. M. and Sibiya, C., 2007. Redressing access inequalities and implementing formal management systems for marine and estuarine subsistence fisheries in South Africa. In: T. R. McClanahan and J. C. Castilla, eds. 2007. *Fisheries management: Progress towards sustainability*. Oxford: Blackwell Publishing. pp. 112-128.

Harrison, B. C., 2011. *Power and society: An introduction to the social science*. Boston, MA: Wadsworth, CENGAGE Learning.

Hauck, M. and Sowman, M., 2001. Coastal and fisheries co-management in South Africa: An overview and analysis. *Marine Policy*, 25, pp.173-185.

Hauck, M., Sowman, M., Russell, E., Clark, B. M., Harris, J. M., Venter, A., Beaumont, J. and Maseko, Z., 2002. Perceptions of subsistence and informal fishers in South Africa regarding the management of living marine resources. *South African Journal of Marine Science,* 24(1), pp.463-474.

Hauck, M. and Sowman, M. ed., 2003. Introduction. In: M. Hauck and M. Sowman, eds. 2003. *Waves of change: Coastal and fisheries co-management in Southern Africa.* Lansdowne: University of Cape Town Press. pp.1-12.

Hauck, M., and Kroese, M., 2006. Fisheries compliance in South Africa: A decade of challenges and reform 1994–2004. *Marine Policy*, 30(1), pp.74-83.

Hauck, M., 2008. Rethinking small-scale fisheries compliance. *Marine Policy*, 32, pp.635-642.

Heal, G., 2000. *Nature and the market place: Capturing the value of ecosystem services.* Washington, DC: Island Press.

Hermans, L. M., Cunningham, S. and Slinger, J. H., 2013. Adaptive co-management and learning: Developments in coastal management in the Netherlands from 1985 to 2010. In: V. I. Grover and G. Krantzberg, eds. 2013. *Water co-management*. Boca Raton: CRC Press. pp.266-291.

Hersoug, B. and Holm, P., 2000. Change without redistribution: An institutional perspective on South Africa‟s new fisheries policy. *Marine Policy*, 24, pp.221-231.

Hesse-Biber, S. N., 2010. *Mixed methods research*. New York: Guilford Publications Inc.

Hilborn, R. and Ovando, D., 2014. Reflections on the success of traditional fisheries management. *ICES Journal Marine Science,* 71(5), pp.1040-1046.

Hilborn, R. and Walters, C. J., 2013. *Quantitative fisheries stock assessment: Choice dynamics and uncertainty.* Dordrecht: Springer Science and Business Media.

Hishamunda, N. and Manning, P., 2002. Promotions of sustainable commercial aquaculture in sub-Saharan Africa. Volume 2: Investment and economic feasibility. *Food and Agriculture Organisation of the United Nations, Fisheries Technical Paper, 408(2).* [pdf] Rome: Institute for Poverty, Land and Agrarian Studies. Available at: <http://www.fao.org/3/a-x9894e/> [Accessed 22 September 2013].

Houston, G. F. and Mbele, T., 2011. *KwaZulu-Natal history of traditional leadership project*. Durban: Human Science Research Council.

Hutton, T. and Pitcher, T. J., 1998. Current directions in fisheries management policy: A perspective on co-management and its application to South African fisheries. *South African Journal of Marine Science,* 19(1), pp.471-486.

Ihuah, P. W. and Eaton, D., 2013. The pragmatic research approach: A framework for sustainable management of public estates in Nigeria. *Journal of US-China Public Administration,* 10(10), pp.933-944.

Ireland, C., Malleret, D. and Barker, L., 2004. *Alternative sustainable livelihoods for coastal communities: A review of experience and guide to best practice.* Conservation of Coastal and Marine Biodiversity in the Western Indian Ocean. [online] Nairobi: International Union for Conservation of Nature Eastern Africa Regional Programme. Available at International Union for Conservation of Nature Website: <https://portals.iucn.org/library/sites/library/files/documents/IUCN-2004-117.pdf> [Accessed 10 February 2012].

Isaacs, M., 2006. A social coastal fisheries policy for South Africa? Subsistence fisheries co-management for sustainable livelihoods and poverty alleviation. Policy brief: Debating land reform. *Natural Resources and Poverty,* 24, pp.1-8.

Isaacs, M., Hara, M., Raakjaer, J., 2007. Has reforming South African fisheries contributed to wealth distribution and poverty alleviation? Ocean and Coastal Management, 50, pp.301-313.

Isaacs, M., 2011. Governance reforms to develop a small-scale fisheries policy for South Africa. In: R. Chuenpagdee, ed. 2011. *World small-scale fisheries contemporary visions.* Delft: Eburon Academic Publishers. pp.221-234.

Isaacs, M. and Gervasio, H., 2011. The dualistic nature of fisheries and policy responses in Mozambique and South Africa: Small-scale fisheries, poverty and policies. In: L. Masters and E. Kisiangani, eds. 2011. *Natural resources governance in Southern Africa.* Pretoria and Braamfontein: Institute of South Africa and Institute for Global Dialogue. pp.37-60.

Isaacs, M., 2013. Small-scale fisheries governance and understanding the snoek (*Thyyrsites atun*) supply chain in the ocean view fishing community, Western Cape, South Africa. *Ecology and Society,* 18(4), 17, pp.1-10.

Islam, M. M. and Chuenpadgee, R., 2013. Negotiating risk and poverty in mangrove fishing communities of Bangladesh Sundarbans. *Maritime Studies*, 12, p.7.

Ivankova, N. V., 2014. *Mixed methods applications in action research: From methods to community action.* Thousand Oaks: SAGE Publications Inc.

Iwasaki, S. and Shaw, R., 2010. Integrated climate change adaptation in Chilika Lagoon fishiries, India. In: R. Shaw, J.M. Pulhin and J.J. Pereira, eds. 2010. *Climate change adaptation and disaster risk reduction: An Asian perspective. Community environment and disaster risk management, 5.* Bingley. Emerald. pp.81-104.

Jackson, J. and Robinson, R., 2009. The movement against Apartheid. In: M. Maiable and L. Mullings, eds. 2009. *Let nobody turn us around: Voices of resistance, reform and renewal: An African American anthology*. 2nd ed. Lanham: Rowman and Littlefield Publisher Inc. pp.529-534.

Jamie, D. and Betchel, J. D., 2010. *Gender, poverty and the conservation of biodiversity: A review of issues and opportunities.* Chicago: Mac-Arthur Foundation Conservation White Paper Series.

Janssen, R., Joubert, A. R. and Stewart, T. J., 2014. Allocation of fishing rights to support local fishers in South Africa‟s Western Cape. In: E. Y. Mohammed, ed. 2014. *Economic incentives for marine and coastal conservation: Prospects, challenges and policy implications*. Oxon: Routledge. pp.120-135.

Jentoft, S. 1989. Fisheries Co-Management: Delegating Responsibility to Fishers‟s Organisations. *Marine Policy.* 13(2): pp.137-54.

Jentoft, S., 2007. Limits of governability: Institutional implications for fisheries and coastal government. *Marine Policy*.31(4): pp.360-370.

Jentoft, S. and Midre, G., 2011. The Meaning of poverty: Conceptual issues in small-scale fisheries research. In: S. Jentoft and A. Eide, eds. 2011. *Poverty mosaics: Realities and prospects in small-scale fisheries*. Dordrecht: Springer. pp.43-70.

Jepson, P. and Ladle, R., 2012. *Conservation: A beginner's guide*. Oxford: One World Publications.

Jepson, M. and Colburn, L. L., 2013. Development of social indicators of fishing community vulnerability and resilience in the U.S, South East and North East regions. *United States of America Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum, NMFS-F/SPO-129*. [online] Available at: <http://sero.nmfs.noaa.gov/sustainable_fisheries/social/documents/pdfs/communities/2013/vulnerability_resilience_social_indicators.pdf> [3 May 2014].

Johnson, J. M., 2001. In-depth interviewing. In: J. F. Gubrium and J. A. Holstein, eds. 2001. *Handbook of interview research: Context and method*. [e-book] California: SAGE Publications Inc. Available at : Google Books <https://books.google.co.za/books?id=N5leBAAAQBAJ&printsec=frontcover&dq=Handbook+of+interview+research&hl=en&sa=X&ved=0ahUKEwimsbSBp73KAhVC_Q4KHQbJC_MQ6AEIGzAA#v=onepage&q=Handbook%20of%20interview%20research&f=false> [Accessed 4 April 2015].

Johnston, R. and Sidaway, J., 2004. *Geography and Geographers - Anglo-American Geography since 1945.* London: Hodder Arnold.

Johnson, R. B., Onwuegbuzie, A.J., Turner, L. A., 2007. Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, 1, pp.112-133.

Johnson, R. B. and Christensen, L. 2013. *Educational research: Quantitative, qualitative and mixed approaches.* 5th ed. Thousand Oaks, California: SAGE Publications Inc.

Jury, M. R., Nyathikazi, N., Bulfoni, E., 2008. Review: Sustainable agricultural for a community in a nature reserve on the Maputaland coast of South Africa. *Scientific Research and Essay,* 3(9), pp.376-382.

Kabonesa, C. and Kindi, F. I., 2013. Effects of climate change and variability on pastoral communities: Coping and adaptive strategies for women and men in Uganda. In: M. M. Mulinga and M. Getu, M. eds. 2013. *Impacts of climate change and variability on pastoralist women in Sub-Saharan Africa.* Kampala: Fountain Publishers. pp.223-264.

Kalanda-Sabola, M. D., Henry, E. M. T., Kayambazinthu, E. and Wilson, J., 2007. Use of indigenous knowledge and traditional practices in fisheries management: A case of Chisi Island, Lake Chilwa, Zomba. *Malawi Journal of Science and Technology*, 8, pp.009-029.

Kangas, M., Sporer, E., O'Donoghue, S. and Hood, S., 2008. Co-management in the Exmouth Gulf prawn fishery with comparison to the Shark Bay prawn fishery. In: R. Townsend, R. Shotton and H. Uchda, eds. 2008. *Case Studies in Fisheries Self-governance*. Food and Agriculture Organisation for United Nations, Fisheries Technical Paper. No 504. [pdf] Rome: Food and Agriculture Organisation for United Nations. Available at: Food and Agriculture Organisation for United Nations Website <http://www.fao.org/docrep/010/a1497e/a1497e00.htm> [11 May 2013].

Kapfudzaruwa, F. and Sowman, M., 2009. Is there a role for traditional governance systems in South Africa"s new water management region? *Water South Africa (SA)*, 35(5), pp.683-692.

Karanja, D. D., 2010. Securing Africa"s food security: Current constraints and future options. In: J. Mangala, ed. 2010. *New security threats and crises in Africa*. New York: Pelgrave Macmillan. pp.111-128.

Kashorte, M., 2003. *Moving subsistence fisheries to commercial fisheries in South Africa*. [pdf] Reykjavik: The United Nations University-Fisheries Training Program. Available at: <http://www.unuftp.is/static/fellows/document/marisaprf03.pdf> [Accessed 08 August 2012].

Kawarazuka, N. and Bene, C., 2010. Linking small-scale fisheries and aquaculture to household nutritional security: An overview. *Food Security,* 2, pp.343-347.

Kawarazuka, N., 2010. The contribution of fish intake, aquaculture, and small-scale fisheries to improving nutrition: A literature review. *World Fish Center Working Paper, No. 2106.* [pdf] Penang: World Fish Center. Available at: <http://pubs.iclarm.net/resource_centre/WF_2590.pdf> [Accessed 02 February 2014].

Keele, R., 2011. *Nursing research and evidence based practice: Ten steps to success*. Sudbury: Jones and Bartlett Learning.

Keledjian, A., Brogan, G., Lowell, B., Warrenchuk, J., Eritickmap, B., Shester, G., Hirshfield, M. and Cano-Stocco, D., 2014. *Wasted catch: Unsolved problems in U.S. fisheries*.[pdf] Washington, DC: Oceana. Available at: <http://oceana.org/sites/default/files/reports/Bycatch_Report_FINAL.pdf> [Accessed 11 September 2015].

Kessy, F. 2005. *Rural income dynamics in Kagera Region, Tanzania*. Prepared for World Bank. [pdf] Dar es Salaam: Economic and Social Research Foundation. Available at: <http://edi-global.com/docs/Kessy%202004,%20full%20report.pdf> [Accessed 24 October 2013].

Kettunen, M. and D"amato, D., 2013. Appreciating the value of supporting services. In: M. Kettunen and ten P. Brink, eds. 2013. *Social and economic benefits of protected areas: An assessment guide.* Abingdon: Routledge. pp.212-225.

Kher, A., 2008. Review of social science literature on risk and vulnerability to HIV/AIDS in fishing communities in sub-Saharan Africa: Regional program fisheries and HIV/AIDS in Africa: Investing in sustainable solutions. *The World Fish Center, Project Report 1966*. [pdf] Penang: World Fish Center. Available at: <http://pubs.iclarm.net/resource_centre/WF_2519.pdf > [Accessed 6 May 2012].

King, K. and Palmer, R., 2007. *Skills development and poverty reduction: A state of the art review.* Turin: European Training Forum.

King, M., 2013. *Fisheries biology, assessment and management*. 2nd ed. Oxford: Blackwell Publishing.

Kishore, R., Clarke-Marshall, M., Ramsundar, H., de Souza, G., Haylock, H. and Finlay, J., 2006. Political organisation and socioeconomics of fishing communities of Trinidad and Tobago, Belize and Grenada. In: Y. Breton, D. Brown, B. Dawy, D. M. Haughton and L. P. Ovaris, eds. 2006. *Coastal resource management in the wider Caribbean: Resilience, adaptation and community diversity.* Kingston: Ian Randla Publishers. pp. 191-222.

Kitchin, R. and Tate, N. J., 2013. *Conducting research in Human Geography: Theory, methodology and practice.* Oxon: Routledge.

Kleih, U., Alam, K., Dastidar, R., Duttah,U., Oudwater, N. and Ward, A., 2003a. Livelihoods in coastal fishing communities and the marine fishing market system of Bangladesh: Synthesis of participatory rural appraisals of six villages and assessment of the marketing system. *Report of Project „Fish Distribution from Coastal Communities –Market and Credit Access Issues. NRI Report No 2712, Project A1004.* Place of publication and publisher unavailable. Available at: <http://r4d.dfid.gov.uk/PDF/Outputs/R7969a.pdf> [Accessed 4 April 2013].

Kleih, U., Greenhalgh, P. and Oudwater, N., 2003b. *A guide to the analysis of fish marketing systems using a combination of sub-sector analysis and the sustainable livelihoods approach*. [pdf] Chatham: Natural Resources Institute. Available at: <http://projects.nri.org/fishtrade/fishmarketingguide.pdf> [Accessed 10 December 2013].

Klenke, K., 2008. *Qualitative research in the study of leadership*. Bingley: Emerald Group Publishing Limited.

Kolkman, H., 2006. Inequity and strife in community based natural resource management. In: M. Spierenburg and H. Wels, eds. 2006. *Culture organisation and management in South Africa*. New York: Nova Science Publishing. pp109-134.

Kollmair, M. and Juli, S., 2002. *The sustainable livelihoods approach. Development study group*. Aeschiried: Development Study Group, University of Zurich (IP6).

Kothari, C. R., 2004. *Research methodology- methods and techniques.* 2nd ed. New Delhi: New Age International Publishers (Pty) Ltd.

Kreike, E., 2013. *Environmental infrastructure in African history: Examining the myth of natural resource management in Namibia.* New York: Cambridge University Press.

Kuntjoro, I. A., 2013. Climate security and development in Southeast Asia: The limits of UNESCAP"s Green Growth approach. In: L. Elliot and M. Caballero-Anthony, eds. 2013. *Human security and climate change in Southeast Asia: Managing risk and resilience.* Abingdon: Routledge. pp.112- 130.

Kwashimbisa, M. and Puskur, R., 2014. Gender situational analysis of Barotse floodplain Penang, Malaysia. *Consultative Group for International Agricultural Research (CGIAR) Research Program in Auqatic Agricultural Systems, Program Report: AAS-2014-43*. [pdf] Montpellier: Consultative Group for International Agricultural Research. Available at: <http://pubs.iclarm.net/resource_centre/AAS-2014-43.pdf> [Accessed 20 May 2015].

Kyle, R. 1999. Gill-netting in nature reserves: a case study from the Kosi Lakes. *South Africa. Biological Conservation,* [e-journal] 88, pp.183–192. Available through: Web of Science <http://apps.webofknowledge.com/InboundService.do?UT=WOS%3A000078342900005&IsProductCode=Yes&mode=FullRecord&product=WOS&SID=P17BT4fQxVGECQ8L4tl&smartRedirect=yes&SrcApp=literatum&DestFail=http%3A%2F%2Fwww.webofknowledge.com%3FDestApp%3DCEL%26DestParams%3D%253Faction%253Dretrieve%2526mode%253DFullRecord%2526product%253DCEL%2526UT%253DWOS%253A000078342900005%2526customersID%253Datyponcel%26e%3DPnaVgHcAN2DMCyt3kHSjAe5toMrAQiZHkIFDn0.axX2BtatEhiDh.wFxmCrA87Pt%26SrcApp%3Dliteratum%26SrcAuth%3Datyponcel&action=retrieve&Init=Yes&SrcAuth=atyponcel&Func=Frame&customersID=atyponcel> [Accessed 23 September 2012].

Landon, W., 2010. *Up from the ashes: A personal journey through a fallen world*. New York: Universe Inc.

Landridge, R., Christian-Smith, J., Lohse, K. A., 2006. Access and resilience: Analysing construction of social resilience to the threat of water scarcity. *Ecology and Society*, 11(2), p.18.

Lawson, E. T., Gordon, C., Schluchter, W., 2012. The dynamics of poverty-environment linkages in the coastal zone of Ghana. *Ocean and Management*, 67, pp.30-38.

Leach, M, Mearns, R and Scoones, I., 1999. Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development*, 27(2), pp.252-247.

Leselink, N. M., 2002. Participation in artisanal fisheries management for improved livelihoods in West Africa: A synthesis of interviews and cases from Mauritania, Senegal, Guinea and Ghana. *Food and Agriculture Organisation of the United Nations Fisheries Technical Paper 432*. [pdf] Rome: The Food and Agriculture Organisation of the United Nations. Available at: Food and Agriculture Organisation of the United Nations <http://www.fao.org/docrep/005/y4281e/y4281e00.htm> [Accessed 3 October 2012].

Levin, P. S., Fogarty, M. J., Murawski, S. A. and Fluharty, D., 2009. Integrated ecosystem assessments: Developing the scientific basis for ecosystem-based management of the ocean. *PLOS (The Public Library of Science) Biology*, 7(1), pp.23-28.

Lewins, R., 2004. The sustainable livelihoods approach: The importance of policies, institution and process. In: A. E. Neiland and C. Bene, eds. 2004. *Poverty and small-scale fisheries in West Africa.* Dordrecht: Springer Science and Business Media. pp.37-46.

Ley, D., 1977. Social Geography and the taken for granted world. *Transactions of the Institute of British Geographers, New Series,* 2(3), pp.498-512.

Liamputtong, P., 2011. *Focus group methodology principle and practice.* London: SAGE Publications Ltd.

Link, J. S., 2002. What does ecosystem based management mean? *Fisheries,* 27(4), pp.18-21.

Link, J. S., 2010. *Ecosystem-based fisheries management: Confronting trade-offs*. New York: Cambridge University Press.

Litosseleti, L., 2003. *Using focus groups in research*. London: Continuum.

Lodico, M. G., Spaulding, D. T. and Voegtle, K. H., 2010. *Methods in educational research: From theory to practice.* San Francisco: Jossey-Bass.

Lorenzen, K., Smith, L., Khoa, S. N., Burton, M. and Garaway, C., 2007. *Guidance manual: Management of impacts of irrigation development on fisheries.* Colombo: International Water Management Institute.

Lund, C., 2012. Access to property and citizenship: Marginalisation a context of legal pluralism. In: B. Z. Tamanaha, C. Sage and M. Woodcock, eds. 2012. *Legal pluralism and development: Scholars and practitioners dialogue*. Cambridge: Cambridge University Press. pp.197- 214.

Machena, C. and Moehl, J., 2001. African Aquaculture: A Regional Summary with Emphasis on Sub-Saharan Africa. [online] Available at: <http://www.fao.org/docrep/003/ab412e/ab412e21.htm> [Accessed 3 March 2014].

Madzudzo, E., Mulanda, A., Nagoli, J., Lunda, J. and Ratner, B. D., 2013. *A governance analysis of Barotse floodplain system, Zambia: Identifying obstacles and opportunities*. Consortium of International Agricultural Research Program on Aquatic Agricultural Systems, Penang, Malyasia. Project report: AAS-2013-26. [pdf] Montpellier: Consultative Group for International Agricultural Research. Available at: <http://pubs.iclarm.net/resource_centre/AAS-2013-26.pdf> [Accessed 12 April 2014].

Malak, D. A., Livingstone, S. R., Pollard, D., Polidoro, B. A., Bariche, M., Bilecemagu, M., Carpenter, K. E., Collete, B. B., Francois, P., Goren, M., Kara, M. H., Massuti, E., Papaconstantinou, C. and Tunesi, L., 2011. *Overview of the conservation status of the marine fishes of the Mediterranean Sea*. Malaga: International Union for Conservation of Nature . Available at: <http://www.greenpeace.org/turkey/PageFiles/293261/IUCN-red-list.pdf> [Accessed 1 November 2014].

Mann, B. Q., 2013. Southern African marine line fish species profiles. *Oceanographic Research Institute. Special Publication No 9.* Durban: South African Association for Marine Biological Research.

Mansfield, B., M., 2011. “Modern” industrial fisheries and the crisis of overfishing. In: R. Peet, P. Robbins, P. and M.J. Watts, eds. 2011. *Global Political Ecology.* London: Routledge, Taylors and Francis Group. pp.84-99.

Masina, E. M., 2006. *Zulu perceptions and reactions to the British occupation of land in Natal Colony and Zululand, 1850-1887: A recapitulation based on surviving oral and written sources.* Doctor of Philosophy. University of Zululand.

Matthews, E., Betchel, J., Britton, E., Morrison, K. and McClennen, C., 2012. *A gender perspective on securing livelihoods and nutrition in fish-dependent coastal communities*. New York: Rockefeller Foundation from Wildlife Conservation Society

Mbatha, N. P., 2011. *Sharing benefits from coastal resources with rural communities in South Africa: The influence of institutional arrangements.* Master of Social Science in Environmental and Geographical Science. University of Cape Town.

McClanahan, T. R. and Castilla, J. C., 2007. Healing fisheries. In: T. R. McClanahan and J. C. Castilla, eds. 2007. *Fisheries management: Progress towards sustainability*. Oxford: Blackwell Publishing. pp.305-327..

McDonald, L., 2014. Coconut trees in a cyclone: Vulnerability and resilience in a Melanesian context. In: S. Feeny, ed. 2014. *Household vulnerability and resilience to economic shocks: Findings from Melanesia*. Farnham: Ashgate Publishing Limited. pp.23-42.

McLean, B. and Glazewisk, N. D., 2009. Marine Systems. In: A. Strydom and N.D. King eds. 2009. *Environmental management in South Africa*. 2nd ed. Cape Town: JUTA Law. pp. 455-512.

McPhee, D., 2008. *Fisheries management in Australia*. Leichhardt: The Federation Press.

MDT (Masifundise Development Trust). 2011. *Transformation and development in the fishing industry. Submission to the portifolio committee on agriculture and fisheries*. Cape Town: Masifundise Development Trust.

Menon, A., Singh, P., Shah, E. Lele, S., Paranjape, S. and Joy, K. J. eds., 2007. *Community-based natural resource management-issues and cases from South Asia*. Los Angeles: SAGE Publications.

Merino, G., Barange, M., Blanchard, J. L., Harle, J., Holmes, R., Allen, I., Allison, E. H., Badjeck, M. C., Dulvy, N.K., Holt, J., Jennings, S., Mullon, C. and Rodwell, L. D., 2012. Can marine fisheries and aquaculture meet fish demand from a growing human population in a changing climate? *Global Environmental Change*, 22(4), pp.795–806.

Michel, D. and Pandya, A. eds., 2009. *Troubled waters: Climate change, hydropolitics, and transboundary resources.* Washington, DC: Henry L. Stimson Center.

Mihyo, P. B., 2005. Local governance and rural poverty in Africa. In: M. Spoor, ed. 2005. *Globalisation, poverty and conflict: A critical „development" reader*. Dordrecht: Kluwer Academic Publishers. pp.154-176.

Milne, L., 2014. The gender development index and gender empowerment measure: An analysis of strengths and limitations in the context of South Africa. In: C. Foster, 2014. *The Undercurrent Journal, The Canadian Undergraduate Journal of Development Studies,* X(11), pp.29-41.

Mitchell, T., Sabates-Wheeler, R., Devereux, S., Tanner, T., Davies, M. and Leavy, J., 2008. *Rural disaster risk-poverty interface. Global assessment report on disaster reduction.* Sussex: Institute of Development Studies, University of Sussex.

Mitchell, M. L. and Jolley, J. M., 2010. *Research design explained*. 7th ed. Belmont, California: CENGAGE Learning.

MLRA (Marine Living Resources Act),1998. *No. 18 of 18 Marine Living Resources Act, 395 (747).* Cape Town: Department of Environmental Affairs and Tourism.

Moconachie, R., 2007. *Urban growth and land degradation in developing cities: Changes and challenges in Kario, Nigeria.* Aldershot: Ashgate Publishing Limited.

Monteiro, P. V. and Saldavor, R., 2014. Main challenges facing the aquaculture sector: From a worldwide insight to a regional perspective. In: C. G. Soares and T. A. Santos, eds. 2014. *Maritime technology and engineering*. Leiden: CRC Press/Balkema: pp. 165-176.

Muijs, D., 2011. *Doing quantitative research in education with SPSS*. 2nd ed. London: SAGE Publications Ltd.

Munroe, T. A., 2015. Tropical flatfish fisheries. In: R. N. Gibson, R. D. M. Nash, A. J. Geffen and H. W. van der Veer, eds. 2015. *Flatfishes: Biology and exploitation*. 2nd ed. Oxford: Wiley-Blackwell. pp.180-199.

Mwangi, M. H. 2008. Aquaculture in Kenya: Status challenges and opportunities. [online] Available at: <http://www.researchintouse.com/resources/ext/08aquaculture-dev-m-mwanbi.pdf> [Accessed 5 October 2014].

Nag, A., 2008. *Textbook of agricultural biotechnology*. New Dehli: PHI Learning Private Limited.

Nagar, S. and Bhatia, J., 2010. Climate change and agriculture: Challenges and opportunities in India. In: S. Datta and V. Sharma, eds. 2010. *State of India"s livdihoods, Report 2010: The 4P Report*. Los Angeles: SAGE Publications.

Nandankumar, D., 2007. *Livelihood assets and survival strategies in coastal communities in Kerala, India.* PhD. University of Victoria.

Neilsen, J. P., Degnbol, P., Viswanath, K.K., Ahmed, M., Hara, M. and Adbullah, N. M. R., 2004. Fisheries co-management-an institutional innovation? Lessons from South East Asia and Southern Africa. *Marine Policy*, 28, pp.151-160.

Neumann, W. L., 2003. *Social research methods: Qualitative and quantitative approaches*. 5th ed. Boston: Allyn and Bacon.

Neuman, W. L., 2011. *Social research methods: Qualitative and quantitative approaches*. 7th ed. Boston: Allyn and Bacon.

Newman, B. M. and Newman, P. R., 2015. *Development through life: A psychosocial approach*. 12th ed. Stamford: CENGAGE Learning.

Newman, D. M. 2008. *Sociology: Exploring the architecture of everyday life.* 7th ed. Thousand Oaks: Pine Forge Press.

Newton, K., 2008. Social capital and democracy in modern Europe. In: J. W. van Deth, M. Maraffi, K. Newton, and P. F. Whiteley, eds. 2008. *Social capital and European democracy*. Abingdon: Taylor and Francis Group. pp.3-22.

Ngoitiko, M., Sinandei, M., Meitaya, P. and Nelson, F., 2010. Pastoral activists: Negotiating power imbalances in the Tanzanian Serengeti. In: F. Nelson, ed. 2010. *Community rights conservation and contested land: The politics of natural resource governance in Africa*. London: Earthscan. pp. 269-289.

Nkosi, B. and Daniels, P., 2012. Family strengths: South Africa. In: J. DeFrain and S. M. Asay, eds. 2012. *Strong families around the world - Strengths-based research and perspectives.* Binghauton: The Haworth Press. pp.11-26.

North, D. C., 1991. Institutions. *The Journal of Economic Perspectives,* [online] 5(1), 97–112. Available at: < http://www.jstor.org/stable/1942704> [Accessed 10 November 2015].

Ntuli, M. S., 2014. *The roots of developing agriculture in the southern African context*. Bloominton: Author House.

Nunan, F., 2006. Empowerment and institutions: Managing fisheries in Uganda. *World Development,* 34(7), pp.1316-1332.

Nyikahadzoi, K., Hara, M. and Raakjaer, J., 2010. Transforming ownership and governance: Lessons from capital intensive pelagic fisheries in South Africa and Zimbabwe. *International Journal of the Commons*, 4(2), pp.663-682.

Nyong, A., Adesina, F. and Elasha, B. O., 2007. The value of indigenous knowledge in climate change mitigation and adaptation strategies in African Sahel. *Mitigation and adaptation strategies for global change*, 12(5), pp.787-797.

O"Cathain, A., Murphy, E. and Nicholl, J., 2007. Why, and how, mixed methods research is undertakem in health services research in England: A mixed method study. *(BMC) BioMed Central Health Services Research,* 7(85), pp.1-11.

O"Grady, J. V. and O"Grady, K., 2009. *A designer"s research manual: Succeed in design: By knowing your clients and what they really need.* Beverly: Rockport.

O"Keefe, P. and Kirkby, J., 2013. Energy sustainable development in Southern Africa. In: K. Cole, ed. 2013. *Sustainable development for a democratic South Africa*. Abingdon: Earthscan. pp.57-67.

OECD (Organisation for Economic Co-operation and Development) and FAO (Food and Agriculture Organisation of the United Nations), 2015. Fishing for development. *The Food and Agriculture Organisation of the United Nations FAO Fisheries and Aquaculture Proceedings 36*.[pdf] Rome: Food and Agricultural Organisation of the United Nations. Available at: <http://www.fao.org/3/contents/f0bba45e-83f7-47da-a2ef-87730acda43f/i4468e00.htm> [Accessed 12 December 2015].

OECD (Organisation for Economic Co-operation and Development), 2011. *Fisheries policy reform: National experiences*. Paris: OECD Publishing.

OECD (Organisation for Economic Co-operation and Development), 2012. *OECD Studies on water reform challenge.* Paris: OECD Publishing.

Olivier, D., Heinecken, L. and Jackson, S., 2013. Mussel and oyster culture in Saldahna bay, South Africa: Potential for sustainable growth, development and employment creation. *Food Security,* 5, pp.251-267.

Onwuegbuzie, A. J. and Leech, N. L., 2005. On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology,* 8(5), pp.375-387.

Onwuenele, A., 2014. Implications of foreign land acquisitions in Sub-Saharan Africa. A review of grey literatures. In: E. Osabohien, ed. 2014. *Handbook of research on in-country determinants and implications of foreign land acquisitions.* Hershey Park: Business Science Reference. pp.21-38.

Paler-Calmorin, L. and Calmorin, M. A., 2007. *Research methods and thesis writing*. 2nd ed. Malina: Rex Book Store Inc.

Palma, M. A., Tsamenyi, M. and Edeson, W., 2010. *Promoting sustainable fisheries: The international legal and policy framework to combat illegal, unreported and unregulated fishing.* Dordrecht: Martinus Nijhoff Publishers.

Pascoe, G., 2014. Sampling. In: F. du Plooy-Cilliers, C. Davis and R. M. Bezuidenhout, eds. 2014. *Research Matters.* Cape Town: Juta and Company Ltd. pp. 131-146.

Pauly, D. and Maclean, J., 2003. *The state of fisheries and ecosystems in the North Atlantic Ocean*. Washington DC: Island Press.

Pauly, D., 2006. Major trends in small-scale marine fisheries, with emphasis on developing countries, and some implications for the social sciences. *Maritime Studies*, 4, pp.7-22.

Pauly, D., Christensen, V., Guenette, S. Pitcher, T. J., Rashid Sumaila, U., Walters, C. J., Watson, R. and Zeller, D., 2002. Towards sustainability in world fisheries. *Nature,* 418, pp.689-695.

Peters, S., Hudson, C. and Vanghan, L., 2009. Changing ways of thinking and behaving: using participatory communication design for sustainable livelihood development. In C. Crouch, ed. 2009. *Subjectivity, creativity and the institution*. Boca Raton: Brown Walker Press. pp.147-156.

Petersen, E. H., 2006. *Institutional economics and fisheries management: The case of Pacific tuna.* Cheltenham: Edward Elgar.

Petty, N. J., Thomson, O. P., Stew, G., 2012. Ready for a paradigm shift? Part 2: Introducing qualitative research methodologies and methods. *Manual Therapy*, 17, pp.378-384.

Phillips, P. P. and Stawarski, C. A., 2008. *Data collection: Planning for and collecting all types of data measurement and evaluation, Series 2*. San Francisco: Pfeiffer.

Pinkerton, E., 2009. Partnerships in management. In: K. L. Cochrane and S. M. Garcia, eds. 2009. *A fishery manager's guidebook.* 2nd ed. Oxford: The Food and Agriculture Organisation of the United Nations (FAO) and Wiley-Blackwell. pp.283-298.

Pokharel, B. K., 2010. A critical reflection on sustainable livelihoods approach and its application to Nepal‟s community forestry. In: B.R. Upreti and U. Muller-Boker, eds. 2010. *Livelihood insecurity and social conflict in Nepal*. Kathmandu: South Asia Regional Coordination Office, Swiss National Centre of Competence in Research, North-South Kathmandu. pp.183- 216.

Pomeroy, R., 2005. *Ecosystem-based fisheries management*. Sea Grant Connecticut: fisheries fact sheet. Groton, Connecticut: Connecticut Sea Grant College Program.

Pomeroy, R. S. and Rivera-Guich, R., 2006. *Fishery co-management: A practical handbook.* Wallingford: Centre for Biosciences and Agriculture International.

Pomeroy, R. S., 2011. Managing overcapacity in small-scale fisheries. In R. S. Pomeroy and N. Andrew, eds. 2011. *Small-scale fisheries management: Framework and approaches for*

the developing world. Wallingford: Centre for Biosciences and Agriculture International. pp.75-92.

Pomeroy, R. S., Cinner, J. E. and Neilsen, J. R., 2011. Condition for successful co-management: Lessons learned in Asia, Africa, the Pacific and the wider Carribean. In: R. S. Pomeroy and N. Andrew, eds. 2011. *Small-scale fisheries management: Framework and approaches for the developing world.* Wallingford: Centre for Biosciences and Agriculture International. pp.75-92

Ponte, S. and van Sittert, L., 2007. The chimera of redistribution in Post-Apartheid South Africa: „Black Economic Empowerment" in industrial fisheries. *African Affairs*, 106(424), pp.437-462.

Ponte, S., 2008. The marine stewardship council and developing countries. In T. Ward and B. Philiphs, eds. 2008. *Seafood eco-labeling: Principles and practice*. Oxford: Blackwell Publishing. pp.287-306.

Pope, C., Mays, N. and Popay, J., 2007. *Synthesizing qualitative and quantitative health evidence: A guide to methods.* Maidenhead: Open University Press.

Pungetti, G., Oviedo, G. and Hooke, D., 2012. Conclusions: The journey to biocultural conservation. In: G. Pungetti, G. Oviedo and D. Hooke, eds. 2012. *Sacred species and sites: Advances in biocultural conservation.* Cambridge: Cambridge University Press. pp.442-453..

Qu, S. Q. and Dumay, J., 2011. The qualitative research interview. *Qualitative Research in Accounting and Management,* 8(3), pp.238-264.

Quinney, R., 2012. Crime control in capitalist society: A critical philosophy of legal order. In: I. Taylor, P. Walton and J. Young, eds. 2012. *Critical criminology.* Abingdon: Routledge and Taylors and Francis Group. pp.181-202.

Ramirez-Sanchez, S., 2011. The role of individual attributes in the practice of information sharing among fishers from Loreto, BCS, Mexico. In: O. Bodin and C. Prell, eds. 2011. *Social networks and natural resource management: Uncovering the social fabric of environmental governance.* Cambridge: Cambridge University Press. pp.234-254.

RDP (Reconstruction and Development Programme), 1994. A policy framework. [online]. Available at: <http://www.policy.org.za/govdocs/rdp.html> [Accessed 14 September 2013].

Redclift, M., 2005. Sustainable development (1987-2005): An oxymoron of age. *Sustainable Development,* 12(25), pp.65-84.

Redpath, S. M., Young, J., Evenly, A., Adams, W. M., Sutherland, W. J., Whitehouse, A., Amar, A., Lambert, R. A., Linell, J. D. C., Watt, A. and Guitirrez, R. J., 2013. Understanding and managing conservation conflicts. *Trends in Ecology and Evolution,* 28(2), pp.100-109.

Reylonds, J. and Souty-Grosset, C., 2012. *Management of freshwater biodiversity- Crayfish as bio indicators*. Cambridge: Cambridge University Press.

RF (Rockefeller Foundation), 2013. *Securing the livelihood and nutritional needs of fish dependent communities* [pdf] New York: The Rockerfeller Foundation. Available at: <https://www.rockefellerfoundation.org/app/uploads/Securing-the-Livelihoods-and-Nutritional-Needs-of-Fish-Dependent-Communities.pdf> [Accessed 13 May 2014].

Ribot, J. C. and Peluso, N. L., 2003. A theory of access. *Rural Sociology,* 68(2), pp.153-181.

Ritchie, J., Lewis, J., Elam, G., Tennant, R. and Rahim, N., 2014. Designing and selecting samples. In: J. Ritchie, J. Lewis, C. Mc Naughton-Nicholls and R. Ormston, eds. 2014. *Qualitative research practice: A guide for social science students and researchers*. 2nd ed. Los Angeles: SAGE Publications. pp.111-146.

Roberts, C. M., Hawkins, J. P. and Gell, F. R., 2005. The role of marine reserves in achieving sustainable fisheries. *Philosophical Transactions of the Royal Society B,* 360, pp.123-132.

Roma, E., MaCleod, N. and Buckley, C., 2013. Integrating water and sanitation interventions for health: A case study from eThekwini municipality. In: M. Sommer and R. Parker, eds. 2013. *Structural approaches in public health*. Abingdon: Routledge. pp.89-103.

RSA (Republic of South Africa), 1996. *Constitution of the Republic of South Africa* 1996. *(No. 108).* [online] Pretoria: South African Government. Available at: <http://www.gov.za/sites/www.gov.za/files/images/a108-96.pdf> [Accessed 15 June 2014].

RSA (Republic of South Africa), 2000. P*romotion of Equality and Prevention of Unfair Discrimination* Act 4. Government Gazette, (No. 21249). [online] Pretoria: Department of Justice. Available at: <http://www.justice.gov.za/legislation/acts/2000-004.pdf> [Accessed 4 July 2015].

RSA (Republic of South Africa), 2012. *Small-Scale Fisheries for South Africa 2012*. Government Gazette, Vol 564 No 35455. [pdf] Pretoria: Department of Agriculture. Available at: <http://www.nda.agric.za/docs/Policy/PolicySmallScaleFishe.pdf> [Accessed 2 February 2014].

Ruckelhaus, M., Klinger, T., Knowlton, N. and De Master, D. P., 2008. Marine ecosystem based management in practice scientific and governance challenges. *BioScience,* 58(1), pp.53-63.

Russell, E. and Kuiper, S., 2003. The Amadiba community tourism and natural resource management project. In: M. Hauck, M. and Sowman, M. *Waves of change: Coastal and fisheries co-management in Southern Africa.* Landsdowne: University of Cape Town Press, pp.147-174.

Sadovy, Y., 2005. Trouble on the reef: The imperative for managing vulnerable fisheries. *Fish and Fisheries,* 6, pp.167-185.

Sahu, P. K., 2013. *Research methodology: A guide for researchers in agricultural science, social science and other related fields.* New Delhi: Springer.

Salagrama, V., 2006. Trends in poverty and livelihoods in coastal fishing communities of Orissa State, India. *Food and Agriculture Organisation Fisheries Technical Paper 490*. Rome: The Food and Agriculture Organisation of the United States.

Salas, S., Bjorkan, M., Bobadilla, F. and Cabrera, M. A., 2011. Addressing vulnerability: Coping strategies of fishing communities in Yucatan, Mexico. In: S. Jentoft and A. Eide, eds. 2011 *Poverty mosaics: Realities and prospects in small-scale fisheries.* Dordrecht: Springer. pp.195-221.

Sale, J. E. M., Lohfeld, L. H. and Brazil, K., 2002. Revisiting the quantitative-qualitative debate: Implications for mixed methods research. *Quality and Quantity*, 36, pp.43-53.

Salkind, N. J., 2010. *Encyclopaedia of research design: Volume 3.* Thousand Oaks: SAGE Publications Inc.

Sanginga, P.C., Ochola, W. O. and Bekalo, I., 2010. Natural resource management and development nexus in Africa. In: W. O. Ochola, P. C Sanginga and I. Bekalo, eds. 2010.

Managing natural resources for development in Africa: A resource book. Nairobi: University of Nairobi. pp.11-46.

Schneiderman, D., 2013. *Resisting economic globalisation: Critical theory and international investment law.* New York: Palgrave Macmillan.

Schumann, S. and Macinko, S., 2007. Subsistence in coastal fisheries policy: What is in a Word? *Marine Policy*, 31, pp.706-718.

Scoones, I., 1998. Sustainable rural livelihoods: A framework for analysis. *Institute of Development Studies Working Paper No. 72.* Brighton: Institute of Development Studies.Scoones, I., 2009. Livelihoods perspectives and rural development. *The Journal of Peasant Studies*, 36(1), pp.171-196.

Scott, S., 2013. *Faith afield: A sportsman's devotional*. [e-book] Grand Rapids: Baker Books. Available at: Google Books <https://books.google.co.za/books?id=OVu5EFRRLjAC&pg=PP1&lpg=PP1&dq=Faith+afield:+A+sportsman‟s+devotional.&source=bl&ots=wxVQJO3viu&sig=KZ1EwAF7CeHIrR3dQfvd0TI556I&hl=en&sa=X&ved=0ahUKEwiGj9Hy3svKAhXCOBQKHcFvBHwQ6AEISzAH#v=onepage&q=Faith%20afield%3A%20A%20sportsman%E2%80%99s%20devotional.&f=false> [4 May 2014].

Seidman, I., 2013. *Interviewing as qualitative research: A guide for researchers in education and the social sciences.* 4th ed. New York: Teachers College Press.

Senaratna-Sellamuttu, S., de Silva, S., Nguyen-Khloa, S. and Samarakoon, J., 2008. Good practices lessons learned in integrating ecosystem conservation and poverty reduction objectives in wetlands: A policy brief. Colombo, Wageningen: International Water Management Institute, Wetlands International. Available at: <http://www.wetlands.org/Portals/0/publications/Policy%20document/Wetlands%20%20Poverty%20Reduction%20-%20Lessons%20%20Best%20Practices%20Policy%20Brief.pdf> [Accessed 5 March 2014].

Serrat, O., 2010. *Knowledge solutions: Tools, methods and approaches to drive development forward and enhance its effects.* Metro Manila: Asian Development Bank.

Sesabo, J. K., 2007. *Marine resource conservation and poverty reduction strategies in Tanzania.* Berlin: Springer.

SFTG (Subsistence Fisheries Task Group), 2000. *Draft recommendations for subsistence fisheries management in South Africa*. Cape Town: Marine and Coastal Management.

Sharachchandra, L., 2005. Beyond state-community polarisation and bogus „jointness": Crafting institutional solutions for resource management. In: M. Spoor, ed. 2005. *Globalisation, poverty and conflict: A critical „development" reader.* Dordrecht: Kluwer Academic Publishers. pp.283-306.

Sherman, K., Aquarone, M.C. and Adams, S. eds., 2009. *Sustaining the world"s large marine ecosystems.* Gland: International Union for Conservation of Nature.

Sievanen, L., Crawford, B., Pollnac, R. and Lowe, C., 2005. Weeding through assumptions of livelihood approaches in Integrated Coastal Management(ICM): Seaweed farming in Philippines and Indonesia. *Ocean and Coastal Management,* 48, pp.297-313.

Sihlobo,W., 2015. The youth are agriculture"s future. *The Mail and Guardian,* [online] 18 June 2015. Available at: <http://mg.co.za/article/2015-06-18-the-youth-are-agricultures-future> [Accessed 22 October 2015].

Sikor, T. and Lund, C., 2009. Access and property: A question of power and authority. *Development and Change,* 40(1), pp.1-22.

Sissenwine, M. P. and Mace, P. M., 2003. Governance for responsible fisheries: An ecosystem approach. In: M. Sinclair and G. Valdimarson, eds. 2003. *Responsible fisheries in the marine ecosystem*. Wallingford and Rome: Centre for Biosciences and Agriculture International Publishing, Food and Agriculture Organisation of the United Nations. pp.363-390.

Smith, K., 2013. *Ethical trade, gender and sustainable livelihoods: Women smallholders and ethicality in Kenya.* Abingdon: Routledge.

Sowman, M., 2006. Subsistence and small-scale fisheries in South Africa. A ten year review. *Marine Policy,* 30, pp.60-73.

Sowman, M., 2011. New perspectives in small-scale fisheries management: Challenges and prospects for implementation in South Africa. African. *Journal of Marine Science*, 33(2), pp.297-311.

Sowman, M., Raemaekaers, S. and Sunde, J., 2014a. Shifting gear: A new governance framework for small-scale fisheries in South Africa. In: M. Sowman and R. Wynberg, eds. 2014. *Governance for justice and environmental sustainability: Lessons across natural resource sectors in sub-Saharan Africa.* [e-book] Abingdon: Routledge. Available at: Google Books <https://books.google.co.za/books?id=9KrpAgAAQBAJ&printsec=frontcover&dq=Governance+for+justice+and+environmental+sustainability:+Lessons+across+natural+resource+sectors+in+sub-Saharan+Africa&hl=en&sa=X&ved=0ahUKEwjcqcixhL7KAhUEax4KHej9A08Q6AEIJDAA#v=onepage&q=Governance%20for%20justice%20and%20environmental%20sustainability%3A%20Lessons%20across%20natural%20resource%20sectors%20in%20sub-Saharan%20Africa&f=false> [Accessed 05 February 2015]. .

Sowman, M., Sunde, J., Raemaekers, S. and Schultz, O., 2014b. Fishing for equality: Policy for poverty alleviation for South Africa‟s small-scale fisheries. *Marine Policy*, 46, pp.31-42.

SSA (Statistics South Africa), 2011. Statistics by place: Local municipality-Umzumbe. [pdf] Pretoria: Statistics South Africa. Available at: <http://beta2.statssa.gov.za/?page_id=993&id=umzumbe-municipality> [Accessed 03 December 2014].

SSA (Statistics South Africa), 2012. *Census 2011 Provinces at a Glance*. [pdf] Pretoria: Statistics South Africa. Available at: http://www.statssa.gov.za/census/census_2011/census_products/Provinces%20at%20a%20glance%2016%20Nov%202012%20corrected.pdf [22 October 2014].

Sseguya, H., Mazur, R.E. and Masinde, D., 2009. Harnessing community capitals for livelihood enhancement: Experiences from a livelihood program in rural Uganda. *Community Development*, 40, pp.123-138.

Stern, M., 2012. Assessing policies promoting poverty alleviation and marine resources. *Africa Geographical Review,* 31(2), pp.126-141.

Steyn, E., Fielding, P. J. and Schleyer, M. H., 2008. The artisanal fishery for east coast rock lobsters *panulirus homarus* along the Wild Coast, South Africa. *African Journal Marine Science,* 30(3), pp.497-506.

Steyn, E. and Schleyer, M. H. 2009. Assessment of Management Options for the East Coast Rock Lobster *Panulirius Homarus*- Ezemvelo KwaZulu Natal Wildlife: Management Options for East Rock Lobster. *Oceanic Research Institute*. pp.1-26.

Stock, R., 2013. *Africa South of the Sahara: A geographical interpretation*. 3rd ed. New York: The Guilford Press.

Strydom, H. A. and King, N. D. eds., 2009. *Environmental management in South Africa.* 2nd ed. Cape Town: Juta Law.

Strydom, A. and Bezuidenhout, R. M., 2014. Qualitative data collection. In: F. du Plooy-Cilliers, C. Davis and R. M. Bezuidenhout, eds. 2014. *Research Matters*. Cape Town: Juta and Company Ltd. pp.173-194.

Sunde, J. and Pedersen, C., 2007. Defining the traditional small-scale fisheries sector in South Africa. *Discussion Series No 1*. Cape Town: Masifundise Development Trust.

Sunde, J. and Isaacs, M., 2008. *Samudra monograph: Marine conservation and coastal communities: Who carries the costs? A study of marine protected areas and their impact on traditional small-scale fishing communities in South Africa.* Chennai: International Collective in Support of Fish Workers. Available at: <http://aquaticcommons.org/1563/1/Samudra_mon4.pdf> [Accessed 10 March 2013].

Sundstrom, A., 2012. Corruption and regulation compliance: Experimental findings from South African small-scale fisheries. *Marine Policy,* 36, pp.1255-1264.

Swanborn, R., 2010. *Case study research: What, why, how?* London: SAGE Publications Ltd.

Tan, Y., 2008. *Resettlement in the Three Gorges project*. Aberdeen: Hong Kong University Press.

Tanner, T., Mensah, A., Lawson, E. T., Gordon, C., Godfrey-Wood, R. and Cannon, T. 2014. Political economy of climate compatible development: Artisanal fisheries and climate change in Ghana. *Institute of Development Studies Working Paper*, [e-journal] 2014 (446). Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.2040-0209.2014.00446.x/epdf> [Accessed 02 March 2015]

Tashakkori, A. and Teddlie, C. B., 2003. *Handbook of mixed methods in social and behaviour research*. Thousand Oaks: SAGE.

Taylor, G. R. ed., 2005. *Integrating quantitative and qualitative methods in research*. 2nd ed. Maryland: University Press of America Inc.

Te Lintelo, D., 2008. Food security, nutrition and HIV/AIDS in African fisheries. A literature review. Regional programme fisheries and HIV/AIDS in Africa: Investing in sustainable solutions. *Project Report 1968*. Penang: The World Fish Center. Available at: <http://pubs.iclarm.net/resource_centre/WF_2518.pdf> [Accessed 9 February 2014].

Teddlie, C. and Tashakkori, A. eds., 2009. *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioural sciences*. Thousand Oaks: SAGE Publications Inc.

Teh, L., Cheung, W.W. L., Cornish, A., Chu, C. and Somalia, U. R., 2008. A survey of alternative livelihood options for Hong Kong"s fishers. *International Journal of Social Economics,* 35(5), pp.380-395.

Terminski, B., 2015. *Development induced displacement and resettlement: Causes, consequences and socio-legal context.* Stuggart: Ibidem Press.

Thanda Organisation, 2015.Thanda Organisation: Programmes, Agriculture Development. [online] Available at: < http://thanda.org/interventions/agriculture/ > [Accessed 23 September 2015].

Thieme, S., 2006. *Social networks and migration: Far West Nepalese migrants in Dehli.* New Brunswick: Transition Publishers.

Thin, N., 2004. Post-basic education and training, enabling environments, and pathways to poverty reduction. Background Paper for the University of Edinburgh/ DFID Research Project. Beyond the Basics: Education and Poverty. [unpublished paper] Edinburgh: University of Edinburgh.

Thurlow, J., 2006. Trade Liberalisation and pro-poor growth in South Africa. Cape Town: Trade and Poverty Project Southern Africa Labour and Development Research Unit.

Trell, E. M. and van Hoven, B., 2012. Place attachment in rural areas a participatory research project with young people in Cedar, British Columnia. In: J. Toonder and B. van Hoven, eds. 2012. *Re-exploring Canadian space*. Groningen: Barkhuis. pp.27-44.

Tuan, T. H. and The, D. B., 2013. Natural disasters in Vietnam: A synthesis from socio-economic perspective. In: D. Guha-Sapir and A. Borde, eds. 2013. *The economic impacts of natural disasters*.[e-book] New York: Oxford University Press. Available at: Google Books <https://books.google.co.za/books?id=rsmBZRjLwJ0C&printsec=frontcover&dq=The+economic+impacts+of+natural+disasters.&hl=en&sa=X&ved=0ahUKEwi7vbf0kL7KAhXLkx4KHSRTDQEQ6AEIJDAA#v=onepage&q=The%20economic%20impacts%20of%20natural%20disasters.&f=false > [Accessed 11 June 2015].

Tuan, Y., 1976. Humanistic Geography. *Annals of the Association of American Geographer,* 66(2), pp.266-276.

Tubtim, N., 2006. Exclusion accommodation and community based natural resource management: Legitimising the enclosure of a community fishery in southern Laos. In: S. R. Tyler, ed. 2006. *Communities livelihoods and natural resources: Action research and policy change in Asia.* Ottawa: International Development Research Centre. pp.129-150.

Tunley, K., 2009. State of management of South Africa‟s marine protected areas. World Wildlife Fund South Africa Report Series. *Marine*, 001, pp.1-152.

Turnunova, Z., 2014. *Women's lives and livelihoods in Post-Soviet Uzbekistan: Ceremonies of empowerment and peace building.* Lanham: Lexington Books.

Twyan, C., 2000. Participatory conservation? Community-based natural resource management in Botswana. *Geographical Journal,* 166(4), pp.323-335.

Ulwazi Sharing Indigenous Knowledge. Not Dated. *AmaThuli people*. [online] Available at: http://ulwazi.org/index.php/Amathuli_People_1770-1820 [Accessed 10 November 2015].

Umzumbe Municipality Integrated Development Plan, 2011-2012. [pdf] Available at: <http://kzntopbusiness.co.za/site/user_data/files/Print_devplankzntlgovza_idp_reviewed_2011_12_IDPS_KZ213_Adopted_UMZUMBE_MUNICIPALITY_FINAL_IDP_REVIEW_20112012x.pdf> [Accessed 22 May 2013].

Umzumbe Municipality Integrated Development Plan. 2012/2013-2016/2017. [pdf] Available at: <http://www.umzumbe.gov.za/IDP%20LOW%20RES.pdf> [Accessed 13 May 2014].

Umzumbe Municipality Integrated Development Plan. 2014/2015. [pdf] Available at: <http://www.umzumbe.gov.za/DRAFT%20IDP%202014%20-%202015%20-%2028%20March.pdf > [Accessed on 12 February 2015].

UN (United Nations), 2009. *World survey on role of women in development: Women"s control over economic resources and access to financial resources including microfinance.* New York: United Nations.

United Nations Development Programme, United Nations Environment Programme, World Bank, and World Resources Institute (UNDP, UNEP, WB, and WRI). 2003. Mind over mussels: rethinking Mapelane Nature Reserve. World Resources 2002-2004. [online] Washington DC: World Resources Institute. Available at: <http://www.wri.org/publication/world-resources-2002-2004> [2 May 2014].

van der Burgt, N., 2012. *The contribution of international fisheries laws to human development.* Leiden: Brill, Global Oriental, Hoata Publishing, IDC Publishers and Martinus Nijhoff Publishers.

van Houtte, A., 2004. Compliance with international fisheries law. *Fisheries Report No 672.* In: J. Swan and D. J. Greboval, eds. 2004. International workshop on factors contributing to unsustanability and overexploitation in fisheries. Bangkok, Thailand, 4-8 February 2002. Rome: Food and Agriculture Organisation of the United Nations 285-294.

van Sittert, L., Branch, G., Hauck, M. and Sowman, M., 2006. Benchmarking the first decade of post-Apartheid fisheries reform in South Africa. *Marine Policy*, 30, pp.96-110.

Vinks, D., 2015. Agrigrowth promises good returns. *The Mail and Guardian*, [online] 10 September 2015. Available at: <http://mg.co.za/article/2015-09-10-agrigrowth-promises-good-returns> [Accessed 1 November 2015].

Wagner, W. E., 2010. *Using SPSS for social statistics and research methods*. 2nd ed. Thousand Oaks: Pine Forge Press.

Walker, B. and Salt, D., 2006. *Resilience thinking: Sustaining ecosystems and people in a changing world- How can landscapes and communities absorb disturbance and maintain function.* Washington, DC: Island Press.

Walker, T. L., 2005. Management measures. In: J. A. Musick and R. Bonfil, eds. 2005. *Management techniques for elasmobranch fisheries*. Rome: The Food and Agriculture Organisation of the United Nations. pp.216-242.

Walliman, N. 2001.*Your Research Project-a step by step guide for the first time researcher*. London: SAGE Publications.

Walliman, N. and Appleton, J. V., 2009. *Your undergraduate dissertation in health and social care: The essential guide for success.* Los Angeles: SAGE Publications Ltd.

Watson, D. J. and van Binsbergen, J., 2008. Livelihood diversification opportunities for pastoralists in Turkana, Kenya. *International Livestock Research Institute Research Report 5.*Nairobi: International Livestock Research Institute.

WCED (World Commission on Environment and Development), 1987. *Our common future.* Oxford: Oxford University Press.

Webb, C. de B. and Wright, J. B. eds., 1982. *The James Stuart archive volume 3: Of recorded oral evidence relating to the history of Zulu neighbouring peoples.* Pietermaritzburg: University of Natal Press.

Weeratunge, N., Chiuta, T. M., Choudhury, A., Ferrera, A., Husken, S. M. C., Kura, Y., Kusakabe, K., Madzudzo, E., Maetala, R., Naved, R., Schwarz, A. and Kantor, R., 2012. Transforming aquatic agricultural systems towards gender equality: A five country review. *Working Paper: AAS-2012-21.* [pdf] Penang: Consultative Group for International Agricultural Research. Available at: <http://pubs.iclarm.net/resource_centre/WF_3348.pdf> [Accessed 7 December 2014].

Whitaker, W. R., Ramsey, J. E. and Smith, R. D., 2009. *Media writing: Print, broadcast and publications.* 3rd ed. New York: Routledge/Taylors and Francis Group.

Whiteford, L. M. and Padros, C. V., 2015. The medical anthropology of water. In: M. Singer and P. I. Erickson, eds. 2015. *Companion to medical anthropology.* Hoboken: Wiley-Blackwell. pp.197-218.

Wicks, J., 2012. Ocean Raiders. *Sunday Tribune Newspaper*, [online] 25 November 2012. Available at: <http://www.highbeam.com/doc/1G1-348360510.html> [Accessed 29 October 2015].

Williams, M., 2010. Gender dimensions in fisheries management. In: R. Q. Grafton, R. Hilborn, D. Squires, M. Tait and M. Williams, eds. 2010. *Handbook of marine fisheries conservation and management.* New York: Oxford University Press Inc. pp.72-86.

Williams, S. B., 2002. Making each and every African fisher count: Women do fish. In: N. H. Chao, P. S. Choo, K. Matics, M. C. Nandeesha, M. Shariff, I. Siason, E. Tech, M.J. Williams and J. M. C. Wong, eds. 2002. *Global Symposium on Women in Fisheries: Sixth Asian Fisheries Forum.* Kaohsiung, Taiwan, 29 November. pp.145-154.

Winter, G. ed., 2009. *Towards sustainable fisheries law: A comparative analysis*. Gland: International Union for Conservation of Nature.

Wood, M. J. and Ross-Kerr, J. C., 2001. *Basic steps in planning nursing research: From question to proposal.* 7th ed. Sudbury: Jones and Bartlett Publishers.

Woodside, A. G., 2010. *Case study as research: Theory, methods, practice*. Bingley: Emerald Group Publishing Limited.

World Bank, 2002. *World Development Report 2000/2001: Attacking Poverty*. New York: Oxford University Press.

Wright, J. A., Yang, H. Rivelt, U. and Frundy, S. W., 2012. Public perception of drinking water safety in South Africa 2002-2009: A repeated cross sectional study. *BMC Public Health,* 12(556), pp.1-9.

WWF (World Wildlife Fund) Report ZA (South Africa), 2011. *Fisheries: Facts and trends South Africa.* [pdf] Available at: <http://awsassets.wwf.org.za/downloads/wwf_a4_fish_facts_report_lr.pdf> [Accessed on 24 October 2015].

Yin, R. K., 2014. *Case study research design and methods*. 5th ed. Los Angeles: SAGE Publications Inc.

Young, M., 2013. Achieving equity in the fishing industry: The fate of informal fisheries in the context of the policy for the small-scale fisheries sector in South Africa.*PER/PELJ ,* 16(5), pp.288-328.

Yunusa, M. L., 2006. *African cities driving the New Partnership for Africa's Development (NEPAD) initiative*. Nairobi: United Nations Human Settlements Program.

Zeppel, H. D., 2006. Indigenous ecotourism: Sustainable development and management. Wallingford: Centre for Biosciences and Agriculture International.

Zikmund, W.G., Babin, B. J., Carr, J. C. and Griffin, M., 2013. *Business research methods.* 9th ed. Mason: CENGAGE Learning.

Annexure

Questionnaire: For assessing access, utilisation and management of fisheries resources, a case study of uMthwalume.

The aim of this research is to develop an understanding of fisheries resources in uMthwalume access, utilisation and management. This research study is conducted to assist Minenhle Bridget Ndlovu, to full fulfilment of requirements to award degree of Master Social Science in Geography and Environmental Management University of KwaZulu Natal (Howard College). Please note that your answers and responses will be taken with great confidentially and remain anonymous, as no names of the participants will be used all participants will referred to as respondents and in focus groups will be numbered. The information obtained from the interviews will be made available if the community requests and any changes or recommendations that need to be made in management as a result of the study will be negotiated with the community. You are free to withdraw from the research at any time without any negative or undesirable consequences.

Feel free to contact my supervisor, HSSREC Office or the researcher if there are queries concerning the study, contact details above.Please sign on the dotted line to show that you have read and understood the contents of this letter. The questionnaire will take approximate 15 minutes to complete.

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Village :_____

A: Demographic Information

1. Gender

Male	1
Female	2

2. Marital Status

Married	Single	Divorced	Widowed	Separated	Other
1	2	3	4	5	6

3. Age

<20	20-29	30-39	40-49	50-59	60-69	70+
1	2	3	4	5	6	7

B. Human capital

1. Level of Education

No schooling	Primary	Secondary	Tertiary
1	2	3	4

2. Number of members of the household

Male	Female	Total

3. How old were you when started getting involved in fishing activities?

<20	20-29	30-39	40-49	50-59	60-69	70+
1	2	3	4	5	6	7

C. Financial capital

1. How old were you when your involvement started to contribute to the needs of the house?

<20	20-29	30-39	40-49	50-59	60-69	70+
1	2	3	4	5	6	7

2. How much of your income comes from fisheries related activities?									
All of it close to 100%	1	Most of it close to ¾ or 75%	2	Half of it close to 50%	3	One quarter close to ¼ or 25%	4	None	5
What other activities contribute to your total income? Please specify e.g. social grants									

D. Physical capital

1. What services are available for the households in the community?

Telephone	1	Water sources(boreholes, taps, river)	3	Land for grazing	5	Sources of fuel	7
Electricity	2	Land for cultivation	4	Toilet	6	Other(specify)	8

2. What other services do you think the household should be provided for by the community?

3. What the primary sources for cooking, lighting and heating for the household?

Sources	Cooking	Lighting	Heating
Wood	1	1	1
Paraffin	2	2	2
Coal	3	3	3
Electricity	4	4	4
Gas	5	5	5
Generator	6	6	6
Candles	7	7	7
Other (specify)	8	8	8

4. Which source would you most prefer and why?

5. Do you experience difficulties in purchasing/obtaining /collecting this source of fuel?

Yes	1	Sometimes	3
No	2	Not certain	4

6. If yes, which difficulties are those?

7. What type/s of material is used to build or maintain your home?

Types/s of material	Code
Bricks	1
Blocks	2
Mud bricks	3
Rocks and Poles	4
Thatch	5

Other (specify)	6

8. Do you experience difficulties obtaining/purchasing/collecting building materials identified above?

Response	Code
Yes	1
No	2
Sometimes	3
Not Certain	4

9. If yes, what are those difficulties?

10. Does your household experience any of the following problems?

Problem	Code
Inadequate Infrastructure (e. g roads, telephone)	1
Lack of employment opportunities	2
Conflict in the community	3
Not enough land	4
Financial Problems	5
Dependence on community organisations to make decisions	6
Community structures not functioning	7
Environmental problems e.g dry, poor soils	8
No access to credit	9
Inadequate extension services	10
Any other problem	11

11. What do you think needs to be done to solve the problems identified above?

E. Natural capital

To investigate accessibility to the fisheries resources in the uMthwalume community,

1. Are the fisheries resources always accessible to households whenever they are needed?

Yes	1	No	2	Sometimes	3

2. Are there any laws/guidelines that set for the accessibility of fisheries resources?

Yes	1	No	2	Do not know	3

3. If yes, what do they state?

_____

_____

_____

4. Who collects fisheries resources the most?

Response	Code	Gender	Bread winner=1 /supporting bread winner =2
Male	1		
Female	2		
Both	3		

5. How long does it take on average to collect fisheries resources which you need on a daily on weekly basis?

_____

6. How would you rate the adequacy of access for your household to the common pool of natural resources:

Natural resource	Poor	Satisfactory	Good	Excellent

Fisheries resources	1	2	3	4
Thatch	1	2	3	4
Fuel wood	1	2	3	4
Water	1	2	3	4
Medicinal Plants	1	2	3	4
Wild foods	1	2	3	4

7. If poor or satisfactory to any of the above please state reason why ?

To examine the effectiveness of management of the fisheries resources in uMthwalume area.

F. Regulations, procedures and policies

Fisheries Resource Allocation in community

1. Who has authority in the community?

Inkosi/induna	1	Elected committee	3	Consultants	5	Coastal Links	7	Other specify	9
All households	2	Government Officials	4	Ezemvelo KZNW	6	Masifundise	8		

2. Do you currently have a	Yes	No	Did you apply but	Which species	Quota (tons/kg)	Other conditions

permit or quota?			not successful			of permit
Subsistence						
Recreational						
Commercial						
Other(species)						

3. Who allocates the permit for fishing?

Inkosi/induna	1	Elected committee	3	Consultants	5	Coastal Links	7	Post office	9
All households	2	Government Officials	4	Ezemvelo KZNW	6	Masifundise	8	Other specify	10

4. For each household who many members can apply for permits?

Permit	Number of members
Commercial	
Subsistence	
Recreation	
Other	

5. Are you satisfied with the above system of allocating permits and why?

Yes	1	No	2	Not sure	3

To determine how much resources harvested contribute to the livelihoods in the community.

Resources use

1. What type of fisheries activities are you involved in?	
Processing fish	1
Marketing/trader	2
Has own company	3
Boat crew	4
Boat owner	5
Other(specify)	6

2. What are catches primarily used for?	Fish(specify)	Lobster	Mussel	Other (specify)
Selling (everything)				
Sales and consumption				
Consumption				
Exchange with neighbours				
Other(specify)				

3. Do you use loans to be able to support your fishing activities?	Yes		No		If yes please specify
(a) Who did you get the loan from?					
(b)How much is the loan worth?					
(c)What are you using the loan for?					

(d)Do you have access to additional forms of credit? eg banks

4. Who do you sell your catch to? Tick appropriate	Shad	5 finger	Black tail	Garrick	King fish	Mussels	crayfish	Other (specify)	Other (specify)
Community member									
Local restaurants									
Local fish shop									
Holiday makers									
Informal agents in the community									
Formal buyers(contract)outside the village									
Formal buyers(contract)in the village									
Formal processing facilities(contract)									
Formal processing facilities (contract) outside the village									
Others (specify)									

5. Comment

6. How many months do you fish in a year?	East coast rock lobster	Mussel	Other(specify)
All year round(about12 months)			
Most of the months(8-11 months)			

Half of the year(6 months)			
Less than half of the (3-5months)			
1-3 months			

Status of fisheries

1. How long have you been fishing and how do you find the trend of fishing catch now compared to the years you started fishing?

1-3 years	6+ years	Catch has been declining	1	There is no change	3
4-5 years		Catch has been increasing	2	Seasonal variation	4

2. What do you think is the cause of this trend?

3. What is the impact of the following factors in this area?

1 = Positive impact, 2=Negative impact, 3=Both positive and negative impact, 4= Do not know

Factor	Code
Excessive number of fishers	
Excessive number of fishing gear/boats	
Bag limit	

To assess challenges and successes in uMthwalume community with regards to fisheries resources.

SOCIAL CAPITAL

Challenges encountered in relation to allocation and utilization of fisheries resources in community

1. Are there any dangers encountered when access the fisheries resources?

Danger	Code	Perpetrator	Danger	Code	Perpetrator	Danger	Code	Perpetrator
Route travelled not safe	1		Violent attacks	3		Other (specify)	5	
Crime	2		Rape	44				

2. If one encounters a problem related to the fisheries resources who they speak to ?

Inkosi/induna	1	Elected committee	3	Consultants	5	Coastal Links	7	Post office	9
All households	2	Government Officials	4	Ezemvelo KZNW	6	Masifundise	8	Other specify	10

3. Are you satisfied with attention given to issues?

Yes	1	No	2

4. If no, who else is empowered to deal with such issues?

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5. Do you know of any situations where members of the community were involved in disagreements related to the fisheries resource issues?

Response	Code
Yes	1
No	2

6. If yes describe the situation

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7. Did such agreements develop into conflicts/ fragmentation in the community?

Response	Code
Yes	1
No	2

If yes explain

8. Are there steps in place to resolve conflicts or discipline members of the community who fail to adhere to community decisions regarding the use and allocation of natural resources?

Response	Code
Yes	1
No	2

9. If yes are there procedures in place to address the issues at hand?

Response	Code
Yes	1
No	2

10. If yes what type of conflict resolution procedures are used:

Type of Conflict resolution	Code
Elected committee meets parties involved	1
All male household heads discuss the problem	2
Community meeting attends to the dispute	3
The parties are told to resolve their differences	4
Police handle the dispute	5
Ezemvelo KZN wildlife	6
Government official intervene	7
Other (specify)	8

11. Who is the most important person or group in charge of settling disputes about land and fisheries resources in the community?

Inkosi/induna	1	Elected committee	3	Consultants	5	Coastal Links	7	People involved	9
All households	2	Government Officials	4	Ezemvelo KZNW	6	Masifundise	8	Other specify	10

12. Who, in your opinion, should be participating in the resolution of disputes/ problems pertaining to land use and fisheries resources in your area?

Inkosi/induna	1	Elected committee	3	Consultants	5	Coastal Links	7	People involved	9
All households	2	Government Officials	4	Ezemvelo KZNW	6	Masifundise	8	Other specify	10

To investigate other livelihood strategies the uMthwalume community engages in besides harvesting fisheries resources;

ALTERNATIVE LIVELIHOOD STRATEGIES

1. Are you always fishing?

Yes	1	No	2

2. What other activities that contribute to income of the household are you or family member involved in? Tick and rank most important (1-3), 1=most important

Farming		Employed in tourism industry		Pensions, grants (specify)	
Self-employed(example:		Employed government		Other(specify)	

spaza)					

Questions for key informant interviews

• In the two villages selected for this case study approximately how many households are they?

• What is the background of the area, in general and historically within the fisheries?

• Which marine resources are available and accessible to the community?

• What are the legislation and rules (traditional or enforced by government) that guide management of the marine resources?

• How are marine resources allocated?

• Who allocates them?

• Is the criterion that one needs to meet in order to able to access the marine resources for example permit?

• If so what is the criteria and is for all species or for all of them? Specify

• With the way they have set criteria is it able to sustain the marine resources has it been successful or has it had shortcoming?

• If successful how and it has shortcoming what are they? Are there specific case studies which serve as evidence?

• What are future plans to keep success trend going or to overcome the shortcomings?

• Is there a feedback system where they can able to get views, opinions of the community on what they think about marine resources are allocated and accessed and managed?

• If so what has been the feedback?

• Who manages the marine resources? If there are different stakeholder what are their different roles which they play?

• Is there co-management structure that exists between the government, community, tribal authorities, ward councillor and other organisation?

• What are the roles of each stakeholder in this co-management?

• What are challenges and successes of this co-management?

• How is the community involved in the management? Are they represented by committee and committee members selected by who and how?

• Are there any other activities that this fishing community is involved in, that supplements their livelihoods? Especially in seasons when the resource is low or when there are natural disasters or any shock or threat?

• When are the resources stocks at their maximum or minimum?

• With the years have the different marine resources stock increase or decline?

• What are the challenges that are being faced the community in generally in regards to fishing?

• Going forward what are the strategies do you think can implemented to improve sustainability of the resources and at same time the livelihood of people not threatened ensuring food security in the community?

Questions to Coastlinks/Masifundise representative

- What role does uMasifundise play in the fishing community of uMthwalume?
- Does uMasifundise take part in the management of fisheries resources in uMthwalume? If yes, how do they contribute?
- How is the community involved in fisheries management? Are they represented by committee and committee members selected by who and how?
- Do you feel like community members are adequately or well represented in fisheries management structures? If no, please state why and what you think should be done to remedy the situation.
- What are the challenges that are being faced the community in generally in regards to fishing?
- Does uMasifundise have a committee in uMthwalume? If yes, how were members elected into the committee. What is their role in fisheries management and dealing issues pertaining with fishing?
- Is Masifundise part of the co-management structure that exist in uMthwalume?
- What are the short comings and successes of this co-management structure?
- What are your views on small-scale fisheries policy?
- According to research conducted KZN coast has high biodiversity and low biomass, which means they have a wide variety of fish species but low fish stock. So do you think small-scale fisheries will be sustainable in this province?
- Are there any other activities excluding fishing, that this community is involved in, that supplements their livelihoods? Especially in seasons when the resource is low or when there are natural disasters or any shock or threat?
- Going forward what strategies do you think can implemented to improve sustainability of the resources, and at same time ensuring food security in the community?

Questions to Thanda Organisation Representative

- What does organization do in this community? How long has your organization been in the community?
- With your current project in the area, what does it entail? How many members are involved? Is it predominantly male or female? What skills do they obtain?
- Is the land in the community of Mthwalume fertile enough for community members to start a small business or is it only good enough for cultivating for the household? Do you have any evidence or a report to support the latter that you can share with me.
- How are community members involved?
- What successes and challenges have you had working with uMthwalume community on garden project?
- What is your future plans working with uMthwalume?
- How many hectares of land is currently dedicated to the garden project?
- Are producing as much produce as you expect should getting? If not what do you think is the problem.

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Strehlow, Harry Vincent(Nagel, Uwe Jens, Peter, Kurt Johannes and Schulz, Carsten). "Integrated natural resources management of coastal fisheries", Landwirtschaftlich-Gärtnerische Fakultät, 2006.
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CSR Sustainability Ethics & Governance, 2016.
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Hauck, M.. "Coastal and fisheries co-management in South Africa: an overview and analysis", Marine Policy, 200105
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Stig S. Gezelius. "Toward a Theory of Compliance in State-Regulated Livelihoods: A Comparative Study of Compliance Motivations in Developed and Developing World Fisheries : Toward a Theory of Compliance in State-Regulated Livelihoods", Law & Society Review, 06/2011
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Faasen, H.. "Local community reaction to the 'no-take' policy on fishing in the Tsitsikamma National Park, South Africa", Ecological Economics, 20071015
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James P. Scandol. "Ecosystem-based fisheries management: An Australian perspective", Aquatic Living Resources, 07/2005
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Long. "The Context: Overview of the Common Fisheries Policy", Enforcing the Common Fisheries Policy, 03/03/2000
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Hutton, T., and T. J. Pitcher. "Current directions in fisheries management policy: a perspective on co-management and its application to South African fisheries", South African Journal of Marine Science, 1998.
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Pomeroy, R.S.. "Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia", Ocean and Coastal Management, 1995
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Maconachie, R.. "'Farming miners' or 'mining farmers'?: Diamond mining and rural development in post-conflict Sierra Leone", Journal of Rural Studies, 200707
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Richard J Marasco. "Ecosystem-based fisheries management: some practical suggestions", Canadian Journal of Fisheries and Aquatic Sciences, 06/29/2007
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