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Independent Study Report

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Abstract

The wildlife sector in Zambia has implemented community-based wildlife management model approaches to embrace human development and wildlife conservation in a single rubric from the mid-1980s. This paradigm was built of several premises, among which was poverty alleviation of people who had been marginalised by wildlife conservation through the 'fortress conservation strategy' and to reduce human-wildlife conflicts leading to increased tolerance for wildlife and better outcomes for biodiversity conservation. Human wildlife conflicts undermine agriculture and consequently exacerbate food insecurity in the Game Management Areas (GMAs). Despite its application, crop raiding reports continue to rise in these areas. Generally, the level of poverty in the country is reportedly increasing due to low agriculture yields, with agriculture being the major source of livelihood and food security among the rural community, and the people in GMAs are the most affected. In response to growing concerns and criticisms regarding the effectiveness of the Community Based Conservation (CBC) approach in addressing both conservation and development goals, this study explores the impact of CBC model approaches on food security through their efforts of addressing human wildlife conflicts and alternative compensation forms available to alleviate poverty and food insecurity. It employs a qualitative research approach through a case study of Chiawa and Lupande GMAs. Using a political ecology theoretical-analytical framework, the study concludes that the implementation of CBC strategy within the pluralistic approach has not effectively addressed poverty and household food security in GMAs in Zambia. The failures are largely attributed to the multi-level complexity and contextual factors in which CBC model approaches have been implemented. Limited by the nature of this study, a recommendation is made for further research to explore the possibility of advancing the CBC model to adequately address conservation and human development.

...dedicated to Astone and Bridget Miyemba for everything; your love is so amazing.

May God reward you abundantly...

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Table of Contents

ACROYNOMS AND ABBREVATIONS

AWF	African Wildlife Foundation
ADMADE	Administrative Design for Game Management Areas
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CBC	Community Based Conservation
CITES	Convention on International Trade of Endangered Species of Flora and Fauna
COMACO	Community Markets for Conservation
CRB	Community Resources Board
CBNRM	Community Based Natural Resources Management
FAO	Food and Agriculture Organization
FRA	Food Reserve Agency
GIS	Geographical Information System
GMA	Game Management Area
HEC	Human-Elephant Conflicts
HWC	Human-Wildlife Conflicts
IUCN	International Union for Conservation of Nature
LIRDP	Luangwa Integrated Resources Development Project
MACO	Ministry of Agriculture and Cooperatives
NGO	Non-Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
PPP	Public Private Partnerships
SADC	Southern African Development Community
UNDP	United Nations Development Programme
VAG	Village Area Group
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature
WWF-SARPO	World Wide Fund for Nature – Southern African Regional Programme Office
ZAWA	Zambia Wildlife Authority

1.0 CHAPTER ONE - INTRODUCTION

1.1 Introduction

In the past two decades, conservation discourse has increasingly recognised that conservation goals cannot be achieved in isolation of development goals. This notion was at the centre of the World Conservation Strategy of 1980, which appealed to the international conservation community to adopt the notion of 'achieving conservation and development goals simultaneously' in the quest toward addressing historical, cultural, socioeconomic and political aspects of conservation (IUCN, 1980). The strategy introduced the community-based approach with emphasis on mainstreaming sustainable development concepts in conservation. It was also a response to the fortress conservation approach, which neglected community involvement, both in terms of use and in managing natural resources. The Community-Based Conservation (CBC) model had been seen as a way of reconciling conservation and development goals (IUCN, 1980). Thus, given the increasing adoption and application of different community-based approaches, the literature available show that CBC remains far from achieving its intended goals, which is the interest of this study.

In Zambia's wildlife sector, the community-based wildlife management approach has been implemented to assist in addressing human wildlife conflicts, which have had adverse impacts on food security in and surrounding the wildlife estates. Despite the application of this approach, human-wildlife conflicts have continued to rise in the GMAs; similarly, the level of poverty has increased among the rural community, with the GMAs being the worst hit (Simasiku, Tembo, Chapoto & Webber, 2010). This study assesses the effectiveness of CBC model approaches in the wildlife sector, specifically its impact on food security.

1.2 Need for the Study

The study was in conformity with the growing demand to evaluate the effectiveness of the Community-Based Conservation approach in addressing human development goals in the midst of the powerful institutions involved (local, national and international level), and their different sustainable development agendas. The study focused on the impact of the community-based wildlife management model on food security as a proxy indicator of human development for the people living in the Game Management Areas in Zambia. It aims to generate information and provide deep insights on the effectiveness of the CBC model. This study would also serve as a basis for further and other future research opportunities.

1.3 Hypothesis Statement

The implementation of the CBC strategy within the pluralistic approach has not effectively addressed poverty and household food security in GMAs in Zambia.

1.4 Methodology

1.4.1 Research Objective

To assess the extent to which Community Based Wildlife conservation models have addressed the issue of food insecurity among the communities in the GMAs of Zambia.

1.4.2. Research Question

How has wildlife conservation impacted the food security of the people in Game Management Areas in Zambia?

1.4.2 a. Sub-questions

I. What factors are contributing to food insecurity?

II. How is the wildlife conservation management model affecting efforts to address food security in GMAs?

III. How are HWC issues being addressed within ZAWA institutional policies?

What initiatives are being implemented with government involvement on: a) Food security and b) mitigations of HWCs in GMAs?

IV. Which legal instruments and policies are addressing issues of food insecurity caused by HWCs in GMAs?

V. What other conservation models outside the ZAWA model are addressing issues of conservation HWC and food security in GMAs?

1.4.3. Method of Data Collection

The study sites were the Chiawa and Lupande Game Management Areas (GMAs) of Zambia. This desk review study employed a qualitative research method approach, where largely non-quantitative data was used. It also applied a combination of tools for purposes of data collection. Data was collected from various studies, mainly from the Zambia Natural Resources Management and Food Security forum, Zambia Wildlife Authority, and from institutions and Non-Governmental Organisations (NGOs) linked to the management of Chiawa and Lupande Game Management Areas, and most importantly, reviewing wildlife policy and legislation. These data sources established a basis for relationships with various concepts and themes to draw the analysis. Through this methodological approach, the study attempts to answer the question of how wildlife conservation management models have impacted food insecurity for the people living in Game Management Areas.

1.4.4. Research Obstacles

The study was constrained by limited access to institutional reports, information on earlier studies and interviews to verify some information.

1.4.5. Timeframe

The study was completed within four months, scheduled as follows: two months of proposal development, data collection and analysis, two months of report preparation and submission as indicated Appendix 1.

1.5 Key Terms used in this Study

Human Wildlife Conflict is defined as “any interaction between humans and wildlife that results in negative impacts on human social, economic or cultural life on the conservation of wildlife population or on the environment” (WWF-SARPO, 2005, p.6).

Human Development is defined as a process of enlarging people’s choices and building human capabilities (the range of things people can be and do), enabling them to: live a long and

healthy life, have access to knowledge, have a decent standard of living and participate in the life of their community and the decisions that affect their lives (UNDP Human Development Report, 1990).

Human Security is defined as "safety from such chronic threats as hunger, diseases and repression" and also, "protection from hurtful disruption in the daily life" encompassing food security focusing on the security of an individual rather than of the state (UNDP, 1994).

Food Security is defined as at the individual, household, national, regional and global levels, is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life (World Food Summit, 1996).

1.6 Significance of the Study

GMAs in Zambia are increasingly experiencing Human Wildlife Conflicts, with a negative impact on the food security of the people living in the GMAs. The need to gain an in-depth understanding on how the current models of GMA management address food insecurity is the driving factor in this study, as well as the growing concern to understand the effectiveness and impact of the Community-Based Conservation (CBC) model on both conservation and development.

Previous studies on Community-Based Conservation and Human Wildlife Conflicts have emphasized a conservation perspective; hence, the need to focus on the human dimension through examining how aspects of food insecurity are addressed. The study focuses on Chaiwa and Lupande GMAs selected on the basis of being the hotspots of wildlife populations and human wildlife conflicts in Zambia (CITES, 2010; Government of Zambia, 2010). The Lupande GMA is a foundation and pioneer for community-based resource management in the country. Generally, the two GMAs have received a lot of support from various well-established organisations with a clear mission to tackle wildlife conservation and community development challenges.

Therefore, this study specifically explores the impact of human wildlife conflict on food insecurity through a critical evaluation of Community-Based Conservation (CBC) models on local

communities of Game Management Areas in Zambia. It aims to generate information for critical analysis to gain deep insight on how the CBC model has impacted the food insecurity of local communities in the GMAs and identify opportunities for further research studies.

2.0 CHAPTER TWO – LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Literature Review

This section discusses the three bodies of literature: 1) the rise of the Community-Based Conservation approach, outlining the causes of the shift from the conventional conservation approach; 2) the debate surrounding the concept of community-based conservation; 3) Human Wildlife Conflicts as a conservation problem that threatens biodiversity conservation and human development.

2.1.1 The Rise of Community-Based Conservation Approaches

Until 1980, when the World Conservation Strategy was developed, conservation strategy was highly influenced by policies and practices of protectionism with a strong emphasis on the preservation of biodiversity, mostly through protected areas with the view to separate humans and nature (Adams & McShane, 1992; Adams, 2004). This World Conservation Strategy introduced the mainstreaming of sustainable development concepts into the field of conservation (Adams, 2001). The driving factors for this shift, among others, were: the failure of the conventional conservation approach, or the rather exclusionary neo-colonial model, referred to as "fortress conservation" (Brockington, 2002; Chabwela & Haller, 2010; Chapin, 2004; Igoe, 2004) to integrate conservation and development; failure to deliver conservation-based development to where it was mostly needed, especially in developing countries; and lack of support by local people for conservation (IUCN, 1980). The shift away from the fortress conservation approach was initiated by supporters of the idea of protected areas, who recognised that biodiversity-rich areas, especially in developing countries, were not effectively managed (Igoe, 2006; Brandon et al., 1998; Bruner et al., 2001, as cited in

Hutton, Adams, & Murombezdi, 2005, p.344). Hutton et al. (2005) attribute the change largely due to self-interest by the conservation constituency, which, by the 1970s, correctly realised that fortress conservation would be difficult to maintain politically in the face of people's needs and the position of their political leaders in countries with renewed democracies.

By then, the new conservation narrative supported the community-centred approach to conservation (Hulme & Murphree, 1999) based on the notion that "conservation cannot and should not be pursued against the interest and wishes of the local people" (Ghimire & Pimbert, as cited in Adams & Hulme, 2001, p.193). At a conceptual level, the community conservation narrative, unlike fortress conservation, recognised both the moral implications of the cost of conservation by local people and problems related to hostilities of the displaced or disadvantaged local people (Adams & Hulme, 2001). However, many perceive the 'community-centred' approach as a way of dragging communities into 'conservation' (Agrawal, 1997); the approach referred to as Community-based conservation (Western & Wright, 1994).This strategy became the basis for substantial financial investments in developing community approaches to conservation in the form of Integrated Conservation and Development Projects (ICDPs) and Community-Based Natural Resources Management (CBNRM) in the early 1990s (Adams & Hutton, 2007).

2.1.1a Community-Based Conservation Concept

The development of the Community-Based Conservation (CBC) concept was a response to the challenges of the ineffectiveness of the fortress conservation model with increasing poaching, which threatened some species to extinction (Agrawal & Redford, 2006; Chabwela & Haller, 2010; Hutton et al., 2005; Igoe, 2004; McNeely, 1995), although most scholars have strongly argued that CBC is not a panacea, nor an answer to the environmental problems, but rather, one of the strategies (Adams & Hulme, 2001, Berkes, 2007; Hulme & Murphree,1999). By the early 1990s, CBC programmes were dominant in most parts of the world. This concept has since evolved both in theory and practice (Adams & Hulme, 2001).

Community-Based Conservation (CBC) as a concept aims to achieve goals of biodiversity conservation and sustainable development in a single rubric or simultaneously in order to serve the interests of both (Berkes, 2004; Igoe, 2006). It is a paradigm from international conservation organisations such as the World Wide Fund for Nature (WWF), which suggested that the futures of both biodiversity conservation and indigenous people were inextricably linked on a global scale (Igoe, 2006). Kepe, Saruchera and Whande (2004) argue that the model was deeply rooted in the colonial policy legacy of pro-wildlife protection supported by 'euro-centric' approaches adopted by international non-governmental organisations championing the CBC model, especially in Africa, which creates conflicts in appreciating the value of conservation. The main objective behind CBC is to reconcile the conservation and development objectives by ensuring that the interests of local people are taken into account in making trade-offs (Adams & Hulme, 2001).

Various scholars have attempted to offer underlying assumptions of CBC based on different understandings of the concept (Kanna, Sweta, & Kameswara, 2011), while Brown (2002) asserts that CBC approaches are based on a different understanding of linkages between conservation and development. Hutton et al. (2005) affirm the view that CBC was developed on several premises. Firstly, communities were considered more efficient managers of natural resources within areas of their jurisdiction than other agencies. Secondly, community-based management led to improved incomes for communities, which would substantially contribute to poverty reduction and provide economic incentives for conservation. Thirdly, community-based management reduces human-wildlife conflicts leading to increased tolerance for wildlife and better outcomes for biodiversity conservation. Fourthly, community-based management would be more efficient than state-led projects, reducing the cost of management. Selfa & Endter-Wada (2008) agree that CBC is based on the assumption that local communities who had connections to, knowledge about, and interests in proximate resources should participate in the management of those resources.

At a conceptual level, CBC addresses key issues of access to benefits, composition of co-management arrangements, and representation in the decision-making process. The model assumes the encouragement of sustainable resources management, that local communities have similar beliefs

and needs, and that they will act cooperatively for the good of the community, which is basically untrue. The implementation of the model has been challenging; according to Brown (2002), the factors relate to oversimplification in the conceptualization of the community, participation, empowerment and sustainability. On the other hand, Barrent, Bradon, Gibson & Gjertsen (2001) maintain that the CBC's expectations of communities' roles and responsibilities were unrealistic, given that the local institutions are only one level in a multi-level system of strong institutions with interest in conservation. Agrawal and Gibson (1999) support the assertion that consideration of power structure, diverse players and perspectives are important, and in most cases, communities are the weakest parties in CBC initiatives.

Hulme and Murphree (1999) argue that the greatest challenge of CBC is to incorporate important components such as utilization, decentralisation and market access as the main strategy towards promoting a conservation agenda. At the same time, Murphree (2002) argues that the failure of community conservation is mainly in improper implementation, especially the aspect of devolution of authority and responsibilities, and not due to the weakness or impracticality of the concept. Selfa and Endter-Wada (2008) affirm that "despite espousing agendas of community-based conservation, international and state agencies retain authority over key decisions about natural resource management, use, and allocation".

Other advocates for CBC question the role of markets and associate the shift of the locus of power to local people by increasing participation in conservation activities (Western & Wright, 1994), mainly emphasising the importance of a sustainable use of resources over preservation (Berkes, 2004). Hulme and Murphree (1999) postulates that CBC was built on a belief that market linkages could contribute to the achievement of conservation goals. On the other hand, Lewis (2007) urges that commercial market linkages have the capacity to support financial sustainability among the impoverished local communities, whereas Ferraro and Kiss (2002) affirm that programmes aimed at making payments that are conditional on conservation performance are likely to be far more cost-effective than the currently popular indirect approaches to conservation. Nevertheless, Delang (2006) criticises the focus on commercialization of non-timber forest products, and has consequently

emphasized income from non-timber forest products rather than their consumption by the local people. Wild food plants are an efficient method of subsistence that can easily contribute to food security, and alleviating poverty should be encouraged. Barret et al. (2001) postulate that based on such external and foreign influences, traditional management systems risk the loss of their grip on social controls.

Adam et al. (2004) acknowledge that the debate about the social impacts of conservation programs and the success of community-based approaches to conservation should be interlinked. They further indicate the linkage between the problem of biodiversity loss and poverty alleviation. There was an increasing concern that global efforts to maintain biodiversity were in conflict with those of reducing poverty (Agrawal & Redford, 2006). The desire to achieve biodiversity conservation and poverty elimination goals packaged in projects plays down the incompatibilities between goals, giving rise to arguments that the CBC model where it has been implemented does not address people's interest; instead, it makes communities living near protected areas more impoverished than ever (Igoe, 2006; Kaimowitz & Sheil, 2007).

Accordingly, Adam et al. (2004) assert that combining goals of poverty alleviation and biodiversity conservation within the CBC model is not possible, but rather clear conceptual frameworks are needed if policies in these two areas are to be combined. Hjert (2006) explains that in most cases it was hard to make choices between conservation and development goals, as most choices would have significant cost to one goal or the other. This has resulted in different views of these costs, even if there is often the desire to package CBC programmes as clear win-win solutions. Furthermore, Hjert (2006) summarises the debate on connections and disconnections behind biodiversity conservation and poverty alleviation into four groups: 1) poverty and conservation are separate policy realms; 2) poverty is a critical constraint on conservation; 3) conservation should not compromise poverty reduction; 4) poverty reduction depends on resource conservation. The summary clearly suggests that combining poverty alleviation and biodiversity conservation is influenced by different principles and can also be overlapping in practice.

Redford and Sanderson (2000) state that CBC programmes should delink conservation from development objectives, as the mixing objectives do not serve either objective well. Brockington and Schmidt-Soltau (2004) argue for a balance between conservation and development, and insist that "a reconciliation that ignores either the social or ecological costs leads nowhere". The study by Kellert, Mehta, Ebbin, and Lichtenfeld (2000) indicates that CBC rarely resulted in more equitable distribution of power and economic benefits, reduced conflict, increased consideration of traditional or modern environmental knowledge, protection of biological diversity or sustainable resource use. Upton et al. (2008) assert that outcomes in which both poverty alleviation and conservation goals are achieved may be possible in specific circumstances, but clear choices often are needed to be made between conservation and livelihood goals. Hsing-Sheng (2007) suggests that priority should be given to conservation rather than development efforts, especially when internal institutions remain weak. However, Fletcher (2010) indicates an increasing critique to the CBC model's failure to achieve substantial conservation.

A counter argument from Agrawal and Redford (2006), based on their review of 37 peer review studies, indicates a possibility for the achievement of the goals jointly. Fisher et al. (2005) call for critically examining and reapplying strategies for achieving the goals of poverty reduction and biodiversity conservation because of the tendency to focus on broader national public benefits at the expense of local benefits.

In view of the above debate on CBC, the narratives on the CBC concept can be categorized into three groups. The first group is mostly of conservationists supporting CBC as a means for achieving conservation and development, while those in the second group are skeptical of the first group and consider the CBC concept as a conservation strategy that cannot achieve both goals. The third group consists of those who argue that CBC may achieve both goals of conservation and development under very specific circumstances. I align myself with the third group and conclude that CBC has failed to address fundamental goals because of a number of factors. Among the challenges of the CBC model was its failure to address human wildlife conflicts, which impact adversely on food security in and around protected areas.

2.1.2 Human-Wildlife Conflict as Challenge of Community-Based Conservation

This section provides the impact of human wildlife conflicts in global and national contexts and their consequent negative impact on human development, especially food security, the interest of this study.

2.1.2a Global Context of Human-Wildlife Conflicts

Human-Wildlife Conflict (HWC) is a multi-dimensional growing global problem (Distefano, 2005; Lamarque et al., 2008; Le Bel, Mapuvire, & Czudek, 2010; WWF, 2008). According to Human-Wildlife Conflicts Collaboration, it is not only a conservation and economic problem but also a social, cultural and political challenge. This view is supported and held by WWF (WWF-SARPO, 2005). However, many studies have indicated that HWC is increasingly posing great challenges and threats to the survival of biodiversity and humans in and around protected areas worldwide (Distefano, 2005; Lamarque et al., 2008; Nyhus, Osofsky, Ferraro, Madden, & Fischer, 2005; Woodroffe, Thirgood, & Robinowitz, 2005; Parker, Ikanda, Kissui & Kushnir, 2006). At the 5th IUCN World Parks Congress in 2003 in Durban, South Africa, HWC gained considerable global attention as one of the main conservation challenges and initiated global discourse through the global partnership Human-Wildlife Conflict Collaboration to implement Congress's formal recommendations under the auspices of Wildlife Society (Madden, 2004).

HWC occurs in all continents (see Lamarque et al., 2008 p.3-4) but is more severe in areas where humans coexist and share resources such as land, food and water with wild animals (Distefano, 2005; Le Bel et al., 2010). Badola and Hussain (2002) and Hill, Osborn and Plumptre (2002) contend that the most affected areas are developing countries cross Africa, Asia and Latin America, because communities are more highly dependent on the utilisation of natural resources, livestock raising and agriculture for food security and livelihoods than in the wealthier nations. The most common problematic species causing HWC are elephants, hippos, crocodiles, buffaloes, lions, leopards, tigers, wolves, jackals, and other taxa, such as primates, rodents and birds (Distefano, 2005; Perera, 2009; Wallace, 2010; WWF, 2008). The main causes of HWC are generally a range of anthropogenic

related factors (Perera, 2009), as empirical studies have shown that HWC have been on the rise both in frequency and severity because of human population increase and development, animal population increase due to conservation efforts (Jones & Elliott, 2006), and environmental degradation (Perera, 2009). Climate change is now predicted to exacerbate the problem, increasing the chances of interaction in the quest for habitable land, food and water, and thus fuelling resource conflicts (Distefano, 2005; Dhliwayo, 2007; Gregory, Ingram & Brklacich, 2005; Le Bel et al., 2010; Webbe, 2010; WWF, 2008).

The elephants are the most prominent problem animal species in the 50 states in Africa and Asia where they exist (Perera, 2009), because they are a threat both to crops and human life. However, Lamarque et al. (2008) contend that their impact on crops is less compared to other species, such as the red billed quelea quelea, rodents and locusts. Many studies on elephant-human conflicts in Asia (De Silva & De Silva, 2007; Sukumar, 2003; Jayewardene, 2004) and Africa (Hoare, 1999; Sitati & Walpole, 2006; Walpole & Linkie, 2007) show that despite a wide range of mitigating measures and management strategies implemented, the intensity of the problem is clearly increasing (see also Osborn & Anstey, 2002; Nelson, Bidwell & Sillero-Zubiri, 2003; Fernado, Kumar, Williams, Wikramanayake, Aziz & Singh, 2008; Madden, 2004).

The particular HWC vulnerability in the continent of Africa is also strongly attributed to the fact that the continent contains the world's largest wildlife reserves of large wild animals, such as elephants (FAO, 2010; Jones & Elliott, 2006; Parker et al., 2006). For example, Human-Elephant Conflict (HEC) remains pervasive throughout the landscapes of Africa (Lamarque et al., 2009; Walpole & Linkie, 2007). Meanwhile, the African human population is estimated to double from 0.8 billion to 1.8 billion in the next 40 years (ILRI, 2009). The literature indicate that HWC has existed for as long as humans have existed on earth (FAO, 2010; Lamarque et al., 2008), simply because humans have interacted with wildlife animals in the same landscapes and shared resources. According to Naughton, Rose, & Treves (1999) HWC is as old as agriculture.

Empirical studies indicate that HWC has a significant impact on food security; for instance, in Zimbabwe, elephants are responsible of three-quarters of crop damage (Muruthi, 2005), and in Ghana, 80 to 90 percent of crop raiding is attributed to elephants (Parker, 2002, as cited in Lamarque et al., 2008, p.4). Naughton et al. (1999) show that the average crop losses ranged from 0.2 percent (Niger) to 61percent (Gabon), while economic estimates of annual costs of elephant raids ranged from US$60 (Uganda) to US$510 (Cameroon) per affected farmer. However, the economic impacts are also severe. According to the study by WWF, in Namibia, a rough estimation of the combined costs of HWC to communal area farmers is US$1 million annually. In Riau, Indonesia, HWC and its prevention can cost individual oil palm companies as much as US$ 23,234 per year. In one study site in Nepal, the average damage by elephants is as much as 27 percent of the yearly income for each individual household (WWF, 2008). Kaswamila, Russell, & McGibbon (2007) assert that crop destruction had a significant negative impact on food security and cash; their case study in Tanzania indicates that the average crop damage across the three villages was a loss of 0.8 tonnes of maize and 1.3 percent loss of household income per household each year. These impacts discouraged local people from conserving wild animals.

Regionally, the Southern African Development Community (SADC) Technical Committee on Wildlife acknowledged that HWC was ranking as the number-one problem of African's rural population in terms of human security and food security, and the problem had been escalating over the years. In the continued efforts to address the global food security crisis, the Food and Agriculture Organisation of the United Nations (FAO) has been fully involved through a number of partnerships. The Forestry Department of the FAO has worked extensively on Human-Wildlife Conflict Mitigation programmes such as the project on Human Wildlife Conflict implemented in Ghana, a forestry publication on Human Wildlife Conflict in Africa; a publication of techniques for Human-Lion, Human-Elephant, Human-Baboon and Human-Crocodile conflict mitigation; a strategy for HWC mitigation in Mozambique, and so on. FAO has established a good network of experts and institutions working on HWC, and is presently working on HWC issues in collaboration with the International

Foundation for the Conservation of Wildlife (IGF), WWF, IUCN-African Elephant Specialist Group, and International Cooperation Centre for Agricultural Research for Development and other partners.

In Southern Africa, FAO has been working with the International Cooperation Centre for Agricultural Research for Development and the Bio-Hub, a consortium of conservation agencies, such as the Worldwide Fund for Nature (WWF), African Wildlife Foundation (AWF), Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), and the Community-Based Natural Resources Network, to develop a Human-Wildlife Conflict mitigation toolkit for possible problem-solving in Africa (Le Bel et al., 2010).

2.1.2b National Context of Human-Wildlife Conflicts

In Zambia, Human-Wildlife Conflicts are rampant in areas adjacent to Game Management Areas where human beings co-existence with wildlife. Human-Wildlife Conflicts include crop raiding, food storage facilities and property damage; attacking and killing livestock; and sometimes human loss. These have been perceived as disincentives for wildlife conservation and have forced humans to retaliate by killing the wild animals and their habitats (Jones & Barnes, 2006, WWF-SARPO, 2005). Crop raiding is ranked as the first cause of Human-Wildlife Conflicts and has been found to be increasing food insecurity among rural communities living in and close to the protected areas (Kaswamila et al., 2007; Webber & Hill, 2007).

The increase of Human-Wildlife Conflicts (HWC) in both frequency and severity in Zambia is supported by the incidence reports on crop raiding, food storage facilities and property damaged, including human injuries and loss of life caused by animals. The assessment by CITES panel in 2010 indicates that crop damage and loss of life were major problems facing the majority of villagers, with large groups of crop-raiding elephants limiting food production while a total number of 122 elephants were destroyed on problem-animal controls between 2005 and 2008, an average of 31 animals yearly in Luangwa and lower Zambezi valley. ZAWA records show that a total of 3,100 and 3, 643 problem-animal-related cases were reported in 2006 and 2007, respectively. Meanwhile, a total of 127 different wild animals were killed as a control measure, which presented an estimated loss in terms of

revenue from safari fees of US$ 496,680.00 (Zambia Wildlife Authority, 2007, p.10). A total of 9,969 elephant related reports were recorded by the Zambia Wildlife Authority (ZAWA) between 2002 to 2008, and over 95 percent of these reports were of crop damage (CITES, 2010, CoP15 Prop xx, p. 7). To address food insecurity for people in the GMAs requires some form of preparedness to reverse or minimize the effects of Human Wildlife Conflicts (IUCN – World Congress, 2003; Madden, 2004; WWF-SARPO, 2005). Kiswamila et al. (2007) suggest short term measures such as compensation schemes and soft loans to initiate non-farm enterprises, while Distefano (2005) suggests a combination of mitigative and preventative strategies.

2.2 Theoretical Framework

The complex nature of the issues relating to the CBC model in understanding its impact on conservation and human development requires a robust framework, which helps in analysing historical, socioeconomic, cultural and political aspects. This study adopts a political ecology framework, which later serves as a guide in chapter four.

2.2.1 Political Ecology

Political ecology was adopted as a theoretical framework for its broadness as a diverse and trans-disciplinary field developed by a number of different intellectual approaches. Bryant (1992) describes political ecology as a theoretical inquiry into developing ‘‘an integrated understanding of how environmental and political forces interact to mediate social and environmental change,’’ while others state that political ecology is not a concise theory but rather an ‘approach’ (Brown, 1998, p.74; Mena & Peralvo, 2009), ‘perspective’ (Neumann, 1992, p.87), or ‘complex’ (Bryant & Bailey, 1997, p.1). Its main aim is to understand environmental problems by emphasizing the centrality of politics and the complex interactions between people and environment (Hjert, 2006).

Likewise, political ecology acknowledges the dynamic interdependence of historical, cultural, social and political factors, which are intrinsically related to environmental problems (Boag, 2007), and most importantly recognises the unequal relations between different actors in explaining the

interaction of society and environment (Hjert, 2006). This forms the basis of the argument that environmental problems are not created by single and simple casual factors, but rather are manifestations of broader political and economic forces (Bryant & Bailey, 1997; Hjert, 2006; Mena & Peralvo, 2009; Schubert, 2005). Since the 1990s, many scholars in the field of political ecology have argued that the deep-rooted, complex sources of these problems need to be addressed by far-reaching changes in local, regional and global political and economic processes (Bryant & Bailey 1997, p.3). Further support from Mena and Peralvo (2009) indicates that political ecology questions how management practices, political and economic structures, and ecosystems are connected to produce different ecological patterns and socioeconomic processes; for example, deforestation or types of access and control over resources.

Political ecology first emerged in the 1970s, but really developed in the 1980s (Bryant & Bailey, 1997). In the field of geography, its origins are in critiques of ecological anthropology and cultural ecology, commonly traced to the studies of development geographer Piers Blaikie and cultural geographer Harold Brookfield (Brown, 1998). It emerged as a response to previous development theories that failed to take the environment into account, as well as those that did consider the environment but failed to incorporate political factors into their analytical frameworks. Its foundation is in neo-Marxism, and it uses structural explanations of human-environment relations (Boag, 2007).

Many scholars have defined political ecology from various perspectives to conform to their intended goal. Robbins (2004) asserts that political ecology is a generous term that embraces a range of definitions because of their diverse orientations related to the four main narratives within the field. These are degradation and marginalization, environmental conflict, conservation and control, and environmental identity and social movements. However, all the definitions are built on Piers Blaikie's original emphasis on multi-scale political economic processes that affect local resource use patterns (Zimmerer & Bassett, 2003). Meanwhile, Blaikie and Brookfield (as cited in Doyon, 2002, p.84) identify some basic commonalities as reflected in their definition.

Blaikie and Brookfield (1987, p.17) describe political ecology as a phrase that "combines the concerns of ecology with a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself." Similarly, Peet and Watts (as cited in Robbins, 2004, p.6) define political ecology as "confluence between ecologically rooted social science and the principles of political economy".

Watts (2000) states that political ecology "seeks to understand the complex relations between nature and society through a careful analysis of what one might call the forms as access and control over resources and implications for environmental health and sustainable livelihoods". Watts' (as cited in Robbins, 2004, p. 6-7) focus in defining political ecology is in the context of environmental conflicts, especially in terms of struggle over "knowledge, power and practice" and "politics, justice and governance".

Common to all these different definitions is the explicit alternative to apolitical perspectives that works from three fundamental, linked assumptions shared by all political ecologists. These are: 1) "accept the idea that costs and benefits associated with environmental change are for the most part distributed among actors unequally;" 2) "unequal distribution of environmental costs and benefits reinforces or reduces existing social and economic inequalities"; 3) "the differentiated social and economic impact of environmental change also has political implication in terms of the altered power of actors in relation to other actors" (Bryant & Bailey, 1997, p. 28-29). Furthermore, Robbins (2004) affirms that political ecologists not only share a common set of assumptions but also a similar mode of explanation and a rejection of 'apolitical' ecological explanations of social environmental change. The subsequent paragraph offers narratives often criticized by political ecologists.

2.2.1a Conservation-Related Narratives Contested by Political Ecology

From its inception, political ecology has challenged the two main narratives that form a basis of explanation regarding environmental problems, eco-scarcity and modernization. The eco-scarcity narrative is rooted in neo-Malthusian ideas on overpopulation being the cause of biodiversity loss (Robbins, 2004; Franklin, 2004). Brown (1998) argues that this explanation is simplistic and aims to separate people and biodiversity. The second group of popular narratives can be understood as modernization narratives that mainly bring forward the idea of developing countries to adopt models from developed countries in terms of politics, economies and values.

Some examples are reflected in the 1995 writings of Arturo Escobar on encountering development, the making and unmaking of the Third World in 'development discourses' of the global South, while the conservation counter-narratives are concepts of 'sustainable use' and 'community based conservation'. Sustainable use is defined in the Convention on Biological Diversity, and its argument rests on the fact that biodiversity must be valued in order to be conserved, and that value must be derived through utility (Campbell, 2002). Community-based conservation has roots in the World Conservation Strategy; its emphasis is a people-centred and participatory conservation, as economic benefits alone were not enough to secure local support for conservation (IUCN, 1980). The suggested environmental solutions such as use of modern technical, property rights and market-based payment for environmental services assume that the western conservation narratives were superior to those of the global South.

Likewise, for the neo-Malthusian position of arguments, political ecologists have found fundamental inadequacies with the modernization arguments. Escobar (1995) emphasizes the role of economists in the development discourses and strives to show how nature became an object of knowledge and a target for power. Igoe and Brockington (2007) criticise solutions such as market-based and community-based conservation as the doors of neoliberal conservation principles in developing countries. The proliferation of NGOs working with community-based conservation in

developing countries may also be serving to carry out neoliberal policies of development institutions (Igoe, 2004; Levine, 2002).

The next paragraph focuses specifically on political ecology for conservation and as an analytical framework for this study.

2.2.1b Political Ecology of Conservation

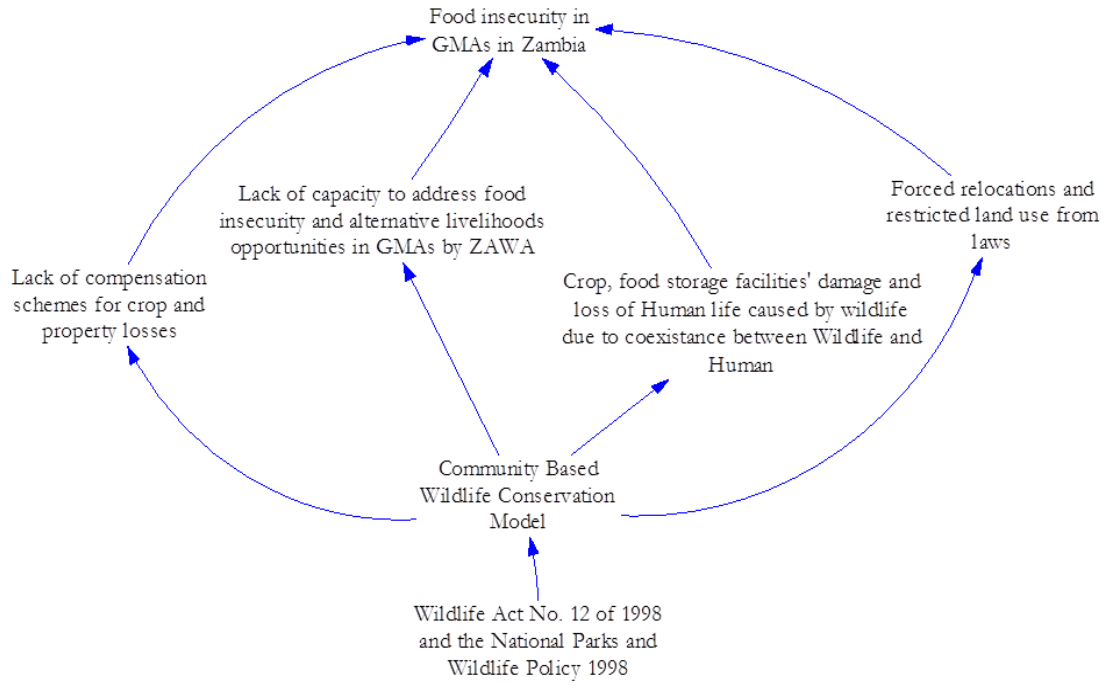
In recent years, political ecology of conservation has been recognised as an important analytical framework for considering the historical, social, cultural, economic and political dimensions in assessing the impacts of protected areas, which neo-Malthusianism and the modernization perspective do not adequately address. The political ecology of conservation offers a way of considering the conceptual and material place for human society within, and not outside, nature (Adams & Hutton, 2007; Escobar, 1998). In examining the Community-Based Wildlife management concept as a panacea to the challenges of Human Wildlife Conflicts, which eventually undermine food security in the Game Management Areas, the study adopts the political ecology of conservation perspective as advanced by Adams and Hutton (2007), using five of the six different dimensions.

Table 1. Dimensions of the Political Ecology of Conservation

Six different Dimensions of the Political Ecology of Conservation
1. The significance of how nature is understood for the way conservation has been thought about and practiced – in particular ideas about the separateness of humans and nature in concepts such as 'wilderness';
2. The nature, extent and significance of the social impacts of protected areas – particularly that of physical displacement;
3. The scale and distribution of economic costs and benefits from conservation;
4. The issue and politics of indigenous rights – particularly over identity and territory – and the potential clash with protected area designation;
5. The links between poverty and conservation – and in particular the broad potential and specific role of conservation in meeting global and local poverty reduction objectives;
6. The renewal of calls for "science-based" biodiversity conservation that focuses on a core agenda of conservation biology and a return to strictly protected, people-free parks.
Adapted from Adams & Hutton, 2007

Conceptually, I find CBC to be situated in a multi-level and complex system requiring appropriate approaches for understanding its complexity. CBC, to a large extent, has failed to address social, historical, cultural, economic, and political aspects in achieving its goals for conservation and development. The diagram below explains my conceptual understanding of Zambia's community-based wildlife conservation model within the Policy framework response to wildlife conservation and its impact on food security in GMAs.

Figure 1. Causality level of food insecurity in Game Management Areas



Source: Author

I argue that community-based wildlife management approaches have often not adequately accounted for the adverse impacts of wildlife conservation on the local people in GMAs. I concur with Barrett et al. (2001, p.497) that a more robust CBC design is desirable, which may "involve distributing authority across multiple institutions, rather than concentrating it in just one". Armitage (2008) supports this view and urges for flexibility and distribution of institutional forms. Political ecological interpretations, therefore, help to reveal the challenge of actualizing the CBC principles and the contextual forces that make entrenched, top-down management systems resistant to change

and provide tools to critique the cross-scale drivers that undermine local property rights and management practices (Armitage, 2008). I find the political ecology of conservation analytical framework adequate for understanding the interacting factors of political (policy and legislative limitation), socio-economic (opportunity costs from lack of compensation for loss incurred from damages caused by wild animals, restricted land usage and lack of capacity focus to address food security issues), and historical and cultural (displacement to non-arable areas mostly affected by ecological conditions) factors in explaining the CBC model in Zambia's wildlife sector discussed in detail in the next chapters.

Hence, there is need to re-examine the community based wildlife management model currently practiced within its current institutional and policy frameworks and how it impacts food security for the people living in the GMAs. The study explores the extent to which Zambian Community-Based Wildlife Management approaches have addressed the challenges of food security in the GMAs.

3.0. CHAPTER THREE- THE STUDY

This chapter provides a general overview of wildlife conservation in Zambia. First, it gives a brief description of the country, outlining its biodiversity and wildlife management regimes from the pre-colonial period up to 2011. Further, community-based wildlife management is discussed in detail as the main focus for the study.

3.1 Brief Description of Zambia

Zambia is a landlocked country located in South-central Africa, surrounded by Angola, Botswana, Democratic Republic of Congo, Malawi, Mozambique, Namibia, Tanzania, and Zimbabwe. It covers an area of approximately 752,972 square kilometres and has a human population of about 13.1 million, according to the 2010 census report of Zambia, which gives it a relatively low human population density compared to other countries in southern Africa. Situated in the tropics,

Zambia lies between latitudes 8 and 18 degrees south of the equator. Its climate varies with a shifting altitude of between 1,000 and 1,600 meters above sea level, which forms three distinct seasons: cool and dry from April to August, hot and dry from August to November, and warm and wet from November to April. Only the valleys of the Zambezi and Luangwa Rivers are hot, particularly during the warmest month of October, and it is only during the wet season that there is a noticeable degree of humidity.

3.2 Wildlife Conservation in Zambia

In terms of biodiversity, a large part of the country is covered by forest and woodland. By 1996, 80 percent of the country was dominated by the vegetation community of miombo woodland (Aspinwall, Bingham, Chuduma, Jeffrey, & Sinkamba, 1996). In the hotter, drier Luangwa and Zambezi valleys, mopane woodlands occur, with extensive wetlands and floodplains in various areas. However, vegetation cover has been decreasing as a result of human development related activities such as agriculture. In 2011, the Forestry department estimated that forest cover was 60 percent of the total country land mass. Some of these unique areas are protected under the IUCN protected areas categories as follows: 432 forest reserves, 19 National Parks and 36 Game Management Areas.

In these protected areas, it is estimated that the country has over 5,500 plant species; 1,400 species of vertebrate have been recorded including over 700 species of birds. Aspinwall et al. (1996) estimate at least 240 species of wild mammals with relatively little endemism. Zambia hosts several important sub-species of large mammals, including: Kafue Lechwe (Kobus leche kafuensis) Cookson's, Black Lechwe (Kobus leche smithemani) Wildebeest (Connochaetes taurinus cooksoni) and Thornicroft's Giraffe (Giraffa camelopardalis thornicrofti) (Alden, Estes, Schlitter, & McBride, 1995).

In the quest to protect its biodiversity, Zambia has designated about 30 percent of its land area (752, 614 squares kilometres) to wildlife management, 22 percent in the form of game management areas and 8 percent as national parks. It has a relatively long history of wildlife conservation and

management. Most important to its history is the long-term vision of perceived potential of economic growth through various tourism activities.

Game Management Areas are protected areas in line with category number IV of the International Union of Conservation for Nature (IUCN) typology. These areas buffer the National Parks and were primarily established for wildlife conservation and human settlement with the greatest potential for tourism development (Simasiku et al., 2010). GMAs are communal areas where people live with semi-subsistence agriculture and co-exist with wildlife (Tembo, Bandyopadhyay & Pavy, 2009). It is in these areas where the ZAWA partners with a community institutional structure known as Community Resources Board (CRB) to share wildlife management responsibilities and economic benefits from the tourism-related activities. The co-management of wildlife resources presents both opportunities and threats for communities (Fernandez, Richardson, Tschirley & Tembo, 2009).

3.3 Wildlife Management Regimes

3.3.1 Wildlife Management Regime during the Colonial Era

Before the colonial era, wildlife was part of African life, providing both food and skins for cultural events. In the Zambian context, traditional leaders (chiefs) were in charge of management and controlled wildlife resources on behalf of their people. The chiefs exercised control over hunting of wildlife species, just as they continue to control the communal land under the customary land tenure system. During the colonial era, wildlife ownership and management rights were withdrawn from the traditional leaders and vested in the state for strict preservation of wildlife species, mainly for game viewing and elite controlled hunting by Europeans.

The wildlife management regime was the fortress conservation model characterized by demarcating wildlife-rich areas into game reserves to protect wildlife from what the colonial masters termed “uncontrolled hunting, which would lead to extinction of wild animals” by the local communities and forcible removal of local communities from their ancestral areas rich in wild animals (Brockington & Igoe, 2006). By 1925, the first wildlife legislation was enacted as the Game Ordinance, which supported the declaration of the first Game Reserve, Luangwa Game Reserve,

followed by Kafue Game Reserve in 1950 and many others (WWF-SARPO, 2004). The first Government ministerial policy for the establishment of game reserves and use of wildlife was developed in 1958.

3.3.2 Wildlife Management Regime in the Post-Colonial Era

In 1964, Zambia was proclaimed independent, but the government continued to uphold the influence of the 'fortress conservation model', as described by Brockington (2002) and Igoe (2004) as a regime to protect wildlife through the creation of protected areas and militarised management of wildlife. Over the years, the policy amendments were effected to cater to the proposed protected area categories and supported by the National Parks and Wildlife Act No. 57 of 1968, which empowered the President to declare any area with high diversity of wild animals as a National Park, while abolishing the previous category. Two categories of protected areas were proposed as national park and game management areas supported by three legal instruments: the Game Management Area Declaration Order of 1971, the National Parks Declaration Order of 1972, and Statutory Instrument No. 44 of 1972. Following the enactment of the National Parks Declaration Order of 1972, all Game Reserves in place were transformed into National Parks except for Kafue National Park (Jachman, 2000).

3.4 Wildlife Management Legal Instruments

Zambia has a long history in the conservation of its wildlife resources as evidenced by the number and evolution of policies, institutional and legislation provisions to date discussed in the previous section. These are legal instruments that have supported the management of wildlife estates in Zambia, such as the 19 National Parks, 36 Game Management Areas, 2 Wildlife sanctuaries, 2 Bird sanctuaries and about 38 private Game Ranches. The National Parks are strictly for the preservation of wildlife resources; only non-consumptive activities such as tourism and educational projects are permissible. By contrast, the game management areas are buffer zones of National Parks meant for controlled hunting, in which other land uses such as human settlement and agriculture are permitted.

It is important to acknowledge that Zambia, like any other country, has been strongly influenced by international conservation agreements that have shaped the wildlife conservation and management regimes. To date, Zambia is a signatory to a number of international conventions and agreements. Key to wildlife conservation is the Convention on International Trade of Endangered Species of Flora and Fauna (CITES), Convention on Biological Diversity (CBD), the Ramsar Convention (Convention on Wetlands of International Importance, Convention on Migratory Species (CMS), and the Lusaka Agreement and Task Force. Some of the legal instruments have been beneficial, unlike the CITES, which has created a political controversy contributing to human-elephant conflicts because of its level of protection of the elephant population despite reports on increased threats to both food security and livelihoods in GMAs.

3.5 Effects of Strict Protection of Wildlife "Fortress Conservation"

Historically, wildlife management has been profoundly a political process, from the traditional system to national policy, in the post-independence era influence by euro-centric conservation ideas (Igoe, 2004; Adams & Hutton, 2007). Therefore, wildlife management practice entails the imposition of regulations over access to wildlife resources with specific people or institutions attempting to define who has access, while the negotiation outcome over wildlife resources is largely a reflection of power relations at local, national and international levels (Saberwal, 2000). Adams (2007) argues that conservation is never anything other than social and political.

None of the early post-independence wildlife policies in Zambia provided for community participation in both management and traditional use of wildlife resources. The early policies brought restrictions and denied rights to access wildlife resources, especially hunting, which brought resentment for wildlife managers and their institutions; thus, spurring illegal hunting or 'poaching'. This resulted in creating a new set of law enforcement strategies, such as 'fences and fines,' which demanded huge amounts of money to maintain anti-poaching patrol groups in the national parks. This situation proved problematic as it became a financial burden. Consequently, the state was unable to

finance all the anti-poaching operations of all 19 national parks. On the other hand, the reports indicated dwindling wildlife populations mainly due to heavy illegal hunting; for example, in Luangwa Valley the elephant population, estimated to be around 35,000 in the 1970s, declined to about 10,000 by the 1990s (Kelso, 1993). It is estimated that poachers had killed about 12, 000 elephants over the period of a 20 year span beginning in the 1970s (Kelso, 1993, p.69). Meanwhile, Kuper (as cited in Dunham, 2001) estimated 1740 rhinos in Luangwa valley, both in North Luangwa National Park and South Luangwa National Park, while about 50 rhinos were estimated in the Nsefu area of Lupande GMA.

By 1979, the aerial survey results of Douglas-Hamiltons, Hillman, Holt and Ansell (as cited in Dunham, 2001) indicated that the rhino population had declined to 867 rhinos in national parks of the Luangwa valley, while Lupande had a higher density, estimated at 66 rhinos. The aerial survey results were complemented by anti-poaching patrol observations, which indicated that 67 percent of the rhinos found dead in Luangwa Valley between 1979-1985 had axe marks on their skulls (Leader-Williams, 1988), providing strong evidence that illegal hunting was the cause of the decline in rhino numbers in the area. Dunham (2001) and Leader-Williams (1985a) argue that this illegal hunting was not for meat but for commercial purposes, as the rhino horns had high market prices, especially in the Middle East and Asia. Nevertheless, illegal hunting was not restricted to elephants and rhinos or to national parks in the Luangwa valley.

3.6 The Involvement of International Conservation Organisations in Zambia

In response to commercial poaching, both the conservationists and government proposed to increase funding for anti-poaching and intensify the law enforcement efforts in order to combat poaching. This was in the period when big international conservation Non-Governmental Organisations, such as World Wildlife Fund International (WWF-International), Wildlife Conservation Society (WCS) and International Union for Conservation of Nature (IUCN), the so-called “BINGOs” (Fletcher, 2010), had embarked on the mission of sourcing and raising funds to reinforce conservation efforts mainly for developing countries.

The Zambian Government, through the Department of National Parks and Wildlife Service (NPWS), and WWF responded by setting up the Save the Rhino Trust, whose aim was to combat commercial poaching for the ivory and horns trade, which had adversely affected the elephant and rhino populations (Faddy, 1982). The Trust initiated an anti-poaching unit in the Luangwa valley, which became operational in 1980 with funding of US$ 488,822 and was later supported by the Norwegian Agency for Development Cooperation (NORAD) through funding of US$ 50,931 for the period of 1984-85 (Save the Rhino Trust, 1986, p.194). Two anti-poaching units were set up in the Lower Zambezi and Luangwa valleys where poaching was heaviest (Faddy, 1982). Despite its heavy funding, the Trust failed to combat poaching, aside from the occasional arrests and confiscation of firearms. According to Dunham (2001), by the early 1990s, there were no black rhinos left in the country. Five black rhinos were reintroduced into North Luangwa National Park on 28 May, 2003 (Westhuizen, 2004), which brought the number to 25 rhinos by 2010. Prior to the reintroduction, black rhinos were presumably extinct due to illegal commercial hunting.

3.7 Birth of Community Based Conservation and its Challenges in Zambia

As a result of commercial poaching in the valleys of Luangwa and Lower Zambezi, the government and International NGOs were concerned with the rate at which elephant and black rhino populations were declining. The problem was attributed to the fortress conservation model that had alienated local people from traditional wildlife resources and denied them their user rights under the strict protection policies (Marks, 2001). It had become increasingly clear that development programmes neglected to address the problems of people in the Luangwa Valley. The ad hoc meetings over poaching in Luangwa Valley resulted in the so-called ‘Lupande Workshop’ of 1983, hosted by the Department of National Parks and Wildlife Service with the support of NORAD, which discussed possibilities for a catchment-wide project to combine wildlife protection, conservation of natural resources and effective land use planning to meet the needs of the people. The planning was initiated after the workshop and continued until 1985 (Dalal-Clayton & Child, 2003). 1986 saw the birth of the Luangwa Integrated Rural Development Project (LIRDP), a Community-Based Conservation

initiative in Zambia using an Integrated Resources Development Project (IRDP) approach. The aim of LIRDP was to promote conserving wildlife and rural development. At its core was the continued survival of wildlife, especially the endangered species, such as elephant and rhinos in South Luangwa National Parks and Lupande GMA, through harnessing the same wildlife resource revenues from hunting to improve the livelihoods of the people in Lupande GMA.

The rural development services provided were agricultural research, extension, and credit; a women's programme; water supplies; and milling and bus services. This was the large expenditure of a US$ 2.5 million annual budget of the 5 year term project between NORAD and the government of Zambia from 1896 to 1992, managed by the central government under the National Commission Development Plan (NCDP). LIRDP was the pioneer in providing wildlife revenues directly to the communities, forming the basis of and providing useful lessons for CBNRM in Zambia and Southern Africa. The period 1993-1999 was characterised by restructuring, as well as political and institutional struggles over its operations that generally proved it unsuccessful for several reasons. The reasons are discussed in the next section.

3.7.1 The Challenges of Luangwa Integrated Rural Development Project (LIRDP)

Politically, the initiation of the project was greatly supported by the former President Kenneth Kaunda, who was its patron. This project was under the National Commission Development Plan of the Ministry of Finance and National Development, which certainly made it more special than if it were in the Ministry of Tourism, where all the wildlife-related matters were managed in collaboration with the Department of National Parks and Wildlife Services (NPWS). In 1991, when President Kaunda lost the elections, the project lost its patron and suffered from loss of political will due to changes in policy by then-incumbent President Fredrick Chiluba; the project was later moved to NPWS under the Ministry of Tourism, which created difficulties in reporting procedure, as the structure was unclear and faced institutional challenges to operate under the NPWS (Gibson, 1999b). During this period, political support was a limiting factor in the implementation of community-based wildlife management, especially in the absence of policy until 1993, when the first wildlife policy was

developed (WWF-SARPO, 2004). This situation exposed the underlying linkages between political and socioeconomic tensions, along with the entrenched interests of the powerful elites in wildlife management.

The project was highly dependent on NORAD funding for its sustainability. In 1993, the annual funding was reduced to US$ 1.5 million; this could be attributed to the political environment and its associated changes that came just after former President Kaunda lost power in 1991. The project spent a large part of its budget on agricultural research, extension services, and roads, but underestimated the sociocultural influence of the local people. The project failed to address the sensitive and contextual issues of rights relating to access and ownership of wildlife resources (governance) and political economies (Dalal-Clayton & Child, 2003). The study by Gibson & Marks (1995) revealed that the project misunderstood some of the economic, political and social benefits of local hunting. As a result, the project succeeded in protecting some of the larger mammals only by virtue of their increased enforcement levels, not by the project's ability to distribute socioeconomic benefits; this view is shared by Wainwright and Wehrmeyer (1998).

Generally, the LIRDP provided the basis for CBC in Zambia. With its impact through the pilot project, the government, through the department of NPWS was convinced that if conservation was to succeed and gain acceptance, the realities of socioeconomic needs for the local people needed to be addressed. Through the support of the Ministry of Tourism, Environment and Natural Resources (MTENR), NPWS initiated the departmental policy of CBNRM strategies to set up its own pilot conservation project implemented under the Administrative Management Design (ADMADE) for the Game Management Areas. The ADMADE programme was managed by NPWS as a response to institutional struggle over suspected loss of wildlife mandate in the LIRDP and political interference from the one-party state under President Kaunda. It was purposefully designed in a way to capture support from chiefs, political actors and MTENR, but importantly engaged an international patronage of WWF and the United States Agency for International Development (USAID) for funding in order to alleviate the possible local political uncertainties, because the funding was tied to a bilateral

agreement and every country could not afford to breach an international agreement once signed (Gibson, 1999b).

With this strategy the ADMADE programme was implemented in 25 out the 34 GMAs and kept the decision-making structures separate from NPWS operations, which still remained under its management, however. The law enforcement officers were mostly recruited from the local people of chiefdoms in GMAs, while unit leaders were seconded from NPWS. ADMADE sought to channel revenues from safari hunting to form the Wildlife Conservation Revolving Fund to support livelihoods and law enforcement of GMAs. As for the community, ADMADE promised socioeconomic benefits, such as roads, schools, hammer mills, employment, as well as political benefits, in the form of decentralisation of management and decision-making power over the wildlife resources to the chiefs, as is typical of historical Zambian custom (Gujadhur, 2000).

Several studies on both LIRDP and ADMADE state that the two programs have successfully channelled significant sums of revenue from wildlife utilization to rural communities in the operational areas. ADMADE granted local communities about 35 percent of safari hunting revenues, while LIRDP was able to direct 100 percent of hunting concession revenues realised in the Luangwa Valley to locals; both programs have been widely cited as successful models of Southern African CBNRM (Child & Dalal-Clayton, 2004; Lewis & Alpert, 1997; Lewis, Kaweche & Mwenya, 1990). Nevertheless, some of the available literature shows that generally the two pilot CBC programmes failed; the reasons for this are discussed in chapter four.

3.8 Food Security Situation in Game Management Areas in Zambia

One of the major threats is Zambia's failure to sustain food security, and this remains a problem despite the occasional food surpluses recorded in certain years, such as the recent 2009/10 farming season with production growth up by 48 percent (Burke, Jayne & Chapoto, 2010). Despite this good harvest country-wide, Burke et al. (2010) estimate that about 10,000 people were food insecure, with a large proportion of this number living in GMAs, where the situation is worsened by the crop damage caused by wild animals. Zambia's 2005 Demographic Health Survey (as cited in

Simasiku et al., 2008) indicated that food insecurity was high in GMAs, supported by Fernandez et al.'s (2009) finding that household income levels were low compared to those outside the GMAs.

3.8.1 Factors contributing to Food Insecurity in GMAs

The section below discusses the factors that contribute to food insecurity, particularly in the Game Management Areas.

3.8.1a Policy and Legislative Framework

The failure to sustain food security is attributed to a number of factors, some of which are climate change related (droughts or floods). The 1998 National Parks and Wildlife Policy and 1998 Wildlife Act provided for the establishment of the Community Based Natural Management with a view to address the risk of food security and livelihoods of the local communities living in Game Management Areas (GMAs).

However, they have not attained food security and alleviation of poverty in the GMAs. The failure to achieve food security in GMAs is largely due to model design and implementation. The legal provisions in these two policies require human beings to coexist with wildlife species and thus, expose the local communities to the risks of food insecurity caused by crop raiding by problem animals. It is estimated that 80 percent of Zambia's rural population depends on agriculture for both livelihood and food security. Legally, communities in the GMAs are not restricted from agriculture, but are generally characterized by human settlement and farmlands (WWF- SARPO, 2005).

The farming encouraged and practiced in GMAs aims at ensuring that wildlife continues to exist in the area by not completely destroying habitats or blocking the migratory corridors. Fernandez et al. (2009) indicate that these areas are prone to crop damage from wild animals, such as elephants, hippos, wild pigs and some birds, such as quelea quelea (Markula, Hannan-Jones & Csurhes, 2009). Zambia Wildlife Authority (ZAWA), a legal institution mandated to manage wildlife resources in Zambia, partners with legally recognized community organizations called Community Resources Boards (CRB) to share wildlife management responsibilities and economic benefits from the tourism-

related activities in the GMAs. The coexistence of human beings and wildlife presents opportunities for both conflict and benefits.

The weakness of the aforementioned policies is reflected in the focus on wildlife protection, a factor that relegates agriculture to secondary importance in ZAWA activities. Fernandez et al. (2009) provides support for the view that policies have been "successful in protecting wildlife but have been unable to prevent (or to focus on preventing) wildlife from destroying agricultural fields" (Fernandez et al., 2009, p.3).

3.8.1b Lack of Compensation for Crop Loss and Damage

A further weakness in the two policies, already mentioned, is lack of provisions for compensation for both loss of life and crop damage. This lack of compensation undermines both agriculture and food security. It implies that communities who incur costs of living with crop damage will have to achieve food security on their own, departing from the core principle of the policy to support community development. For instance, the elephant population, in the six years between 2002 and 2008 grew from 22,000 to 27,000, worsening the already existing problem of crop damage and destruction of food granaries, which directly impacts the food security in GMAs (Mataka, 2010). Meanwhile, a total of 9,969 reports were made to ZAWA between 2002 and 2008, and over 95 percent of the reports were of crop damage (CITES, 2010, CoP15 Prop xx: 7).

3.8.1c Lack of Alternative Livelihoods

The study by Simasiku et al. (2008) revealed that the current CBC model does not provide evidence of programmes supporting alternative livelihoods to the local communities. There was evidence to support the lack of knowledge and expertise within ZAWA to help the people living in the GMAs to develop the capacity for alternative livelihoods that can sustain food security. Other factors contributing to Zambia's failure to attain sustainable food security for those living in the wildlife estates include variability of rainfall patterns induced by effects of changing climate; the semi-arid condition of most GMAs; and the low capacity of local farmers in GMAs to deal with climatic

challenges and soil fertility. These points cannot discount the need for the government to act proactively through the two policies discussed above to address food insecurity for people in these areas who form part of the larger population of Zambia.

3.8.1d Restricted Usage of Funds

The community proceeds generated from consumptive utilization of wildlife are restricted to socioeconomic development at the community level. While the Wildlife Act provides for the sharing of economic benefits realized from wildlife based tourism activities with local communities, the utilisation of the funds is limited to community development and investments in public infrastructure and services, such as schools, clinics and roads. The funds hardly reach household levels for possible compensation to offset the losses from animal crop damages. Simasiku et al. (2008) found that the income of people in GMAs was lower than those in non-GMAs, and this was the same with agricultural productivity and financial sustainability. The study further shows that GMA communities were 30 percent poorer than average Zambian rural communities. The capacities of most GMAs were far from satisfactory in sustaining food security: only 10 out of 36 GMAs were found to be sustainable.

3.8.1e Adaptive Management of Local Institutions

The local community institutions have lacked the capacity for adapting to the CBC model. The policy and legal framework in which the Zambian CBC is implemented does not provide a necessary mechanism for adequate community resources management. The power relationship with ZAWA in community partnerships is not well balanced at the level of decision-making. ZAWA has an upper hand in decision-making when determining resource allocation; it determines what can be accessed and how the resources can be utilized by communities. The second level of power imbalance happens at the level of Community Resources Boards; that is, between chiefs and the communities. Though the chiefs are not directly members of the CRBs, their influence strongly affects the outcome of CRBs, in most cases to the advantage of the traditional leadership.

3.8.1f Establishment of Game Management Areas as Causal Factor

The fortress model that influenced the establishment of national parks was characterized by displacement of people living in the areas now designated as National Parks, militarising the management of wildlife resources. The strict laws restricted the user rights enjoyed under traditional hunting and gathering systems, which form part of their food consumption practices, therefore, adversely impacting food security, as most people were relocated to areas that do not support agricultural activities, compounded by lack of agricultural extension services from the Ministry of Agriculture and Cooperatives (MACO). The state's declaration of wildlife-rich areas as GMAs for wildlife conservation was arbitrary; it did not take into consideration the people's needs and interests. Consequently, through the relocation of human settlements in the GMAs, the communities were exposed to crop raiding and continue to incur opportunity costs of restricted use of the land. While the co-management programs have channelled significant resources to communities while preserving wildlife, they have failed to address crop damage and other losses from HWC directly related to the communities who incur and suffer losses resulting from the increase in wildlife populations as a function of this conservation success.

3.8.1g CBC model as a Response to Food Insecurity in the GMAs

This section examines the application of the CBC model in relation to addressing food insecurity challenges by focusing on the Chaiwa and Lupande GMAs. The two GMAs, employing different CBC approaches, were reviewed to assess their relative responsiveness in addressing the challenges of attaining food security. These two GMAs are the most susceptible to high crop raiding due to increased wildlife populations, especially the most problematic and highly mobile animals, such as elephants and hippos.

3.9 Study Areas

This section discusses the two CBC model approaches practiced in Chiawa and Lupande GMAs. It assesses the impact of the approach on HWC and food security.

3.9.1 Chiawa Model Approach

3.9.1a Description of Chiawa GMA

Chiawa GMA is located in the Kafue District, in the Lower Zambezi valley in Southern Zambia. It buffers Lower Zambezi National Park with an area of 2, 344 square kilometres. Chiawa GMA also shares boundaries with Zimbabwe and borders with the Hurungwe Safari Area and Mana Pool National Park on the Zimbabwean side. The Zambezi River forms a natural boundary with the Mana Pools National Park in Zimbabwe. Chiawa GMA is considered a prime GMA because of the variety of large mammal species found in the area. Also, much of the biomass is concentrated in the lowlands of the valley along the Zambezi River, including extensive stands of Acacia species, which generate large amounts of food during the dry season and help to sustain the wildlife. Elephant numbers fluctuate seasonally, but there are estimated to be around 500 animals on the valley floor.

Figure 2. The Location of Chiawa GMA in Zambia

Source: Google maps

Chiawa GMA is also situated in the Zambezi heartland under the African Wildlife Foundation (AWF) landscape. Chiawa is zoned in two parts: Eastern and Western. The area is occupied mainly by the Goba people who have inhabited the GMA, with their traditional customs, beliefs, knowledge and skills essentially supporting their survival. This is evidenced in the number of cultural and

heritage sites reflecting a rich cultural and historical background of the people. The culture can be traced through old settlements, sacred sites and historical areas (General Management Plan for Lower Zambezi National Park, 2006).

Human settlements are restricted in the Western part due to the Zambezi escarpment; thus, most people are concentrated on the floor of the valley along the Zambezi River, where the alluvial soil supports agriculture and, to a lesser extent, livestock production, the main activities of the local people. Other economic activities in the GMA include hunting, fishing and tourism. Like other areas rich in wildlife, the human populations in Chiawa GMA experience a lot of HWC. Most of these conflicts are centred on crop and property destruction, sometimes involving human loss from elephants, pigs, baboons and antelope. Of these problem animal species, elephants, bush-pigs, baboons and hippos are the most pronounced (Government of the Zambia, 2010). Elephants, crocodiles, lions and hippos have all been known to kill people (and livestock in the case of crocodiles and lions). The local communities in Chiawa GMA consider elephants as pests that ought to be destroyed for their disruptive and destructive nature to human lives and livelihoods. Most incidents of damage to crops occurred during the rains between February and April.

3.9.1b The CBC Model approach used in Chiawa

Chiawa GMA is managed through the Zambian adopted CBNRM model of 1998 which advocates for devolving power and decision-making processes to local communities in order to establish principles of local ownership of natural resources within chiefdoms. The model is practiced in a co-management approach with the Zambia Wildlife Authority. This CBC model assumes that sharing both management authority and distribution of economic benefits realized from wildlife related activities with people living in the GMA and incurring the cost of living with wild animals will increase wildlife tolerance. Wildlife tolerance by the local communities will facilitate co-existence, the anticipated goal of the establishment of GMAs, and thus contribute to wildlife conservation. Secondly, it assumes that local communities resort to poaching because of not realizing benefits from wildlife conservation.

ZAWA partners with the local communities of Chiawa Chiefdom in Community Resources Boards (CRBs). It comprises the following members: 7-10 members democratically elected by the local community, 1 representative of the local authority in the area, and 1 representative of a traditional leader (chief). Meanwhile, Chieftainess Chiawa is the matron to the CRB; therefore, the Chiawa CRB provides the link between the ZAWA and the local communities. In return for their participation in the management of the wildlife resource, communities receive a share of revenue arising from consumptive utilisation of wildlife. The current agreed ratios between ZAWA and the CRB are presented in the table below.

Table.2 The distribution of income in ratio terms for ZAWA and CRB in Chiawa GMA

HUNTING FEES BY PERCENTAGE	
Local Communities (CRBs)	45
Chiefs (Patrons)	05
ZAWA	40
Central Treasury	10
CONCESSION FEES BY PERCENTAGE	
Local Communities (CRBs)	15
Chiefs (Patrons)	05
ZAWA	80
CRB is expected by law to utilise these public funds on local community agreed socio-economic development projects such as schools, health centres and feeder roads. Guidelines on the utilisation of community funds are in place. It was agreed with CRB representative in 2004 that 45 percent of their revenues would be spent on wildlife protection, 35 percent on community projects and 20 percent on administration of CRB. Adapted from ZAWA website, Retrieved 25 June, 2011 from http: http://www.zawa.org.zm/cbnrm.htm	

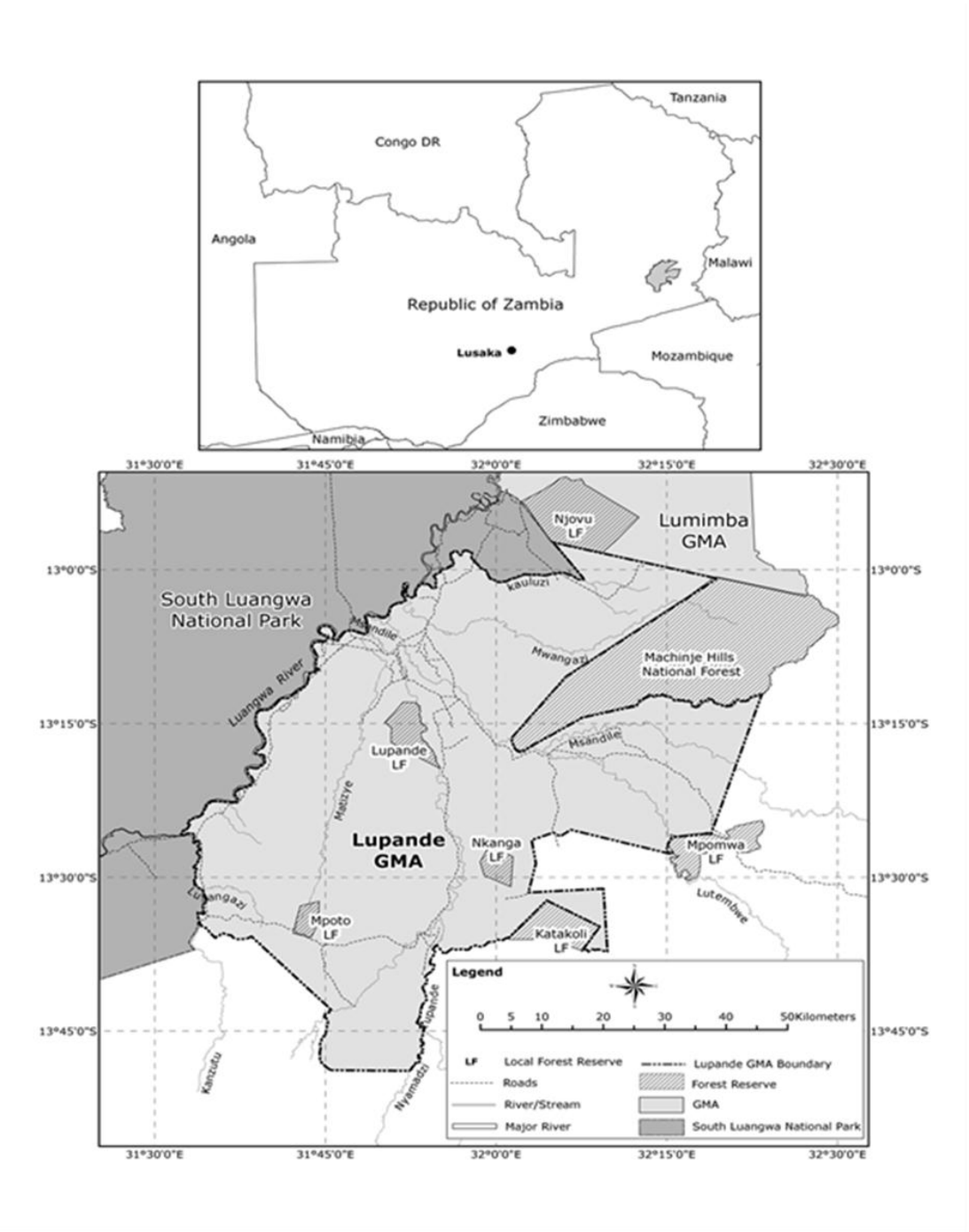
The main function of the CRB is to promote and develop an integrated approach to the management of human and natural resources in a GMA. The CRB structures enhance management and sustainable use of wildlife resources in the GMA as a way to allow communities to participate in wildlife management. Through this co-management, rural communities are encouraged to actively participate in food security and livelihood activities, particularly as this relates to crop damages.

3.9.2 Lupande CBC Model Approach

3.9.2a Description of Lupande GMA

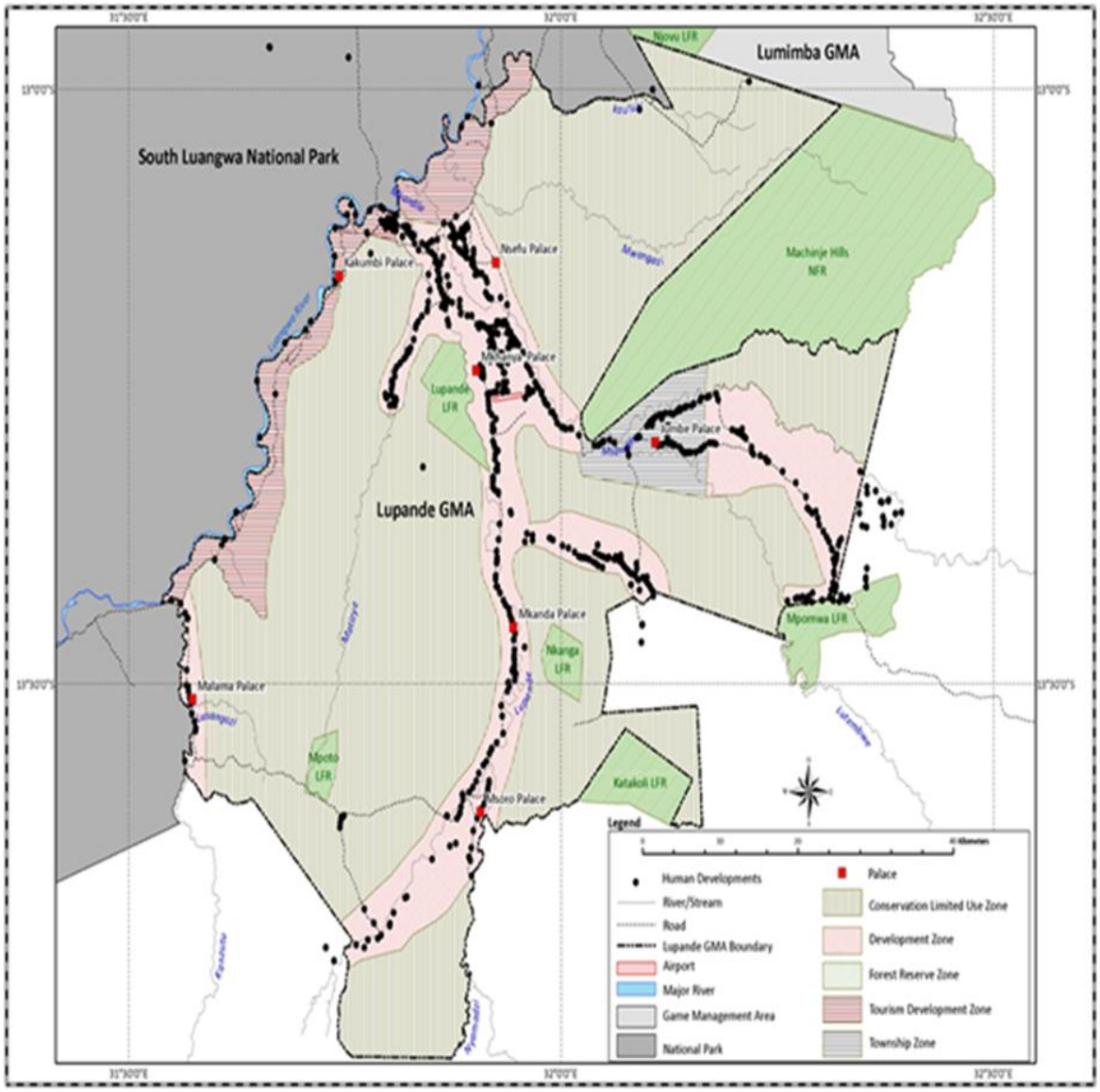
Lupande, located in the Luangwa valley of Eastern Zambia, with an area of approximately 4,840 km2, is one of the Game Management Areas (GMA) where HWCs have been on the rise, particularly due to the large and diverse population of wild animals, along with a recent increase in the human population, largely resulting from expanding economic activities such as tourism and agriculture. By 2010, the Lupande GMA comprised six Chiefdoms with an estimated total population of 45,000 people (Nyirenda, Chansa, Myburgh & Reilly, 2010). The Human Wildlife Conflicts have also been increasing as a result of the inevitable interactions between humans and wildlife. Most conflicts result from crop damage, injuries to humans and loss of life, damage to livestock, granaries, water sources and other properties. Elephants are the greatest contributor to crop damage. A research proposal to FAO by the Zambian Government indicates that elephants were the most problematic animals, causing 53 and 50 percent of crop damage during the wet and dry seasons respectively (Government of the Republic of Zambia, 2010, p.9).

Figure 3: The Location and Boundaries of Lupande GMA



Source: Chaka Kaumba, ZAWA GIS Centre

Figure 4: Conservation and Human Development Activities in Lupande GMA



Source: Chaka Kaumba, ZAWA GIS Centre

3.9.2b CBC Model approach used in Lupande GMA.

The conservation approach is based on a public-private partnership, called Community Markets for Conservation (COMACO). The model focuses on a transformative approach to skills for livelihood and conservation. The model is implemented through COMACO, which is a non-profit

company. It uses a business model under a programme of the Wildlife Conservation Society to develop synergies between agriculture, markets and conservation (Lewis, 2007). The emphasis of the model is on achieving food security at the household level by creating markets for the products of people living in the GMA, with the ultimate goal of securing self-employment and better agriculture producers using conservation-friendly farming. The assumptions of the model are, firstly, that improving livelihood and securing food production using conservation-friendly farming with guaranteed access of people to markets would address rural development and conservation; and secondly, that conservation and development goals can only be achieved through a pluralistic approach based on a Private Public Partnership (PPP) run as a business entity. The model is not limited to wildlife conservation but functions in other sectors as well.

4.0 CHAPTER FOUR - FINDINGS AND DISCUSSION

This chapter presents the discussion on the findings of the CBC model application in the wildlife sector with the particular focus on food security as a proxy indicator for human development. The discussion is divided into two parts: the first part focuses on earlier CBC implementation from 1984 to 1999, and the second discusses the current CBC approaches implemented from 2000 to 2011.

4.1 Community-Based Conservation Implementation from 1984 -1999

Generally, the CBC implementation during this period is considered a failure in achieving food security for people living in the GMAs, mainly due to challenges arising from political processes, socioeconomic aspects, governance structures and institutional operations (Dalal-clayton & Child, 2003). I discuss the reasons behind the challenges and ineffective application of the earlier two CBC approaches: the Luangwa Integrated Rural Development Project (LIRDP) and Administrative Management Design for Game Management Areas (ADMADE).

LIRDP and ADMADE failed to effectively devolve rights over wildlife or distribute its decision making powers and resources to local communities, although they advocate such reforms in

official policies and received extensive donor support based on these approaches (Nelson & Agrawal, 2008; Mark, 2001). According to Arce (2003) these two programmes were highly centralized in nature and only possessed superficial characteristics of "community development" although they addressed the notion of sustainable livelihoods, they failed to consider the diversity of local life and realities, such as traditional hunting and gathering for food and animal skins for their traditional culture ceremonies.

Both ADMADE and LIRDP suffered a number of political, institutional and administrative difficulties as well. Donor dependence was another issue, as the donors had their own priorities in funding. ADMADE was funded by donors who were against the killing of wild animals through hunting. The implication of the restriction of communities' access to wildlife resources meant that the CBC model was a shadow of the fortress conservation, highlighting the geopolitics and euro-centrism of conservation on the local level (Igoe, 2004). At the national level, the political transition from one party to pluralism impacted heavily on the operation of LIRDP because of the loss of political support previously enjoyed with the President as a patron. This transition affected the project's funding, institutional structures and political will. Administratively, management and disbursement of finances intended to fund community resource management and community development were flawed; remittances were either not paid in full or not in a timely manner. ADMADE is criticised for its lack of transparency and accountability with notable records of mismanagement of funds. Local communities were excluded from decisions about funds realised from safari hunting as beneficiaries (Marks, 2001).

According to Gibson and Marks (1995), both ADMADE and LIRDP had failed to transform rural hunters into conservationists as conceptualised. The study showed that hunters continued to kill game at a similar rate before and after the programs. Gibson (1999a) stated that ADMADE and LIRDP equally failed to defuse the long-standing hostility between wildlife scouts and the local communities. Generally, the failure in both programmes is a result of the lack of contextualization of local needs. Rarely are socioeconomic impacts of CBNRM analysed in a broader context (Arntzen, Setlhogile, & Barnes, 2007). This position is supported by Gibson (1999a) in his argument that both

administrators of the programmes misunderstood the decision problems of chiefs, wildlife scouts, and local hunters by focusing on collective rather than individual benefits. On the other hand, both ADMADE and LIRDP were economically efficient, contributing positively to community income and employment, thus appearing to generate significant positive financial benefits at the community level but still failing to provide clear programmes supporting household income and people's welfare. This is intensified considering the costs of living with wildlife (human-wildlife conflicts). The picture is usually less clear at the individual household level (Arntzen et al., 2007). Although many agricultural based rural communities may accept the economic values attached to wildlife, other sources of security, such as maintaining and consolidating significant social relations through culturally mediated resource distribution, are also important (Marks, 2001).

4.2 Community-Based Conservation Application 2000-2011

Transformation of the National Parks and Wildlife Service into the more autonomous ZAWA in 1999 was part of the effort to streamline operations of the country's wildlife sector for economic diversification and growth. ADMADE and LIRDP became defunct following the enactment of the Zambia Wildlife Act No.12 of 1998 and the National Parks and Wildlife Policy of 1998, which provided specific CBNRM provisions for participation of local communities in wildlife management through CRBs. Despite the changes in the CBC structure and approaches, the study of Chiawa and Lupande GMAs revealed significant inadequacy in strategies for achieving food security. The reasons contributing to inadequacy are discussed below.

4.2.1 Chiawa GMA – ZAWA CBC Approach

Operationalizing the concept from CBNRM theory using local structures was found to be problematic. Even though the policy and legal framework provided for the co-management of wildlife resources with communities in the GMAs, the practical mechanisms for implementation were challenging, as the Wildlife Act is clearly empowering ZAWA with the responsibility of wildlife management, although the policy recognises the principle of co-management with the local communities. This forms the genesis of the power imbalance between ZAWA and CRBs. (See Table

2.) The previous chapter's discussion is very illustrative of the power imbalance present at two levels: first, between ZAWA and the community involved through Community Resource Boards (CRBs); and second, between the traditional leadership and the Community Resource Boards. There was also evidence of traditional leadership exerting undue influence at the level of programme implementation. The participation in CRB activities was found to be limited to the elite members of the community. The study revealed further the unequal distribution of benefits realized from the CRB activities among the community members: just as observed in the ADMADE and LIRDP, no benefits were directed at the household level. This brought doubt as to whether ZAWA would constitute a genuine partner in the current legal framework as the national wildlife regulator.

The ZAWA CBC approach was weak in providing a mechanism for addressing human wildlife conflict in the GMA arising from crop raiding by wild animals. In fact, there was evidence of ZAWA's insignificant investment in preventive measures for mitigating human wildlife conflicts, such as use of non-lethal technology. The study revealed occasional killings of problem animals as a means for addressing community conflict. Between 15 – 50 elephants were reported killed by ZAWA annually according to the report of the Panel of Experts on the African Elephant on the review of the proposal submitted by Zambia to transfer its national population of Loxodonta africana from Appendix I to Appendix II (CITES, 2006, CoP 12 Doc. 66 Annex 4).

The CBC approach in Zambia lacked a mechanism for compensation for damage to crops, or loss of property and human lives, leading to the poisoning of wildlife by the local community (Lower Zambezi General Management Plan). In Chiawa, the problem was further compounded by unreliable transport, limited patrols and the vastness of areas that needed to be covered in the GMA in response to HWC. While the policies clearly support co-management of wildlife resources with rural communities' participation in the efforts to address food security and livelihoods as it relates to crop damages, in practice ZAWA was found to have the sole responsibility of managing problem animals because of the provisions of the Wildlife Act. Community roles are not well stipulated apart from reporting on the damages and losses. The ownership of the wildlife resources is contested due to the

community perception that ZAWA owns the wild animals because of its regulatory functions, Nyirenda et al. (2010) assert that the rules related to ownership of wildlife are not well defined.

The ZAWA CBC approach in Chiawa was constrained financially to provide the resources to operationalize mechanisms for addressing HWC in the GMA and supporting food security enhancing programmes. The Chiawa GMA serves as a corridor for elephants migrating between Mano Pools National Park in Zimbabwe and the Lower Zambezi National Park in Zambia, and thus, is highly susceptible to crop raiding, causing conflicts. The most reliable method of deterring elephants is through chilli repellents, usually by planting chilli as fences around the crop fields. Chilli fencing, as a mitigation strategy, is very expensive for local communities in Chiawa, requiring a huge initial investment. The follow-up programme to the 2008 chilli fencing trail was hampered by associated costs.

The partnership between ZAWA and CRB within the CBC model did not provide a sustainable programme offering alternatives for people to improve their food security caused and threaten by continuous crop and livestock damage from wild animals. Despite Chiawa being one of the GMAs with high income potential from hunting and tourism related activities, the proceeds would not be channelled towards food security and alleviating poverty. The human development programme targeted at building the capacity of the local community to addressing conflicts arising from the coexistence with animals was poor. The HWC programme was held on an ad hoc basis and to a large extent left to international organisations, such as African Wildlife Foundation and Conservation Lower Zambezi operating in the area.

4.2.2 Lupande GMA – Community Markets for Conservation CBC Approach

The study revealed that the Community Markets for Conservation (COMACO) approach, unlike the ZAWA approach in Chiawa, had programmes focusing on food security and alternative livelihoods. The food security programmes promoted conservation friendly farming with an emphasis on organic and crop diversification. COMACO also provided markets for surplus products for the rural farmers in the Lupande GMA. The capacity building programme was evident in Lupande with

most activities focused on transforming the capacity of the local communities to develop livelihoods and food security, including creating incentives for poachers and charcoal burners to become farmers. There was also sufficient support for the approach from the Ministry of Agriculture and ZAWA in terms of training and provision of extension services. COMACO's use of a pluralistic approach in addressing conservation and food security was supported by the government and other partners. The evidence is at the level of seed multiplication, training for rehabilitation and in providing linkages for farmers to institutions providing extension services. However, there was a noticeable missing link between farmers working with COMACO and the Food and Reserve Agency (FRA) provided markets.

Access to alternative markets was adversely impacted by the poor road network in the Lupande GMA, with the potential for increasing costs of transportation. The situation also affected negatively the market commodity price, putting the local farmers at a disadvantage. To address this, COMACO was expected also to provide market linkages for the rural farmers to the Food Reserve Agency (FRA), by encouraging government to locate its subsidised markets for agricultural products close to or in the GMA to minimise the transport-related costs and hardships for rural populations.

While COMACO emphasizes providing community markets for conservation by securing stable markets at fair prices for its members, in the long run, farmers may be exposed to unfair trade conditions. The cooperative schemes implicitly tie the farmers to one big market player, in this case COMACO. While this is a good rural market strategy, the approach can be exploitative as cooperatives by nature create a culture of monopoly in price regulation and services provision. It introduces a capitalistic agenda, especially since COMACO runs as a business entity. The findings on COMACO provided credit schemes for its members was not clear on whether the interest rates were better than those offered by the commercial lending institutions. The agriculture approach adopted by COMACO can be questioned in relation to attaining food security. Its farming technologies emphasizing organic farming posed some risks as diverted from the conventional farming practice in the GMA for a long time. While it is appreciated that the approach promoted biodiversity conservation by reduction in pollution and its adverse impacts on natural resources and the

environment, it is associated with great challenges of addressing agriculture issues associated with plant nutrition, plant disease, pest management and weed control. At the production level, it raised issues of food safety associated with food processing entrusted to the local community, who may not have skills.

Generally, the sustainability strategy for COMACO as a programme of the Wildlife Conservation Society (WCS) had a seemingly weak financial base, as most of its programmes implemented were heavily donor dependant. For example, numerous proposals were submitted to various donors, including the Norwegian Agency for Development Cooperation (NORAD), for the second phase of the programme. Kabeta et al. (2007) was skeptical of the COMACO model as a panacea for poverty eradication, but rather saw it as a model that would contribute to poverty reduction in protected areas. While COMACO had implemented mitigation measures for preventing crop and property damage from problem animals, the model seems to fall short of a clear mechanism for addressing human wildlife conflicts that arise from the interaction between the farming community in Lupande and the Zambia Wildlife Authority as the regulator and custodian of wildlife on behalf of the Zambian people. Even the mitigation efforts were found to be species specific, such as in the use of chilli as an elephant repellent, ignoring a range of problem animals causing human wildlife conflicts, including wild pigs, hippos, antelopes and birds.

5.0 CHAPTER FIVE- RECOMMENDATIONS AND CONCLUSION

5.1 Recommendations

5.1.1 Policies and the legislative framework should be reviewed in order to address compensation alternatives for those who incur and suffer socioeconomic losses from wild animals, especially in GMAs. This proposal should be contextualized within the national development strategy and particularly on poverty alleviation for rural communities.

5.1.2 The policy must form an agency in the Ministry of Tourism with a mandate to promote and develop socioeconomic programmes for uplifting the welfare of people living in the GMAs. The

rationale is that ZAWA is a pro-wildlife conservation institution full of wildlife expertise, which requires complementary efforts from a specialized mandated institution to foster human development.

5.2 Conclusion

The implementation of the CBC model in Zambia was found to be situated in a multi-level complex system. Its implementation was multifaceted based on historical, cultural, social, political and economic contextual factors. These factors contributed to its poor performance and failure to achieve food security as a proxy indicator of human development, according to the findings in this study. There was a general recognition that human wildlife conflicts mostly resulted from crop raiding, property damage, human injuries and loss of life with a significant negative impact on community welfare. The CBC model approach did not have clear and adequate mechanisms for addressing conflicts arising from the interactions between human activities and wild animals. Similarly, a compensation mechanism was absent to help offset the socio-economic effects of human wildlife conflicts in the GMA, even though one of the assumptions of the CBC model was to address the human wildlife conflicts that had an adverse impact on food security and to increase local people's tolerance towards wild animals for enhancing wildlife conservation.

The findings in this study postulate that conservation and development goals cannot be achieved in the current CBC implementation model, mainly due to the current wildlife management policies. At the implementation level, the flaw was in its failure to incorporate the broader aspects of addressing food security and livelihoods, as supported by other studies that people living in GMAs where the CBC model has been implemented were the poorest among the rural communities in Zambia. The implementation of the model was found skewed towards wildlife conservation, opening room for debate as to whether it was not just a continuation of the fortress conservation model. The study confirms the hypothesis that the implementation of the CBC strategy within the pluralistic approach has not effectively addressed poverty and household food security in GMAs in Zambia.

The study found a gap in research focusing on improving the model to address its original idea of achieving conservation and sustainable development for areas where communities coexisted

with wild animals. I therefore invite researchers to explore the possibility of advancing this model toward adequate conservation and human development.

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Appendix1.

Schedule for the Independent Study

Date	Activity / Task	Resources	Output	Outcome
January, 30	Submission of the draft proposal.	Library, books internet and online resources	Draft IS Proposal	Draft IS proposal for discussion with Supervisor submitted
February,28	Consolidating the draft proposal Data Collection for literature Review	Library, books internet and online resources	Reviewed Draft proposal	
March, 30	Data Collection strengthening of literature review	Library, books internet and online resources		
April 30	Submission of Final proposal and Preparation draft report	Library, books internet and online resources		
June, 20	Submission of the draft report to the supervisor for initial comments	Library, books internet and online resources		Draft IS report
July, 15	Submission of the draft report to the supervisor for final draft for further comments	Library, books internet and online resources.		Final IS report.