

Assessment of the Effectiveness of a Community-based Conservation  
Approach Used by Pastoralist Villages in Loliondo Division, Northern  
Tanzania

by

Emmanuel Ole Kileli

BA University of Iringa, 2013

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of the Requirements for the Degree of  
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in the Department of Geography

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**Supervisory Committee**

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**Supervisory Committee**

Dr. Philip Dearden, (Department of Geography)

**Supervisor**

Dr. Bruce K. Downie, (Department of Geography)

**Committee Member**

Dr. Ana Maria Peredo, (School of Environmental Studies)

**Outside Member**

## **Abstract**

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### **Outside Member**

## **Abstract**

Biodiversity loss is a major threat to life on planet earth today. The major causes of biodiversity loss include habitat loss and degradation, over-exploitation, alien invasive species, climate change and pollution. Globally, the use of Protected Areas (PAs) is a commonly accepted way to reduce the biodiversity loss. Although the use of PAs is widely accepted, they face several challenges—mainly degradation caused by human activities. The human-induced PA challenges are more prevalent in low-income countries where the vast majority of people depend on natural resources. One of the proposed solutions to help reduce the challenges is the use of a community-based conservation (CBC) approach. This study uses a mixed methods research design to assess the effectiveness of a CBC approach employed by pastoralist communities in Loliondo Division in northern Tanzania. The study objectives are to (1) to evaluate the governance effectiveness of the approach, and (2) to evaluate the social-ecological contributions of the approach in Loliondo Division. To achieve its goals, the study uses data from content review, focus group discussion, key informant interviews, and household surveys related to six case study villages. The overall results suggest good

quality of governance of the conservation approach; however, there are concerns over performance and transparency of its governing institutions - the village councils. The approach is also perceived to have improved local livelihoods by delivering benefits particularly at the community level rather than at the family level. For biodiversity conservation, the approach is perceived to have contributed to the increased number of wildlife species, protected water sources, and forest cover. The abundance of flagship and endangered species, however, were perceived to have remained low. There are also concerns over local involvement in biodiversity conservation. The results varied among the study villages with the status of the implementation of the conservation projects using the approach being a major factor. All but one of the villages had to cease operations as a result of new government regulations. Based on results from the village where the conservation approach is still active, this thesis concludes that under certain conditions, the CBC approach in Loliondo Division can be an effective approach capable to deliver conservation benefits to the local people as well as reduce the loss of biodiversity. However, more empirical data is required to further study the approach's contribution to ecological integrity.

**Keywords:** Community-based conservation, governance, protected areas, biodiversity, local livelihood, Pastoralists, Maasai

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## **CHAPTER 1: INTRODUCTION AND AN OVERVIEW**

### **1.1. Introduction**

Biodiversity conservation has become one of the most challenging issues of the twenty-first century to planet earth (Rockström et al., 2009; Butchart, 2010; Lindenmayer, 2015). Among the planetary boundaries that should not be transgressed for the creation of a safe space for humanity, four of them have been transgressed (Rockström et al., 2009). These are biodiversity loss, climate change, nitrogen cycles, and ocean acidification. Among these, biodiversity loss is the most threatened (Rockström et al., 2009; Butchart, 2010). According to the 2016 Living Planet Report by the United Nation Environmental Programme World Conservation Monitoring Center (UNEP-WCMC) and International Union for Conservation of Nature (IUCN), between 1970 and 2012, the populations of terrestrial species dropped by 38%, marine species dropped by 36%, and freshwater species by 81%. Likewise, the IUCN Red List of threatened species has continually increased. In the year 2000 for example, the species included in the Red List were about 11,000 while in the year 2017, the list grew up to about 20,000 species out of nearly 90,000 already assessed species (IUCN, 2017).

According to Global Environment Outlook 5 by UNEP in 2012 (i.e., UNEP, 2012, p. 138), the principal pressures on biodiversity loss include habitat loss and degradation, over-exploitation, alien invasive species, climate change, and pollution. According to the report, the top five major threats to vertebrates listed as critically endangered, endangered or vulnerable on the IUCN Red List are agriculture and aquaculture (74%), logging (48%), residential and commercial development (32%), invasive species (28%), and pollution (23%). Biodiversity losses, however, vary greatly from region to region. In some regions (e.g., in sub-Saharan Africa), biodiversity loss is mainly caused by the rising human population that leads to increased conversion of forest lands to farmlands, increasing production of waste, urban development and conflicts (Masanja, 2014; Biggs et al., 2008; UNEP, 2016). Tropical rainforests are at high risk for this, as they are

frequently cut down to create cropland and pasture for cattle (UNEP, 2016). Biodiversity is even further threatened by climate change largely because of the loss of habitat (Sala et al., 2000; Bellard, Thuiller, and Courchamp, 2012). As sea levels and temperatures rise, plants and animals, just like humans, will be forced to relocate, to leave the places where they live and move into new areas (Walther et al., 2002; Schwartz et al., 2012; Seebacher and Post, 2015).

Proposals to address biodiversity loss are many. They include addressing its drivers (e.g., poverty, population growth, and consumerism), and protecting remaining habitats and species (Masanja, 2014; Lopoukhine et al, 2012). Protected Areas (PAs) are, however, the main way of achieving the latter (Dearden, Bennett & Johnson., 2005; Lee, Sodhi, & Prawiradilaga, 2007; Lopoukhine et al., 2012; Borrini-Farayerbend, et al., 2013). A protected area is a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley, 2008). The use of PAs to protect biodiversity loss is recognized by the IUCN, the Convention on Biodiversity (CBD) and especially through Aichi target 11 proposed to protect 17% of terrestrial landscapes and 10% of marine lands by 2020 (Jonas, Barbuto, Jonas, Kothari, & Nelson, 2014). In 2016, the World Database on PAs (WDPA) recorded a total of 202,467 terrestrial and inland water PAs covering 14.7% (19.8 million square kilometers) of the world's surface (excluding Antarctica; UNEP-WCMC and IUCN, 2016).

The use of PAs as a solution to biodiversity loss is increasingly accepted worldwide, and countries are integrating PAs in their National Biodiversity Strategies and Action Plans (NBSAPs) to achieve a range of Aichi Biodiversity Targets (UNEP-WCMC and IUCN, 2016). Further, shared governance structures and management of PAs with indigenous people and local communities are now recognized to be an important strategy to ensure PAs respect and integrate traditional knowledge into governance and management measures (Lele, Wilshusen, Brockington, Seidler, & Bawa, 2010; Dressler,

Büscher, Schoon, & Brockington, 2010). Thus, the use of PAs is anticipated to be fundamental for achieving many of the Aichi targets 2020 and the Sustainable Development Goals (SDGs) 2050 (Griggs et al., 2013; Jonas et al., 2014, UNEP-WCMC and IUCN, 2016).

Although the use of PAs is one effective option to reduce global biodiversity loss, the option is confronted by various challenges (Sekhran et al., 2010; Kideghesho et al., 2013; Kisingo, Dedarden, Rollins, & Murray, 2013). Protected Areas in the past largely relied on the creation of national parks where local human activities and, in many cases, inhabitation is forbidden (e.g., the Serengeti National Park in Tanzania; Kideghesho et al., 2013; Kisingo et al., 2013, Robinson and Makupa, 2015). Globally, there are few areas left where PAs can be created and social justice concerns over relocations of local communities to create such areas have become more accepted (Lele et al., 2010; Dressler et al., 2010). Constraints to establishing new PAs that exclude human activities (e.g., category I and II PAs), have given rise to an interest in different kinds of conservation strategies and institutional arrangements where local communities moderate their activities to enhance biodiversity conservation (Nelson and Agrawal, 2008; Brooks, Waylen, & Mulder., 2013). The strategy and institutional arrangement came to be known as the Community-based Conservation (CBC) approach and often involves compensation of local people for their actions from the profits generated by biodiversity-dependent activities such as tourism (Ngirwa, Kolawole, & Mbaiwa, 2013; Mbaiwa, 2015). Such programs have been underway for some time in sub-Saharan Africa and elsewhere and are now recognized as key mechanisms to address biodiversity collapse (Berkes, 2007; Ngirwa et al., 2013).

However, challenges remain. With comparatively little experience with these kinds of mechanisms (i.e., the CBC approaches), there is both global and local interest in how effective these local approaches to biodiversity conservation and livelihood augmentation might be (Salafsky and Wollenberg, 2000; Berkes, 2007; McShane et al.,

2011; Salerno et al., 2016; MacKenzie et al., 2017). This study addresses this problem with reference to a model developed by Maasai villages in Loliondo Division in northern Tanzania which differs from the usual CBC model used in Southern African countries and in other parts of Tanzania. The study examines how effective this model is in terms of its quality of governance and ability to provide benefits to both conservation and local livelihoods. The following section discusses the CBC approach in more detail.

#### **1.1.1. Community-based Conservation Approach to Natural Resource Management**

A Community-based Conservation (CBC) approach is widely used to help in the conservation of biodiversity through the creation of locally managed PAs (Western and Wright, 1994; Agrawal and Gibson, 1999; Nelson and Agrawal, 2008; Murphee, 2009; Baldus, 2009). The approach emerged out of the failure of the “fences-and-fines” conservation approach following continued wildlife poaching and degradation of “states” PAs by local communities (Songorwa, 1999; Mshale, 2008; Baldus, 2009; USAID, 2013). In the past, biodiversity conservation mainly occurred in “states” managed PAs of which natural resource access by local communities was restricted (Baldus, 2009; Lele et al., 2010). Governments and conservation organizations had to find ways to gain trust from local communities that had lost hope following the top-down governance approach used in the PAs (Berkes, 2004; Mshale, 2008; Baldus, 2009). To gain that trust, and be able to establish new PAs on community lands, the idea of decentralization of natural resource governance evolved. Governments committed to sharing governance roles with local communities in the newly established local conserved areas under the CBC approach (Kiwango, Tarimo, & Martz, 2015; Frank and Booker, 2015). The CBC approach, therefore, encompasses a range of mechanisms used by conservation practitioners to conserve community lands rich with biodiversity (Igoe and Croucher, 2007). It involves the creation of schemes that give local people incentives to get involved in natural resource conservation (Nelson and Agrawal, 2008; Baldus, 2009). It should be noted, however, that CBC approach did not involve changing already existed state PAs into locally conserved areas. Rather, it was meant to enhance biodiversity



conservation outside the existed PAs by the creation of local PAs governed in collaboration between local communities and other conservation stakeholders (e.g., state agencies). The CBC approach, however, encouraged the inclusion of local communities into decision-making bodies in state PAs (Dearden et al., 2005).

In sub-Saharan Africa, CBC was first introduced in Southern African countries such as Zimbabwe, Botswana, Namibia and Zambia (Igoe and Croucher, 2007, Nelson and Agrawal, 2008). The programs were expanded further to the Eastern African countries of Kenya and Tanzania (Veit, 2010; Wilfred, 2010; Nelson, 2012). According to Nelson and Agrawal (2008), the programs are named differently but have similar goals of enhancing conservation and fostering community development. In Zimbabwe, for example, the programs are known as Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), while in Namibia, Botswana, and Kenya the programs are known as Community Conservancies. In Zambia, the programs are called Administrative Management Design (ADMADe) while in Tanzania they are known as Wildlife Management Areas (WMAs; Nelson and Agrawal, 2008).

In most cases, the design of CBC program takes the form of common property resource governance (Agrawal and Gibson, 1999; Ngirwa et al., 2013; Stone and Nyaupane, 2014). In Sub-Saharan Africa, for example, several villages are convinced by governments and conservation organizations to agree with the establishment of the local PAs with a promise to benefit out of tourism investment that will help them alleviate poverty (Kiwango et al., 2015). Quite often, the CBC programs are initiated by governments and conservation organizations (Igoe and Cruoucher, 2007; Baldus, 2009). Only in very rare cases, CBC programs are initiated based on local ideas (Measham and Lumbasi, 2013). These local PAs are also established on private lands owned by individuals or organizations who devote their lands for natural resources conservation (Kreuter, Peel, & Warner, 2010; Calhoun, Jansujwicz, Bell, & Hunter, 2014). However, the merging of several village lands to form a CBC program, is a widely used approach in

low-income countries as few individuals own large private lands capable of meeting government requirement for a local PA establishment (Igoe and Croucher, 2007; Kiwango et al., 2015). Single village lands are also rarely used due to the same reason of not meeting the government requirements (Kiwango et al., 2015). In order to establish a “formal” local PA in Tanzania, for example, the land in consideration has to undergo several assessments to qualify (Wilfred 2010; Kiwango et al., 2015). According to the Tanzania WMA regulation of 2012 as reported in Kiwango et al. p.1087, the village lands under consideration for the establishment of a local PA have to meet the following:

- (i) Must have significant resources (i.e., wildlife and its entire habitat composition) that can be accessed, (ii) Its natural resources are of significant economic values, (iii) Is ecologically viable or form part of an ecologically viable ecosystem, and (iv) Belongs to one or more villages in accordance with the relevant provisions of the law governing village land (Village Land Act No 5, 1999, Land Act No. 4, 1999) and other legislation relating to occupation and use of village land

Single village land rarely qualifies under the government’s PAs establishment requirements and therefore joining the lands of more than one village has been a widely used approach (Wilfred 2010; Kiwango et al., 2015). There are, however, individual villages adjacent PAs which did not join the “formal” CBC programs but devoted their lands for biodiversity conservation and received tourism benefits (Nelson, 2004; TNRF, 2011). They operate in the same way as in the “formal” CBC programs although they are informally governed by local communities with little or without sharing governance roles with central governments. In this thesis, the approach is known as a “*village-based conservation approach*”.

Because locally conserved areas under the CBC programs are established on community lands adjacent to existing “state” PAs, they act as buffer zones, wildlife corridors, or wildlife dispersal areas (Nelson and Agrawal, 2008; Ngirwa et al. 2013). The protected village lands help to reduce human impacts on the existing PAs by acting as shields to those PAs as well as providing additional habitat for wildlife (Western,

Waithaka, & Kamanga, 2015). The CBC programs, therefore, have helped to increase wildlife numbers both inside and outside PAs and have reduced forest degradation (Nelson and Agrawal, 2008; Western, Groom, & Worden, 2009; Sirima 2015).

Community-based conservation programs also help local communities receive benefits from natural resource conservation through tourism investment and other sources including aid from conservation organizations (Stronza and Gordillo 2008; Snyder and Sulle 2011; Mbaiwa 2015). Community-based Organizations (CBOs) collaborate with other conservation practitioners (e.g., central governments, tourism businesses, and NGOs) to build the capacity of local communities to maximize conservation benefits (USAID, 2013; WWF, 2014). In most cases, conservation practitioners collaborate in providing financial incentives and training to the local communities to enable them to implement community social/economic projects such as the construction of health facilities, classrooms, and water wells for domestic and livestock use (Nelson 2010; Stone and Mwakaje et al., 2013; Stone and Nyaupane, 2014). The social services benefits are aimed to change the negative local perception of PAs and hence encourage community participation in the protection of natural resources (Schmitt, 2010; Robinson and Makupa, 2015). Thus, the CBC approach to natural resource conservation is not only important for biodiversity conservation, but also for the improvement of local livelihoods.

#### **1.1.2. Challenges to Community-based Conservation Approach in Sub-Saharan Africa and their Attributes**

Despite the significance of the CBC approach in conserving biodiversity and improving local livelihoods, the approach faces challenges ranging from low generation of income from tourism business (Baird and Leslie, 2013; Humavindu and Stage, 2014), internal conflicts among villages forming a single conservation project (Benjaminsen, Goldman, Minwary, & Maganga, 2013; Green and Adams 2015; Moyo, Ijumba, & Lund, 2016), to governance ineffectiveness (Brooks et al., 2013; WWF, 2014; Frank and Booker, 2015). Other challenges include limited local people's decision-making powers

in the management of the locally conserved areas (Murphee, 2009; Nelson, 2012; Green and Adams, 2015), and unequal sharing of conservation benefits by villages that are members to the local conserved areas (Green and Adams, 2015; Moyo et al., 2016). These challenges are in part attributed to the CBC program design (Agrawal and Gibson 1999; Brooks et al., 2013; Stone and Nyaupane 2014), and the dual goal of the CBC approach (Salafsky 2011; McShane et al., 2011).

The CBC program design that involves joining pieces of lands belonging to several villages to become community-conserved areas is problematic (Agrawal and Gibson 1999; Agyare et al. 2013; Stone and Nyaupane, 2014). The Joining of lands belonging to communities with diverse ethnic backgrounds, traditions, beliefs, and different perceptions of value, protection, and use natural resources can undermine conservation efforts (Acquah, Dearden, & Rollins, 2013; Agyare, Dearden, Murray, & Rollins, 2013; Stone and Nyaupane, 2014). According to the theory of collective action, grouping communities that possess different characteristics can result in reduced cooperation in common resource governance (Ostrom, 1990; Agrawal, 2001; Olson, 2002; Agrawal, and Chhatre 2006; Hauzer, Dearden, & Murray, 2013). As a result of the lack of community cooperation, the CBC programs are unable to achieve their intended goals (Brooks et al., 2013; Stone and Nyaupane 2014).

The design of the CBC programs further often had limited local inputs as local participation and engagement was in the form of tokenism (Benjaminsen et al., 2013; Brooks et al., 2013). In Tanzania, for example, quite often the local leaders accepted the establishment of the WMA programs without full consultation with their constituencies (Mshale 2008; Kiwango et al., 2015; Moyo et al., 2016). The design of the programs rarely engaged with traditional local cultural beliefs and therefore adopted “one-size-fits-all” approach which became problematic during the implementation process (Berkes, 2006; Igoe and Croucher, 2007).

A further challenge of the CBC approach is that of aiming to simultaneously achieve both conservation and local development goals (Salafsky, 2011; McShane et al., 2011; Chaigneau and Brown 2016). Critics contend that the conservation and local livelihood goals of the CBC programs are hard to achieve simultaneously (e.g., Salafsky, 2011). The conservation of biodiversity, for example, requires reducing the human use of natural resources. However, the local people, to a large extent, depend on a natural resources base (e.g., see Downie and Dearden 2017). Thus, restricting access to natural resources undermines their livelihood while the failure to do so would also undermine biodiversity conservation (Robinson 1993; Freese, 1998; Songorwa and du Toit, 2007).

The achievement of the diverse goals becomes even more difficult when conservation stakeholders (i.e., conservation practitioners and local communities), have different interests and perspectives on biodiversity conservation (Songorwa, 1999, Baldus, 2009; Murphee, 2009). The main interest of conservation practitioners, for example, is to reduce the loss of biodiversity while that of many local people, it is to safeguard their livelihood through maintaining access to natural resources (Murphee, 2009; Baldus, 2009). As a consequence of such difference, the local communities develop a feeling that they are unjustly treated by conservation practitioners and that causes misunderstandings that are neither helpful to conservation nor to local livelihoods (Lele et al., 2010; Dressler et al., 2010; Soule', 2013). One important strategy to accommodate such differences is to broaden the stakeholder input into PA decision-making (Dearden et al., 2005; Lockwood, 2010; Franks and Booker, 2015). The way that decisions are made seems to be strongly influenced by PA governance which is discussed in the next section.

## **1.2. Protected Areas Governance**

According to the Institute on Governance (IOG<sup>1</sup>), the meaning of governance is hard to capture with a simple definition. However, governance has three dimensions:

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<sup>1</sup> <http://iog.ca/defining-governance/>

authority, decision-making, and accountability. Thus, governance is a process whereby societies or organizations make their important decisions, determine whom they involve in the process and how they render account (Kafman, Kraay, & Mastruzzi, 2010; Eklund and Cabeza, 2016). Protected Areas governance can be defined as the interactions among structures, processes, and traditions that determine direction, how power is exercised, and how the views of citizens or stakeholders are incorporated into decision-making (Graham, Amos, & Plumptre, 2003; Dearden et al, 2005; Borrini-Fayerabend et al., 2013).

Over the last few decades, the dominant state-based *top-down* approach to natural resource governance has been augmented by, and in some cases replaced by, other forms of management, including collaborative management, delegated authority, and indigenous and local community management (Lockwood, 2010; Eklund and Cabeza, 2016). However, the change did not come easily: it required a series of international conferences promoting the recognition of indigenous rights, fair benefit sharing, and good governance (Dearden et al 2005; Lockwood 2010).

Governance became a major item on the agenda at the IUCN World Parks Congress, held in 2003 in Durban, South Africa (Dearden et al, 2005; Lockwood, 2010) and continued to be an important theme at subsequent meetings of the IUCN World Conservation Congresses in Bangkok (2004) and Barcelona (2008). The 7th Conference of Parties to the Convention on Biological Diversity held in Kuala Lumpur in 2004, for example, adapted the PAs governance framework (Lockwood, 2010). The conference recognized four broad governance types: governance by governments; shared governance; private governance; and governance by indigenous peoples and local communities. According to Borrini-Fayerabend et al. (2013), the appropriate application or use of the governance types in a PA is determined by who holds authority and

responsibility for the PA. The four broad PA area governance types are applied as follows in the PAs management categories<sup>2</sup>:

- Governance by government type can be applied to PAs managed by federal governments, national ministries or government-delegated management organizations.
- Shared governance type can be applied in PAs managed collaboratively by various actors with different degrees of influence, joint management between stakeholders, and transboundary management that involve various levels of management across international borders.
- Governance by private organizations type can be applied in PAs under the management of individual owners and by non-profit organizations, (e.g., NGOs, universities, or corporations).
- Governance by indigenous peoples and local communities' type is often applied to areas managed by indigenous peoples and local communities.

The PAs governance types share common features and are all aimed at effective management of PAs (Eklund and Cazeba, 2016). As described above, the difference in PAs governance exists on the type of PA category they are applied. In many cases, governance of locally PAs, which is the focus of this study, is in the form of shared governance (Borrini-Farayerbend et al., 2013; Franks and Booker, 2015). The PAs under shared governance are based on institutional mechanisms and processes which formally or informally share authority and responsibility among several actors such as the local communities, governments, and businesses (Borrini-Feyerabend et al., 2013; Frank and Booker, 2015).

#### **1.2.1. Shared Governance in Protected Areas**

Governance of many locally PAs managed under the CBC approach involves shared governance between the local communities, the government, and sometimes

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<sup>2</sup> See Dudley 2008 for the IUCN PAs categories ranging from strict PAs categories (e.g., category Ia, Ib) to those allowing sustainable use of natural resources (e.g., category VI).

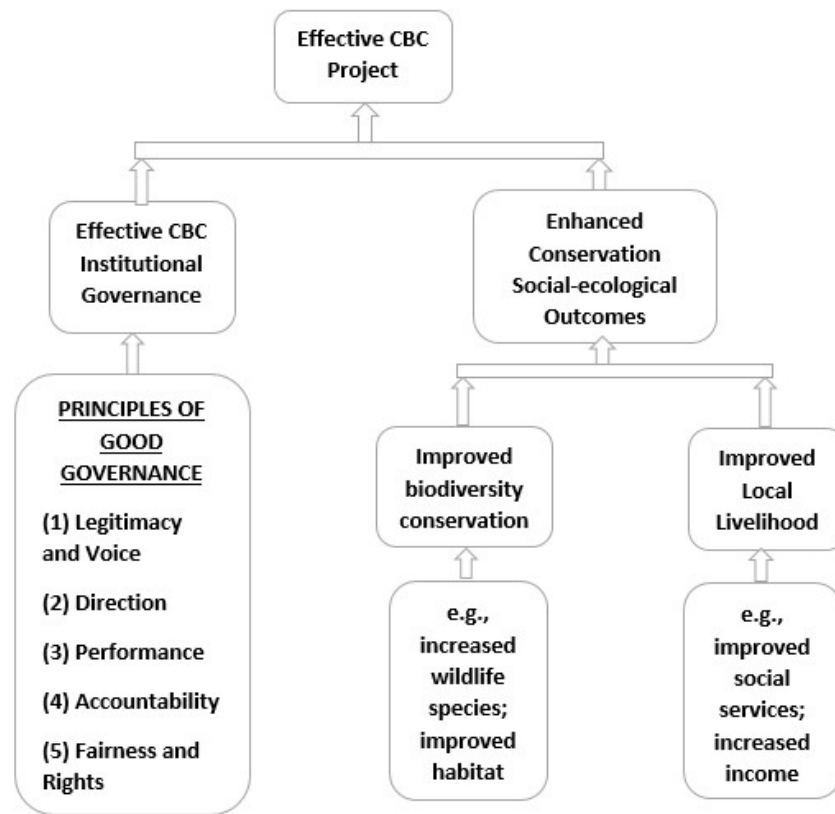
private actors, such as NGOs and tourism companies (Frank and Booker, 2015; Mbaiwa, 2015). Many CBC programs are initiated by either the government or international conservation organizations that supply resources necessary to fund the establishment of the conservation programs (Benjaninsen et al., 2013; Green and Adams, 2015). Without external support, many local communities are unlikely to establish the “formal” local conserved areas because the processes and government requirements are costly and need technical support (TNRF, 2011; WWF, 2014; Kiwango et al., 2016). The cost of technical support is often not afforded by local communities. Thus, shared governance between local communities and other stakeholders, although it imposes many challenges because of the diverse interests of the stakeholders involved, is a current governance type used in the management of the locally PAs under CBC programs in the sub-Saharan Africa region.

### **1.3. Study Objectives and Conceptual Framework**

The overall goal of this thesis is to assess the effectiveness of a local CBC approach to natural resource conservation in Loliondo Division in northern Tanzania. This CBC approach, unlike many other CBC projects, uses a single village approach to achieve conservation and local livelihoods (Nelson, 2012; TNRF, 2011). The approach resulted from contractual agreements between village councils (representatives of local communities) and tourism companies. Out of these agreements, the local communities set aside parts of their village lands (herein referred to as *conservation projects*) for conservation purposes and, in return, the tourist companies used the community conserved lands for tourism activities. In this thesis, the conservation approach that emerged out of the agreements is referred as a *village-based conservation approach*. The approach is controversial and is not largely supported by the government because of the reasons discussed in section 1.4.3. Following the lack of government support, the approach was only active at one of the study villages. This study, therefore, has two main objectives as illustrated in Figure 1.1 below.



- First, it evaluates the governance effectiveness of the conservation approach using the IUCN principles of good governance.
- Second, it evaluates the livelihood and biodiversity benefits of the conservation approach in the study area based mainly on the perceptions of local people



**Figure 1.1. Study Conceptual Framework**

### **1.3.1. Assessing Protected Areas Governance Effectiveness**

Protected area (PA) governance is said to be effective when its governing institutions adhere to the IUCN principles of good governance (Graham et al., 2003; Borrini-Feyerabend et al. 2013). Protected Area governance is, therefore, effective when its governing institutions are capable to achieve the PA's intended objectives while observing the IUCN principles of good governance. For the locally conserved areas, the

governing institutions have to effectively achieve conservation and local development objectives (Nelson and Agrawal, 2008; Brooks et al., 2013). According to Borrini-Feyerabend et al. (2013), PA governance is assessed because:

- Governance is the variable with the greatest potential to affect PAs coverage.
- Governance is a determinant of effectiveness and efficiency of conservation.
- Governance is a determinant of appropriateness and equity of decisions.
- Governance ensures that PAs are well integrated into their wider ecosystem and society.
- Governance provides help in facing ongoing challenges and global change.

The assessment of the effectiveness of PA governance can be done on different scales. It can be done at the international level (e.g., Dearden et al, 2005), to a network of PAs countrywide (e.g., Borrini-Feyerabend et al., 2013), and at the individual PA or to a conservation program level (Agyare et al., 2013; Kisingo et al., 2013). For individual PAs, such as community conserved areas, the 2013 IUCN guidelines (Borrini-Feyerabend et al., 2013 p. 99) provide a framework that lays out a step-by-step process that the Governance Team<sup>3</sup> follows to accomplish the assessment process.

PA governance effectiveness is assessed by evaluating the quality of its governing institutions (Borrini-Feyerabend et al., 2013). Various scholars have suggested and used the principles of good governance in the evaluation of PA governance quality (e.g., Graham et al., 2003; Lockwood et al., 2010; Kisingo et al., 2013; Ecklund and Cabeza 2016). Graham et al., (2003) for example, proposed a PA quality evaluation framework based on the UNDP five principles of good governance: legitimacy and voice, direction, performance, accountability, and fairness and rights (Table 1.1). These principles also came to be known as the IUCN principles of good

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<sup>3</sup> A group of three to seven credible, competent, and trusted people who lead the assessment of PAs (Borrini-Feyerabend 2013 p. 69).

governance for PAs (Borrini-Feyerabend, et al., 2013; Franks and Booker, 2015; Eklund and Cabeza, 2016).

**Table 1.1. The Five Principles of Good Governance**

<b>The Five Principles of Good Governance</b>	<b>Characteristics/Criteria for Good Governance</b>
1. Legitimacy and Voice	<ul style="list-style-type: none"> <li>• Participation</li> <li>• Consensus orientation</li> </ul>
2. Direction	<ul style="list-style-type: none"> <li>• Strategic vision</li> </ul>
3. Performance	<ul style="list-style-type: none"> <li>• Responsiveness.</li> <li>• Effectiveness and efficiency</li> </ul>
4. Accountability	<ul style="list-style-type: none"> <li>• Accountability</li> <li>• Transparency</li> </ul>
5. Fairness	<ul style="list-style-type: none"> <li>• Equal opportunities</li> <li>• Fair benefit sharing</li> <li>• Fair enforcement of by-laws</li> </ul>

Source: Graham et al. (2003)

Summarized from Graham et al., (2003), Franks and Booker, (2015), and Eklund and Cazebe, (2016), the PAs good governance principles in the context of this study are defined as follows:

- **The legitimacy and voice principle** refers to the participation of the local people in decision-making processes about natural resource conservation and community development. It also includes communities reaching consensus on the decisions made.
- **The direction principle** refers to the existence of a shared strategic vision among stakeholders involved in a natural resource conservation and community development program.
- **The performance principle** refers to the ability of the local institutions to effectively use financial resources to achieve conservation and development goals.

- **The accountability principle** refers to the satisfactory performance of local institutions of their mandated duties or obligations related to the conservation and community development.
- **The fairness and rights principle** refers to the local institutions equally giving local communities opportunities to benefit from natural resources as well as fairly enforce conservation regulations to their constituencies.

The assessment of PAs governance effectiveness is not limited to the use of the IUCN PAs governance principles alone. Lockwood (2010) suggests an extended framework that includes two additional principles: connectivity and resilience. Kisingo et al. (2013), in their analysis of governance effectiveness in the Serengeti ecosystem, then added power and achievement to Lockwood's (2010) seven principles. Although these scholars modified the IUCN good governance principles in PA governance assessment based on their study purpose, the IUCN principles of good governance formed the basis for their analysis. This study, therefore, used the internationally accepted IUCN principles of the good governance framework to evaluate the governance quality of village councils that administer the village-based conservation projects in Loliondo Division. The quality of good governance was evaluated based on how well a village council observed the principles of good governance while exercising duties related to the conservation projects.

- To evaluate the legitimacy and voice principle, the study used participation and consensus orientation characteristics that evaluated the level of participation in the conservation projects and whether reaching consensus in decision-making was encouraged by the village councils.
- To evaluate the direction principle, a strategic vision characteristic was used. The strategic vision characteristic was used to determine whether the village councils have shared vision with local communities necessary to ensure biodiversity conservation while at the same time improve local livelihoods.

- To evaluate the performance principle, responsiveness, effectiveness and efficiency characteristics were used. Responsiveness was used to evaluate the receptivity of the village councils to the local communities' needs in their respective villages. The effectiveness and efficiency characteristics were used to evaluate the ability of village councils to deliver results that met local expectations while making the best use of available resources.
- To evaluate the accountability principle, accountability and transparency characteristics were used. The accountability characteristic was used to evaluate whether the obligations and responsibilities taken on by the village councils were meant to benefit the local community. In addition, the transparency characteristic was used to evaluate whether the village councils were disclosing information on villages' revenue and expenditure, and other information related to conservation projects to the general public.
- Finally, to evaluate the fairness and rights principle, three characteristics were used. These were, first, the equal opportunity characteristic which evaluated whether the village councils gave the local people (men, women, and youth) equal access to the opportunities created by the conservation projects. The second was an equal benefit sharing characteristic, which evaluated whether the village councils shared the benefits accrued from the conservation projects fairly among community members in the study villages. Lastly was the fair enforcement of by-laws characteristic which evaluated whether the village councils fairly enforced the by-laws governing the village-based conservation projects to all stakeholders involved in the conservation projects.

### **1.3.2. Evaluating the Social and Ecological Outcomes of Protected Areas**

Apart from assessing governing institutions and evaluating their governance quality, PAs or conservation projects are also assessed by evaluating their social-ecological outcomes (Agyare et al., 2013; Makupa, Dearden, Canessa, & King, 2013). The

effectiveness of PAs can be evaluated using local peoples' desired and perceived outcomes of the conservation projects (e.g., Heck, Dearden, McDonald, & Carver, 2011; Agyare et al., 2013). The desired outcomes are long-term views or objectives that local people consider important and would like to see achieved, while perceived outcomes are those that, in the estimation of the local people, have been achieved (Agyare et al., 2013). In the Serengeti Ecosystem, for example, Makupa et al. (2013) evaluated the Ikona WMA program's perceived social-economic benefits to local communities by looking at household economies, access to natural resources and community services. Likewise, Kisingo et al. (2013) examined perceived and actual conservation outcomes of governance to local communities and wildlife conservation in the Serengeti. Elsewhere, Agyare et al. (2013) also examined socioeconomic factors, ecosystem goods and services factors, and ecological conservation factors of the Avu Lagoon Community Resource Management Area (CREMA) in Ghana.

This study, therefore, assesses social-ecological outcomes of the village-based conservation projects in Loliondo by evaluating the projects' perceived contributions to biodiversity conservation and local livelihood improvement. The study evaluates the projects' contribution to biodiversity conservation by looking at the extent to which the projects have helped to increase local involvement in biodiversity conservation, whether the projects helped to protect biodiversity loss in the study area, and whether the projects helped to enhance wildlife abundance. For local livelihood improvement, the study evaluates the projects' financial contribution, local livelihood diversification, contributions at the community level (e.g., improved community social services), and family level (e.g., increased income and access to employment).

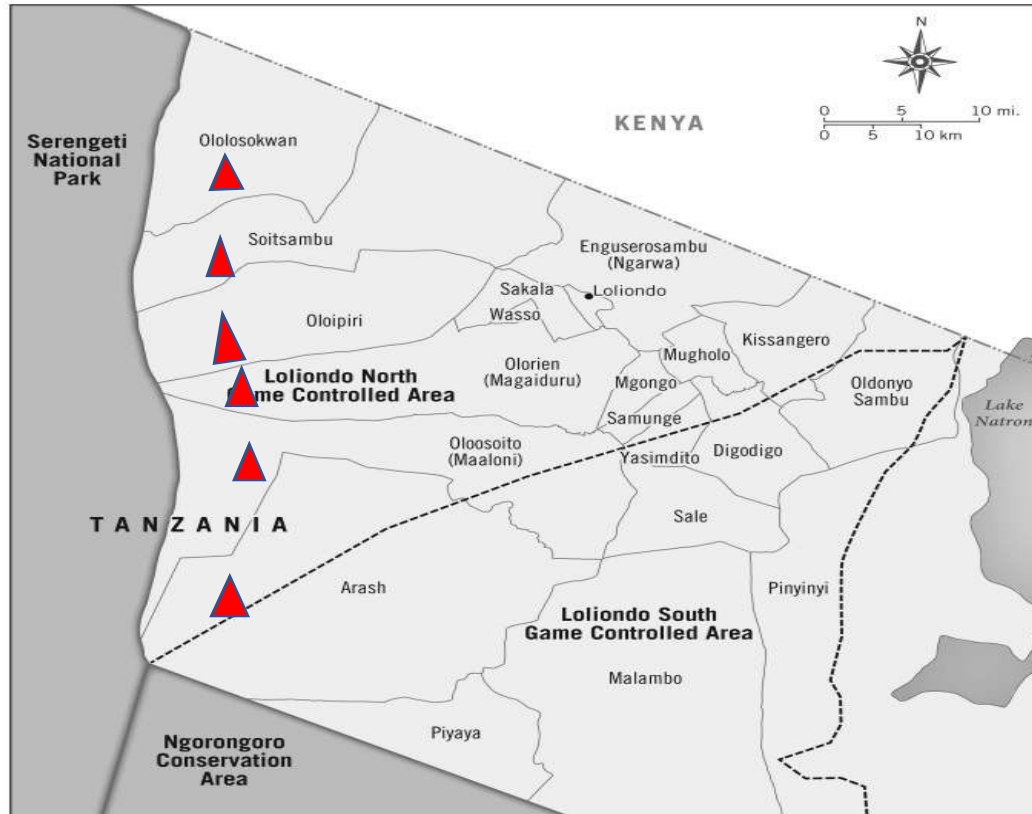
#### **1.4. Study Area Description and Research Methods**

##### **1.4.1. The Study Area**

This study area is the Loliondo Division located in northern Tanzania along the border with Kenya (Figure 1.2). The Loliondo Division is part of the Serengeti-Mara ecosystem, a World Heritage Site and among the world's major wildlife conservation

areas (Sinclair, Metzger, Mduma, & Fryxell, 2015). The study area comprises six villages bordering the Serengeti National Park (SENAPA) in the east which are the Ololosokwan, Soitsambu, Oloipiri, Oloirien, Maaloni, and Arash villages. These villages were selected because of the village-based conservation projects implemented by local communities in collaboration with tourist companies (Nelson, 2012; TNRF; 2011). Among the nine main villages in Loliondo Division and eleven villages in the Sale Division, all together making the Loliondo Game Controlled Area (see Figure 1.2), only the six study villages in the Loliondo Division were involved in the conservation projects. The study area also is one of the study sites for a large research network managed by the Institutional Canopy of Conservation (I-CAN Project) of which this study is a part. The I-CAN research network among other things aims to identify the most effective designs for CBC programs by studying a range of conservancy experiments on local livelihoods, attitudes, and natural resource practices in Kenya and Tanzania.

The study area is occupied by Maasai pastoralists consisting of three Maasai sub-clans: the Purko, Laitayok, and Loita. The Maasai are one of the pastoralist ethnic groups indigenous to East Africa, mainly in Kenya and northern Tanzania (Blench, 2001; Bee, Diyamett, & Towo 2002). The main economic activity of these communities is livestock keeping (cattle, goats, and sheep). However, in the 1970s, the majority of the study area residents started to integrate small-scale cultivation with their traditional livestock keeping activity (McCabe, Leslie, & Deluca, 2010). Thus, the Maasai now cultivate maize, beans, and sweet potatoes (McCabe et al., 2010; Rurai, 2012; Bartel., 2014).



**Figure 1.2. Location of the Study Area in Ngorongoro District**

**Source: TNRF (2011); Gardner, (2016)**

Before the creation of the SENAPA in 1959, the Maasai of Loliondo occupied the Serengeti plains, Loliondo, and Ngorongoro plains—now the Ngorongoro Conservation Area (NCA). After the creation of the Park by the British colonial government, the Maasai were moved out of the Serengeti plains and settled in the Loliondo area and in the NCA (Nelson, 2012; Gardner, 2016).

Loliondo Division is designated as a Game Controlled Area (GCA) by the central government and, in a GCA, wildlife conservation can take place alongside human activities. Because of the abundance of wildlife in the study area, tourism companies operate photographic and hunting tourism. Hunting tourism is carried out by the Ortello Business Corporation (OBC) which has a permit to hunt in the entire Loliondo GCA,



which overlaps with village lands. Other tourist companies such as And Beyond, Thomson Safaris, and Buffalo Luxury Camp are actively engaged in operating tourist camps and providing photographic tours. These companies have permanent structures (e.g., camps) within the Division.

**Table 1.2. Tourism Land Use in Loliondo Division**

S/n	Name of the Company	Year of land acquisition/ Lease	Size of Land in Hectares	Location/ Village	Activities on the Land	Acquisition Status
1	And Beyond (Former Tanzania Cattle Product Co. Ltd farm)	1993	10,117.1	Ololosokwan	High-end Tourist Camp and Photographic Tourism	Leased from Ololosokwan Village
2	Buffalo Luxury Camp	1993	24.3	Ololosokwan	Luxury Tourist Camp	Owned
3	Leisure Holdings	1990	201.3	Ololosokwan	Photographic Tourism	Owned*
4	John Aitekenhed Farm	1988	21.0	Ololosokwan	Photographic Tourism	Owned*
5	Thomson Safari (Formerly Tanzania Breweries Ltd Farm)	1988	5,165.8	Soitsambu	Tourist Camp and Photographic Tourism	Owned*
6	John Aitekenhed Farm	1988	8,330.8	Soitsambu	Photographic Tourism	Owned*
7	Ortello Business Corporation (OBC)	1992	450,000	Entire Loliondo Division	Hunting Tourism	Leased from the Central Government

**Source: Modified from Rurai (2012)**

\*The land owned by the tourist companies was acquired by the central government and then sold to these companies without the informed consent of the local communities. Currently, there are cases before the courts demanding that this land is returned to the local communities (Gardner, 2016; personal communication, July 2016).

Some companies in the Division own land while others have contractual agreements to temporarily use land and the wildlife resources on it. As shown in Table 1.2 above, companies such as Aitekenhed Farm and Leisure Holdings own the land in the study area but they have no permanent presence (e.g., camps in operation). Several other companies previously signed contracts with the local communities to temporarily access the village lands during tourism season. These companies are listed in Appendix A of this thesis.

#### **1.4.2. Significance of the Study Area for Conservation and Local Livelihoods**

The Loliondo Division (which is also the Loliondo GCA), is a part of the Serengeti–Mara ecosystem (Figure 1.3)<sup>4</sup> and has ecological functions to help maintain the entire ecosystem (Sinclair et al., 2015). These functions include the sustenance of the wildebeest migration. The Loliondo area is part of the wildebeest route from Kenya to Tanzania (Rurai, 2011; Sinclair et al., 2015). Loliondo Division also acts as a buffer zone to the strict PA—the SENAPA. The area is also a source of water for the Park. The Pololet and Grumeti Rivers, for example, have their sources in the Loliondo Division (Matinyi, 2016). Therefore, the study area is important not only for maintaining the long-term conservation objectives of the Serengeti–Mara ecosystem but also for providing immediate water needs to the SENAPA.

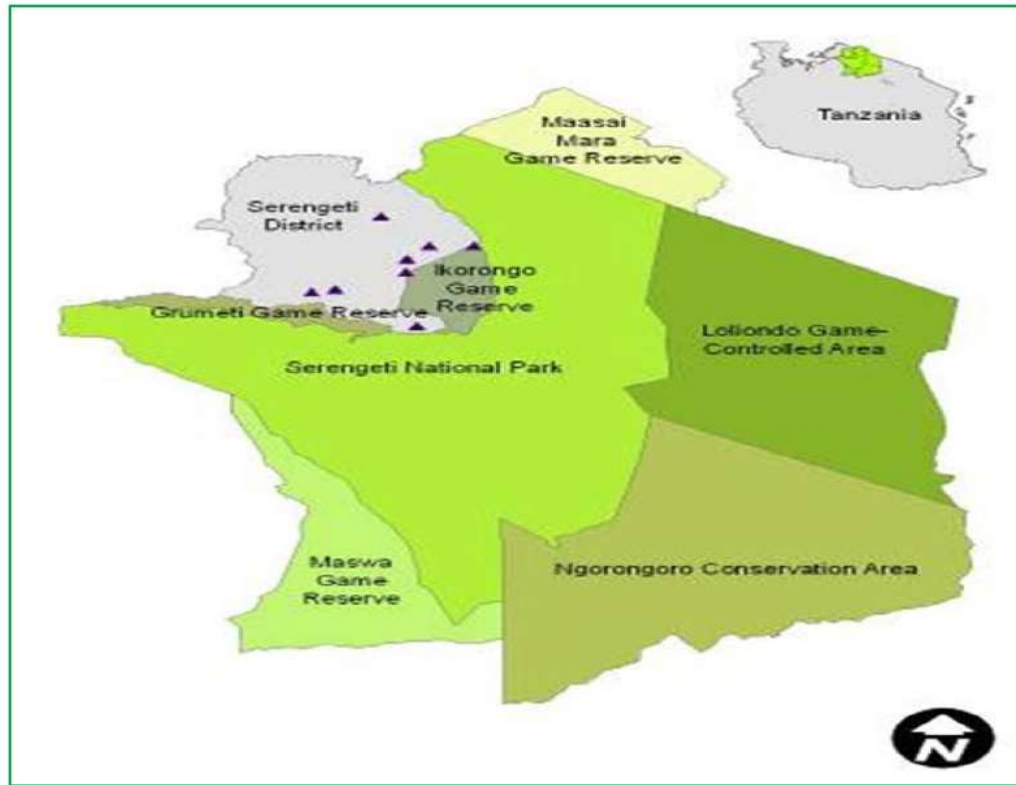
The study area is also of strategic importance because it supports the livelihoods of the local people in and around the Loliondo Division (TNRF, 2011; Nelson, 2012; Bartels, 2014). According to local land-use plans, parts of this study area are designated for livestock grazing during the dry season for pastoralists within and outside Loliondo Division (i.e., *ronjo*<sup>5</sup>), permanent settlements, and for crop cultivation (Nelson, 2012; Bartels, 2014). Although the study area consists of other economic activities such as

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<sup>4</sup> The Serengeti ecosystem comprises the Loliondo Game Controlled Area, the Maswa Game Reserve (GR), Ikongoro GR, Grumeti GR, the Ngorongoro Conservation Area, the Serengeti National Park, and the Maasai Mara.

<sup>5</sup> According to pastoralists' local land use patterns, *ronjo* is an area away from pastoralist homesteads accessed seasonally for livestock grazing.

permanent tourist camps, pastoralism remains the main activity and crop cultivation the second (see Appendix B).



**Figure 1.3. Map of the Serengeti-Mara Ecosystem.**

**Source: Rurai (2012); Kisingo et al. (2013).**

According to locals, the tourist camps provide little employment to the local people as many of their employees originate from outside the study area and hence contribute little to local livelihoods. For the survival of the Maasai community, livestock is key. For them, livestock keeping is not only important for economic purposes, but also for social and cultural purposes (Blench, 2001; Bee et al., 2002). In a pastoral society, many social transactions such as payment of bride price, debts, and fines for offenses committed, to mention a few, are done in terms of livestock. Thus, the Loliondo Division

is not only a strategic area for wildlife conservation, but also is an important area to the local communities economically, socially, and culturally.

#### **1.4.3. Land Use Related Conflicts in the Study Area**

Despite the significance of the study area for both conservation and local livelihoods, the area is experiencing land use related conflicts. For more than two decades, the pastoralist communities in Loliondo Division have been in conflict with the central government and some international tourism companies operating within the Division (TNRF, 2011; Nelson, 2012; Rurai, 2012; Gardner, 2016). The main source of conflict pertains to the multiple land use status in the study area without a proper governance type (i.e., shared governance) to effectively coordinate stakeholder's activities. The conflict is mainly in the struggle over land ownership and the right to use resources between the local communities, the central government, and the tourism companies (i.e., OBC in this regard). The study area is both village land under the administration of village councils representing local communities, as well as designated as a GCA by the central government for wildlife conservation and utilization. The village lands are administered by the local people using the Village Land Act No. 5 of 1999 and the Local Governments (District Authorities) Act of 1982 while the GCA is administered by the central government using wildlife conservation laws and policies (Appendix C).

Without the consent of the local communities, in 1992, the central government signed an agreement with a hunting tourism company (OBC) aimed at allowing the company to operate a hunting tourism business within the entire Loliondo GCA. The wildlife laws and policies give the central government a mandate to control the utilization and management of wildlife within and outside PAs (Baldus, 2009; Kiwango et al., 2015). On the other hand, the Land, and Local Government Authority Laws give the local communities the right to use the natural resources found on their village lands (TNRF 2011; Gardner, 2016). In 1991, the study area villages started to sign contracts with tourist companies (e.g., Dorobo Safari), that were interested in the photographic tourism business on community lands. By the year 2000, nine photographic tourism

companies signed contractual agreements with the study area villages (TNRF, 2011; Gardner, 2016).

Due to the existence of the two agreements targeting the utilization of natural resources in the same area, a conflict of interest between the local communities, the central government, and the hunting tourism company arose and there was not a proper mechanism to address the conflict. The local people were unhappy about the hunting activities of OBC in the study area as they saw the presence of OBC as a “land grab”. On the other hand, OBC sees its rights being infringed upon by the local communities as it has the right to use the natural resources in the area based on its agreement with the central government. The conflict which existed for a long period (i.e., since the start of OBC operations in Loliondo) intensified in the late 2000s following increased need for resource access by the local communities. To intervene, the central government introduced wildlife regulations<sup>6</sup> that banned photographic tourism on village lands. The intervention escalated the conflict and denied the majority of the local people the rights to benefit from their natural resources through the photographic tourism business. Although the regulation was not immediately implemented, in the aftermath of a major conflict in 2009 (TNRF, 2011; Gardner, 2016), the study area villages, with the exception of Ololosokwan village, stopped the implementation of the conservation projects by the central government. The central government also proposed to change parts of the village lands to a stricter PA category (a Game Reserve) of which access to natural resources by the local communities would be minimized (The United Republic of Tanzania, 2013). However, the proposal faced backlash locally and internationally so the government backed off the plan and since 2016 it commenced negotiation with the local communities aimed to find out a win-win solution for both conservation and local livelihood.

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<sup>6</sup> The Wildlife Conservation (Hunting Tourism) Regulation of 2000 revised in 2002.

The focus of this thesis, however, is the village-based conservation approach which resulted out of the signed contracts between the photographic tourism companies and the local communities. As stated earlier, the objective of the thesis is to assess the effectiveness of the village-based conservation approach by evaluating its governance effectiveness and the approach's social-ecological contributions in Loliondo Division. Although the approach was no longer active in many study villages at the time of this study, the study used the present and past experience of the approach to evaluate its effectiveness. The following sections discuss the research methods employed to collect the data for this study.

### **1.5. Research Methods and Sample Size**

This study used a mixed methods research design including document review, key informant interviews, focus group discussions, and household survey techniques. It relied heavily on local perceptions to evaluate perceived governance quality and social-ecological outcomes of the conservation projects in the study area. Local perceptions were used because the technique is cost effective and able to evaluate both the social and ecological contributions of PAs (Agyare et al., 2013; Bennet 2016). The results obtained from local perceptions can also be used in adaptive planning as they can predict local desired and perceived conservation outcomes (Agyare et al., 2013; Bennet 2016). All research instruments were vetted and approved by the University of Victoria Ethics Review Process (Appendix D), and a research permission letter was obtained from the local authorities in the study area (Appendix E)

#### **1.5.1. Document Review**

The study reviewed published and reliable unpublished sources related to the research objectives to obtain information pertaining to a broad understanding of governance activities, biodiversity conservation, and conservation social benefits to local communities in the study area. Among the documents reviewed by the research

team<sup>7</sup> are the policies and laws related to local governments, land rights, wildlife conservation, and records of village revenue and expenditure of the funding from tourism investments in the study villages.

#### **1.5.2. Focus Group Discussions**

This study conducted one focus group discussion (FGD) at each of the six study villages. The participants consisted of women, men, and youth; current and past village government leaders and local traditional leaders who are familiar with the day-to-day activities of the conservation projects in their respective villages. The FGDs were needed to collect information about governance and the contributions of the projects to conservation and local livelihoods. The discussions lasted one to two hours at every study village using a semi-structured interview guide (Appendix F). The study used a purposive sampling technique to select a diverse group of participants with the required knowledge of the conservation projects. It targeted villagers with firsthand information about the projects as the study was focused on knowing the history of the projects, governance, and the projects' social-ecological benefits.

Although the participant selection process considered ensuring a proportional representation of participants regarding demography (gender, youth, and elders) at all study villages, the selection did not turn out to be gender balanced as most of the participants were men. The cause of the gender imbalance of the participants is due to the cultural background of the Maasai people. The Maasai have a dominant male culture (Bee et al., 2002; Blench, 2001; Lyamuya et al., 2014) and, based on the criteria put forward (that the participants should have knowledge about the conservation projects in the village), many women may have lacked that knowledge as few of them are involved in the day-to-day decision-making processes. At Oloipiri village, the FGD consisted of eight male and two female participants, in Oloirien there were eight male and two female participants, and at Soitsambu there were eight male and no female

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<sup>7</sup> The research team consisted of the main researcher and two assistant researchers from the study area.

participants. In the other study villages, the participation was as follows: in Ololosokwan there were seven males and four females, in Maaloni there were seven males and two females, and in Arash, there were six males and one female.

#### **1.5.3. Key Informant Interviews**

Key informant interviews were needed to collect information from a broad range of stakeholders with firsthand information and knowledge (expert opinion) on the village-based conservation projects and their contribution to local livelihoods and biodiversity conservation. A snowball sampling technique was used to recruit participants as the technique allows researchers to identify suitable respondents from a population of interest (Robinson, 2011). The study used a semi-structured questionnaire guide (Appendix G) and interviewed a total of 25 key informants. The key informants comprised of the locally elected ward councilors (5), traditional local leaders (5), District government officials (5), tour operators (3), and NGO leaders (7).

#### **1.5.4. Household Surveys**

The surveys gathered information on the household perceptions of the conservation projects' contributions to local livelihoods and biodiversity conservation. The surveys were also used to evaluate governance quality of the village councils administering the conservation projects at each of the study villages. The research team filled out the surveys by interviewing the study respondents. The participants were any household member (male or female) aged 18 years and older (see Appendix B). The household survey guides used by this study are attached as Appendix H and I. The study used a multistage random sampling because of the scattered nature of the study population in each of the study villages (Chauvet, 2015). The total population in each of the study villages was as follows: Oloipiri village, 2,057; Oloirien, 3,279; Soitsambu, 2,739; Ololosokwan, 3,279; Maaloni, 2,177; and Arash village, 2,605 people. Table 1.3 below shows the total households in each of the study villages and the sample size used.



**Table 1.3. Household Survey Samples**

S/N	Study village	Village Population	Sample size (n)
1	Oloipiri	2,057	52
2	Oloirien	1,897	55
3	Soitsambu	2,739	59
4	Ololosokwan	3,279	55
5	Maaloni	2,177	56
6	Arash	2,605	53
	TOTAL	14,754	330

Source: Tanzania Bureau of Statistics – Human and Development Census of 2012

A sample size generator was used to obtain the study household samples from the study population <http://www.surveysystem.com/sscalc.htm>. [The study population N = 14,753, confidence level = 95%, confidence interval = 5.33, and total sample size obtained = 330]. The sample size was divided by the total number of villages in the study area to obtain the sample size for each study village (e.g.  $330/6 = 55$ ). At each study village, the sample was further divided by the number of sub-villages within a village to obtain the number of households to be interviewed (e.g., at Ololosokwan village, for example, where there are two sub-villages, the calculation was  $55/2$  equals 28 and 27 households for Njoroi and Ololosokwan sub-villages, respectively). At the sub-village level (e.g., at Njoroi sub-village), opportunistic sampling was used to obtain the 28 households interviewed.

The research team used opportunistic sampling because of time constraints as well as the difficulty of finding respondents going door to door (hut to hut) as it was the dry season and most of the household members were away during the day caring for their livestock. The household samples therefore involved in the survey were as follows: Oloipiri (n=52), Oloirien (n=55), Soitsambu (n=59), Ololosokwan (n=55), Maaloni (n=56), and Arash (n=53). The variation in the sample size was due to the availability of the

respondents and time constraints. The time allocated to each of the study villages was a maximum of three days.

#### **1.5.5. Demographic Characteristics of the Household Survey's Respondents**

Appendix B shows the demographic characteristics of the household samples studied during this data collection period. These characteristics show the gender and age of the respondents, their residency status, their education, and their economic activities. The number of males in the sample was larger than that of females (64.8% males; 35.2% females). The age of the respondents was above 20 years old and the majority of the respondents were between the ages of 20 to 29 years old (53%) followed by those aged 30 to 39 years old (26.1%). Those aged between 40 and 49 years old, were 12% and those between 50 and 59 years old, were 12.1%. Only 2.7% of the study respondents were aged 60 years and older.

The residency status of the study respondents showed that 92.4% were born and raised in Loliondo while the rest (7.6%) were from elsewhere and had moved to Loliondo (i.e., for marriage in the case of women). The majority of the respondents ended their education at primary school (48.5%). About 9.7% completed ordinary secondary school and 9.7% completed advanced secondary school. Others (2.7%) completed a college diploma, and 2.1% held a university degree. The rest of the respondents (36.1%) never went to school.

The majority of the study respondents (95.2%) were found to be livestock keepers, while 78.2% do both livestock keeping and crop cultivation. Other economic activities of the study respondents were employment in CBC projects (2.1%), employment in the government (4.5%), engagement in small business, e.g., grocery stores (6.1%), engagement in tourism (1.2%), and involvement in the livestock business (i.e., buying and selling livestock; 2.7%).

### **1.6. Data Analysis and Interpretation**

Notes from each FGDs and key informant interviews were taken by the research team on site and analysis of the notes was done by the team at the end of every working day using the research questionnaires (Appendix F and G). Individual FGDs and key informant interviews narrative reports were prepared at each of every data collection days by the research team. The contents of the reports were further analyzed to clarify the local views of the conservation projects governance, contribution to biodiversity, and contributions to local livelihoods.

The data collected from the household survey were screened, cleaned, coded and entered in Statistical Package for Social Sciences (SPSS version 24.0) for analysis. To analyze data necessary to address objective one (the assessment of governance quality), the study used analysis of variance test (one-way ANOVA) to determine which governance characteristics were more or less observed by the village councils (comparison of the means).

To determine whether there are differences in local perception of the village council's observation of the governance principles, a measure of association (Eta) was used which shows the strength of such differences (e.g., minimal, typical or substantial; Levine and Hullett, 2002; Vaske, 2008). The study further used the *Post hoc Test comparison (Tamhane's T2)* to determine the differences in local perceptions among the study villages. The Tamhane's T2 test was used because the study sample sizes were unequal and therefore the variances of the governance characteristics (variables) evaluated were unequal (Vaske, 2008).

To achieve objective two (evaluation of the projects' contributions to biodiversity conservation and local livelihoods), descriptive statistics were applied to obtain tables and the percentage of various livelihood and biodiversity conservation variables. The data were copied from the SPSS files to Excel spreadsheets files to produce further tables used in data presentation and interpretation.

### **1.7. Organization of the Thesis**

Three chapters follow this Introduction. Chapter two contain a paper that discusses governance effectiveness of the conservation approach used in this study area. It evaluates governance quality of village councils which are local institutions administering the conservation projects implemented under the village-based approach used in this study area. Chapter three contain a paper that explores social-ecological contributions of the conservation projects. It evaluates the projects' contributions to the protection of biodiversity, and to local livelihoods. Finally, chapter four contains the conclusions, results summary, study limitations, and recommendations derived from the results in chapters two and three.

## **CHAPTER 2: ASSESSING GOVERNANCE EFFECTIVENESS OF A VILLAGE-BASED CONSERVATION APPROACH IN LOLIONDO DIVISION**

### **2.1. Introduction**

Decentralized environmental governance has become a common solution to aid more centralized conservation approaches to biodiversity conservation in low-income countries (Nelson and Agrawal, 2008; Kiwango et al., 2015). Decentralization seeks to transfer power and authority from central governments to local people or to lower levels of governments and improve efficiency, equity, and accountability in natural resource governance (Brockington, 2002; Ngirwa et al., 2013). The use of a Community-based Conservation (CBC) approach has been part of such a decentralization process (Baldus, 2009; Ngirwa et al., 2013; Kiwango et al., 2016). According to Western and Wright (1994), CBC is defined as biodiversity conservation by the people, with the people, and for the people. Since the 1980s, central governments in low-income countries have increasingly adopted the CBC approach in natural resource conservation and the improvement of local livelihoods has become part of the conservation discourse (The Bali Declaration, 1982; Nelson and Agrawal, 2008). The CBC approach to natural resource conservation was mainly meant to increase local participation in biodiversity conservation by governments sharing natural resources governance roles with local communities (Baldus, 2009; Lele et al., 2010; Ngirwa et al., 2013; Kiwango et al., 2015), and by sharing conservation benefits (Spiteri and Nepal, 2006; Baldus, 2009; Lele et al., 2010; Dressler et al., 2010). The overall goals of the CBC approach, therefore, are to achieve biodiversity conservation and improve local livelihoods (Baldus, 2009; Lele et al., 2010; Dressler et al., 2010). However, only rarely have the goals been achieved within the relatively short period of time that CBC approaches have been in operation (Brooks et al., 2013; Moyo et al., 2016). In many cases, the approach failed to achieve the improvement of local livelihood goal (Lele et al., 2010; Dressler et al., 2010; Moyo et al., 2016), partly because of the design of the conservation programs implemented under the approach (Agrawal and Gibson, 1999; Berkes, 2007; Brooks et al., 2013; Stone and Nyaupane, 2014).

CBC program design is criticized for employing a form of common property resource governance under inappropriate conditions (Agrawal and Gibson, 1999; Stone and Nyaupane, 2014). The CBC approach often groups several villages consisting of local communities with different ethnic backgrounds to establish and govern community conservation areas (Agrawal and Gibson, 1999; Stone and Nyaupane, 2014). The design of many CBC programs ignored the fact that in many cases local communities from different villages are heterogeneous<sup>8</sup> and that community heterogeneity does affect the communal use of natural resources (Dearden, 1995; Agrawal and Gibson 1999; Ostrom, 2000; Brooks et al., 2013; Acquah et al., 2013; Stone and Nyaupane, 2014; Agyare, Murray, Dearden, & Rollins, 2015a). Brooks et al. (2013), for example, in their analysis of 136 community-based projects worldwide, concluded that the design of CBC projects lacked a sense of community ownership and reiterated the call made by many other authors (e.g., Agrawal and Gibson, 1999; Berkes, 2004; Dressler et al., 2010; Stone and Nyaupane, 2014) for CBC program designers to assess local characteristics during CBC project establishment. Likewise, Agyare, et al., (2015a) in their study comparing perceived and desired conservation outcomes of a CBC initiative at Avu Lagoon in Ghana, found that communities from different villages are not homogeneous in terms of their values and expectations, nor do they perceive success in the same way. According to the theory of collective action (Ostrom, 2000; Olson, 2002), and the common property resource theory (Ostrom, 1990), communities with different characteristics rarely cooperate in the management of the common natural resources. Thus, the grouping of several villages to form conservation programs is one of the major contributors to the inability of the CBC programs to sustain their intended conservation and community development objectives (Agrawal and Gibson, 1999; Nelson and Agrawal, 2008; Stone and Nyaupane, 2014).

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<sup>8</sup> The term heterogeneity in this study is used to mean differences that may exist between local communities living in different villages in the basis of their cultural backgrounds, that may also differentiate their livelihood strategies (e.g., pastoralism, hunting, and crop cultivation).

Despite the CBC program design challenges, the approach is still widely applied in Southern African countries, notably, Zimbabwe, Botswana, Namibia and Zambia (Nelson and Agrawal, 2008; Ngirwa et al., 2013; Gargello, 2015), and in East African countries such as Kenya and Tanzania (Nelson, and Agrawal, 2008; Baldus, 2009; Nelson, 2012). According to Nelson and Agrawal (2008), the programs are named differently in the region but with similar goals of enhancing conservation and fostering community development. In Zimbabwe, for example, the programs are known as Communal Areas Management Programme for Indigenous Resources (CAMPFIRE), while in Namibia, Botswana, and Kenya the programs are known as Community Conservancies. In Zambia, the programs are called Administrative Management Design (ADMAD) while in Tanzania they are known as Wildlife Management Areas (WMAs; Baldus, 2009; Nelson and Agrawal, 2008). This paper is concerned with the application of CBC programs in Tanzania. The next section provides some background on the topic and a statement of objectives.

#### **2.1.1. Community-based Conservation Approach in Tanzania**

The idea of CBC in Tanzania started in the 1980s through pilot programs such as the Selous Conservation Programme (SCP) in southern Tanzania and the Serengeti Regional Conservation Strategy (SRCS) in northern Tanzania (Mbano, Malpas, Maige, Symonds, & Thompson 1995; USAID, 2000; Baldus, 2009). Some of the objectives of these programs were to involve the communities in natural resource conservation in the buffer zones of the Selous Game Reserve and of the western Serengeti National Park (SENAPA), and allow them to manage wildlife and benefit from the sustainable use of natural resources on village land (USAID, 2000; Baldus, 2009). These two long-term conservation strategies were sponsored separately by the German and the Norwegian governments and supported by the Tanzanian government and the International Union for Conservation of Nature (IUCN; USAID, 2000; Baldus, 2009). These two programs helped to facilitate the understanding of the concept of CBC in Tanzania although some might suggest that the efforts have largely been thwarted by the resistance of the

central government to devolve power and authority over natural resources to a local level (Igoe and Croucher, 2007; Baldus, 2009; Benjaminsen et al., 2013; Green and Adams, 2015; Kiwango et al., 2015).

The tourism sector in Tanzania is lucrative and the central government was not willing to “truly” decentralize the sector to local communities through CBC programs (Igoe and Croucher, 2007; Baldus, 2009; Kiwango et al., 2015). However, through long-term lobbying and advocacy by conservation organizations to the government of Tanzania, CBC was later scaled up to become a countrywide conservation agenda in 1998 through the introduction of a new wildlife policy (i.e., the Wildlife Policy of Tanzania of 1998) aimed at decentralizing wildlife management (Igoe and Croucher, 2007; Baldus, 2009; Benjaminsen et al., 2013; Moyo et al, 2016;). But, despite the policy being in place since 1998, the government was reluctant to implement the policy until 2006 when the first WMAs were granted status (Igoe and Croucher, 2007; Benjaminsen, et al., 2013). Such delay confirms the government’s unwillingness to devolve wildlife resource governance to local communities (Mshale, 2008; Benjaminsen et al., 2013; Green and Adams, 2015). The WMAs, which are pieces of several village lands “technically” set aside by local communities for communal wildlife conservation, is, therefore, a formal CBC approach adopted by the government of Tanzania (Igoe and Croucher, 2007; Baldus, 2009; Wilfred, 2010; Green and Adams 2015). Until 2015, a total of 17 WMAs had been established with 21 others underway (Moyo et al., 2016). Together, these 38 WMAs are estimated to cover approximately 7% of Tanzania's total surface area (Kiwango et al., 2015; Moyo et al, 2016). Although the WMA programs are said to be a form of CBC approach, in most cases, the conservation programs implemented under the approach are central government initiatives and the local people have limited decision-making powers over the programs (Moyo et at., 2016; Kiwangwa, et al., 2015). The WMAs programs, despite using community lands decisions over conservation, utilization, and allocation of benefits from them are done by the



central government through the Wildlife Division (Igoe and Croucher, 2007; Baldus, 2009; Kiwango et al., 2015; Moyo et al., 2016).

Despite their existence for more than a decade, the WMA programs in Tanzania have been facing various challenges preventing them from attaining their intended goals of wildlife conservation and improving local livelihoods (Baldus, 2009; WWF, 2014; Green and Adams 2015; Robinson and Makupa, 2015; Kiwango et al., 2015). The programs are facing conservation challenges such as the continued wildlife poaching in and outside protected areas (PAs) by local communities (USAID, 2013; Kideghesho, 2016), and fragmentation of the locally conserved areas (USAID, 2013). For local livelihood improvement, the programs are faced with their inability to deliver benefits to local communities that outweigh the costs of conserving wildlife (WWF, 2014; Solerno et al., 2016). The programs are also facing inter-village conflicts over benefit sharing (Benjaminsen et al., 2013; Green and Adams, 2015). As well, the minimum devolution of governance responsibilities from central government to local communities resulted in the lack of local support for the WMA programs (Kiwango et al., 2015; Moyo et al., 2016). To a large extent, the WMA challenges are therefore partly caused by the lack of good governance and the low interest of the local communities (Baldus, 2009; Wilfred, 2010; USAID, 2013).

Apart from the few well-known WMAs (e.g., Burunge, Ikona, Enduimet, and Mbomipa), the majority of the WMAs generate very low or no financial benefits to local communities (USAID, 2013; WWF, 2014; Kiwango et al., 2016). Even for the famous WMAs, the benefits generated are limited to implementing community development projects with few benefits reaching individual families (WWF, 2014; Robinson and Makupa, 2015; Salerno et al., 2015).

For the few WMAs that are currently receiving conservation benefits, sharing the benefit among member villages has become a major problem (Green and Adams, 2015; Moyo et al., 2016). Before the introduction of the WMA programs, some villages

adjacent to PAs had been individually signing contracts with tourist companies that provided financial benefits to implement development projects (USAID, 2013; WWF, 2014; Green and Adams, 2015). But the WMA program grouped together several different villages to form WMAs. Some villages contributed more land than others, while some were included politically without contributing the lands (USAID, 2013; Green and Adams, 2015). The WMA regulations require all WMA member villages to equally share the WMA revenue regardless of how much land the individual villages contributed to the WMA and how much wildlife damages each face compared to others (the United Republic of Tanzania, 2012). The regulation has brought confusion and there are pending cases all over the country of villages wanting to exit from the WMAs (e.g., Burunge, Mpomipa, and Enduimet WMAs; WWF, 2014; Green and Adams, 2015; Moyo et al., 2016). However, the WMA regulations lack mechanisms for the WMA member villages to pull out their membership when they are no longer interested (Benjaminsen and Svarstad, 2010; WWF, 2014).

Further, the fact that the final decision on wildlife conservation and utilization in the WMA to a large extent still rest in the hands of the central government despite apparent decentralization, is problematic (Baldus, 2009; Green and Adams 2015; Robinson and Makupa 2015; Kiwango et al., 2015; Gardner 2016). As discussed earlier, the government in Tanzania seems to be using the term *community-based conservation* as a gateway to implement its conservation agenda and may not necessarily have the intention to fully give the local communities authority to manage and fully benefit out of wildlife conservation (Baldus, 2009; Gardner, 2012; Kiwango et al., 2015). The fact that the Tanzania WMA Conservation Act of 2012 gives the Director of Wildlife the final decision over the establishment of WMAs, investment in WMAs, and over sharing of wildlife conservation benefits accrued from a WMA (Green and Adams 2015; Kiwango et al., 2015; Moyo et al., 2016), create the potential for the programs to become more government-controlled than local community controlled and cast doubt on the status of becoming a full community-based conservation approach.

Finally, the WMA programs lack local support and local awareness of the programs (e.g., Songorwa 1999; Benjaminsen et al., 2013; USAID, 2013; Green and Adams, 2015). Before the introduction of the WMAs countrywide, Songorwa (1999) for example, in his research to examine whether local communities near the Selous Game Reserve in southern Tanzania were interested in joining CBC projects, found that the majority of the local people were not interested. Communities were not interested because of the unrealized local expectations from wildlife conservation, the cost associated with CBC project establishment, the lack of trust of the government by the local communities, and the unclear understanding of the projects' objectives by the local people. Later, after a decade of WMAs in Tanzania, an evaluation report on WMAs' performance by USAID in 2013 found the vast majority of local communities involved in WMAs (96%) did not understand the amount of their village land given to the WMA. According to the report, 66% of household heads surveyed felt that the purpose of the WMA was conservation of wildlife and not to improve local livelihoods. Few (27%) recognized community participation and 18% cited the sharing of new benefits as a WMA purpose. The local people's perceptions of the WMAs, therefore, is that the WMAs have turned their community lands into state PAs that exclude local people from accessing natural resources (e.g., grazing and cultivation; Benjaminsen and Svarstad, 2010; Nelson, 2012; Robinson and Makupa, 2015). For example, Robinson and Makupa (2015) reported an incident where local farmers were denied access rights to their traditional cultivation and grazing lands after the establishment of Ikona WMA in the western Serengeti. After the establishment of the WMA, the by-laws used in the WMA prohibited local access to their land traditionally used for livestock grazing. Because the local people had no other options, they continued to use the WMA land illegally and in 2012 twenty-eight (28) livestock-related arrests were documented with every arrest resulting in a fine of \$200 (Robinson and Makupa, 2015, p. 1220). Thus, locally, the WMA programs are perceived negatively and they are viewed as "national parks" inside

village lands. The local communities are unhappy about the programs because they reduced local access to natural resources (Songorwa, 1999; Igoe and Croucher, 2007).

To this end, considerable improvement needs to be made in the design and implementation of the CBC programs in Tanzania and elsewhere in the region. An approach capable of addressing or minimizing the current CBC governance-related challenges is necessary. The challenges that need to be addressed include low generation of revenue (USAID, 2013; WWF, 2014; Salerno et al., 2015; MacKenzie et al., 2017), inequality on the benefit-sharing (Benjaminsen et al., 2013), the lack of local participation (Baldus, 2009), inter-village conflicts (Green and Adams, 2015; Moyo et al., 2016), the lack of the local people's autonomy on decision-making over natural resource use (Igoe and Croucher, 2007; Baldus, 2009; Benjaminsen et al., 2013; Green and Adams, 2015; Kiwango et al., 2015), and the grouping of heterogeneous communities in a single CBC program (Agrawal and Gibson, 1999; Brooks et al., 2013; Stone and Nyaupane, 2014).

Stone and Nyaupane (2014) suggest a different CBC approach in which individual villages within a CBC program become independent in the governance of their own natural resources. The approach avoids the "one-size-fits-all" design of grouping several villages to form a CBC where there is a likelihood of bringing together heterogeneous local communities to govern a common resource (Agrawal and Gibson, 1999). According to Stone and Nyaupane, the model would minimize the many challenges faced by the current CBC approach to natural resource governance as single villages to a large extent consist of homogeneous local communities who are more likely to cooperate and manage their own small-scale common resources (Ostrom, 1990; Agrawal, 2001).

One example of the single village approach and the focus of this thesis is a CBC approach adopted by the pastoralist communities of Loliondo Division in northern Tanzania (TNRF, 2011; Gardner, 2012; Rurai, 2012; Benjaminsen et al, 2013). It is a conservation approach similar to the one proposed by Stone and Nyaupane (2014)

where individual villages that traditionally conserved wildlife on their communal lands signed contractual agreements with tourist companies interested in tourism activities on village lands. In this paper, the conservation approach is referred as a “village-based conservation approach”. The agreements between the villages and the tourist companies require the villages to set aside part of their lands for wildlife conservation that the tourist companies would use for tourism activities while paying the villages annual land access fees. The approach is controversial and is opposed by the central government although no studies have been undertaken to examine the schemes and their outcomes in more detail. The purpose of this paper is to address this deficiency, in part, and examine the effectiveness of the governance of this single village approach to a CBC. This paper’s objective is, therefore, to assess governance effectiveness of the village-based conservation approach in Loliondo Division by evaluating the quality of governance of village councils that are the local institutions governing the conservation projects implemented under this approach. The following section discusses the village-based conservation approach in more detail.

#### **2.1.2. Village-based Conservation Approach in Loliondo Division**

The village-based conservation approach to natural resource governance in Loliondo Division is an incentive-based conservation approach managed at the village level by village councils that are legal entities that represent local people residing within a village boundary (TNRF, 2011; Gardner 2012). According to Hutton and Leader-Williams (2003), an incentive-based conservation approach is meant to give local communities financial or social benefits to increase their motivation to participate in the conservation of natural resources. The conservation approach in Loliondo Division employs an integrated system coupling tourism and pastoralist activities using pastoralist traditional ecological knowledge of livestock and wildlife interaction (Goldman, 2011; Lyamuya, Masenga, Fyumagwa, Mwita, & Røskaft, 2016). The approach is controversial and to a large extent, lack government support and therefore

by the time of this study the approach was only active in a single village among six villages originally employed the approach.

Pastoralists in Loliondo Division, especially the Maasai, use a system of common property resource governance (e.g., Ostrom, 1990; Agrawal, 2001) to regulate the use of natural resources (Goldman 2011; Lyamuya et al., 2016). However, due to concerns over land-use changes in the 1980s, particularly the expansion of large-scale agriculture, the local communities successfully advocated for demarcation of village boundaries within the Division (TNRF, 2011; Nelson, 2012; Gardner 2012). The existence of village boundaries in the area paved the way for the village-based conservation approach in the division. The tourist companies that showed interest in tourism activities on village lands signed contracts with village councils on behalf of the local communities and, in return, the villages set aside parts of their village lands for wildlife conservation and tourism activities. Companies initiated the process by approaching the village councils with proposals that if accepted would be voted on by the village residents. In this thesis, village lands set aside by the villagers for conservation and tourism are referred to as *conservation projects*. Many of the photographic tourism companies that signed contracts had temporary camps in the area that were actively used only during the tourist season (mainly between June and December).

A village council that is part of the village-level government in Tanzania<sup>9</sup> has executive powers to decide on the use of natural resources in village lands on behalf of village residents (Mwakaje et al., 2013; King, 2014). It also has corporate powers to enter into agreements with other entities. It can sue and be sued, and can make by-laws to govern the use of natural resources found on village lands (The United Republic of Tanzania, 1984, 1999). In this study area, every village has a village council consisting of 25 elected members headed by a chairperson who is assisted by a Village Executive

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<sup>9</sup> In Tanzania, there are two levels of government: the urban and local government authorities. The local government authority consists of the district councils, divisions, wards, and village level governance. These government levels relate to each other as they operate with directives from the central government which is made up of the parliament, the judiciary and the executive branches.

Officer (VEO). The village assembly (consisting of all adult village members) which is the supreme power of the village-level government elects the members of the village council and makes final decisions on all matters of village government (The United Republic of Tanzania, 1984; Mwakaje et al., 2013; King, 2014). The village government also consists of three main committees: the finance and planning committee, the self-reliance activities committee, and the security and defense committee (Mwakaje, et al., 2013; Makupa et al., 2013). These committees help the village councils to achieve their objectives. In this study area, all these structures of the village-level government work together to maintain the day-to-day business of the village government, including the governance of village conservation projects that are the focus of this paper.

As presented in Table 2.1, the conservation approach used in Loliondo Division is different from the WMA approach used elsewhere in the country. It is therefore important to assess the approach to give an understanding of other existing CBC approaches in the country.

**Table 2.1. The Village-based Conservation Approach Versus the WMA Approach**

<b>S/N</b>	<b>Features</b>	<b>Village-based Conservation Approach</b>	<b>Wildlife Management Area (WMA) Approach</b>
1	Number of villages involved	Single village	Several villages
2	Nature of communities involved	Homogenous	Heterogeneous
3	Sharing of benefits	Communities living in the same village only	The central government, CBO, and member villages
4	The use of traditional ecological knowledge	Allowed	Not allowed
5	Local autonomy over decision-making process	Present	Absent

Unlike the WMA approach, the Loliondo village-based conservation approach uses a single village approach to conserve and use the natural resources. Because it uses

a single village approach, to a large extent the community involved are socially and culturally homogenous. Further, unlike the WMA approach, the sharing of conservation benefits under the Loliondo approach is subject to the single village residents alone. The approach also allows the use of traditional ecological knowledge in natural resource management. And finally, unlike the WMA approach, under the Loliondo approach, the local communities have autonomy over the decision-making processes concerning the natural resource conservation and use.

Assessing the Loliondo case study will not only contribute to improved natural resource governance in Loliondo and around one of the world's most important protected areas—the SENAPA—but will also help to address an important gap in the literature on Other Effective Area-based Conservation Measures (OECMs) suggested by Aichi Targets 2020 (Jonas et al., 2014; Marques et al., 2014). The following section gives a brief overview of the processes and assessment of PA governance effectiveness using the IUCN protected areas principles of good governance (Borrini-Farayerbend et al., 2013).

### **2.1.3. Assessing the Effectiveness of Protected Areas Governance**

Protected area governance concerns the structures, processes, and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how stakeholders have their say (Graham et al., 2003). The 7<sup>th</sup> Conference of Parties to the Convention on Biological Diversity (CBD) held in Kuala Lumpur in 2004 adapted the PAs governance framework that recognized four broad governance types (Lockwood, 2010; Borrini-Fayerabend et al., 2013). The recognized governance types by the CBD Conference of Parties are governance by governments, shared governance, private governance and governance by indigenous peoples and local communities. The classification of the PA governance types depends on who holds authority in a PA (Borrini-Feyerabend, et al., 2013). In state-controlled PAs, for example, the governance by governments' type is mainly used while for community PAs, shared governance is the main type used (Borrini-Farayerbend et al., 2013; Franks and Booker, 2015).



Protected area governance is said to be effective when the quality of governance adheres with the set of IUCN principles of good governance which are legitimacy and voice, direction, performance, accountability, and fairness and rights (Borrini-Feyerabend et al. 2013). According to Borrini-Feyerabend and others, PA governance is assessed because governance can strongly influence the effectiveness and efficiency of conservation, decides the appropriateness and equity of decisions made, ensures that PAs are well integrated into their wider ecosystem and society and provides help in facing ongoing challenges and global change.

Apart from the IUCN principles of good governance (Graham et al., 2003; Borrini-Feyerabend et al., 2013) used to evaluate PA governance quality, other scholars have suggested additional principles. Lockwood (2010) for example, suggests an extended framework that includes two other principles in addition to the Graham principles: connectivity and resilience. In addition, Kisingo et al., (2013), in their analysis of governance effectiveness in the Serengeti ecosystem, added power and achievement to Lockwood's (2010) seven principles of good governance. Although these scholars have suggested additional principles, this study adheres to the accepted IUCN protected areas principles of good governance (Borrini-Feyerabend et al., 2013) for the evaluation of the governance quality of the village-based conservation approach in Loliondo Division.

Assessment of the effectiveness of a PA can be done at the global (Dearden et al., 2005), national (Borrini-Farayerbend et al., 2013) regional (Kisingo, Rollins, Murray, Dearden, & Clarke, 2016) and local unit levels (Agyare, Murray, Dearden, & Rollins, 2015b). However, assessments at the local unit level on non-traditional (i.e., locally managed) PAs are relatively rare. The village-based conservation approach used in Loliondo Division is taking place on community lands and therefore falls under a PA category managed by local communities (see Dudley, 2008 for PAs categories). Its

governance quality, therefore, can be assessed using the IUCN protected areas' principles of good governance.

## **2.2. Study Area, and Research Approach**

### **2.2.1 The Study Area**

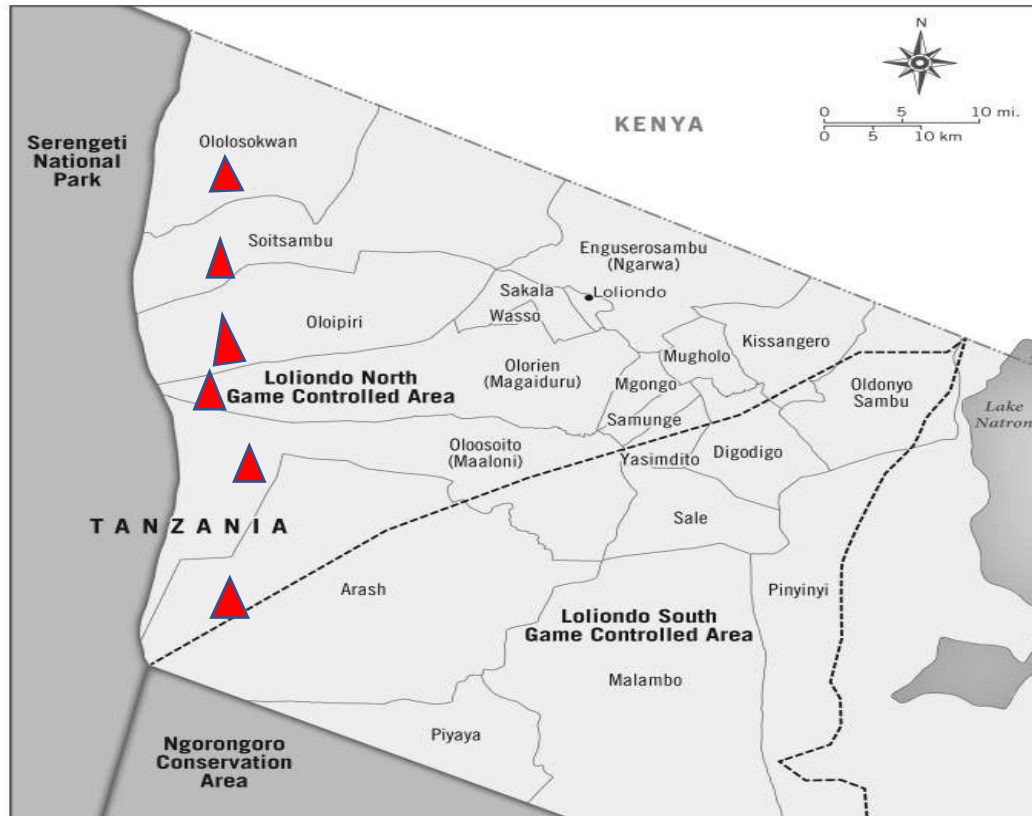
The study area was the Loliondo Division in Ngorongoro District North of Tanzania. It covers six villages found along the eastern border of the Serengeti National Park (SENAPA). The study villages (Ololosokwan, Soitsambu, Oloipiri, Olorien, Maaloni, and Arash), were chosen because of implemented conservation projects involving consumptive and non-consumptive tourism investment (Gardner, 2012; Green and Adams, 2015). The area is occupied by the Maasai agro-pastoralist sub-clans of Laitayok, Purko, and Loita. Historically, the Maasai were pure pastoralists but they are increasingly adopting crop cultivation such as growing corn (McCabe, et al., 2010, Ojalammi, 2006; Rurai, 2012; Bartel, 2014). The study area (Loliondo Division) is also the Loliondo Game Controlled Area (GCA) which is part of the Serengeti–Mara Ecosystem (Sinclair et al., 2015). The Loliondo GCA is a multiple land use area designated by the government where human activities can take place alongside wildlife conservation (McCabe et al., 2010; Rurai, 2012; Gardner 2012).

The natural resource governance in this study area is controversial due to unresolved questions about land ownership. The local communities claim to own the land and, at the same time, the central government claims to own the same land for conservation. As it is shown in Figure 2.1, the Loliondo Division overlaps with the Loliondo GCA. The overlap and the multiple land use statutes of Loliondo Division create confusion for residents as community lands (village lands) and wildlife conservation are governed by different authorities<sup>10</sup> using different laws and policies. The wildlife policies and laws (see Appendix C), give the central government the powers to govern wildlife resources both inside and outside PAs while the Village Land Act No. 5 of 1999 and the

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<sup>10</sup> The village land is governed by the village government using village lands and local authority acts while the wildlife is governed by the central government using wildlife conservation statutes.

Local Government Act of 1984 give the local communities the powers to manage the village lands and the natural resources found on the lands.



**Figure 2.1. Map showing the Study Area villages in Loliondo Divisions.**

Adapted from TNRF (2011).

Because the local communities in Loliondo had the legal standing of the use of their lands, they managed to sign contracts with the tourist companies that were interested in running photographic tourism businesses on village lands. At the same time, since the study area was designated as a GCA (in most cases GCAs are hunting blocks), the central government also signed a contract with a hunting company known as Ortello Business Cooperation (OBC) that was interested in running a hunting tourism business within Loliondo Division. The existence of the two types of uncoordinated uses of the village lands in Loliondo Division (hunting and photographic tourism) created

conflict between the local communities, on one hand, and the OBC and the central government on the other hand.

The central government has made several attempts to resolve the conflict including the introduction of a tourism regulation in 2000 (revised in 2002) which banned photographic tourism in GCAs and on village lands adjacent to PAs without a written permission from the Wildlife Division (WD). The government also proposed to change some of the village lands (1,500 square kilometers out of 4,000 square kilometers) to become a Game Reserve, which is one of strictly PAs categories in Tanzania (The United Republic of Tanzania, 2013). However, the local communities protested the proposal because they claimed the entire Loliondo Division to belongs to them and taking the 1,500-square kilometers for strict conservation would undermine their livelihood. Until now, the confusion over land ownership in the study area is still waiting to be resolved. At the time of this study, the village-based conservation approach was only active in one study village, namely Ololosokwan, because many photographic tourism companies stopped their operations following the central government ban on photographic tourism in village lands. Ololosokwan village had a permanent tourist camp and was unaffected by the ban.

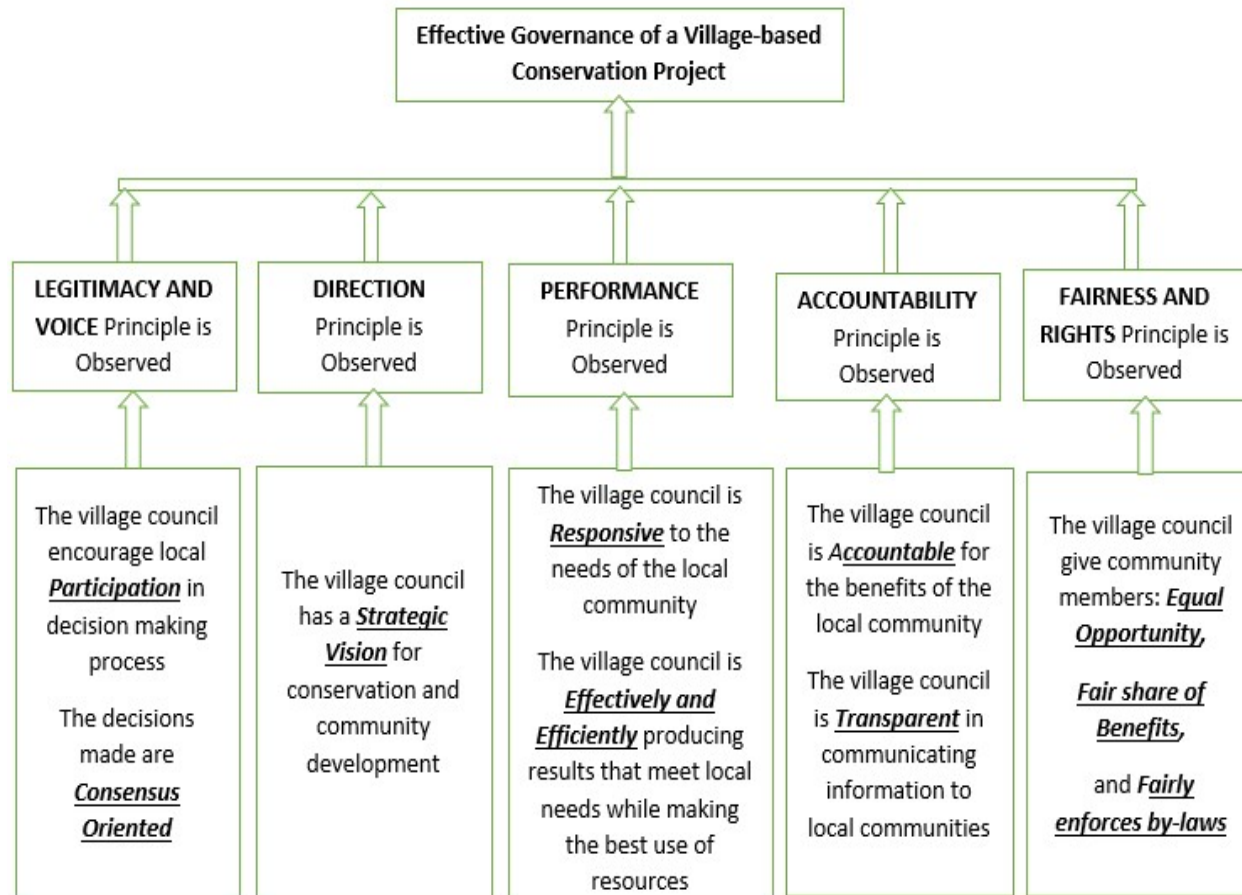
This thesis focuses on the outcome of the contracts between the local communities and tourist companies before and after the ban of photographic tourism in the study area. It focuses on this arrangement because the signed contract facilitated the implementation of the village-based conservation approach in Loliondo Division. The following section introduces the principles of good governance framework and its use in the evaluation of the quality of governance of the village councils administering the village-based conservation approach in the Loliondo Division.

### **2.2.2. Evaluation of Governance Effectiveness of the Study Area Conservation Approach**

This study uses the IUCN protected areas' framework of good governance principles (Graham et al., 2003) to evaluate governance quality of the village councils

which are the governing institutions of the village-based conservation projects implemented in Loliondo Division.

Figure 2.2 shows the principles and the specific characteristics (underlined) used in the evaluation. To evaluate whether the village councils observed the legitimacy and voice principle, the study used participation and consensus orientation characteristics. To evaluate the village council's observation of the direction principle, the study uses the strategic vision characteristic. Further, to evaluate whether the village councils observed the performance principle, the study uses responsiveness, effectiveness and efficiency characteristics. To evaluate the observation of the accountability principle by the village councils, the study uses the accountability and transparency characteristics. Finally, to evaluate the village council's observation of the fairness and rights principle, the study uses the equal opportunity, the equal benefit sharing, and the fair enforcement of by-laws characteristic. More details are provided on these characteristics in the results section.



**Figure 2.2. Study Conceptual Framework for Assessing Protected Areas Governance**

Modified from Graham et al., (2003) & Mwakaje et al., (2013).

### **2.3. Research Methods**

The study uses a mixed methods research design to collect both primary and secondary data necessary to achieve its intended objectives. The study uses both quantitative and qualitative data obtained from document review, focus group discussions and household surveys. Two local assistant researchers were recruited, trained and assisted in collecting the household survey data. The research assistants were trained in research ethics, research methodology and data collection techniques specific to this study design. They were familiarized with the research proposal to ensure they knew what the research was aimed to achieve. Both researcher assistants had university degrees, research experience, knowledge of the research area, good communication skills and spoke the language of the study respondents.

#### **2.3.1. Document Analysis**

The study reviews secondary data sources in the form of published and reliable unpublished documents related to the research topic to obtain a broad understanding of the study area and natural resource governance. The study reviews the Tanzania Local Government (District Authorities Act) of 1982, and other Tanzanian laws and policies related to wildlife conservation (Appendix C) to understand the responsibilities of the village level government and wildlife regulations and governance in Tanzania.

#### **2.3.2. Focus Group Discussion**

Focus group discussions (FGDs) that lasted one to two hours were conducted by the research team at each study village. To obtain the FGD participants, a purposive sampling technique was used to ensure a selection of the participants with the required qualifications. The study used a semi-structured interview guide (Appendix F) to assess institutional governance of the village-based conservation projects in each of the study villages. The interview guide consisted of questions related to the historical background of the conservation projects, the project's implementation, and the project management arrangements in each of the study villages. The study identified participants with the past and current knowledge about the conservation projects at

each of the villages. The participants consisted of women, men, and youth, village government leaders (current and past), and traditional local leaders. Although the selection process was conscious of ensuring a proportional representation of participants in terms of gender and demography (youth and elders) at all study villages, most of the participants turned out to be men. The Maasai people have a male-dominated culture and based on the criteria put forward (that the participants should have extensive knowledge about the village-based conservation projects in their respective villages to participate in the FGDs) many women may have lacked the knowledge about the projects because few of them were in leadership positions and rarely became involved in the day-to-day village decision-making processes. The recruitment of the FGD participants was largely done by the village chairpersons who selected participants based on the nature of information required by this study. The researchers were not able to control the recruitment process to include more women.

The study used a group of between seven and eleven participants (men and women) in these discussions at each of the study villages. At Oloipiri village, the FGD consisted of eight male and two female participants, in Oloirien village there were eight male and two female participants, in Soitsambu village there were eight male participants, in Ololosokwan village there were seven male and four female participants, in Maaloni village there were seven male and two female participants, and in Arash village there were six male and one female participant.

### **2.3.3. Household Surveys**

The study used a structured interview guide (Appendix I) to evaluate governance quality of each of the village councils in the study area. The questions asked were those related to the observation of the PA principles of good governance. The interview guide consisted of questions on a rating scale of 1 to 5 (the Likert scale) in which 1 represented strongly disagree, 2 represented disagree, 3 represented neutrality, 4 represented agree, and 5 represented strongly agree. To identify the interviewed household respondents (any adult members of a household), this study used a



multistage random sampling technique. A multistage random sampling technique was used because of the scattered nature of the study population in each of the study villages (Chauvet, 2015). The total population in each of the study villages was Oloipiri village, 2,057; Oloirien, 3279; Soitsambu, 2,739; Ololosokwan, 3,279; Maaloni, 2,177; and Arash village, 523 people.

To obtain the sample population, first, a sample size generator was used to obtain the study household samples from the study population <http://www.surveysystem.com/sscalc.htm>. [The study population  $N = 14,753$ , confidence level = 95%, confidence interval = 5.33, and total sample size obtained = 330]. The sample size was divided by the total number of villages in the study area to obtain the sample size for each study village (e.g.  $330/6 = 55$ ).

Second, at each study village the sample was further divided by the number of sub-villages within a village to obtain the household members interviewed (e.g., at Ololosokwan village where there are two sub-villages of Njoroi and Ololosokwan, the calculation was  $55/2$  equals 28 and 27 households for Njoroi and Ololosokwan sub-villages respectively).

Third, at the sub-village level (e.g., at Njoroi sub-village), opportunistic sampling was used to obtain the 28 household members interviewed. The research team used opportunistic sampling because of the time constraint as well as the difficulty of obtaining the study respondents door to door as most of them were away taking care of their livestock as it was a dry season.

The household samples therefore involved in the survey as shown in Table 2.2 below are Oloipiri ( $n=52$ ), Oloirien ( $n=55$ ), Soitsambu ( $n=59$ ), Ololosokwan ( $n=55$ ), Maaloni ( $n=56$ ), and Arash ( $n=53$ ). The variation in the samples sizes was caused by the availability of the respondents and the time constraints. The time allocated to each of the study villages was a maximum of three days due to the research budget.

**Table 2.2. Households Sample Size**

S/N	Study village	No. of households	Sample size
1	Oloipiri	4,04	52
2	Oloirien	4,12	55
3	Soitsambu	5,37	59
4	Ololosokwan	6,56	55
5	Maaloni	4,44	56
6	Arash	5,23	53
	TOTAL	2,976	330

Source: Tanzania Bureau of Statistics – Human and Development Census of 2012

#### **2.4. Data Analysis and Interpretation**

Notes from each FGD were taken by the research team on-site and analysis of the notes was done by the team at the end of every working day using the respective research questions (see Appendix F). Individual FGD reports were prepared for each of the meetings and the contents of the reports were further analyzed to broadly understand the governance and the governing institutions of the conservation project in the study area.

The data collected from the household survey was screened, cleaned, coded and entered in Statistical Package for Social Sciences (SPSS version 24.0) for analysis. The study used an analysis of variance (one-way ANOVA) to determine which governance characteristics were more or less observed by the village councils (comparison of the means). To determine whether there are differences in local perception of the village councils' observation of the governance characteristics, a measure of effect size (Eta<sup>11</sup>) was used which shows the strength of such difference, e.g., minimal, typical or

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<sup>11</sup> Eta is a measure of effect size. In this paper, it is used to show the mean variation between the governance characteristics used to evaluate the quality of governance (i.e., to what degree does the observation of the characteristics of good governance principles differ on observation by the study village councils?)

substantial (Levine and Hullett, 2002; Vaske, 2008). The study further used the *Post hoc Test comparison (Tamhane's T2)* to examine differences between the local peoples' perceptions of the observation of the governance characteristics between the study villages. The Tamhane's T2 test was used because the study sample sizes and the variances of the governance characteristics (variables) were not equal (Vaske, 2008). Table 2.3 below summarizes the interpretations of the quality of governance and of the variations of the observation of the governance characteristics by the village councils.

**Table 2.3. Data Interpretation**

<b>1</b>	<b>Governance Quality</b>	<b>Mean Value (Likert Scale)</b>
	Very Good	4.45 – 5.00 (appx. 5)
	Good	3.45 – 4.44 (appx. 4)
	Neutral	2.45 – 3.44 (appx. 3)
	Bad	1.45 – 2.44 (appx. 2)
	Very Bad	1.00 – 1.44 (appx. 1)
<b>2</b>	<b>The Variations of observation on the governance characteristics in the study area</b>	<b>Eta Value (Vaske, 2002)</b>
	Minimal (small variations)	0.01 – 0.10
	Typical (medium variations)	0.11 – 0.243
	Substantial (large variations)	0.244 – 0.371

## **2.5 Results**

### **2.5.1. The Quality of Governance in the Study Area**

Using a Likert scale of 1 to 5 (with 1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree), the household survey respondents were asked to evaluate how well their village councils observed the principles of good governance when executing duties related to the village-based conservation projects. A total of ten governance characteristics specific to each of the governance principles were used for the evaluation. The results showed that the average governance mean score for all studied villages is 3.50/5.0. The average governance mean score of 3.50 indicates that the local people overall perceived their village councils to observe the principle of good

governance. However, it should be noted that the 3.50 mean score is only slightly above the neutral mark (i.e., 3.44 in Table 2.3 in section 2.4 above).

In descending order, the average governance mean values scored by each principle are as follows: direction (3.66), accountability (3.65), fairness and rights (3.51), legitimacy and voice (3.46), and performance (3.26; see Table 2.4). The governance findings generally suggest that the local people agree that their village councils observe the principles of good governance, with the exception of the performance principle which has a neutral score, suggesting concern about the performance of the village councils.

**Table 2.4. Summary of the Average Mean Scores of the Governance Principles in Loliondo Division**

S/N	Principles of Good Governance	Average Governance Score
1	Direction	3.66
2	Accountability	3.65
3	Fairness and Rights	3.50
4	Legitimacy and Voice	3.46
5	Performance	3.26
	<b>Average Score</b>	<b>3.50</b>

However, there is considerable variation amongst villages (Table 2.5). Of all the study villages, Ololosokwan village scored the highest average mean score for all the evaluated characteristics (average mean = 3.9), while Oloirien village scored the lowest (average mean = 3.22). Comparison of means (One-way ANOVA) analysis shows that for all the characteristics evaluated, the results are statistically significant as the p-value is less than 0.05 (Vaske, 2008) except for fair enforcement of by-laws characteristics (p-value = 0.062; n = 330).

**Table 2.5. Mean of Scores of Governance Characteristics in Loliondo Division**

Principles >>		Legitimacy and Voice		Direction	Performance		Accountability		Fairness and Rights				
Village Name		Participation	Consensus Orientation	Strategic Vision	Responsiveness	Effectiveness and Efficiency	Accountability	Transparency	Equal Opportunities	Fair Benefit Sharing	Fair enforcement of by-laws	Average Mean (M)	Rank
Oloipiri	N	52	52	52	52	52	52	52	52	52	52	52	
	Mean	<b>3.04*</b>	<b>3.1*</b>	<b>3.29*</b>	<b>3.25*</b>	<b>3.12*</b>	3.92	3.1	<b>3.02*</b>	3.42	3.67	3.29	4
Oloirien	N	55	55	55	55	55	55	55	55	55	55	55	
	Mean	3.24	3.11	3.31	2.95	2.87	<b>3.53*</b>	<b>3.05*</b>	3.44	3.56	<b>3.18*</b>	<b>3.22*</b>	6
Soitsambu	N	59	59	59	59	59	59	59	59	59	59	59	
	Mean	3.71	3.68	3.9	3.8	3.64	4.14	3.69	3.81	<b>3.58**</b>	3.64	3.76	2
Ololosokwan	N	55	55	55	55	55	55	55	55	55	55	55	
	Mean	<b>4**</b>	<b>3.93**</b>	<b>4.22**</b>	<b>3.56**</b>	<b>3.67**</b>	<b>4.13**</b>	<b>3.95**</b>	<b>4.02**</b>	3.8	3.71	<b>3.90**</b>	1
Maaloni	N	56	56	56	56	56	56	56	56	56	56	56	
	Mean	3.32	3.3	3.57	2.84	2.77	3.7	3.2	3.25	3.23	3.46	3.26	5
Arash	N	53	53	53	53	53	53	53	53	53	53	53	
	Mean	3.74	3.62	3.66	3.36	3.25	3.91	3.43	3.51	<b>3.06*</b>	<b>3.72**</b>	3.53	3
Total	N	330	330	330	330	330	330	330	330	330	330	330	
	Mean	3.51	3.46	3.66	3.3	<b>3.22*</b>	<b>3.89**</b>	3.41	3.52	3.45	3.56	<b>(3.50)</b>	
Rank		5	6	2	9	<b>10</b>	<b>1</b>	8	4	7	3		
Statistical Tests													
Eta		0.337	0.305	0.347	0.325	0.333	0.227	0.314	0.332	0.223	0.178		
Sig.		0.000^	0.000^	0.000^	0.000*	0.000^	0.004^	0.000^	0.000^	<b>0.005^</b>	<b>0.062</b>		

\*\*highest mean score; \*lowest mean score; ^sig. p-value < 0.05

The mean scores of the characteristics evaluated vary from village to village with the strength of the variations differing among the characteristics. The highest Eta value is 0.347 (substantial) for strategic vision while the lowest Eta value is 0.178 (typical) for fair enforcement of by-laws. The high Eta value indicates large variations in the way the village councils were perceived to observe the governance characteristics, while the low Eta value indicates low variations on the way the village councils were perceived to observe the governance characteristics. The following section analyzes the respondents' responses for each of the principles evaluated by providing more interpretation and context for the governance scores presented in this section.

### **2.5.2. Evaluation of the Quality of Governance by Principle**

This section presents results of governance mean scores of the characteristics evaluated under each governance principle. It presents the principles in the order of the most perceived to the least perceived to be observed by the village councils as well as presenting the nature (size) of the variations of their observation by the village council. The results will be discussed in section 2.6.

#### **2.5.2.1. The Direction Principle**

The direction principle was the most positively perceived principle by the study respondents as observed by the village councils. The principle was evaluated using the strategic vision characteristic (i.e., whether there was a strategic vision shared by leaders and the entire community regarding conservation and community development). The overall total mean score for strategic vision characteristic is 3.66 suggesting that the respondents agree that the village councils and local communities have shared visions for conservation and community development. The results further indicate that in all the study villages the results for strategic vision characteristic are statistically significant ( $p\text{-value} = 0.000$ ), and the strength of variation of its observation by study villages is substantial (Eta value = 0.347).

### **2.5.2.2. The Accountability Principle**

The accountability principle was used to evaluate whether the obligations and responsibilities taken on by the village councils were meant to benefit the local communities. It is the second most observed principle among all the principles evaluated (average mean = 3.65). Two characteristics were used to evaluate this principle—transparency and accountability. For the accountability characteristic, the total mean is 3.89, the results are statistically significant ( $p$ -value = 0.004), and the strength of variations on its observation by villages councils is typical (Eta value = 0.227). For the transparency characteristic, the total mean is 3.41 suggesting neutrality of the village councils in observing the characteristic. Likewise, the results on transparency are also statistically significant ( $p$ -value = 0.000), and the strength of variation on its observation by the village councils is substantial (Eta value = 0.314).

The results under the accountability principle suggest that accountability as a governance characteristic is the most positively perceived by the study respondents as observed by the village councils. In contrast, transparency, evaluated under the same principle was ranked eighth by respondents as being observed by the village councils. The findings imply that the village councils are good at addressing community concerns but lack transparency when exercising their duties.

### **2.5.2.3. The Fairness and Rights Principle**

The fairness and rights principle was the third most observed principle by the village councils (average mean = 3.51). The principle was evaluated using three characteristics: fair enforcement of by-laws which scored a total mean of 3.56, equal opportunity which scored a total mean of 3.52, and fair benefit-sharing characteristic, which scored a total mean score of 3.45 (Table 2.5). These results suggest that the respondents agree that the village councils observe these characteristics when exercising their duties.

In addition, for all the study villages, the results are statistically significant for the equal opportunity characteristic ( $p$ -value = 0.000), and the strength of variations on its

observation by the villages councils is substantial (Eta value = 0.332). For the fair benefit-sharing characteristic, the results are also statistically significant (p-value = 0.005), and the strength of the variations on its observation by the villages councils is typical (Eta value = 0.223). However, for the fair enforcement of by-laws characteristic, the study results are not statistically significant (p-value = 0.062) and the strength of variations on its observation by the villages councils is typical (Eta value = 1.127). This result, which is statistically not significant, suggests close similarities in the way the village councils were perceived to enforce the by-laws to their village residents.

#### **2.5.2.4. The Legitimacy and Voice Principle**

The legitimacy and voice principle was the next to the least observed principle by the village councils (average mean = 3.46). Under this principle, the study evaluated two characteristics: participation and consensus orientation. The total mean score for participation is 3.51 (Table 2.5) suggesting that the respondents agree that their village councils encouraged local participation. However, the results show a significant variation in how the councils observed the participation characteristic (p-value = 0.000) and the strength of variation on its observation by the councils is substantial (Eta value = 0.337) suggesting large variations on the way the councils observed the characteristic.

Further, the consensus orientation characteristic's total mean score was 3.46 which is an indication that the study respondents agreed that their village councils promote consensus in the decision-making process. The consensus orientation results are also statistically significant (p-value = 0.000) and the strength of variation of its observation between village councils is substantial (Eta value = 0.305) suggesting that the observation of this characteristic by the village councils varied among study villages.

#### **2.5.2.5. The Performance Principle**

The performance principle was the lowest scoring governance principle by the study respondents (Average mean = 3.26). To evaluate this principle, the study used responsiveness, effectiveness, and efficiency characteristics. The total mean score for responsiveness characteristic is 3.30, the results are statistically significant among study



villages (p-value = 0.000), and the strength of variation of its observation by the village councils is substantial (Eta value = 0.325). For the efficiency and effectiveness characteristic, the total mean score is 3.22, the results are also statistically significant (p-value = 0.000) and the strength of variation on its observation by the villages councils is substantial (Eta value 0.333). The low means of the characteristics under the performance principle indicate concerns of the local people over their village councils' efficiency and effectiveness when exercising their mandated duties.

### **2.5.3. Evaluation of the Quality of Governance by Study Villages**

The above section has analyzed each principle and the villagers' perceptions of their observation by the village councils. Using the Post hoc comparison (*Tamhane's T2 Test*), the results show the existence of significant differences among the study villages in relation to adherence to the principles of good governance. The next section breaks the results down to look at these differences village by village in descending order of adherence.

#### **2.5.3.1. Ololosokwan Village**

The village of Ololosokwan scored the highest average mean score (M = 3.90) making the village rank first in the overall observation of the governance principles (Table 2.5). The highest mean scores at this village were scored by the strategic vision (mean = 4.22), accountability (mean = 4.13), and participation characteristics (4.0). The least observed characteristics at this village were responsiveness (3.56) as well as efficiency and effectiveness characteristics (3.67).

For the responsiveness characteristic, the Ololosokwan village results were significantly different (p-value < 0.05), from the results of other study villages (Appendix J) meaning that the responsiveness of the village council at Ololosokwan village differed from the responsiveness of the other study villages. However, for efficiency and effectiveness, the results were not significantly different from the other villages except for the results from Oloirien (p-value = 0.002) and Maaloni (p-value = 0.000). Ololosokwan village is the only village currently implementing a conservation project in

the study area, and therefore its high ranking in observation of the principles of good governance can be attributed to the ability of the council to have the means (financial means) to implement community development projects. The availability of funding to implement development projects could have made this village council active on engaging communities in the project implementation. The conservation project also at this study village is governed by a special committee given the mandate to oversee the implementation of the project by both the village council and the And Beyond tourist company that signed a contract with the village. This intermediary body between the village council, village residents, and the tourist company may have helped to increase governance efficiency of the conservation project. Thus, the status of conservation project implementation and the existence of a special governing committee is likely the reasons why the governance of the village council at Ololosokwan was perceived more positively by community members.

#### **2.5.3.2. Soitsambu Village**

Soitsambu village is the second after Ololosokwan village with high governance scores on average (Table 2.5) for the village councils' observation of the principles of good governance ( $M = 3.76$ ) which suggests that the quality of governance of the village council is good. At this village, the highest mean scores are assigned to the accountability characteristic (mean = 4.14), equal opportunities characteristic (mean = 3.81), and responsiveness characteristic (mean = 3.8). On the other hand, the characteristics which scored the lowest mean scores are efficiency and effectiveness (mean = 3.64), and fair enforcement of by-laws (mean = 3.64). Further, the results from Soitsambu village are not significantly different ( $p\text{-value} > 0.05$ ) from the results of Ololosokwan village but are significantly different ( $p\text{-value} < 0.05$ ) from other villages in some of the characteristics evaluated (Appendix J). The villages of Ololosokwan and Soitsambu are next to each other, and they are inhabited by one Maasai sub-clan—the Purko Maasai. Thus, its high governance score and the statistically insignificant results between the village and Ololosokwan can be attributed to the influence of the

neighboring Ololosokwan village that shares borders and the social and cultural similarities of the Purko Maasai residents of the two villages.

#### **2.5.3.3. Arash Village**

Arash village is the village with the third highest mean score of the overall observation of the principles of good governance by village councils ( $M = 3.53$ ) suggesting that the local people at this village perceive that the quality of governance of their village council is good. At this village, the higher mean scores were scored by accountability (mean = 3.91) and participation (mean = 3.74) characteristics. On the other hand, the lowest scores were scored by fair benefit sharing (mean = 3.06), and the efficiency and effectiveness (mean = 3.25) characteristics. The findings from this village reveal that although overall the village council observes the principles of good governance, the local people have concerns about the performance of their village council. Particularly, the people at this village have concerns on fair benefit sharing and on the effectiveness and efficiency of their village councils.

The results from Arash village are not significantly different ( $p\text{-value} > 0.05$ ) from the results of other study villages on the efficiency and effectiveness characteristic. Arash village is among the study villages with a strong political standing in the division and the local leaders are not swayed by external interference. The Arash village leaders, for example, refused to sign one of the pre-prepared contracts by the district government and OBC in 2008 for study area villages aimed to give OBC exclusive access to parts of village lands. Instead, the village prepared its own alternative contracts that removed clauses restricting local access to natural resources and presented it to OBC and the district government (personal communication with a key informant Arash August 8<sup>th</sup>, 2016). The strength of local leaders in politics can explain why accountability and local participation scored high mean values at this study village. Further, the low benefit sharing in this study village can be attributed to the ban on the photographic tourism in the study area as, without benefits from the conservation projects, it is likely that there are no benefits to be shared by the village council.

#### **2.5.3.4. Oloipiri Village**

The average governance mean score (M) for Oloipiri village is 3.29 (Table 2.5) which suggests that the local people at this village did not agree or disagree as to whether the governance quality of their village is good or bad. The only high mean value at this village is scored by the fair enforcement of by-laws characteristic (mean = 3.67) which is an indication that the village council enforces the by-laws fairly to all village residents. This study village results further show that the least observed characteristics by the council are participation (mean = 3.04), efficiency and effectiveness (mean = 3.12), and responsiveness (mean = 3.25).

Except for the characteristics under the fairness and rights principle, the results from this village are statistically different ( $P\text{-value} < 0.05$ ) from the results of other study villages except for results from Ololosokwan and Soitsambu. For the characteristics of the fairness and rights principle (e.g., equal opportunity, fair benefit sharing, and fair enforcement of by-laws characteristics), the results from this village are not significantly different from the results from the other study villages. The results support the findings from Arash showing local concerns on the performance of their village councils. Further, the local participation at this village scored a low mean value suggesting that the village residents have concerns on how their village council encourages local participation.

#### **2.5.3.5. Maaloni Village**

Maaloni village ranked the fifth with the total average mean score ( $M = 3.26$ ) suggesting that overall the respondents at this village showed neutrality on whether the quality of governance of their village council was good or bad. However, there were differences on how the village councils observed the evaluated characteristics in this village. Accountability, for example, was observed more by the village council (mean score 3.7) followed by strategic vision (mean score 3.57) and fair enforcement of by-laws characteristic (mean score 3.46). Although the results from these characteristics showed a great variation on how they were observed by the village council, the findings suggest that the village council observes the characteristics as their mean scores are

above the neutral governance score (mean score > 3.44). On the other hand, the characteristics which scored low mean scores at this village are efficiency and effectiveness (mean = 2.77), and responsiveness characteristic (mean = 2.87), which suggest that the local people at this study village also have concerns about the performance of their village council.

In comparison, the results from this village are statistically significant (p-value < 0.05) from the results of the former villages on characteristics under the performance principle although the results are not statistically significant with the results from Oloirien and Oloipiri villages (Appendix J). The results from this village on the performance principle are closely similar to the results from Arash and Oloipiri study villages that suggest local concerns on the performance of the village councils when exercising their duties. Further, the results from this village on fairness and rights principle are statistically not significant (p-value > 0.05) with the results from other study villages suggesting that there is a close similarity in the way the village councils observe the fairness and rights principle. Maaloni village shares borders with Oloirien village and it is inhabited by the Loita Maasai sub-clan which are also the inhabitants of Oloirien village. The close similarity of local perceptions on some characteristics between Maaloni and Oloirien villages can be due to the proximity of the two villages as well as the cultural identity of the villages' residents resulting in the similar shared norms of the Loita Maasai sub-clan.

#### **2.5.3.6. Oloirien village**

Olorien village is the study village with the lowest average governance mean score (M=3.22) of all the evaluated governance characteristics (Table 2.5). At Olorien, the local people neither agree nor disagree on whether governance quality of their village council is good or bad. In this study village, the highest mean score was scored by the characteristics under the fairness and rights principle with the lead being the fair enforcement of by-laws characteristics (mean = 3.67). On the other hand, the characteristics that scored the lowest mean scores are responsiveness (mean = 2.95)

and efficiency and effectiveness (mean = 2.87). As shown in Appendix J, the results from Olorien village are not significantly different ( $p\text{-value} > 0.05$ ) from the results from the other study villages except for Olorosokwan and Soitsambu villages. The results from this study village support the results from the previous study villages, suggesting local concerns on the village council's observation of the performance principles. The results for Olorien also show a similar medium variation on the observation of the fairness and rights principle by the village councils in all study villages. At the time of this study, Olorien village was implementing a community-based forest project with a support of an international conservation organization (i.e., Frankfurt Zoological Society) that involved training on forest governance and community social economics. Thus, local perceptions of the village council's governance quality would have been higher following the training provided to leaders. However, that is not the case, and this can be attributed to the fact that this study was probing respondents on their past experience of their village council's observation of good governance principles when implementing activities related to conservation projects under the village-based conservation approach.

## **2.6. Discussion**

The objective of this paper is to assess governance effectiveness of the village-based conservation approach used by pastoralist communities in Loliondo Division. Overall, the village councils governing the conservation approach were perceived to have observed the good governance principles implying that the quality of governance in the study area is "good." However, perceptions varied among the different principles and between villages. The village councils were perceived to observe the direction principle the most, and the performance principle the least. Various factors explain the differences including the status of the implementation of the conservation projects in each village (i.e., whether the study village is still implementing the project or not), community cultural homogeneity, and the management capacities of the village councils. Although the average governance scored in this study area (3.5/5), is just

above the neutral mark of governance score (i.e., mean score of 3.44), it is higher than the scores found by other scholars around this study area (e.g., Kisingo et al., 2013; and Mwakaje et al., 2013). The following subsections discuss in greater detail these results and the implications for conservation and local livelihoods in the study area.

#### **2.6.1. The Direction Principle**

The direction principle had the highest overall mean score by the study respondents. The local people perceive their village councils to have strategic visions shared with local communities for conservation and community development. Although this result suggests that the study villages have strategic visions, following other data collection techniques (e.g., the focus group discussions and key informant interviews), the study villages have no written strategic plans (e.g., five-year strategic plans) to guide them towards the achievement of their visions. The positive local perceptions of the direction principle can be attributed to the benefits of the conservation projects to their livelihood improvement. In the past, the projects have produced benefits for the local people in the entire study area, and the local people want those benefits to return to the community. It is likely that the entire community aspires to the implementation of the village-based conservation projects and the village councils' perceived existence of a strategic vision for conservation and community development can be the representation of the willingness of the local people.

This study result on the lack of strategic plans in CBC projects adds to existing literature about plans and their importance for biodiversity conservation and local livelihood improvement. In their study of communities around the Serengeti ecosystem, Mwakaje et al. (2013), for example, report the difficulty of the village councils to provide income and expenditure reports on an annual basis. Mwakaje et al. associated such reporting difficulty with a lack of written strategic plans to guide the villages over the use of the benefits accrued from conservation projects. Written strategic plans provide very useful guides to achieve biodiversity conservation goals (Groves et al., 2002) and community development goals (Darling and Bittel, 1991). Thus, even though the local

people in this study area have the desire to continue with natural resource conservation, without having strategic plans to guide their vision, it is unlikely that they will achieve their conservation and local development goals.

### **2.6.2. The Accountability Principle**

The accountability principle was the second highest scoring principle by the village councils. However, there was a large difference between accountability and transparency of the village councils. The councils were more accountable to the local people but less transparent. The high accountability of the village councils can be attributed to the scale of governance of the village government. Because a village is a small government unit, it makes it easier for the village council to be accountable to the local people (Agrawal, 2001). As well, the village councils are made up of elected members from the community who are aware that if they are not accountable to the local people, they will be voted out of office (King, 2014). On the other hand, the lack of transparency of the village councils can be attributed to the lack of clear documentation of events, revenue, and expenditures of the village governments due to the low administrative skills of the local leaders.

The concern about the transparency of the village councils is not an issue for this study area alone and therefore this result adds to the existing body of literature about the lack of transparency of village councils elsewhere. Mwakaje et al. (2013), for example, also found that in communities around Serengeti National Park, the village councils lacked transparency to the village residents. Mwakaje et al. found only 10% of their study respondents reporting their ability to obtain information about funds received by their village councils on a timely basis. Further findings by Kisingo et al. (2013) in communities living in the eastern and western Serengeti including Loliondo found transparency and accountability to be low (total mean = 2.87). During the data collection for this study, many of the study villages lacked proper records of revenue and expenditure of the development projects they had implemented. There was also limited sharing of documents to the research team (i.e., the village leaders were not



willing to allow access to the contracts signed with the tourist companies). It is not clear whether the lack of transparency is a cultural attribute of the Maasai community; however, at the community level, this should not be the case as transparency is necessary for leaders to communicate with village residents and other stakeholders. Thus, even though the councils are more accountable to village residents, without being transparent, in the long run, the local people may not continue to support the conservation projects. According to Franks and Booker (2015), conservation projects are more likely to be more effective when the local leaders are both accountable and transparent.

### **2.6.3. The Fairness and Rights Principle**

The fairness and rights principle was the third highest scoring principle. Unlike the results of the other principles of good governance, some results for this principle were not statistically significant. The result for the fair enforcement of by-laws characteristic was not statistically significant, implying that there was a close similarity on how the village councils in the study area observed this characteristic. In the study area, there were also reduced differences in observation of the fair benefit-sharing characteristic by the village councils. The close similarity of these two characteristics under the fairness and rights principle in all the study villages can be attributed to the cultural backgrounds of the local people in the study area. In the study area, the local communities are relatively homogeneous in terms of cultural norms and livelihood activities. The cultural similarity of the local people facilitates reciprocity which is one of the attributes of the Maasai social life (Galaty, 1982; Iktipis, Cronk, & de Aguiar, 2011). Although the study area residents have sub-clans of the Maasai community (Purko, Laitayok, and Loita), as other researchers have found (e.g., McCabe et al., 2010; Rurai, 2012; Gadner, 2016), the local people possess similar cultural practices and perform similar social economic activities. The study area residents use the land communally and are likely to cooperate because of their similar social and cultural backgrounds (Agrawal and Gibson, 1999; Agrawal, 2001). Such cooperation can lead to similar treatment of all

community members as portrayed by the close similarity of village councils' observation of the fair benefit sharing and fair enforcement of by-laws characteristics.

The similarity of governance scores is not restricted to the fairness and rights principle alone. In general, the study villages located close to one another seemed to have nearly similar governance scores as well. Ololosokwan and Soitsambu villages, for example, have nearly similar results. Ololosokwan ranked the first while Soitsambu ranked the second in the overall observation of governance principles. These villages share borders and are occupied by the Purko Maasai sub-clan. Likewise, Maaloni and Oloirien villages have nearly similar results. Maaloni was ranked the next to the last while Oloirien ranked the last in the overall observation of the governance principles. These villages share borders as well and are occupied by the Loita Maasai sub-clan. This result suggests that what happens in one study village can influence local perceptions of the nearby study village—in this case, the perceptions of the observation of the governance principles. The result, therefore, raises the necessity of the study villages to share best practices among themselves as doing so may influence the good performance of the conservation projects in the study area.

Notwithstanding the above, overall, the relatively homogeneous nature of the study area residents may be the most important attribute regarding the similarity on the observation of the fairness and rights principle by the village councils. This finding adds to existing literature on common property resource governance (Ostrom, 1990; Agrawal and Gibson, 1999; Agrawal, 2001), and the theories of collective action (Olson, 2002). Studies of common property governance conclude that communities with similar characteristics and shared norms are more likely to cooperate in the management of a common resource (Ostrom, 1990; Olson, 2002; Agrawal and Gibson, 1999; Hauzer et al., 2013). These claims are clearly demonstrated by the performance of the village-based conservation approach in this study area (e.g., at Ololosokwan village where the CBC

project is still active) as communities agreed to collectively conserve natural resources and fairly share their benefits.

#### **2.6.4. The Legitimacy and Voice Principle**

Overall, the results on legitimacy and voice indicate adherence of the principle by the village councils. It implies that the village councils encourage local participation and consensus on decisions proceedings related to the conservation projects. Although ranked above the neutral mark on the Likert scale (i.e., their average means are 3.51 and 3.46 respectively), participation and consensus characteristics were not among the most observed principles by the village councils. In a “truly” CBC project (i.e., a locally initiated conservation project), the legitimacy and voice principle is expected to be among the most observed principles by the village councils as the governance of the conservation projects is anticipated to have been in the hands of the local people (Measham and Lumbasi, 2013). However, this study results are indicating otherwise as the mean scores for participation and consensus orientation characteristics were only slightly above the neutral mean score (i.e., above the mean of 3.44).

The inability of the legitimacy and voice principle to be among the most observed principles by the village councils can perhaps be attributed to the low involvement of the village councils in natural resource conservation activities after the ban of photographic tourism in the study area. The multiple land status of the study area created confusion among stakeholders involved in natural resource conservation and use and that has led the central government to ban photographic tourism on village lands. The confusion is caused by governance complexity that exists in multiple land use areas mainly when there is no clear separation of powers and responsibilities among the land use stakeholders (Agyare et al., 2013; Randal et al., 2015). The ban on photographic tourism in the study area created more land use confusion as the local people were not satisfied by the decision. As the village councils’ involvement in natural resource management was reduced following the tourism ban, it is likely that the councils’ will also have reduced the involve local communities in the photographic tourism activities.

The reduced local involvement in photographic tourism activities after the ban can result in the unsatisfactory local perceptions of the observation of legitimacy and voice principle by the village councils.

Concerns over legitimacy and voice can also be attributed to the inability of the village councils themselves to involve local communities in conservation and development projects by failing to periodically conduct village assemblies (Mwakaje et al., 2013; King, 2014). The study by King (2014) for example realized that village councils rarely conducted the village assemblies. The study further noted that when those meetings are conducted, few community members attend them which lead to the failure to attain the quorum needed for the meetings to proceed. In the end, the meetings get postponed resulting in the low participation of the community members in decision-making processes. Further, a study by Mwakaje et al., (2013) in the Serengeti ecosystem including some villages in this study area found that local communities reach consensus when they conduct village assemblies, however, the study indicated concerns over women participation as they are involved as rubber stamps in the decision-making process. It is therefore likely that village assemblies fail to be conducted in this study area as well, and women are also likely to be used as rubber stamps during the decision-making process and hence concerns over the village councils' observation of the legitimacy and voice principle.

#### **2.6.5. The Performance Principle**

The performance principle was the least observed principle in this study area. The overall results for the performance principle showed neutrality on its observation by the village councils (average mean = 3.26). Its low observation relative to other principles indicates that the local people in Loliondo Division have concerns on the performance of their village councils. Although the performance principle was the least observed in all study villages, the results from Ololosokwan village show the village council observes the principle (responsiveness mean = 3.56; effectiveness and efficiency mean = 3.67). This suggests that the overall quality of governance at Ololosokwan village

is good as the score of the least observed principle (performance) by all other study area villages, is above the neutral governance value.

This study result over local concerns on the performance of CBC projects adds to widely reported cases of low performance of the CBC programs in sub-Saharan African countries including around the Serengeti ecosystem in Tanzania (Schmitt 2010; Mwakaje et al., 2013; Ngirwa et al., 2013; Kisingo et al., 2013; Robinson and Makupa, 2015). Mwakaje et al. (2013) and Robinson and Makupa (2015), for example, report poor governance of financial benefits accrued from conservation projects by communities around the Serengeti ecosystem. The scholars associate the poor governance of the financial benefits with low financial management skills of the village councils. Managing projects that involve planning and financial management requires building the capacity of the local people through training local personnel (Baldus, 2009; Wilfred, 2010; WWF, 2014). Often, these capacity building trainings are offered by international donor organizations of which they were not welcomed by the study area villages as they were skeptical of the organizations' conservation agendas (Gardner, 2016). Thus, to a large extent, the village councils in this study area did not benefit out of the international donor organizations' capacity building training.

The concerns over the village councils' performance in this study area may further be attributed to the low level of education of the local leaders and the study area residents in general. Based on this study results, 36% of the respondents in Loliondo never went to school while 48.5% only finished primary school. Only 2.7% of the respondents have a college diploma, and 2.1% were awarded university degrees (see Appendix B). Among the respondents, those with college and university degrees are in the age group between 20 to 29 years and are unlikely to be holding leadership positions in the villages. Due to the lack of paying jobs in the study area, the few local graduates usually migrate to town to look for work opportunities. The migration of local graduates from villages to towns creates space to the community members with a low

level of education and fewer professional skills to become community leaders through the village councils. As the local people lack professional management skills, they end up running the community projects ineffectively (Baldus, 2009; Ngirwa et al., 2013; WWF, 2014). Further, the lack of strategic plans to guide the local communities on the use of the conservation benefits can also lead to the low performance of the village councils as the benefits may end up being used inappropriately by the village council either willingly (through corruption) or unwillingly (through investing in the least important projects).

## **2.7. Conclusion and Recommendations**

### **2.7.1. Conclusion**

The objective of this paper was to assess governance effectiveness of the village-based conservation approach to natural resource conservation in Loliondo Division using local perceptions. The effectiveness of the conservation approach was evaluated by assessing the quality of governance of village councils administering conservation projects implemented under the approach. Generally, the governance of the conservation approach was found to be effective as the quality of governance of the village councils was perceived to be “good” by the survey respondents. The village councils were found to be accountable to the local communities; have shared visions with communities to implement conservation projects, and improve local livelihoods. The village councils also exercise fairness and equity on the use of conservation benefits as well as enforce fairly the villages’ by-laws to their constituencies (village residents). There are, however, some areas of governance that the local people have raised. The local people have concerns about their village council’s effectiveness and efficiency in managing the conservation projects. They also have concerns about the responsiveness and transparency of their village councils on the management of the conservation projects.

The study’s findings on the quality of governance varied from one study village to another, with Ololosokwan village council perceived to have relatively high governance quality compared to the rest of the study villages. The main factors that

explain the variation include the status of the implementation of the conservation projects in the study area (e.g., whether the projects are still implemented or not), the homogeneity of the study area residents based on their cultural identities, and local land tenure rights. The village implementing the conservation projects at the time of this study (i.e., Ololosokwan village), has its village councils perceived to have relatively high governance quality compared to the rest of the villages. Further, the homogeneity of the study villages residents which is an attribute to the fair sharing of benefits and fair enforcement of by-laws by the village councils helped to discourage the view of out-group versus in groups within study villages. All study villages were occupied by Maasai pastoralists. The absence of in-group versus out-group within the study villages has led the village councils to be perceived as having fairly treated their village residents during the implementation of the conservation projects.

The results from Ololosokwan village where the village-based conservation approach is still active, have shown that the governance of the conservation “approach” in this study area can be effective and hence suggests that the local people are capable of managing natural resources when given a chance. However, basing a conclusion of the effectiveness of a conservation approach using results from a single successful case study (i.e., Ololosokwan village), might be insufficient to make generalizations. However, the factors (discussed in the next section) that led the success of the conservation projects at Ololosokwan provide room for future improvement of the CBC approach. This paper provides recommendations necessary to address the study area governance challenges but also outlines the best practices from Ololosokwan village and recommends their promotion for a more effective CBC approach in Loliondo Division and elsewhere.

### **2.7.2. Recommendations**

The following recommendations address the challenges facing the village-based conservation approach in Loliondo Division, followed by recommendations for the promotion of best practices.

#### **2.7.2.1. Recommendations to Address Governance Challenges**

Underlying many of the observations reported in this paper is the complexity arises from the governance of a multiple land use area without clear or transparent mechanisms for establishing shared goals, strengthening coordination, and resolving conflicts among stakeholders. This challenge does not only face this study area but the entire Serengeti ecosystem (Schmitt, 2010; Kisingo et al., 2013; Randal et al., 2015). In Loliondo Division, there is a conflict between the local communities and OBC with the central government backing OBC. The conflict mainly arises because of the multiple land use of the study area (i.e., village land and GCA) which results in conflicting interests between local communities, OBC, and the central government. This paper recommends the ending of the conflict and establishing a co-management governance approach in the study area. Based on the nature of this study area, there is no a single governance type sufficient to govern the natural resources especially with the existence of multiple centers of powers and layers of authority (i.e., village councils, district and central governments, investors) with respect to the management of natural resources. Thus, a co-management approach that would ensure involvement of all stakeholders in natural resource governance would help end the conflict, support local livelihoods, and nurture wildlife conservation. Further, this paper recommends that land use plans capable of accommodating all land use within the study area including wildlife conservation and tourism activities should be produced. As this study area is an important area for both local livelihood and conservation, conflict resolutions that consider win-win solutions are of vital importance (Davidson and Wood, 2004; McShane et al., 2011).

This study's results also showed the low performance of the village councils when they exercise their duties. Therefore it recommends the improvement of the performance of the village council by equipping them with necessary skills that can enable them to perform their duties more effectively. The performance of these village councils can be improved by encouraging educated local individuals to take leadership positions in the village councils as well as by building the management skills of these



councils. The development of strategic plans to guide conservation and the use of conservation benefits within the study area villages would also improve the performance of the village councils. The existing civil society organizations in Loliondo such as the Pastoralist Livelihood Support and Empowerment Program (PALISEP), Ngorongoro NGOs Network (NGONET), Ujamaa Community Resource Team (UCRT) can step up to fill the gap by building the capacity of these village councils and help them develop strategic plans. By doing so, the performance of the village councils to deliver on their mandated duties could improve.

The study findings have also shown that the village councils lack transparency. However, transparency could be improved by encouraging the village councils to conduct periodic meetings with community members as required by the Local Government (District Authorities) Act of 1982 and display their day-to-day activities on the public information boards in each of the study village offices. The display of information concerning the day-to-day business of the village council is currently taking place at Ololosokwan study village and it can be used as an example for other study villages to follow. This study also recommends the village councils harness the opportunity brought by the advancement of telecommunication technology (e.g., the use of mobile calls and mobile applications) to further improve their transparency.

#### **2.7.2.2. Recommendations to Promote Best Practices**

This study has found the village-based conservation approach to be functioning well in one study village—the Ololosokwan village. In this village, the quality of governance of the village council is higher than the overall quality of governance in the study area (study area governance mean score: 3.5; Ololosokwan village governance mean score: 3.9). This study attributes the following factors to the success of the conservation approach at Ololosokwan village and it recommends the consideration of the factors to other study villages and elsewhere where the CBC projects are implemented.

**Land ownership.** Ololosokwan village is the only village at the time of this study that possesses a legal land document per the requirement of the Tanzania Land Right Act No. 5 of 1999 (the village land certificate). Because of the land certificate, the village was able to allocate the use of natural resources within the village including signing contracts with tourism companies such as And Beyond. Land ownership stabilized the use of natural resources in the village including the ability of the village to perform land use planning<sup>12</sup> within the village. It is therefore recommended that the rest of the study villages should be given legal land tenure rights by granting them village land certificates. By doing so, the local communities will feel more secure and cooperate more in conservation initiatives, as in the case of Ololosokwan village.

**The use of traditional ecological knowledge.** The conservation approach used in Ololosokwan village (and in the other study villages before the ban of photographic tourism), is that of integrating wildlife conservation and livestock keeping using traditional ecological knowledge. Pastoralism, which was the main social and economic activity in the study area, was not affected much by the conservation projects because of its compatibility with wildlife conservation (Bourn and Blench, 1999; Fynn, Augustine, Peel, & de Garine-Wichatitsky, 2016). As pastoralism was not totally restricted within community conserved areas and therefore was not much affected by the projects, the local communities supported the projects. It is therefore recommended that whenever possible CBC approaches should aspire to use the traditional ecological knowledge of the local people to minimize the loss of their livelihoods and promote sustainable natural resource conservation. However, the local people should also be made aware of the limits of the use of their traditional ecological knowledge. The pastoralists, for example, should be made aware of the limits of the integration of wildlife conservation

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<sup>12</sup> According to a key informant on August 4<sup>th</sup>, 2016, Ololosokwan village conducted a land use plan showing area for conservation and tourism, grazing, and settlement but the central government did not approve the plan following the ongoing battle between the central government and the local community in the entire Loliondo Division over access and use of wildlife resources.

and pastoralism (see Augustine, Veblen, Goheen, Riginos, & Young 2010; Fynn et al., 2016).

**Homogeneity of the local communities.** The village-based conservation approach used in Loliondo Division applied a single village model to govern natural resources. Because the majority of residents from these individual villages have similar cultural backgrounds (the Maasai pastoralist), the approach was able to bring them together as they share a similar cultural identity that shapes their social and economic activities. Because of similar norms with respect to social and economic activities of the local people, communities were able to cooperate over the conservation, access, and utilization of the common pool's natural resources. It is therefore recommended that future design of the CBC programs should at least consider grouping villages consisting of communities with similar social and economic livelihood activities to form a CBC program. Although the recommendation is a challenge as rarely you find a homogenous community, and community homogeneity is also a myth as community groups can act out of self-interest rather than collective good (Blackstock, 2005), ensuring full community participation and consensus during conservation projects initiations would help bring cohesion in the community during project implementations.

**Good collaboration among stakeholders.** Ololosokwan village, which was relatively the most successful village in the implementation of the conservation projects, has a good collaboration with And Beyond, the company that invested on its land. The existing good collaboration between Ololosokwan and the tourist company is nurtured by a special committee formed by both parties to oversee the implementation of the conservation project at the village. It is therefore recommended that CBC programs should consider strengthening collaboration with stakeholders involved in conservation programs through joint committees specifically tasked to monitor the activities of the conservation projects.

## **CHAPTER 3: THE EVALUATION OF SOCIAL-ECOLOGICAL CONTRIBUTION OF A VILLAGE-BASED CONSERVATION APPROACH IN LOLIONDO DIVISION**

### **3.1. Introduction**

Since the 1980s, many parts of the world, including the sub-Saharan Africa region, have increasingly adopted a Community-based Conservation (CBC) approach to complement the so-called fortress conservation approach to the conservation of biodiversity (Neumann, 2004; Berkes, 2004; Nelson and Agrawal., 2008; Ngwira et al., 2013; Brooks et al., 2013). The CBC approach involves governments or conservation organizations sharing governance roles with local communities and creating schemes that give local communities incentives to encourage their involvement in natural resource conservation efforts (Spiteri and Nepal, 2006; Ngirwa et al., 2013; Kiwango et al., 2015). The CBC approach is by no means new: it was discussed extensively at the 3rd World Parks Congress in Bali (The Bali Declaration, 1983) and its use was subsequently recommended by many researchers (e.g., Brockelman and Dearden 1990; Neumann, 2000). However, increased support of the approach stems from concerns for the ongoing loss of biodiversity and increased understanding that community involvement might increase conservation gains (Neumann, 2004; Baldus, 2009; Dressler et al. 2010; Lele et al., 2010).

The overall goal of the CBC approach is to achieve biodiversity conservation and improve local livelihood (Baldus, 2009; Brooks et al., 2013; Mwakaje et al., 2013). The dual goals of the CBC approach caused the approach to be described as “win-win” by some researchers (McShane et al., 2011; Salafsky, 2011, Roe, Mohammed, Porras, & Giuliani, 2013). The win-win scenario of the CBC approach recognizes that biodiversity conservation needs to happen but must be done in a fair and equitable manner (Baldus, 2009; Lele et al., 2010). As the idea of fairness and equity resonated with many people, the CBC approach has received support from various disciplines, especially in the social sciences and humanities and its practice attracted more funding from donor communities (McShane et al., 2011; Woodhouse et al., 2015). Consequently, there are

now many conservation initiatives incorporating participatory engagement, valuing indigenous knowledge, and addressing community needs in pursuit of both conservation and community development goals (Brooks et al., 2013; Dyer et al, 2014).

There are some well-known examples of CBC programs in sub-Saharan Africa currently employing a social and economic incentive-based approach (Nelson and Agrawal, 2008; Baldus, 2009; Moyo et al., 2016). These programs include the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe, Community Conservancies in Namibia, Botswana, and Kenya, and Wildlife Management Areas (WMAs) in Tanzania (Nelson and Agrawal, 2008; Baldus, 2009; Gargello, 2015). These programs provide incentives to local communities to encourage them to reduce the level of resource extraction in areas adjacent to protected areas (PAs; Hutton and Leader-Williams, 2003; Spiteri and Nepal 2006; Nelson and Agrawal, 2008; Ngirwa et al, 2013). In many cases, the type of incentives used is social and economic often through ecotourism financial benefits (Stronza and Gordillo 2008; Snyder and Sulle 2011; Mbaiwa, 2015).

The eco-tourism financial benefits from the CBC programs have helped some local communities implement various economic and social development projects (Nelson and Agrawal, 2008; Ngirwa et al. 2013; Mwakaje et al. 2013). Quite often financial benefits from these programs are used to construct health facilities, classrooms, and water sources such as wells and dams for domestic and livestock use (Nelson 2010; Mwakaje et al., 2013; Stone and Nyaupane, 2015). The CBC programs have also contributed to improved biodiversity conservation through the creation of community conserved areas that have helped to increase wildlife numbers in and outside PAs (Nelson and Agrawal, 2008; Bandyopadhyay, et al., 2009; Western et al. 2009; Gargello, 2015), maintain forest cover (Sirima, 2015), and reduce human-wildlife conflicts (Western et al., 2015). Due to these contributions, CBC programs are not only

seen as important for the conservation of biodiversity but also as important programs for the improvement of local livelihoods.

Although some CBC programs do contribute to biodiversity conservation and community development as mentioned above, critiques of these conservation programs are many (e.g., Salafsky, 2011; Benjaminsen et al., 2013; Stone and Nyaupane, 2014; Green and Adams, 2015; Moyo et al., 2016). Some studies have questioned the ability of the approach to simultaneously achieve both conservation and local development goals (Salafsky, 2011; McShane et al., 2011; Chaigneau and Brown 2016). However, many critiques are of the inability of the approach to achieve community development goals rather than conservation goals (Dressler et al., 2010; Lele et al., 2010; Ngirwa et al., 2013). The programs implemented under the approach are criticized for their inability to generate adequate income to compensate local people for the loss of their livelihoods in exchange for improved biodiversity conservation (Spiteri and Nepal, 2006; Stone and Nyaupane, 2015; Humavindu and Stage, 2015). Other studies have criticized the model design of some CBC programs for grouping heterogeneous local communities from different villages to govern common resources (Berkes, 2007; Agrawal and Gibson, 1999; Brooks et al., 2013; Stone and Nyaupane, 2014).

Simultaneous achievement of the CBC goals is hard to realize because conservation of biodiversity requires reducing the human use of natural resources. However, the local people to a large extent depend on a natural resources base (Roe et al., 2013; Chaigneau and Brown, 2016). Thus, restricting the local peoples' access to natural resources undermines their livelihood while the failure to do so would also undermine biodiversity conservation (Robinson, 1993; Freese, 1998; Songorwa and du Toit, 2007). Further, the increased socioeconomic benefits from the conservation projects can also undermine biodiversity conservation as the local people may migrate close to PAs (Wittemyer, Elsen, Bean, Burton, & Brashares, 2008). Scholte and de Groot (2010) for example, found that CBC initiatives in buffer areas exacerbated negative

ecological impacts by attracting and encouraging the migration of the people adjacent to PAs. As a result of the socioeconomic benefits brought by the CBC programs, people from elsewhere migrate adjacent to PAs (Wittemyer et al., 2008). However, Joppa et al., (2010) in their analysis of measuring population growth around PAs, determined that while the world population has increased so too has the creation of new PAs. The increased population near PAs can cause more tension between PA managers and the local communities, a situation that can undermine the attainment of the dual CBC goals (Wittemyer et al., 2008; Joppa et al., 2010; Wilfred, 2010; Masanja, 2014).

Scholars have criticized the CBC approach as not extensive enough to provide a range of income-generating activities capable of ensuring employment for the local people and satisfying their livelihood needs (Spiteri and Nepal, 2006; Stone and Nyaupane, 2015; Humavindu and Stage, 2015). The majority of conservation projects implemented under the approach do not generate adequate financial benefits to increase the incomes of individual families (Baird and Leslie, 2013; Green and Adams, 2015; Moyo et al., 2016). Even where the CBC projects generate financial benefits, they are criticized for their failure to distribute them fairly to communities (Benjaminsen et al., 2013; Green and Adams, 2015; Moyo et al., 2016). Quite often the CBC approach generates revenues that can only implement community-level projects (Kaswamila, Russell, & McGibbon, 2007; Green and Adams, 2015; Moyo et al., 2016). Further, the assumption that CBC programs would increase local income due to livelihood diversification is a place-specific concept (Baird and Leslie 2013). In their study near the Tarangire National Park in the north of Tanzania, Baird and Leslie (2013) found no difference in income between communities living adjacent to the park that diversified their livelihoods as compared to communities away from the park which did not diversify their livelihoods. Likewise, Salerno et al. (2015), found that communities near PAs in northern Tanzania are more food insecure than communities away from PAs. Furthermore, the notion that diversification would lead the local communities to reduce their negative impact on natural resources by implementing alternative activities that

put less pressure on the natural environment is not always the case (Conroy, 2013). Some local communities have been using the financial benefits received from natural resource conservation to expand their primary livelihood activities (e.g. cultivation and livestock keeping; Stronza and Gordillo 2008; Snyder 2012; Conroy 2013). The use of conservation benefits by the local communities to expand their traditional livelihood activities has a negative impact on biodiversity conservation as activities such as crop cultivation are not compatible with biodiversity conservation (McCabe, et al., 2010).

Further critiques of the CBC approach associated with the model design are that of grouping multiple villages consisting of heterogeneous local communities in terms of social and cultural backgrounds to act as a single entity in governing common natural resources (Agrawal and Gibson, 1999; Ngirwa et al., 2013; Stone and Nyaupane, 2014). The formation of a CBC program in sub-Saharan Africa usually involves convincing villages adjacent to PAs to set aside parts of their lands to collectively become a community PA governed by a single entity representing the villages (i.e., a Community-based Organization (CBO; Nelson and Agrawal, 2008; Stone and Nyaupane, 2014). However, different villages in sub-Saharan Africa can consist of different local communities in terms of their cultural backgrounds, perform different activities, and they are likely to be rivals (Ojalammi, 2006). Different local communities also have different interests concerning natural resource conservation and use (Agyare et al., 2013; Acquah et al., 2013). As these communities possess different characteristics, they are likely to lack cooperation, which is an important ingredient in common natural resource governance (Ostrom, 1999; Olson, 2002; Hauzer et al., 2013). As communities' heterogeneity is often ignored during the CBC programs' design, the existing conservation programs experience local conflicts in the decision-making process, on access to natural resources, and on the use of financial benefits (Benjaminsen et al., 2013; Robinson and Makupa, 2015; Moyo et al., 2016).



Despite the critiques of the CBC approach on achieving its intended objectives, the application of the approach seems to be unaffected (McShane et al., 2011). Conservation organizations, in collaboration with central governments, continue to support the application of the approach for natural resource conservation. In Tanzania, for example, despite the critiques of the WMA programs (e.g., Gardner 2012; Benjaminsen et al., 2013; WWF, 2014; Green and Adams, 2015; Moyo et al., 2016), the government intends to increase their number from the initial 16 pilot WMAs to 38 WMAs soon (Kiwango et al., 2015; Moyo et al., 2016). In Tanzania, the WMAs are therefore the CBC programs meant to promote conservation adjacent PAs and to bring prosperity to rural communities by “technically” giving local people the authority and capacity to conserve wildlife on their own lands (Igoe and Croucher, 2007; Benjaminsen et al., 2013; Moyo et al., 2016). As with many other CBC programs in the region, the WMAs in Tanzania are currently suffering from low generation of revenues (Baird and Leslie, 2013), conflict among villages participating in the WMAs (Green and Adams 2015; Moyo et al., 2016), minimum local autonomy over the decision-making process (Nelson, 2012; Benjaminsen, et al., 2013; Kiwango et al., 2015), and increased population growth leading to demand for more access to natural resources by local communities (Wilfred, 2010; Masanja, 2014; Holechek, Cibils, Bengaly, & Kinyamario, 2016). As the WMA programs are still facing several challenges, many local communities have been uninterested in joining the WMA programs as they are not satisfied with their outcomes (Igoe and Croucher, 2007; Nelson, 2012, Benjaminsen et al., 2013; Kiwango et al., 2015; Moyo et al., 2016).

Recent research on CBC approach has been on how to effectively achieve biodiversity conservation alongside the improvement of local livelihoods (McShane et al., 2011; Salafsky 2011; Ngirwa et al., 2013; Brooks et al., 2013; Stone and Nyaupane, 2014). The focus of the existing research particularly in Tanzania has been on the multi-village CBC approach (i.e., the WMA approach). Various recommendations for the improvement of conservation in the region have been provided (e.g., Baldus, 2009;

Brooks et al., 2013; WWF, 2014; Stone and Nyaupane, 2014). These recommendations include a rethinking of the CBC program design to giving more autonomy to local communities, increase local participation, considering livelihood diversification, building local capacity on conservation project management, and avoiding grouping heterogeneous communities in common resource management.

In Loliondo Division in northern Tanzania, a different CBC model has evolved involving photographic activities on village lands. It is a conservation approach where individual villages that traditionally conserved wildlife on their communal lands sign contractual agreements with tourist companies to set aside parts of their lands for wildlife conservation and tourism activities. The agreements allow the tourist companies to use the village conserved areas for tourism activities while paying the village's annual land access fees. These parts of the village lands are referred to in this paper as the *conservation projects* and the single village CBC approach is referred as the *village-based conservation approach*. The approach is controversial and opposed by the central government although no studies have been undertaken to examine the effectiveness of the scheme on delivering social and biodiversity outcomes in more detail. The purpose of this paper is to address this deficiency by examining the social-ecological contributions of this individual village CBC approach. The objective of this paper, therefore, is to evaluate the contributions of the approach to biodiversity conservation and to local livelihood improvement in Loliondo Division. The following section discusses the village-based conservation approach in more detail.

### **3.1.1. The Village-based Conservation Approach in Loliondo Division**

The village-based conservation approach is a CBC approach employed by local communities in Loliondo Division that uses a single village model to conserve and use natural resource benefits. The approach emerged out of contractual agreements between the local communities and tourist companies interested in running photographic tourism businesses on community/village lands (TNRF, 2011; Gardner, 2012). In the early 1990s, the photographic tourism companies started to sign contracts

with village councils<sup>13</sup> aimed to establish conservation areas within village lands for wildlife conservation and tourism (TNR, 2011; Gardner 2016). The tourist companies accessed the villages' conserved areas for tourism activities (photographic tourism, walking safaris, game viewing, and cultural tourism) and, in return, the companies paid the study villages annual village land access fees (Rurai, 2012; Gardner, 2016). Between 1991 and the year 2000 nine photographic tourism companies (Appendix A), signed agreements with six villages in Loliondo Division and carried out their tourism business while ensuring the local communities conserved their village lands. Following a land-related conflict between the local communities and a hunting tourism company known as Ortello Business Corporation (OBC), the government banned the contractual agreements between the local communities and the photographic tourism companies in Loliondo Division except in one village called Ololosokwan village because it secured land tenure rights and has permanent tourism lodge built on its land. Following the photographic tourism ban, the tourist companies stopped their operations and the payment of land access fees to local communities in 2010. At the time of this study, the village-based conservation approach was operational at one of the six villages in this study area (Ololosokwan village). This study, therefore, evaluates local perceptions of the social-ecological contributions of the conservation approach at Ololosokwan village and in the other five villages where the approach was applied in the recent past.

### **3.1.2. The Village-based Conservation Approach Versus the WMA Approach**

The village-based conservation approach in Loliondo Division possesses features distinguishing it from the existing formal community conservation approach in Tanzania (the WMA programs). The features are as follows:

- First, the village-based conservation approach involves single agro-pastoralist villages with nearly homogeneous residents in terms of social and cultural backgrounds—the Maasai. The predominant WMA model groups together

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<sup>13</sup> A village council is an executive branch of the village level government. They are legal entities representing the local communities on the signing of the contracts with the tourism companies.

heterogeneous local communities from different villages (e.g., Burunge<sup>14</sup> WMA) to commonly conserve natural resources (Nelson and Agrawal 2008; Moyo et al., 2016).

- Second, under the Loliondo CBC approach, individual villages negotiate, acquire benefits and use all the benefits without sharing with other nearby villages or with the central government. The benefit-sharing mechanism used under the WMA approach requires the CBO managing the WMA to first share the benefits with the central government (25% of total revenue), take 25% of the revenue for the CBO administration and conservation cost and the residue (50% of total revenues) is shared equally among the WMA member villages (Benjaminsen et al., 2013; Green and Adams, 2015; Moyo et al., 2016).
- Third, the village-based conservation approach in Loliondo Division allows for the integration of wildlife conservation and pastoralism using traditional ecological knowledge (Goldman, 2011; Nelson, 2012; Lyamuya et al., 2016). In contrast, the WMA approach prohibits local human activities within the designated conservation areas including pastoralism which, if well managed, can be compatible with wildlife conservation (Augustine et al., 2010; Fynn et al., 2016).
- Fourth, under the Loliondo approach, the final decision on contractual agreements with tourist companies and the use of conservation benefits is done by village assemblies (communities themselves) which are the supreme powers of the village-level governments. In contrast, the final decision about conservation and investment in the conserved areas under the WMA approach is done by the central government through the Wildlife Division (Green and Adams, 2015; Moyo et al, 2016).

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<sup>14</sup> Burunge WMA consists of 10-member villages dominated by the ethnic groups of Mbugwe, Waarusha, Maasai, Barbaig, Iraqw, Nyaturu, and Nyiramba. Others are Safwa, Hehe, Bena, Manda, and Nyakyusa from the southern part of the country; and Jaluo and Kisii from Kenya; and Rundi from Burundi (Moyo et al., 2016 p. 233).

### 3.2. Description of the Study Area

#### 3.2.1. The Study Area

The study area is the Loliondo Division in Ngorongoro District in the north of Tanzania (Figure 3.1). It covers six villages lying on the eastern border of the Serengeti National Park (SENAPA), one of the most important wildlife areas in the world and a famous World Heritage Site (Sinclair et al., 2015). The study villages are Ololosokwan, Soitsambu, Oloipiri, Olorien, Maaloni, and Arash. These villages were chosen because of their involvement in the village-based conservation approach through signed contracts with tourist companies (Gardner, 2012; Rurai, 2012). The inhabitants of the study area are Maasai agro-pastoralists of the Laitayok, Purko, and Loita sub-clans. Historically the Maasai were pure pastoralists; however, in the 1970s many moved from being pure pastoralists to becoming agro-pastoralists (Ojalammi, 2006; McCabe et al., 2010; Rurai, 2012).

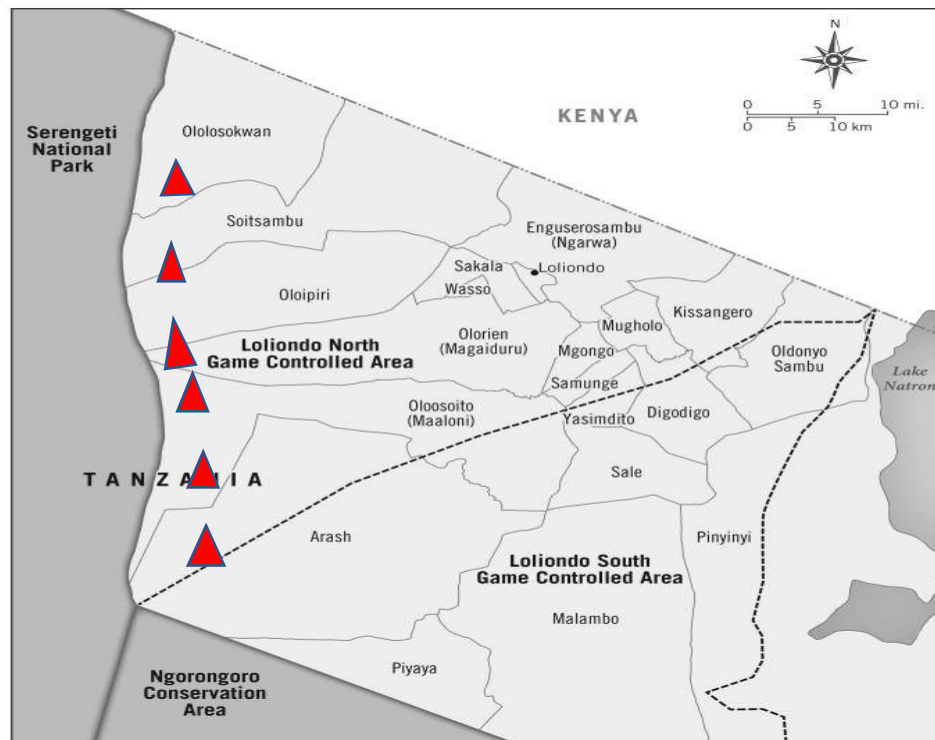


Figure 3.1. Map of Loliondo Division

Adapted from TNRF (2011)

The Loliondo Division is part of the village lands in Ngorongoro District that overlaps with the Loliondo Game Controlled Areas (GCA). The Division was designated as a GCA by the central government whereby human activities can take place alongside wildlife conservation. This jurisdictional overlap creates confusion for residents as village lands and wildlife conservation are governed by different authorities<sup>15</sup> using different laws and policies. Before 1999, when new land laws were passed in Tanzania, the villages in Loliondo Division had Land Title Deeds showing that the villagers had land rights. In October 1990, the government gave all the villages in the division 99-year Village Land Title Deeds (Gardner, 2016). However, after the change of the land laws in 1999, all the villages in Tanzania were required by law (the Village Land Act No. 5 of 1999) to have Village Land Certificates instead of the Land Title Deeds.

Following the confusion of the multiple land status of the Loliondo Division, the central government was reluctant to grant land certificates to all the villages in the Division. Only Ololosokwan village was granted the certificate by the government in 2006 after it showed interest in joining a WMA. Unlike other villages in the Division which refused the WMA idea and ended up without certificates, the land certificate gave Ololosokwan village legal land tenure rights in the Division. The fact that the rest of the villages weren't given the certificates by the central government created more confusion in the study area as the residents felt vulnerable to losing their village lands to a new government proposed PA (a Game Reserve). Since 2013, the government has proposed to change part of the village lands in Loliondo Division (1,500 square kilometers) to a Game Reserve (GR) and the rest (2,500 square kilometers) to remain as village lands (The United Republic of Tanzania, 2013). The proposal was meant to address the confusion brought by the overlap between the village lands and the GCA. However, the local communities protested the proposal as they claim the entire

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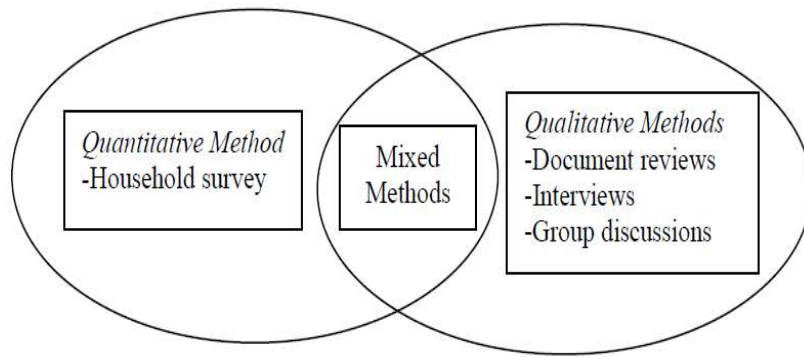
<sup>15</sup> The village land is governed by the village government using Village Lands and Local Government Authorities Acts while the wildlife is governed by the central government using Wildlife Conservation Laws and Policies.

Loliondo Division belongs to local communities and taking the 1,500-square kilometers for conservation would undermine their livelihood. Until now, the confusion over land ownership in the study area is still waiting to be solved.

Natural resource conservation provides two sources of financial benefits to local communities in Loliondo Division. These are the photographic tourism benefits and the hunting tourism benefits. The financial benefits from photographic tourism are a result of contractual agreements between the villages and private tourist companies while the financial benefits from hunting tourism are a result of the agreement between the central government and the private hunting company, OBC. The agreement between OBC and the central government required that the company should pay the central government annual hunting fees and also pay the local communities in the study area an annual fee to support community development. However, the signed contract between OBC and the central government is not supported by local people who view the agreement as a “land grab” by the company and the central government. This situation has been investigated by other researchers (e.g., TNRF, 2011; Nelson, 2012; Rurai, 2012; Gardner, 2012, 2016); however, a detailed evaluation of social-ecological impacts of the arrangement has not. The main focus of this paper, therefore, is the arrangement between the local communities and photographic tourist companies that facilitated the implementation of conservation projects under the village-based conservation approach. However, assessment of the financial benefit from hunting tourism is also included because the hunting company (i.e., OBC) uses the conserved lands of the study area villages.

### **3.3. Research Methods, Participant Recruitment, and Sample Size**

This study uses a mixed methods research design to collect both primary and secondary quantitative and qualitative data obtained from document review, focus group discussions (FGD), key informant interviews and household surveys (Figure 3.2).



**Figure 3.2. Mixed Method Research Design**

**From Makupa et al., (2013)**

This study used local perceptions to evaluate the contributions of the village-based conservation projects to local livelihoods and biodiversity conservation (Makupa et al., 2013; Bennett, 2016) and used published and unpublished documents to obtain qualitative data. Fieldwork took place between June 2016 and September 2016.

### **3.3.1. Secondary Data Review and Analysis**

The study reviews secondary data sources in the form of published and reliable unpublished sources related to the research objectives of assessing the conservation project's social and ecological contributions in the study area. Apart from peer-reviewed literature related to this paper's objective, other documents reviewed are the records of village revenue and expenditure of the funding received by the study villages from tourist companies.

### **3.3.2. Focus Group Discussion**

The focus group discussions (FGD) collected information from the local leaders who were directly involved in the village-based conservation projects. The FGDs were also preferred because of their ability to collect detailed information from stakeholders in a short period (Robinson, 2011). The study used purposive sampling to select a diverse group of participants involved in the conservation projects at each of the study villages. The study conducted discussions with the FGD participants that lasted one to



two hours at every study village using a semi-structured interview guide (Appendix F). The participants consisted of women, men, youth, current and past village government leaders, and local leaders who are familiar with the day-to-day activities of the conservation projects in their respective villages. Although the selection process was conscious about ensuring a proportional representation of participants regarding demography (gender, youth, and elders) at all study villages, the selection did not turn out to be gender balanced as most of the participants were men. The cause of the gender imbalance of the participants can be due to the cultural background of the Maasai people. The Maasai has a dominant male culture (Blench, 2001; Lyamuya et al., 2014) and based on the criteria put forward (that the participants should have knowledge about the conservation projects in the village), many women may have lacked that knowledge as few of them are involved in the day-to-day village decision-making processes.

The study used a group of between seven and eleven participants (men and women) in these discussions at each of the study villages. At Oloipiri village, the FGD consisted of eight male and two female participants, in Oloirien village there were eight male and two female participants, in Soitsambu village there were eight male participants, in Ololosokwan village there were seven male and four female participants, in Maaloni village there were seven male and two female participants, and in Arash village there were six male and one female participant.

### **3.3.3. Key Informant Interviews**

Key informants were used to collecting information from a broad range of stakeholders with firsthand information and knowledge (expert opinion) of the village-based conservation projects, as well as their contribution to local livelihoods and to biodiversity conservation. A snowball sampling technique was used to recruit participants as the technique allowed the researchers to identify suitable respondents from a population of interest (Robinson, 2011). A semi-structured interview guide (Appendix G) was used, and a total of 25 key informants were interviewed comprised of

the ward councilors (five), traditional local leaders (five), district government officials (five), tour operators (three) and NGO leaders (seven).

### **3.3.4. Household Surveys Participants**

The study used a household survey (Appendix H) to evaluate the perceptions of household members on how the village-based conservation projects contributed to improving local livelihoods and to biodiversity conservation. The study used multistage random sampling because of the scattered nature of the study population in each of the study villages (Chauvet, 2015). The total population in each of the study villages was as follows: Oloipiri village, 2,057; Oloirien, 3,279; Soitsambu, 2,739; Ololosokwan, 3,279; Maaloni, 2,177; and Arash village, 523 people.

First, a sample size generator was used to obtain the study household samples from the study population <http://www.surveysystem.com/sscalc.htm>. [The study population  $N = 14,754$ , confidence level = 95%, confidence interval = 5.33, and total sample size obtained = 330]. The sample size was divided by the total number of villages in the study area to obtain the sample size for each study village (e.g.  $330/6 = 55$ ). Second, at each study village, the sample was further divided by the number of sub-villages within a village to obtain the household heads interviewed (e.g., at Ololosokwan village, for example, where there are two sub-villages, the calculation was  $55/2$  equals 28 and 27 household heads for Njoroi and Ololosokwan sub-villages respectively). Third, at the sub-village level (e.g., at Njoroi sub-village), opportunistic sampling was used to obtain the 28 household heads interviewed.

The research team used opportunistic sampling because of the time constraints as well as the difficulty of obtaining the study respondents door to door as most of them were away during the day to taking care of their livestock as it was a dry season. The household samples therefore involved in the survey were as follows: Oloipiri ( $n=52$ ), Oloirien ( $n=55$ ), Soitsambu ( $n=59$ ), Ololosokwan ( $n=55$ ), Maaloni ( $n=56$ ), and Arash ( $n=53$ ). The variation in the sample sizes in each of the study villages was caused by the

limited availability of respondents and the time needed to collect data at each of the study villages. The time allocated to each of the study villages was a maximum of three days.

#### **3.3.5. Assistant Researchers**

Two local assistant researchers were recruited, trained and assisted in conducting focus group discussions (FGDs) and household surveys. The research assistants were trained in research ethics, research methodology and data collection techniques specific to this study design. The research assistants were familiarized with the research proposal, so they knew what the research aimed to achieve. Both research assistants had university degrees, research experience, knowledge of the research area, good communication skills and spoke the native language of the study respondents.

#### **3.4. Data Analysis**

The research team took notes from each FGD and key informant interviews on-site. Analysis of the notes was done by the research team<sup>16</sup> at the end of every working day using the research questions (Appendix F and G) to produce reports of each FGD and the key informant interviews. The researchers later analyzed the reports by identifying relevant information for the conservation projects' contributions to biodiversity conservation and to local livelihoods.

The data collected from the household survey were screened and cleaned. The data were coded and entered in Statistical Package for Social Sciences (SPSS version 24.0) for analysis. Descriptive statistics were applied to obtain tables and percentage of various livelihood and biodiversity conservation variables. The data were copied from the SPSS files to Excel spreadsheet files to further produce tables used in data interpretation.

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<sup>16</sup> The research team consisted of the main researcher and two assistant researchers from the study area.

### **3.5. Results**

The objective of this paper is to evaluate the contribution of the village-based conservation projects to biodiversity conservation and local livelihoods in Loliondo Division. The following sections discuss, first, results of the projects' contributions to local livelihoods and, second, their contributions to biodiversity conservation.

#### **3.5.1. Conservation Projects Contributions to Local Livelihoods**

##### **3.5.1.1 Financial Contributions**

The financial benefits from the village-based conservation projects in Loliondo Division come from two sources: hunting tourism and photographic tourism businesses. Between 1992 and 2016, there was a total direct financial return from these tourism activities to the area of almost \$13 million US dollars (Table 3.1). By far most of the money went to the district government (\$9.7 million) followed by the study area villages (\$1.8 million) and finally the central government (\$1.4 million). Roughly two-thirds of this money was derived from hunting rather than photographic tourism (Table 3.1); however, the central government received more money from photographic tourism than hunting while the district government received more from hunting tourism than photographic tourism. Like the central government, the study area villages received more money from photographic tourism than hunting tourism.

From hunting tourism, the district government received about \$7.7 million and the central government received \$224,000. However, because the central government is the signatory of the hunting tourism contract with OBC, it receives the funds from the company and returns a large share to the district government to support the overall district government development budget (personal communication with a Ngorongoro District Official, 11th of August 2016). As well, the study area villages directly received the following total amounts of financial contributions from hunting tourism in the same period (1992 to 2016): Soitsambu village (\$130,000), Maaloni village (\$130,000), Oloipiri village (\$100,000), Ololoskwan village (\$80,000), Oloirien village (\$80,000), and Arash village (\$80,000).

**Table 3.1. The Conservation Projects Financial<sup>17</sup> Contributions Between 1992 and 2016**

S/N	AUTHORITY	HUNTING TOURISM (OBC)						PHOTOGRAPHIC TOURISM						TOTAL HUNTING & PHOTOG
		1992 – 2006 (USD)	2007 – 2008 (USD)	2008/9 (USD)	2010 (USD)	2011 – 2016 (USD)	TOTAL (USD)	1992 – 2006 (USD)	2007/8 (USD)	2009 (USD)	2010 (USD)	2011 – 2016 USD	TOTAL USD	USD
1	Central Government	N/A	N/A	82,000	142,000	N/A	224,000	N/A	N/A	560,000	632,000	N/A	1,192,000	1,416,000
2	District Government	N/A	739,458	736,500	30,000	6,222,000	7,727,958	N/A	N/A	109,000	158,000	1,800,000	2,067,000	9,794,958
3	Ololosokwan	45,000	10,000	25,000	0	0	80,000	N/A	31,600	44,000	65,000	675,000	815,600	895,600
4	Soitsambu	45,000	10,000	25,000	0	50,000	130,000	75,000	N/A	8,400	17,000	0	100,400	230,400
5	Oloipiri	45,000	10,000	25,000	0	30,000	110,000	75,000	N/A	1,600	7,500	0	84,100	194,100
6	Oloirien	45,000	10,000	25,000	0	0	80,000	75,000	N/A	2,500	7,500	0	85,000	165,000
7	Maaloni	45,000	10,000	25,000	0	50,000	130,000	N/A	N/A	4,500	7,500	0	12,000	142,000
8	Arash	45,000	10,000	25,000	0	0	80,000	N/A	N/A	21,000	38,000	0	59,000	139,000
9	<b>TOTAL</b>	<b>270,000</b>	<b>799,458</b>	<b>968,500</b>	<b>172,000</b>	<b>6,352,000</b>	<b>8,561,958</b>	<b>225,000</b>	<b>31,600</b>	<b>751,000</b>	<b>932,500</b>	<b>2,475,000</b>	<b>4,415,100</b>	<b>12,977,058</b>
10	<b>TOTAL HUNTING TOURISMS CONTRIBUTIONS TO:</b>							<b>TOTAL PHOTOGRAPHIC CONTRIBUTION TO:</b>						
10.1	The Government						7,951,958						3,259,000	
10.2	The Local Communities						610,000						1,156,100	

Source: Study field data; Sulle 2008; Rurai, 2012; TNRF, 2012; Gardner, 2016; Mhala 2017; Mkwame, 2017.

<sup>17</sup> The data presented in this table is a triangulation of different sources including this study field data. There has been difficulty in obtaining the information on the exact amount OBC pays to the central government. The contract between OBC and the government remains undisclosed to the public with several research findings (e.g., Gardner, 2012; Benjaminsen et al., 2013) suggesting that the company voluntarily pays the government more than the amount it is supposed to pay as per their signed contract.

Photographic tourism also contributed financially to the government (central and district) and to local communities since 1992. Between 1992 and 2016, the central government received about \$1.2 million and the district government received about \$2 million (Table 3.1). Most of the financial contributions to the government came from permanent camps built in the study area (e.g., Klein’s Camp, Buffalo Luxury Camp, and Thompson Safaris camp).

Between 1992 and 2016, photographic tourism companies that signed contracts with the study area villages (e.g., Dorobo Safari, And Beyond, Explorer, Hope, Sokwe Safari, Nomads, and Royal Safari—see Appendix A), contributed financial benefits to local communities. Each study village received total financial benefits as follows: Ololosokwan village (\$815,000), Soitsambu village (\$100,400), and Oloipiri village (\$84,000), Oloirien village (\$85,000), Arash village (\$59,000), and Maaloni Village (\$12,000).

Between 2010 and 2016, the regular financial contributions from both photographic and hunting tourism were affected in all study villages with the exception of Ololosokwan village. The financial contributions were affected following a long-standing conflict between the hunting tourism company (OBC) and the local communities which intensified in 2009 (more details on this conflict in TNRF, 2011; Rurai, 2012; Gardner, 2012, 2016). In the aftermath of the conflict, OBC stopped paying the regular land access fees to the study area villages. The central government also implemented a tourism regulation<sup>18</sup> that prohibited photographic tourism on GCAs and village lands close to national parks without written permission from the central government. Consequently, the photographic tourism companies ceased their operations in the study area and also stopped paying the study area villages with the exception of Ololosokwan study village as it had a permanent camp built on its land.

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<sup>18</sup> The Wildlife Conservation (Tourism Hunting Regulation) of 2000 revised in 2002.

The amount of financial benefits reported in this paper to represent the financial benefits received by a study village from tourism is not conclusive based on the lack of data in some study villages in different times. For example, records of photographic tourism financial benefits received by Maaloni and Arash villages between 1992 and 2008, are not available. This makes it difficult to confidently conclude the overall financial benefits received by individual villages. However, the nature of the contracts (i.e., duration of the contract and the amount paid) between the local communities and the tourist companies, can predict the study villages that benefited the most or the least. Ololosokwan village, for example, which according to this study results, has received more financial benefits has a long-term contract with the And Beyond tourism company. The rest of the study villages did not regularly receive financial benefits from photographic tourism between 2009 and 2016. The study villages failed to receive the benefits following the ban of the photographic tourism business on village lands.

In most cases, the financial benefits received by local communities were used to implement community development projects such as water supply, health, and education projects. The development projects are discussed in detail in subsection 3.5.1.3. On the other hand, the financial benefits received by the district government were used to support its overall development budget which includes the implementation of community development projects (e.g., water projects and the maintenance of roads) in the entire Ngorongoro district. Likewise, the financial benefits received by the central government are used to support the overall central government budget.

#### **3.5.1.2. Livelihood Diversification**

Diversification was studied largely through reference to the household survey results, the FGDs, and the key informant interviews. The results of the household surveys show that the economic activities of most of the residents in Loliondo Division are livestock keeping (95.2%) and livestock keeping with crop cultivation (78.2%; Table 3.2). Few respondents are engaged in small businesses (6.1%) or employed by the

government (4.5%) or in the conservation projects (2.1%). Likewise, few are engaged in the livestock business (selling and buying livestock; 2.7%) and the tourism business (1.2%).

**Table 3.2. The Study Respondents' Economic Activities**

S/N	<i>Economic Activities of the Study Respondents</i>	<b>STUDY VILLAGES</b>						
		<i>Oloipiri %</i>	<i>Oloirien %</i>	<i>Soitsambu %</i>	<i>Ololosokwan %</i>	<i>Maaloni %</i>	<i>Arash %</i>	<i>Average %</i>
1	Livestock Keeping	90.4	98.2	93.2	98.2	96.4	92.5	95.2
2	Cultivation and Livestock Keeping	90.4	61.8	69.5	67.3	66.1	88.7	78.2
3	Petty Business	7.7	0.0	13.6	10.9	10.7	1.9	6.1
4	Employment in the Government	1.9	3.6	8.5	0.0	0.0	7.5	4.5
5	Livestock Business	1.9	1.8	1.7	5.5	5.4	3.8	2.7
6	Employment in a Conservation Project	1.9	0.0	5.1	1.8	1.8	3.8	2.1
7	Engagement in Tourism Business	0.0	1.8	1.7	3.6	3.6	0.0	1.2

Overall, small business (e.g., grocery stores) was another economic activity practiced by the local people after livestock keeping and crop cultivation. engagement in small business was mainly reported in the villages of Soitsambu (13.6%), Ololosokwan (10.9%), and Maaloni (10.7%). All these three study villages have their centers on the main roads. The conduct of the small business can be attributed to the accessibility of the villages by road. This makes the delivery of goods and services easier at these villages. Maaloni village, for example, is on the main road from Arusha to Loliondo town; Soitsambu is on the main road from Loliondo town to the Serengeti National Park and to Narok in Kenya, and Ololosokwan village is on the main road from Loliondo town to the Serengeti National Park.



The conservation projects were perceived to not guarantee employment to the local people despite the existence of permanent camps such as the Klein's and the *OBC* camps. According to respondents, most of the employees of these companies come from outside the study area, although no figures were obtained to verify this perception. The lack of required skills in local people to work at the camps and the lack of willingness by the companies to employ the local people can also explain the reason why few local people are employed. This study shows a low education level of the local people (see Appendix B), which can imply a lack of skills. Also, the deteriorating relationship between *OBC* and the local communities caused by the land-related conflict may have affected the company's trust regarding local employees and therefore it may seek employees from outside the study area.

The results further show that despite the potential of the area for tourism activities, the local people themselves are not directly engaged in the tourism business as only 1.2% of all the respondents reported to be in the tourism business. Among the reasons why the local people are not engaging directly in the tourism business can be due to the remoteness of the village centers away from the main road used to tourists (e.g., Oloirien village, Oloipiri village, and Arash villages), and the lack of tourism infrastructure in most of the study villages (i.e., tourist camps). However, Ololosokwan village, which has a permanent camp built on its land, still has the camp located in a remote area away from the village center (town) where the local people could trade with tourists. Further, despite Ololosokwan, Soitsambu, and Maaloni villages having their village centers on the main roads, the results have shown that they are not much engaged in tourism either. Thus, village accessibility by road may not be the only factor that determines why the local people did not engage in the tourism business. If it was the case, these villages that are on the main road passed by tourists would have engaged more in tourism activities than the other study villages which are off the main road (e.g., Oloirien, Oloipiri, and Arash villages).

Overall, the financial benefits received by study villages do not seem to be related to livelihood diversification. Ololosokwan village, for example, which received more financial benefits from the conservation projects than the rest of the study villages, did not greatly diversify livelihood activities when compared with the residents from other study villages that received fewer tourism benefits (Table 3.2).

### 3.5.1.3. Benefits at the Community Level

The financial benefits received from projects (Table 3.1) were used by the study villages to implement community social services projects. The results show that 62.1% of the study respondents perceived that the financial benefits were used to implement water projects, while 23.2% perceived that the financial benefits were used for education projects (e.g., payment of school fees and construction of classrooms; Table 3.3).

**Table 3.3. Respondents' Perceptions of the Conservation Projects Benefits at the Community Level**

S/N	Community Level Contributions	STUDY VILLAGES						
		Oloipiri %	Oloirien %	Soitsambu %	Ololosokwan %	Maaloni %	Arash %	Average %
1	Water Supply	78.8	78.2	61.0	85.5	50.0	18.9	62.1
2	Access to Education	11.5	14.5	93.2	100.0	7.1	5.7	38.6
3	Improved Infrastructure	9.6	10.9	8.5	16.6.	8.9	0.0	9.1.0
4	Access to Health Services	38.5	3.6	30.5	100.0	0.0	1.9	29.1
5	No Benefits	13.5	23.6	20.3	0.0	48.2	79.2	30.8

Further, 23% of the study respondents perceived the conservation benefits were used for infrastructure projects (e.g., construction of roads and bridges) while 15% of the study respondents perceived the benefits were used to implement healthcare projects.

The perceptions of the study respondents of conservation project benefits at the community level varied among the study villages. Respondents at Ololosokwan showed

more positive perceptions towards the conservation project benefits while the respondents from Arash study village showed relatively low positive perceptions towards the conservation projects. The variations in local perceptions towards the conservation projects can be attributed to the amount of financial benefits received by the study villages. The amount of financial benefits received by a study village can determine the level of the implementation of the community development projects and therefore can affect local perceptions of the conservation projects' benefits at the community level. Ololosokwan village, for example, which received more financial benefits from the conservation projects (Table 3.1) has its respondents perceiving the projects to have more benefits at the community level when compared with Arash village which received the least financial benefits from conservation project.

Overall, about 31% of the respondents perceived that the conservation projects do not benefit the local communities at all. None of these respondents were from Ololosokwan village where all respondents agreed that there were benefits. Study respondents perceiving the conservation projects to have no benefits at the community level were from Arash (79.2%), Maaloni (48.2%), Oloirien (23.6%), Soitsambu (20.3%), and Oloipiri (13.5%). However, from personal observation during the study data collection together with FGDs and key informant interview data, all the study villages have at least two or more community projects implemented using the conservation financial benefits. Surprisingly, the community projects implemented with the support from OBC such as water projects, construction of bridges, dispensaries, and schools are rarely acknowledged by community members who see the projects<sup>19</sup> implemented by the company as aimed to impress the central government and not for helping the local people. The reason for this local attitude towards OBC can be attributed to the

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<sup>19</sup> OBC constructed water projects in the study villages, built a bridge (Pololet bridge), and constructed a secondary school and health center at Waso town. Although the local communities refer to these projects to have no benefit to them but to the elites in Waso town, in reality, the projects are helping the local people. Some of their children go to school at Waso and the referral hospital used by the local people after transfer from the village health centers is the one built by OBC at Waso town

longstanding conflict between the study area communities and the company over access to natural resources. The view of 31% of the respondents concerning the lack of benefits of the conservation projects at the community level can, therefore, be attributed to the local perceptions of OBC and its hunting activities in the study area. Human-wildlife conflicts can also explain why the 31% of the respondents perceived the projects to have no benefits to the local community. Livestock predation with little or no compensation<sup>20</sup> can result in negative local perception towards wildlife conservation benefits.

#### **3.5.1.4. Benefits at the Family Level**

Overall, 51% of study respondents perceived the conservation projects to have no benefits at the family level. However, as shown in Table 3.4, below, 13.4% of the study respondents perceived the conservation projects to have benefited the families in terms of providing educational scholarships, 12.8% perceived the projects to have increased family incomes, and 10.6% of the study respondents perceived the conservation projects to have helped to reduce the amount contributed<sup>21</sup> by individual families to community projects. Further, 4.7% of the study respondents perceived the conservation projects to have helped families access loans, 3.6% perceived the projects to have helped families to access employment opportunities, and 2.7% perceived the conservation projects to have helped the local communities engage in small business within the community.

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<sup>20</sup> The Wildlife Conservation (Dangerous Animal Consolation) Regulation 2011 provides little support to families with their properties damaged by wildlife and the process to obtain consolation is long at the same time requires extensive supporting information making it difficult for the local people to apply for consolation.

<sup>21</sup> Before the implementation of the conservation projects in the study area, the local people were supposed to contribute financially and in kind to implement community projects such as water projects but after they were exposed to conservation financial benefits such contributions from individual families were reduced.

**Table 3.4. Respondents' Perceptions of the Conservation Projects Benefits at the Family Level**

S/N	Family Level Contributions	STUDY VILLAGES						
		Oloipiri %	Oloirien %	Soitsambu %	Ololosokwan %	Maaloni %	Arash %	Average %
1	Access to Scholarship	11.5	5.5	3.4	52.7	0.0	7.5	13.4
2	Increased Income	11.5	3.6	8.5	45.5	1.8	5.7	12.8
3	Reduced Family Contribution to Community Projects	9.6	3.6	5.1	41.8	3.6	0.0	10.6
4	Access to Loans	11.5	7.3	1.7	3.6	0.0	3.8	4.7
5	Access to Employment	5.8	1.8	3.4	7.3	3.6	0.0	3.6
6	Engaged in Small Business	3.8	7.3	3.4	1.8	0.0	0.0	2.7
7	No benefits	30.8	38.2	54.2	0.0	87.5	94.3	50.8

The respondents' perceptions of the lack of conservation benefits at the family level are high when compared with the respondents' perceptions of the lack of conservation benefits at the community level (51% and 31%, respectively). These results indicate that the conservation projects have made more contributions at the community level than at the family level. As shown in Table 3.4 above, most of the perceptions of the lack of benefits (no benefits) towards the conservation projects' benefits at the family level came from Arash (94.3%) and Maaloni (87.5%) villages followed by Soitsambu (54.2%), Oloirien (38.2%) and Oloipiri (30.8%) villages. There were no perceptions of the lack of benefits (no benefits) that came from Ololosokwan village. The "no benefits" responses from the study villages are inversely related to the level of financial benefits received by the village (Table 3.1). The more financial benefits received by a village, the less the negative perceptions towards the project contributions at the family level and vice versa. Thus, the project's financial contribution

is one of the factors that can explain the variation of the local perceptions towards the conservation projects effects on individual families.

### **3.5.2. Conservation Projects Contributions to Biodiversity Conservation**

#### **3.5.2.1. Perceptions of Local Involvement in Biodiversity Conservation**

The results from local perceptions show that the local people are involved in biodiversity conservation in various ways. The data presented in Table 3.5 below show that 53% of the study respondents perceived that the local people are involved in anti-poaching activities, and 50% perceived that the local people are abiding by regulations and by-laws designed for biodiversity conservation. Further, 10.9% of the study respondents perceived that the local people are involved in providing conservation education to others while 1.9% perceived the local community to have been involved with biodiversity conservation in other ways (e.g., protecting the forest and being tolerant to wildlife consequences).

**Table 3.5. Respondents' Perceptions of Local Involvement in Biodiversity Conservation**

S/N	<i>Community Involvement of Biodiversity Conservation</i>	<i>STUDY VILLAGES</i>						
		<i>Oloipiri %</i>	<i>Oloirien %</i>	<i>Soitsambu %</i>	<i>Oolosokwan %</i>	<i>Maaloni %</i>	<i>Arash %</i>	<i>Average %</i>
1	Protection and Anti-poaching	46.2	56.4	52.5	58.2	58.9	50.9	53.9
2	Follow Regulations and By-laws	65.4	45.5	44.1	60.0	30.4	54.7	50.0
3	Conservation Education to Others	11.5	20.0	13.6	14.5	1.8	3.8	10.9
4	Others	5.8	1.8	1.7	1.8	0.0	0.0	1.9
5	No Involvement	9.6	12.7	16.9	0.0	19.6	7.5	11.1

Even though about half of the study respondents perceived the local people to have been involved in biodiversity conservation (i.e., anti-poaching and following conservation regulations), the other half of the study respondents perceived the opposite and hence there are concerns on local involvement in biodiversity

conservation. Further, about 11% of the respondents perceived that the local people are not involved in biodiversity conservation at all. The villages of Maaloni, Soitsambu, and Oloirien are leading in this reporting by having their respondents perceiving the lack of involvement (no involvement perceptions) by 19.6%, 16.9%, and 12.7%, respectively. Other study villages that had their respondents perceiving the local people lack involvement at all (no involvement perceptions) in biodiversity conservation are Oloipiri village (9.6%) and Arash village (7.5%). Only the respondents from Ololosokwan village did not perceive the local people to not be involved in biodiversity conservation.

This study attributes the lack of local involvement in biodiversity conservation with the local restricted access to natural resources by some of the tourist companies (i.e., OBC). Soitsamabu village, for example, which is among the study villages with its respondents perceiving the conservation projects to have no benefits, has the OBC camp permanently installed on its land (i.e., at Kirtalu sub-village). The residents of the village may have therefore been exposed to more resource-use restrictions than other villages. Likewise, the land in Maaloni village is an open grassland with high wildlife densities that attract tourism activities including hunting activities by OBC. The potential of the Maaloni village land for tourism activities may have made this village prone to OBC hunting activities. Hunting activities on village land can lead to more local restricted access to natural resources and hence discourage local involvement in wildlife conservation. Also, the hunting activities of OBC are done without the consent of the local people and that may have made the local people becoming skeptics of wildlife conservation leading to their reduced involvement in biodiversity conservation.

The Ololosokwan village where the village residents were perceived to have slightly more involvement in biodiversity conservation has a good relationship with And Beyond tourist company. The study village also received more financial benefits as a result of the implementation of the conservation projects. The good collaboration between the village residents with the tourist company, along with the conservation

financial benefits received by the residents, can be attributed to the slightly more perceived local involvement in biodiversity conservation at Ololosokwan.

### 3.5.2.2. Biodiversity Changes in the Study Area

Table 3.6 shows the respondents' perceptions on some of the biodiversity changes between 2011 and 2016. Overall, 60.3% of the study respondents perceived that the conservation projects have helped to reduce bushfires, 59.1% perceived increased wildlife species, and 55.8% perceived the projects have improved forest cover. Further, 32.9% of the study respondents perceived the conservation projects have contributed to increased conservation in PAs, and 29.7% of the study respondents perceived the projects have contributed to the increase of flagship species. In addition, 7.9% and 8.2% of the study respondents perceived the conservation projects to have increased endangered species and other categories of wildlife species (e.g., birds).

**Table 3.6. The Local Perceptions of Biodiversity Change in the Study Area**

S/N	<i>Biodiversity Change Variables</i>	<i>STUDY VILLAGES</i>						
		<i>Oloipiri %</i>	<i>Oloirien %</i>	<i>Soitsambu %</i>	<i>Ololosokwan %</i>	<i>Maaloni %</i>	<i>Arash %</i>	<i>Average %</i>
1	Reduced Bushfires	69.2	61.8	62.7	74.5	50.0	43.4	60.3
2	Increased Wildlife Population	53.8	63.6	52.5	87.3	50.0	47.2	59.1
3	Increased Forest Cover	42.3	61.8	62.7	74.5	50.0	43.4	55.8
4	Increased PAs Conservation	38.5	49.1	22.0	50.9	12.5	24.5	32.9
5	Increased Flagship Species	30.8	5.5	30.5	49.1	30.4	32.1	29.7
6	Others	1.9	5.5	10.2	0.0	12.5	18.9	8.2
7	Increased Endangered Species	15.4	7.3	10.2	7.3	5.4	1.9	7.9

Generally, the respondents from all study villages show positive perceptions towards the conservation projects' contributions to biodiversity conservation although



variations in perceptions exist among the study villages. However, the variations in local perceptions of conservation projects' contributions to biodiversity conservation are small among the study villages compared with the variations of local perceptions of the conservation projects contributions to local livelihoods. The responses from Ololosokwan village still take the lead with favorable local perceptions of the conservation project's contributions to biodiversity conservation. The lead by Ololosokwan village respondents on perceiving the contributions of the conservation projects can be attributed to good collaboration between the village and the And Beyond tourism company. The good collaboration between the two parties led to land use plans, which enabled the villagers to continue with the protection of their land set aside for conservation alone and hence more biodiversity conservation in the village. Such collaboration was also nurtured by a special committee formed by the village and the tour company that consists of six members (three from the village and three from the company). The committee is given the mandate to oversee the implementation of the conservation project and reports back to both the village council and the tourist company. On the contrary, the ban on conservation projects in the rest of the study villages affected the previously locally conserved areas as the local people were no longer respecting the land use plans protecting the areas. Thus, the conservation projects seemed to contribute to biodiversity conservation although their alteration by the ban of photographic tourism business in some study villages may have led to the perceived variations in biodiversity changes between villages.

#### **3.5.2.3. The Status of Wildlife Abundance in the Study Area**

Overall, the study respondents' perceptions of increased wildlife abundance in the study area were as follows: the perceptions of increased zebra abundance (92.1%), wildebeest (87.8%), antelopes (80.1%), elephants (69.7%), monkeys (69.8%), and hyena abundance (69.3%). Other local perceptions of wildlife increases are for giraffes abundance (46.5%), buffaloes (29.1%), and other animals, e.g., lions and leopards abundance (7.7%; Table, 3.7).

**Table 3.7. Local Perceptions of Increased Wildlife Abundance in their Study Villages**

S/N	<i>Wildlife Species</i>	<i>STUDY VILLAGES</i>						
		<i>Oloipiri %</i>	<i>Oloirien %</i>	<i>Soitsambu %</i>	<i>Ololosokwan %</i>	<i>Maaloni %</i>	<i>Arash %</i>	<i>Average %</i>
1	Zebras	94.2	89.1	88.1	96.4	98.2	86.8	92.1
2	Wildebeests	86.5	72.7	89.8	96.4	94.6	86.8	87.8
3	Antelopes	61.5	85.5	74.6	96.4	91.1	71.7	80.1
4	Monkeys	48.1	83.6	62.7	85.5	50.0	52.8	63.8
5	Elephants	50.0	30.9	72.9	98.2	92.9	73.6	69.7
6	Hyenas	59.6	78.2	62.7	89.1	69.6	56.6	69.3
7	Giraffes	19.2	14.5	25.4	83.6	66.1	69.8	46.5
8	Buffaloes	17.3	14.5	30.5	63.6	12.5	35.8	29.1
9	Others	9.6	7.3	1.7	20.0	1.8	5.7	7.7

The respondents' perceptions of increased wildlife abundance varied from village to village. Ololosokwan village took the lead followed by Maaloni and Soitsambu villages (Table 3.7). The respondents from Olipiri, Arash, and Oloirien villages showed low perceptions of increased wildlife abundance on their village lands relative to other study villages. The reasons for the variation in perceptions of wildlife increase among villages may be the distance of the village residential areas from the SENAPA border and the intensity of human activities that may displace wildlife on the village lands (e.g., cultivation and livestock keeping). The residential areas for Oloirien and Maaloni villages, for example, are located near the Sale Division which is some distance away from these village borders with SENAPA. High wildlife densities are more likely to be found close to the border with SENAPA where strict wildlife conservation measures are applied. As the residential areas for these villages are away from the border with SENAPA, it is less likely that the local people are in contact with wildlife on a daily basis. Thus, the local perceptions of these villages are likely to report low wildlife densities.

In contrast, in Ololosokwan village where the study respondents have perceived increased wildlife the most compared with other study villages, the residential area is close to the SENAPA and the Maasai Mara National Reserve in Kenya. As well, the wildebeest migratory route<sup>22</sup> from Kenya to Tanzania passes more closely to Ololosokwan village. Therefore, its residents are more likely to have been interacting with wildlife on a daily basis compared with the rest of the study villages whose residential areas are away from the SENAPA and the Masai Mara borders. Further, the villages of Oloirien and Arash, which are among the villages showing low perceptions of increased wildlife abundance (Table 3.7), are reported to have high livestock keeping and high crop cultivation activities (see Table 3.4). However, at Oloipri village, despite its residential area being close to the SENAPA border (where the wildlife is likely to be abundant), the local perceptions indicate that the village has the lowest increase of wildlife abundance relative to other study villages. The relatively low perceptions of the study respondents on the increases of wildlife abundance at Oloipiri village despite its residential area being close to the SENAPA may need further research to explain the anomaly.

### **3.6. Discussion**

The objective of this paper is to evaluate the contribution of a village-based conservation approach to local livelihood and to biodiversity conservation in Loliondo Division using the perceptions of the study area residents. The evaluation of the approach was done mainly by evaluating the social-ecological contributions of conservation projects implemented under the approach. The results show that the local people perceive the projects to have contributed to both local livelihoods and biodiversity conservation. However, those contributions varied among the study villages. Of all the study villages, the projects were perceived to have the most social-ecological contributions at Ololosokwan. Although there are various factors attributed

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<sup>22</sup> See the wildebeest migration calendar and route at <https://www.expertafrica.com/tanzania/info/serengeti-wildebeest-migration>.

to the variation in local perceptions of the project's contributions, the conflict over natural resource access between the study area residents, the central government, and OBC has played a major role. The conflict resulted in the ban of the contractual agreements between the local communities and tourism companies. Thus, the implementation of the conservation approach was affected and its contributions to both conservation and local livelihoods were interrupted in all villages except at Ololosokwan. The results from Ololosokwan village, therefore, provide insights about the "approach's" effectiveness on delivering social-ecological benefits in the study area. The following subsections discuss these results in greater detail and compare the results with similar findings elsewhere.

### **3.6.1. The Contributions of the Conservation Projects to Local Livelihoods**

This study result of the conservation projects contributions to local livelihoods has no major difference with other CBC programs in the region. The study area conservation projects were perceived to have had more impact at the community level than at the family level. This is a trend to many reported conservation projects in the region (Mwakaje et al., 2013; Salerno, et al., 2016; Mbaiwa, 2015; Robinson and Makupa, 2015). The projects were also perceived to have had a low impact on local livelihood diversification. Like many CBC projects in the region, the benefits received from the conservation projects in this study area were limited to the implementation of much-needed community-level development projects such as water supply, health services, education, and infrastructure (e.g., roads and bridges).

Regarding family-level benefits, the conservation projects were perceived to be not extensive enough to increase individual family incomes. The lack of perceived benefits at the family level can be attributed to the reported low contributions of the conservation projects to local employment and to small businesses in the community. It can further be attributed to the projects' inability to provide loans to families that could be used to increase family incomes (see Table 3.4). The results of low impacts of the conservation projects at individual families implying that the income of the local people

does not depend much on the presence of the conservation projects. The inability of the local income to rely on the conservation projects is not a positive result as the local people are likely to support conservation projects that they perceive to have a positive impact on their livelihoods (Gadd, 2005; Alkan et al., 2009). However, about 11% of respondents perceived the conservation benefits to have reduced their family contribution to community-level projects which is an indirect contribution of the study area conservation projects to individual families (Robinson and Makupa, 2015). According to this study FGDs, before the introduction of the conservation projects, the implementation of community-level projects such as the construction of schools, and water infrastructures, relied heavily on the contributions from individual community members both financially and in kind. But, after the introduction of the conservation projects, the village governments used the benefits accrued from the projects to implement the community level projects. It then reduced the collection of financial donations from individual community members. If the study villages use the financial benefits effectively to improve the community social services projects, there is a possibility that the benefits from conservation projects will have more positive effect at the family level. By doing so, there will be a possibility to maintain positive local perceptions of natural resource conservation.

This study result of low benefits of the conservation projects at the family level contributes to existing literature on CBC programs contributions in sub-Saharan African countries. Various studies (e.g., Nelson and Agrawal, 2008; Mwakaje et al., 2013; Makupa et al., 2013; Robinson and Makupa, 2015; Moyo et al., 2016), have reported low income of CBC projects to individual families. These studies have indicated that many CBC projects contribute low benefits to individual families compared to their contribution at the community level. Other studies as well emphasize the importance of the family level benefits in CBC projects on maintaining positive local perceptions of natural resource conservation (e.g., Gadd, 2005; Kaswamila et al., 2007; Alkan et al., 2009; Acquah et al., 2013; Makupa et al., 2013). The study by Gadd (2005), for example,

examined attitudes of the local people outside parks in Laikipia, Kenya and found that those who received financial benefits from tourism have more positive attitudes towards natural resource conservation. Likewise, Acquah et al. (2013), found that communities adjacent to Mole National Park in Ghana that received financial benefits from wildlife conservation perceived conservation more positively compared with communities away from the park that did not receive benefits. In this study area, for example, Ololosokwan village, where the conservation benefits have at least started to be realized by individual families through improved social services and education scholarships to individual family members, the contributions of the conservation projects were more acknowledged by its residents compared with the rest of the study villages which received relatively low benefits. Thus, ensuring that conservation benefits reach the family level is an important aspect of maintaining positive local perceptions of natural resource conservation. Apparently, the single village model being examined in this thesis was no more successful at this than the more traditional CBC arrangements involving several villages.

Low impact of the conservation projects on livelihood diversification was also reported (Table 3.2). However, the lack of livelihood diversification can also be a reason for the low impact of the conservation projects on the level of income of individual families. The variables that might promote livelihood diversification such as increased income, access to employment, and access to loans were found to be not the immediate outcomes of the projects thereby limiting the potential for further livelihood diversification. The majority of the local people in the study area still depend mainly on traditional livestock keeping and crop cultivation. These findings support other studies that have found similar results in Loliondo Division on local livelihoods (e.g. McCabe et al., 2010; Schmitt 2010; Gardner 2012; and Mwakaje et al., 2013). These studies found that most of the residents located in the east of the SENAPA (specifically the Loliondo Division) depend mainly on livestock keeping and crop cultivation. The low level of local livelihood diversification is not a positive finding as they indicate the high dependency of

the local people livelihoods to the natural resource base. As the local people depend more on natural resource base, they demand more access to natural resources around PAs and are likely to conflict with natural resource conservation managers (Wittemyer et al., 2008; Joppa et al., 2010).

Some studies suggest that increased financial benefits from CBC projects can promote livelihood diversification (e.g., Snyder and Sulle, 2011; Baird and Leslie, 2013). However, in this study area, the villages that received more financial benefits (e.g., Ololosokwan village) still showed little livelihood diversification compared with the other study villages that received low financial benefits (Table 3.2). The research findings by Snyder and Sulle, for example, that found the local people to have used conservation benefits to diversify their livelihoods can be place-specific as this study's findings do not support their claim. However, this study's findings from Ololosokwan village, in particular, may support previous research findings claiming that local people use the financial benefits received from natural resource conservation to advance their existing traditional economic activities (e.g., Stronza and Gordillo, 2008; McCabe et al., 2010; Snyder, 2012; Conroy, 2013). Pastoralists, for example, instead of using the benefits accrued from conservation to implement other economic activities, tend to advance their traditional livestock keeping activity (pastoralism). At Ololosokwan village and the rest of the study villages, despite receiving financial benefits from conservation, pastoralism remained the main livelihood activity along with small-scale cultivation. Pastoralism and crop cultivation were practiced in the study area even before the commencement of the conservation projects and the trend seems to be not much altered (McCabe et al., 2010; Bartel., 2014). This implies that the local people in the study area (i.e., the few who are employed in tourism camps) are likely to be using the income obtained from these conservation initiatives to increase or maintain their traditional economic activities (pastoralism and crop cultivation). Thus, although it is important to ensure that the CBC projects generate more financial benefits to the local communities, it is also important to ensure that those benefits are invested in social and

economic activities that are capable of reducing local dependence on the natural resource base (e.g., investing in projects that improve local agricultural practices using improved technology and invested in beekeeping projects, tourism, education, etc.).

Although this study results have shown the financial benefits from the projects were not extensive enough to increase individual family incomes, in most cases low generation of income by the CBC projects is a major factor (Mwakaje et al., 2013; Robinson and Makupa, 2015; Solerno et al., 2016). The low-income generation of the CBC projects may not be the project's design problem; rather it could be due to various factors that can influence the level of income generated by a project. Among these factors are the location of the project to famous tourist destinations (i.e., close or away from), efficiency of the managing organization (i.e., fund management, marketing skills etc.) and the number of villages sharing the benefits (i.e., few villages vs many villages; Nelson, 2012; WWF, 2014). This study area, for example, is found close to the SENAPA and it is very likely that the CBC approach could give positive results as in the case of Ololosokwan village. However, the CBC projects are often initiated in places that are not attractive to tourists resulting in the loss of local livelihoods to biodiversity conservation and few financial benefits in return. In Tanzania, for example, out of the initial 17 gazetted WMAs, only a very few famous WMAs (e.g., Ikona, Burunge, Mpomipa, and Enduimet) are currently generating revenue that can at least be shared by its village members (Benjaminsen et al., 2013; Green and Adams, 2015; Moyo et al., 2016). Other WMAs (e.g., Ipole in Songea, Nalika in Tabora, Uyumbu in Urambo) are rarely heard about and they are not generating financial benefits that can be shared by member villages. In such circumstances, the local people involved in a low-income generating CBC project (i.e WMAs), are likely to have negative perceptions of biodiversity conservation. Thus, in order to ensure conservation benefits, reach both the community and individual family level, the establishment of the CBC projects should consider the factors that maximize the level of revenue generation to local communities. These factors, as discussed above, could be, among others, are the location of a CBC project to



be close to a tourist destination and the capacity of the managing CBO, but also diversification of income generating activities (McCabe et al., 2010; Homewood, Trench, & Brockington, 2012). In the case of this study area, the location factor is not an attribute of the low benefit to the family level, but efficiency and effectiveness of the managing institutions (i.e., the village councils), could be an attribute.

The impact of the conservation benefit was not limited to Loliondo Division alone. The financial benefits from this study area were also used by the central and district government to implement development projects elsewhere. The PAs in Tanzania are state property and therefore the benefits accrued from these areas are used to benefit communities countrywide. The central and district governments benefited out of natural resources found in the study area. This implies that the conservation benefits from Loliondo Division are used by the government to improve livelihoods of other communities outside the Loliondo Division. The impact of the conservation projects in this study area can, therefore, be large to an extent that this study could haven't captured well. The local people in the study area, although they don't oppose the idea of sharing benefits with others, consider the Loliondo GCA to be community land and not a government PA and therefore they needed to benefit the most. Sharing natural resource benefits with other communities has always been a value of the Tanzanian government as there are some areas rich in natural resources while others lack natural resources. The idea has never been opposed; however, it needs to be done in a more just and equitable manner. In the case of this study area, the interest of the local people who feel the negative impacts of wildlife conservation the most should come first. By doing so, more financial benefits from the study area natural resources will be devoted to development projects to improve local livelihoods which will result in increased positive local perceptions of natural resource conservation.

### **3.6.2. The Contributions of the Conservation Projects to Biodiversity Conservation**

Apart from the projects' contribution to improving local livelihoods, the projects also contributed to biodiversity conservation through encouraging local involvement in

conservation activities (see Table 3.5), improved biodiversity conservation (see Table 3.6) and increased wildlife abundance (see Table 3.7). The local perception towards such contributions also varied from village to village. However, these variations were smaller among villages than the variation in the perceptions on the projects' contribution to local livelihoods. These results suggest that biodiversity is being maintained within the study area.

The local people perceived the conservation projects to have helped to discourage the local practice of renewing pasture by starting bushfires. The pastoralist Maasai use bushfires seasonally to renew pasture for their livestock (Wagner, 2008). However, in this study area, the acts of starting bushfires are reported to have been reduced. Although fire is an important factor in the ecology and evolution of grassland and savanna (Fuhlendorf and Engle, 2004), it can affect nutrient cycling; modify plant species, composition and diversity; affect the distribution of large mammals; impact the diversity and density of birds; and affect the abundance of invertebrates (Eby, Dempewolf, Holdo, & Metzger, 2015). This study finding on reduced bush fires adds to existing literature on fire incidences in the Serengeti-Mara ecosystem. The study by Eby et al., (2015), for example, revealed that between the years 2000 and 2009, the frequency of fire in the Serengeti–Mara ecosystem is relatively low in Loliondo Division and the NCA compared with other parts of the ecosystem. This is an indication that the village-based conservation approach might have helped to discourage the practice and hence helped to maintain biodiversity within Loliondo Division.

Local perceptions also suggest that the conservation projects have helped to increase forest cover and wildlife habitats and have enhanced conservation in PAs close to this study area (i.e., the SENAPA and the NCA). However, a study by Sirima (2015) in the nearby village of Enguserosambu in northern Loliondo, on the contribution of indigenous ecological knowledge in the conservation of community forest, found an increase in degradation of forest areas in the last 15 years. According to this study, the

degradation of the forest has resulted, for example, in the drying of about 30% of rivers and streams. Although the study by Sirima was done outside this study area and in a village away from the core wildlife conservation area, it still demonstrates how the Maasai's change in livelihood strategies (i.e., from being pure pastoralists to agro-pastoralists) can be a threat to biodiversity conservation. This is a call for the application of appropriate actions to reduce the loss to biodiversity in the study area.

Further, studies on biodiversity conservation (especially of wildlife species) in the Serengeti ecosystem which includes this study area are mixed. Some show maintained large mammals abundance (Tanzania Wildlife Research Institute (TAWIRI), Kenya Wildlife Service (KWS), World Wildlife Fund (WWF), Frankfurt Zoological Society (FZS), & Paul G. Allen Foundation, 2014) while others show fluctuation in small mammals' abundance (Byrom et al., 2015). This study result of local perceptions of increased wildlife abundance in Loliondo Division are increased zebra abundance (92.1%), wildebeest (87.8%), antelopes (80.1%), elephants (69.7%) and monkeys (69.3%), giraffes (46.5%), buffaloes (29.1%), and other animals, e.g., lions and leopards (7.7%). Comparing this study results with another recent study (i.e., TAWIRI et al., 2014), the buffalo abundance is in decrease while the elephants' abundance is in the increase in Loliondo Division. The decreased buffalo abundance may be due to feeding competition with livestock which is likely to have increased following an increased local population<sup>23</sup> who mainly depend on livestock keeping. The increased abundance of elephants may be due to enhanced conservation efforts (e.g., enhanced anti-poaching activities) in the entire Serengeti-Mara ecosystem (TAWIRI, et al., 2014). The surveys carried out by Maddox (2003) for both herbivore and large carnivore populations in Loliondo Division, Ngorongoro Conservation Area (NCA) and within the SENAPA, found no difference in wildlife diversity between the three areas. A series of wildlife census undertaken

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<sup>23</sup> The 2012 National Census found the Loliondo Division to have a total population of 43,306 with an annual growth rate of 5% meaning that in 2017, the study area is estimated to have a total population of 55,606 which is an increase of 28.4% in five years alone.

annually by Singita Grumet Lodge since 2003, as well, show a maintained wildlife density in the SENAPA (<https://singita.com/general/wildlife-census-2013/>). Likewise, a recent 2014 elephants and buffaloes census in the Serengeti–Mara ecosystem showed an increased abundance of both species (TAWIRI et al., 2014). According to TAWIRI et al., from 1986 to 2014, the number of elephants in the ecosystem increased from 2,058 to 754,979 and the number of buffaloes in the same period increased from 7,535 to 61,896. These results imply that, overall, wildlife abundance in the Serengeti-Mara ecosystem of which this study area is a part, is maintained.

### **3.6.3. Negative Local Perceptions of the Contributions of the Conservation Projects**

Even though the conservation projects have benefited the study area residents mainly at the community level through the implementation of social services projects, as well as contributed to biodiversity conservation, there are some alarming results that indicate the local defiance towards natural resource conservation. Some local people in the study area perceive the conservation projects to have “no benefits” at all at the community level (31%), and at the family level (51%). The perceived lack of benefits from the projects mainly come from respondents in the study villages other than Ololosokwan village. This study attributes the perceived lack of benefits to the status of the implementation of the conservation projects in the study area. Many of the photographic tourism companies that had contracts with the local communities in the study area had stopped their tourism activities because of the introduction of tourism regulations that banned photographic tourism on village lands without permission from the central government (Nelson, 2012; Benjaminsen et al., 2013; Gardner, 2016). Except for Ololosokwan village, the ban on photographic tourism on village lands had affected the financial benefits received by local communities from the tourist companies and hence affected the implementation of the community development projects. The implementation of community development projects relied heavily on the financial benefits from photographic tourism.

Even though the central government banned photographic tourism in this study area, this study results have shown it to have contributed more financial benefits to the central government than hunting. One could, therefore, ask why the government should ban photographic tourism when it receives more benefit out of it. The reality is that the ban interfered only with the contracts between the villages and the tourist companies that had no permanent presence (e.g., permanent camps) in the study area but benefited the local community through signed contracts. Companies such as And Beyond, Buffalo Luxury Lodge, and Thomson Safaris that have permanent camps got permits to continue with the tourism business on village lands and paid both the government and the study area villages that signed contracts (i.e., And Beyond is paying Ololosokwan village). The government also receives benefits from photographic tourism companies that own land in the area that are not paying the local communities in terms of contractual agreements such as Buffalo Luxury Camps and Thomson Safaris. Thus, the ban affected most of the tourist companies that were giving financial benefits to these study area villages and not those providing more benefits to the central government. As the ban was directed only to the companies provided benefits to local communities and therefore no more conservation benefits received by villages is more likely the reason why some of the study respondents perceived the projects to have no benefits at all at both the family and community levels.

Further, the study results have shown that about half of the study respondents perceived that the local people have not been involved in biodiversity conservation in various ways (e.g., anti-poaching activities, abiding by conservation regulations, and providing conservation education to others). Overall, 11% of the respondents perceived that the local communities are not involved at all in biodiversity conservation. This finding indicates that there is a high level of defiance from the community members towards the conservation projects or conservation overall. Various factors can be attributed to these findings and they are discussed below.

For local engagement in anti-poaching activities, the study area residents are the Maasai pastoralists who do not possess a culture of wildlife hunting (Nelson, 2012; Lyamuya et al., 2016) and therefore are rarely likely to be engaged in anti-poaching activities as poaching may not be a major conservation problem caused by the local people. However, despite the fact that the Maasai people do not consume wild meat, it does not mean poaching is not taking place at all in this study area. It may have been taking place although the intensity might be low compared with areas where local people consume wild meat (e.g., the western SENAPA). A study by Schmitt (2010), for example, found that about 17% of households surveyed in the eastern SENAPA reported consuming wild meat while about 28% of households surveyed in the western SENAPA, did the same. Although the study included non-Maasai villages in the eastern SENAPA (e.g., Sojo tribe villages in Sale Division) where wild meat is part of their diet, of the 17% of hunting incidents, some must have happened in Loliondo Division. The same study, for example, found that the local people around the SENAPA hunt the wildlife for, among other reasons, food 80%, commercial interests 73%, and meeting family basic needs 50%. It is therefore likely that the Maasai who do not consume wild meat might get involved in poaching activities either for commercial reasons or for meeting their family's basic needs. Thus, the perceived low local involvement in anti-poaching activities does not necessarily mean that poaching is not taking place in Loliondo Division and therefore is not an issue that the local people should not get involved. Rather, other factors permitting local involvement in anti-poaching might be at play.

Regarding conservation education to others, it is likely that the majority of the local people lack formal conservation education. This is evident as many local people during FGDs and key informant interviews recommended the need for conservation education within the community. However, informal education (i.e., traditional ecological knowledge), is likely to be shared among community members. A study by Sirima (2015), for example, on community forest conservation in the nearby village of Enguserosambu within Loliondo Division, found that local institutions have been playing

a major role in the community by building the capacity of local leaders, creating conservation awareness and enforcing the laws. The lack of formal conservation education can be a result of the villages distancing themselves from the international conservation organizations (e.g., the FZS, and the WWF). The conservation organizations provided capacity building including running workshops that provide conservation education to local communities around PAs in Tanzania (USAID, 2013; WWF, 2014). In Loliondo, the local communities feared that the conservation organizations would turn their village lands into a strict PA and hence they were reluctant to collaborate with them (Gardner, 2012,2016). It is therefore likely that the study area residents lack conservation education that they could share with other community members. Hence their perceptions of conservation education sharing remained low.

The perceived lack of local involvement in biodiversity conservation and the failure to abide by conservation by-laws can also be attributed to the land-related conflict within the study area that limited the application of the village-based conservation approach. Following the long-standing conflict, the central government proposed a new form of PA—a Game Reserve (GR) which was strongly resisted by the local people. Since 2013, the central government has introduced a proposal to change part of the Loliondo GCA (1,500 square kilometers out of 4,000 square kilometers) to a GR (The United Republic of Tanzania, 2013). However, the proposal was not successful because of the powerful resistance from the local people through protests and social media<sup>24</sup> campaigns that received support from regional<sup>25</sup> and international<sup>26</sup> decision-making bodies. A GR is a PA category in which all human extractive activities by local people are prohibited. The local perception in this study area is that the government's

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<sup>24</sup> **Facebook** <https://www.facebook.com/Africbook/videos/1202126279904615/>, **Avazz:** [https://secure.avaaz.org/en/save\\_the\\_maasai\\_sam/?pv=80&rc=fb](https://secure.avaaz.org/en/save_the_maasai_sam/?pv=80&rc=fb) **YouTube:** <https://www.youtube.com/watch?v=iqP2MRuJ4Ac>

<sup>25</sup> **The 2015 European Union** Resolution on Tanzania Pastoralist land grabbing <http://www.europarl.europa.eu/sides/getDoc.do?type=MOTION&reference=B8-2015-0261&language=EN>

<sup>26</sup> **United Nations Special Rapporteur** on Loliondo land conflict <http://unsr.jamesanaya.org/cases-2010/32-united-republic-of-tanzania-alleged-forced-removal-of-pastoralists>

proposed change of the area's designation was purposely meant to give OBC exclusive hunting rights in the newly formed GR. Due to the fear of losing their village lands to OBC and to the central government, the local communities are likely to have reduced their involvement in wildlife conservation.

The lack of local involvement in biodiversity conservation along with the refusal to abide by the by-laws is evident in many study villages after the ban of photographic tourism. The regulations to restrict access to parts of village lands put forward by OBC and the central government were not obeyed by the local people and therefore caused a major conflict in 2009 (TNRF, 2011; Rurai, 2012; Gardner, 2012; Bartel, 2014). On the contrary, at Ololosokwan village where the local people continued to implement the conservation projects under the village-based conservation approach, village residents obey by-laws enacted for the sustainable use of natural resources. At this study village, the local community was part of the establishment of the by-laws and they view them as important for the protection of their own natural resources. Thus, the perceived lack of local involvement in biodiversity conservation can also be attributed to the proposed form of a PA that limits extractive activities and the implementation of the local village-based conservation approach.

Further, this study also attributes the respondents' perceived lack of local involvement in biodiversity conservation with human-wildlife conflicts with no or little compensation (Schmitt, 2010; Lyamuya et al., 2016). Although the human-wildlife conflict was not the direct focus of this paper, the findings by Schmitt (2010) in communities around the Serengeti ecosystem show that 64% of the population cited crop destruction as a cost of wildlife and almost 40% of the population cited wildlife as a source of livestock disease and depredation. According to the study, the livestock was predated mostly by hyena (33.5%), leopard (23.5%) and lion (20.6%). Schmitt further pointed out that 13% of the population reported human injury/death from wildlife. Likewise, Lyamuya et al. (2014) found that the majority of the Maasai pastoralists in



Loliondo Division, especially women, expressed negative attitudes towards the conservation of large carnivores, such as lions and leopards and Maasai both traditionally and currently may hunt these animals (Kisui, 2008; Hazzah, Mulder, & Frank, 2009; Blackburn, Hopcraft, Ogutu, Matthiopoulos, & Frank, 2016; Hazzah, Bath, Dolrenry, Dickman, & Frank, 2017). Most of the wildcat kills are associated with livestock predation (e.g., Kisui 2008; Blackburn et al., 2016), while others are associated with social-cultural practices of the Maasai warriors (Hazzah et al., 2009). The former can be attributed to the lack of local involvement in wildlife conservation while the latter is not. Both, however, contribute to the low abundance of the flagship and endangered species reported in this study results. Further, the Tanzania Wildlife Conservation (Dangerous Animal Consolation) Regulation of 2011 provides little support to families whose properties are damaged by wildlife. In addition, the process to obtain consolation as per the regulation is long and requires extensive supporting information, making it difficult for the local people to apply. Thus, based on these findings, reporting the intensity of the cost associated with wildlife conservation with little or no compensation in this study area and elsewhere, the perceived lack of local involvement in biodiversity conservation can also be due to human-wildlife conflict.

There are a few aspects worth mentioning that were associated with the success of the village-based conservation approach at Ololosokwan village. These reasons include village land ownership status, good collaboration between And Beyond and the local community, integration of wildlife conservation and livestock keeping, and the sustained financial benefit by And Beyond to the local community. Although in-depth discussion of these will be in the next paper, the above-mentioned aspects played a major role in shaping local perceptions of the social-ecological contributions of the conservation projects in their villages.

Although the design of many CBC programs in sub-Saharan Africa region involved joining several villages to form large locally conserved areas (Ngirwa et al., 2013; Stone

and Nyaupane, 2014), from the common resource governance perspective, small-scale and locally managed natural resource projects can also be effective in delivering conservation objectives (e.g., Ostrom 1997; Wade 1998; Wittayapak and Dearden 1999; Hauzer et al., 2013). Locally managed conservation projects as in the case of Ololosokwan village are likely to be more successful when compared with conservation projects managed on a large scale by different communities where member villages do not agree on the conservation program's objectives (Kiwango et al., 2015; Moyo et al., 2016). Frey and Stutzer (2006) summarize the commons resource governance perspective from Ostrom (2000) as follows:

... a successful conservation project is more likely when the natural resource users are able to design their own rules; the rules are enforced by the local users; the sanctions applied are graduated; the better defined the rights to withdraw from the resource are; and the more the collective action and monitoring reinforce each other... Frey and Stutzer (2006, p. 8).

The above characteristics apply in the case of Ololosokwan village where the local people signed direct contracts with a tourist company which is keen to work with the villagers to design locally applied conservation rules that are possible to be enforced locally with the use of local graduated sanctions<sup>27</sup>. Nevertheless, resource ownership remained in the hands of the local people. Thus, instead of the CBC programs in sub-Saharan Africa taking a one-size-fits-all approach, the place-based conservation approach (Bray and Velázquez, 2009; Williams et al., 2013) should be considered. What works in Loliondo District might not work elsewhere and vice versa.

### **3.7. Conclusion and Recommendations**

The objective of this paper is to evaluate the contributions of a village-based conservation approach to biodiversity conservation and to local livelihood improvement

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<sup>27</sup> According to a key informant interview at Ololosokwan village, any community member who violates conservation rules in the conservation area (e.g., grazing livestock in areas designated for tourism alone) are subject to a fine of 50,00 TZS which is equivalent to 25 USD. Once the offense is repeated, the fine increases.

in Loliondo Division. Comparing the results from the villages that are no longer implementing the conservation projects with those that are still implementing the conservation projects, the paper concludes that the village-based conservation approach contributes to both biodiversity conservation and local livelihoods.

In many study villages, the conservation projects implemented under the approach are perceived by the local people to have helped to decrease bushfires, improve wildlife habitats and maintained wildlife abundance. They are further perceived to have helped to improve local livelihoods through the implementation of community-level social service projects such as water supply, health services, and education services. However, the conservation approach is perceived to have contributed few benefits at the family level as the conservation projects were not able to provide more employment and business opportunities necessary to increase individual family incomes. Biodiversity outcomes such as increased endangered and flagship species were as well perceived to have remained low. The involvement of local communities in natural resource conservation was also found to be low.

The study finds the main factors that influenced local perceptions towards the contributions of the conservation projects to be the village land tenure rights status, the level of financial benefits received by the study villages from the conservation projects, and the degree of collaboration between the local communities and other conservation stakeholders (i.e., the tourist companies and the central government). The village where the local people have land tenure rights received more benefits and had good collaboration with stakeholders involved in their conservation projects (e.g., Ololosokwan village), the conservation projects are perceived to have made more contributions to both biodiversity conservation and local livelihood improvement. Elsewhere, where conservation projects were banned and villages land tenure rights blocked by the central government, where there was a deteriorating relationship with a hunting tourism company (i.e., OBC); and where conservation financial benefits had

stopped, the positive local perceptions of the conservation projects contributions to biodiversity conservation and local livelihood were found to be low.

Despite the promise shown by the village-based conservation approach (e.g., at Ololosokwan village), the longstanding conflict between the local communities, on the one hand, and the hunting tourism company (OBC) and the central government, on the other hand, undermined the performance of the conservation approach in all the study villages except at Ololosokwan village. This study finds this conflict to have been caused by a combination of factors, including the overlap between village lands and a GCA creating complexity on governance issues. It is further caused by the lack of prior local informed consent for OBC's use of village lands, the reluctance of the central government to devolve natural resource governance to local communities and an increased local population within Loliondo Division.

To ensure the conservation efforts in the study area continue their contribution to both biodiversity conservation and local livelihoods, this paper recommends the ending of the longstanding conflict within the study area and create a governance model that would accommodate the interest of all stakeholders involved in this multiple land use area. Shared governance (Frank and Booker, 2015) between local communities, the central government, and business entities would ensure effective conservation of natural resources in this study area at the same time improve local livelihoods. To end the conflict, conflict resolutions that consider win-win situation would be of vital importance. McShane et al., (2011), for example, proposes trade-off principles that can be used by conflicting stakeholders as a guideline to reach an agreement. Likewise, the Conflict Resolution Model by Davidson and Wood (2004) provides necessary procedures that can be used by conflicting parties to reach a win-win consensus.

The paper further recommends livelihood diversification in the study area to help increase family incomes. As the study results have shown low conservation benefits at individual families, efforts should be made to ensure that existing permanent tourist

camps create more opportunities to local communities. As well, the village government needs to invest the conservation financial benefits in projects that provide income to individual families. Specific to this study area, beekeeping projects, cultural tourism projects that involves the selling of handmade crafts, and provision of loans to community entrepreneurship groups can be considered.

Finally, this paper acknowledges the lessons learned from this study area's conservation approach, particularly at Ololosokwan village, which play a major role in the success of the conservation project at this study village. Based on those lessons learned, the study recommends the following for the success of CBC projects in this study area and elsewhere:

First, depending on the status of the land subject to conservation (i.e., community land or multiple land use areas), the local people should be given more or equal decision-making powers over natural resource conservation. Giving the local people a chance to make decisions on natural resource conservation is especially important when the lands subject to conservation are community lands. The local people should be given the right to make decisions over natural resource conservation and over sustainable use of those resources. By doing so, communities will be interested in natural resource conservation as they will feel ownership of the natural resources as in the case of Ololosokwan village. In multiple land use areas where land rights are not clear such as in the case of many of this study area villages, such rights need to be defined and clear natural resource governance roles articulated to all stakeholders including local communities.

Second, sustainable use of natural resources in community conserved areas should be allowed to ensure that the local people benefit from the conserved natural resources. It is important to acknowledge that CBC approach emerged out of the failure of the "fence-and-fine" approach used in state protected areas (Mshale, 2008; Baldus, 2009), repeating the "fence-and-fine" approach in community conserved areas, is likely

to bring conservation back to failure again as the local communities will likely oppose the approach (Kiwango et al., 2015). In this study area, for example, conservation practitioners should respect the local ecological knowledge of integrating wildlife conservation and livestock keeping. If well managed, wildlife conservation and livestock keeping are compatible and sustainable (Blench, 2001; Godman, 2001; Fynn et al., 2016). Conservation practitioners, therefore, need to acknowledge the ecological knowledge of the local people during the conservation project design. At the same time, conservation practitioners should also raise awareness of the limitations of the application of local ecological knowledge (e.g., for wildlife-livestock co-existence; Augustine et al., 2010; Fynn et al., 2016).

Third, stakeholders involved in conservation projects should encourage good collaboration. As most of the CBC projects involve different stakeholders ranging from local communities, the central government, business organizations, conservation organizations, and research institutions (e.g., NGOs, and universities), good collaboration between stakeholders is necessary for the success of natural resource conservation. However, the collaboration should include sharing equally governance roles among all the stakeholders involved. In this study area, villages that have good collaboration with other conservation stakeholders (i.e., Ololosokwan village and And Beyond tourist company), the conservation projects were perceived to have more benefits to both biodiversity conservation and to local livelihoods. On the other hand, in villages where there was no good collaboration with conservation stakeholders (e.g., Arash village and OBC), the conservation projects were perceived to have low benefits. Thus, assurance of good collaboration among conservation stakeholders can lead to success in CBC projects.

## **CHAPTER 4: CONCLUSION**

### **4.1. Introduction**

The overall purpose of this thesis is to assess the effectiveness of a Community-based Conservation (CBC) approach used by the pastoralist communities of Loliondo Division in northern Tanzania. It is a CBC approach that uses a single village model to involve local communities in natural resource conservation and utilization of conservation benefits (hereafter known as a village-based conservation approach). It was important to assess the scheme following the call for the assessment and use of Other Effective Area-based Conservation Measures (OECMs) to help achieve the Aichi Target 11 by 2020 and the global Sustainable Development Goals by 2030 (Jonas, et al., 2014; UNEP, 2016).

As the loss of biodiversity ranks high among the major threats to life on earth today (Rockström et al., 2009; Butchart, 2010; Lindenmayer, 2015; Betts et al., 2017), the assessment and use of OECMs in conservation efforts, is crucial. It is even more crucial as the commonly agreed effective solution to reduce such loss (i.e., use of PAs; Lopoukhine et al., 2012; Borrini-Farayerben et al., 2013), face several challenges (Chenevix-Trench, 2005; Sekhran et al., 2010; Lambi, Kimengsi, Kometa, & Tata, 2012; Kideghesho, 2013). Likewise, the CBC approach which is one of the proposed solutions to address the PAs challenges (Nelson and Agrawal, 2008; Baldus, 2009), is also facing challenges. The challenges facing CBC approach are mainly from the lack of local support following the program's inability to generate income to the local communities (Lele et al., 2010; Dressler et al., 2010; Brooks et al., 2013; Humavindu and Stage, 2015), and governance ineffectiveness (Brooks et al., 2013; USAID, 2013; Kiwango et al., 2015) to mention a few. The assessment of OECMs is therefore crucial as they can either help in biodiversity conservation efforts or by improving the existing conservation approaches (i.e., the CBC approach).

The Loliondo conservation approach in northern Tanzania, unlike the majority of CBC, approaches in the sub-Sahara Africa, to a large extent is managed by local people

and possess different characteristics. Such uniqueness raised the need for its assessment. This study, therefore, assessed the effectiveness of the Loliondo conservation approach with two objectives: first, it evaluates the governance effectiveness of the village councils which are institutions administering the conservation projects implemented under the approach and, second, it evaluates the contributions of those projects to biodiversity conservation and to local livelihoods in Loliondo Division. The summary of results is provided in the following section.

#### **4.2. Results Summary**

This section brings together the main results from the two study objectives about governance quality of the study areas conservation approach, and about the social-ecological contributions of the approach in this study area.

##### **4.2.1. Governance Quality of the Conservation Approach**

Generally, the study found that the governance of the village-based conservation approach in Loliondo Division is effective as the evaluation of the quality of governance of the village councils administered the conservation projects was overall rated as “good” by the study respondents. There was, however, considerable variation in the observation of governance principles by the study villages. Some principles were observed more than others. The quality of governance also varied between study villages as some villages have higher governance quality than others. Overall, the village councils were perceived to observe the direction principle the most, implying that the councils have strategic visions to pursue conservation and improve local livelihoods. This is a positive finding for future initiatives aimed at advancing CBC projects in this study area as the local people seemed to support CBC approach.

The councils were also perceived to observe the accountability principle, implying that the councils were answerable to the local communities. The answerability of the village councils to local communities can be attributed to the fact that the conservation approach was operating at a small scale (e.g., single villages), of which the scale of governance was also small. The local community in that circumstance can hold



their leaders accountable because, in a small-scale setting, the interaction between leaders and community members is likely to occur on a daily basis (Agrawal, 2001). This finding is important as without the village council's answerability to the local communities for the use of conservation benefits, the local people are likely to become reluctant on supporting conservation initiatives (Borrini-Fayerabend, 2011; Franks and Booker, 2015). The finding further shows how governance of a small-scale conservation project can as well be effective at delivering their anticipated results (Agrawal, 2001).

The councils were also found to observe the fairness and rights principle, implying that they exercised fairness and equity on the use of conservation benefits and enforced fairly the villages' by-laws to the village residents. As well, small-scale governance could be a reason for these results. The lower the scale of governance, the easier the sharing of conservation benefits. In addition, the homogeneity of community members within this study area was found to have played a major role on fairness and equity, as in most cases there was no in-group versus out-group within the study villages. Quite often, communities involved in the traditional CBC programs in Sub-Saharan Africa, for example, are heterogeneous in terms of their cultural backgrounds and have different interests over natural resource management (Berkes, 2007; Agyare et al., 2013; Stone and Nyaupane, 2014). In this study area, the majority of the village members were the Maasai community who are known to have a culture that embraces togetherness and reciprocity among themselves (Galaty, 1982; Iktipis et al., 2011). Thus, this study results emphasize the significance of small-scale conservation projects and community homogeneity in natural resource management that can facilitate fairness and equity in CBC programs.

On the other hand, the observations of other good governance principles (i.e., the performance principle) have generated local concerns over the village-based conservation approach. The local people have concerns on the village council's responsiveness, effectiveness, and efficiency in managing the conservation projects. The

performance principle was the least observed by the village councils although its observation showed neutrality implying that the village councils were perceived by the local people to be neither effective nor ineffective on the use of conservation benefits. However, during focus groups and key informant discussions the misuse of the funding was not reported; rather, a lack of strategic plans to guide the local communities in the use of the financial benefits was noticed. The lack of strategic plans can lead to inappropriate use of conservation benefits which can lead to the low performance of the village councils. The study results also indicate a low level of education of the local leaders and the entire community of which can also be an attribute to the local concerns over the low performance of the village councils. Theoretically, the lack of education of the local leaders can lead to their inability to effectively manage the conservation projects. Although this result indicates only concerns (neutrality), low performance of the village councils has implications for both conservation and local livelihood as the overall effectiveness of the conservation approach depends on the performance of the village councils in delivering their intended results. The study results of the performance principle indicate the challenges facing the study area approach regardless of being a pro-community approach. The local people have limited capacity to effectively manage the conservation projects' finances and therefore local capacity building on the effective use of the conservation benefits is a necessary step forward.

Finally, the local people in the study area have shown concerns over the village council's transparency on the management of the conservation projects. Transparency here means the flow of information about the management of the conservation projects from the village councils to the local communities. In most cases, at the village level, the information from the local leaders to the village residents is conveyed through general village assemblies (Mwakaje et al., 2013; King, 2014). The Tanzania Local Government (District Authorities) Act of 1982 requires the villages to conduct these general assemblies for at least once in a three-month period. It is at these meetings the villagers discuss challenges and opportunities available in their villages. However, quite often

these meetings are only conducted when there are issues or opportunities that require the approval of the village assemblies and, in most cases, the meetings are poorly attended (King, 2014). In villages where there are no matters to discuss, the village councils tend to skip the meetings (King, 2014). The ban on photographic tourism in many villages in Loliondo Division may have taken away the main reason for villages to come together and discuss the use of the conservation funding. It was not clear if the councils were not transparent only to matters related to the conservation projects or to all matters related to the village government as apart from conservation issues, there are also other issues that require communication between the leaders and their constituencies. This was not a positive finding as, without transparency, the local communities are unlikely to show cooperation in natural resource conservation (Mwakaje et al., 2013; Frank and Booker, 2015).

All in all, at Ololosokwan village where the conservation approach was in practice at the time of this study, the village council was perceived to have observed all the principles of good governance. There were no concerns of the local people at this village about the observation of any of the good governance principles. With other study villages, although their governance scores did not suggest a weak or low governance quality, the ban on photographic tourism seems to have affected the local perception of the effectiveness of governance of their village councils in managing the conservation projects. It is therefore clear that the effectiveness of governance of a CBC approach depends much on the involvement of the local people in the conservation projects and the roles they play. Based on the governance results from Ololosokwan village where the conservation approach is still operational, this study results suggest that the governance of the conservation approach in Loliondo Division is potentially effective. However, it should be noted that this conclusion is based on the single successful case study village (i.e., Ololosokwan) and it would be unwise to generalize too broadly from a single example.

#### **4.2.2. The Social-Ecological Contributions of the Conservation Approach**

The second half of this thesis is the evaluation of the social-ecological contributions of the conservation approach in the study area. Overall, the study finds the approach to have contributed to biodiversity conservation and to local livelihoods. The following subsections discuss those contributions in detail.

##### **4.2.2.1. The Approach's Contributions to Local Livelihoods**

Generally, the conservation approach in this study area was locally perceived to have contributed to the improvement of local livelihoods. The local communities used the financial benefits accrued from the conservation projects to implement community development projects such as the construction of water wells, schools, and dispensaries. The community development projects were crucial as the study area is in a very remote area in Tanzania with scattered settlements which are not well accessed and served by the central government through the implementation of national development projects. The conservation projects, therefore, gave the local community the capacity to implement the necessary community development projects for the betterment of their livelihood. Such capacity to implement much-needed community-level projects has led the study area conservation approach to be perceived positively locally.

The village-based projects, however, had a low impact on individual families as very few employment activities were created as few business opportunities were made available. The conservation projects have not been able to diversify the local livelihood strategies that would have created more income opportunities to the local communities. According to this study's results, very few people in Loliondo Division are involved in the tourism business despite being a high-profile tourist destination area (i.e., close to the SENAPA and NCA). Few local people were also involved in other economic activities (i.e., small businesses) necessary to bring income to individual families. Because of the lack of livelihood diversification, the local people continue to depend more on livestock keeping and crop cultivation which are activities they used to practice before the introduction of the conservation projects (McCabe et al., 2010;

Rurai, 2012; Bartel, 2014). This is a major problem for many CBC projects as rarely are the financial benefits received adequate to bring the positive change required by the local people (USAID, 2013). However, some scholars (e.g., Mbaiwa, 2015) suggest that where CBC projects have been in operation for quite some time (e.g., the case of Botswana and Namibia conservancies), the conservation benefits have started to reach individual families. In this study area too, Ololosokwan village which sustains conservation benefits longer than the rest of the study area villages, the conservation benefits have started to reach some individual families. These benefits are in the form of scholarships provided by the village council to every village resident who wishes to pursue studies up to the level of a bachelor degree. Other benefits include healthcare services through a village fund created to support every village member who will be referred to further treatment outside the village.

The lack of benefits of the CBC projects at the family level is cited as an obstacle to changing negative local perceptions of natural resource conservation (e.g., Songorwa, 1999; Alkan et al., 2009; Makupa et al., 2013; Downie, Dearden, & King, 2015). However, in this study area, the ability of the village-based conservation approach to allow integration of wildlife conservation and livestock keeping helped to maintain positive local perceptions of wildlife conservation despite the low benefits at the family level. This is because conservation of wildlife under the Loliondo conservation approach, to a large extent, did not affect local traditional livelihood strategies (i.e., pastoralism) as wildlife and livestock integration was allowed. The local people perceived wildlife conservation as an added advantage to their existing livelihood system and not as a burden as opposed to many CBC programs in Sub-Saharan Africa (Nelson and Agrawal, 2008; Gardner, 2012; Nelson, 2012). Thus, the use of local traditional ecological knowledge that ensures sustainable utilization of natural resources should be allowed in community conserved areas. Doing so, would minimize the loss of local livelihoods and hence maintain positive local perceptions of natural resources as in the case of Ololosokwan village.

#### **4.2.2.2. The Approach's Contributions to Biodiversity Conservation**

The local people perceived that the conservation approach contributed to biodiversity conservation through the village lands set aside in each of the study villages for wildlife conservation and tourism activities (i.e., the conservation projects). The conserved areas protected the loss of forest cover, maintained wildlife abundance, and improved water sources. Biodiversity conservation resulted from the local ban on some human activities (e.g., crop cultivation) and the limited or regulated livestock grazing within the locally conserved areas. As a result, village lands witnessed a perceived increased abundance of some wildlife species. but the abundance of some species such as the endangered and flagship species was perceived to have remained low. The perceived low abundance of the endangered and flagship species indicates the limitation of the CBC approach to natural resource conservation and reminds the importance of having PAs specific for natural resource conservation alone (e.g., category I and II PAs). The no-take PAs categories (i.e., category I and II PAs), are necessary to host wildlife species that cannot coexist with human activities (Augustine et al., 2010; Fynn et al., 2016).

The conservation projects also helped to improve the protection of water sources for domestic, livestock and wildlife use. The Grumeti and Pololet Rivers, for example, which channel water to the SENAPA, have their sources in the Loliondo Division. Other water sources such the Sariani River at Oloirien and Alasaei River at Soitsambu villages are well protected because of the conservation projects within the village lands. Thus, the conservation projects were necessary to maintain water sources that support the life of humans, livestock, and wildlife.

In addition, the village-based conservation projects in Loliondo helped to discourage the local practice of renewing pasture by starting bushfires. The pastoralists Maasai are used to seasonally renew their livestock pasture using bushfires (Wagner, 2008). However, in this study area, starting bushfires was outlawed locally after the commencement of the conservation projects. According to Eby et al., (2015), between

the years 2000 and 2009, the frequency of fires in the Serengeti–Mara ecosystem was relatively low in Loliondo Division and the NCA, indicating that the village-based conservation approach might have helped to discourage the practice. Although this study's results have indicated reduced bushfires as a causality of the village-based conservation approach, according to personal experience, reduced pasture land can also explain reduced bushfires in pastoral communities. Lately, the practice has decreased among pastoral communities because of the lack of enough grazing areas which would enable a balance between renewing pasture using bushfires and having areas to graze livestock while waiting for the lush renewed pastures. Thus, the conservation approach used in the study area could have helped to discourage the local practice of starting bushfires but reduced grazing land may also have been a reason.

Although the conservation projects were perceived locally to have enhanced biodiversity conservation, the local involvement in biodiversity conservation was found to be low in many of the study villages. About half of this study's respondents perceived that the local people do not abide by conservation regulations and by-laws and 11% perceived the local people to not get involved in biodiversity conservation at all. The perceived low local involvement in biodiversity conservation was attributed to the conflict over natural resources in the study area between the local community, the central government, and OBC. This conflict is caused by the multiple land use status of the study area without a proper governance mechanism to accommodate stakeholders' interest. Following the conflict, the photographic tourism business was banned by the central government and the local people did not support the ban. Further, the proposal put forward by the central government of seizing part of the village lands to create a Game Reserve (GR), was strongly opposed by the local people. Both the photographic tourism ban on village land and the proposal to change village lands to a GR might have negatively influenced local involvement in wildlife conservation.

The attempts to interfere with local management of natural resource conservation as in the case of this study area is likely to interfere with the longstanding coexistence of local communities (i.e., pastoralist in this case) and wildlife conservation (Bourn and Blench, 1999; Goldman, 2003; Mapinduzi, Oba, Weladji, & Colman, 2003). One respondent from Oloirien village, for example, was noted saying, “this wildlife, have become a threat to us. We are now living without harmony because of their [wildlife] existence in our land.” The respondent’s testimony shows the fear held by local communities after the proposed PA category (the GR) in their village lands of which routine local livelihood activities will not be allowed to take place. Limiting local communities to sustainably use natural resources in the so-called community conserved areas, undermines, the idea of CBC of which its primary goal is to balance natural resource conservation and local livelihoods (Mshane et al., 2011; Salafasky, 2011).

Although this thesis is unable to confidently conclude the effectiveness of this study area conservation approach using the success of a single study village, the study area conservation model can provide necessary inputs for the improvement of the current CBC model. The characteristics which influenced local perceptions of the conservation projects in Loliondo (discussed below), can be used to improve the existing CBC approaches (e.g., the WMAs in Tanzania).

#### **4.3. Important Characteristics of the Study Area Conservation Approach**

There are characteristics that contributed to the success of the conservation approach in this study area especially at one of the study villages—namely Ololosokwan village where the conservation project contributions were perceived more positively by village residents. Undoubtedly the main factor at play here was the fact that the community hosted the only remaining village-based conservation project involving photographic tourism. Other factors or characteristics included: 1) the significance of land ownership by local communities; 2) local autonomy over decision-making processes; 3) the use of local traditional ecological knowledge; 4) community



homogeneity, and 5) good collaboration between the local communities and other conservation stakeholders.

The primary factor that facilitated the implementation of the conservation projects in the study area is local land tenure rights. The signing of the contracts between local communities and tourism companies to start the conservation projects on village lands required the local people to legally own the land. Initially, all the villages in Loliondo Division had Land Title Deeds which enabled them to sign contractual agreements with photographic tourism companies (TNRF, 2011; Gardner, 2016). However, when the government later revoked local land tenure rights in many of the study villages, the villagers were unable to sign contracts with the tourist companies and therefore the conservation projects could no longer be implemented. Ololosokwan village, which retained its land ownership status, was able to sustain the signing of the contracts with the photographic tourist companies. Ololosokwan village has a permanent lodge built on its village land. A recent study in Kenya (i.e., Williams, Thorne, Sumba, and Gregory-Michelman, 2017), has shown that biodiversity conservation in community conservancies that have permanent tourist lodges/camps, is more effective than in conservancies without permanent tourist structures (i.e., camps). At Ololosokwan village, residents perceived the conservation project to have more social-ecological impacts when compared with the rest of the study villages that had no legal land ownership documents (the village land certificates) and had no permanent tourist camps. Thus, the land ownership status played a major role in the implementation of the village-based conservation approach in the study area and it also positively shaped local perceptions towards natural resource conservation in their village lands. With land tenure rights, the local communities feel secure and therefore can participate well in conservation and community development initiatives (Measham and Lumbasi, 2013).

The second characteristic possessed by the conservation approach in this study area is the local ownership of decision-making processes over access to the natural

resources and the use of conservation benefits. Under the Loliondo approach, the village councils propose actions that need to be taken and the village assemblies make final decisions. The local people have the final say on the signing of contracts with tourist companies, over the creation of the conservation areas, and over the use of the financial benefits accrued from the conservation projects. The Loliondo approach in this sense is different from the WMA programs in Tanzania where final decisions regarding the management of the conservation project must attain the final approval from the central government through the Wildlife Division (Benjaminsen et al., 2013; Moyo et al., 2016). At Ololosokwan village, for example, the village council proposes actions they need to undertake and send the proposals to the village assemblies that may approve or reject the proposed actions. Local autonomy over decision-making regarding their locally conserved areas is significant as relying on others' decisions (i.e., the central government) can delay the implementation of much-needed community projects (USAID, 2013). In the case of this study area, the residents of Ololosokwan village are more supportive of the conservation approach and therefore it is likely that their ability to make decisions on access and utilization of natural resources in their village made the approach to be more successful.

The third characteristic of the conservation approach in this study area is the ability of the approach to allow the use of local traditional ecological knowledge of integrating wildlife conservation and livestock keeping. The approach allows the local people to seasonally access the community-conserved areas for livestock grazing using the traditional ecological knowledge of a pastoral people (Goldman, 2003; Mapinduzi et al., 2003; Nelson, 2004). By doing so, the conservation approach did not affect to a large extent the local livelihoods and therefore the local communities continued to provide necessary support to the conservation projects. In most cases, other CBC approaches (e.g., the WMA) put strict measures on local economic activities taking place in areas designated as community-conserved areas (Makupa et al., 2013; Kiwango et al., 2015; Moyo et al., 2016). This ignores the fact that among the failure of the "fence-and-fine"

approach used in PAs which led to the rise of CBC approach was due to limited access to sustainable use of natural resources by local communities in this PAs (Neumann, 2004; Mshale, 2008). Wildlife and livestock integration, for example, is not a new phenomenon as it has been widely discussed in the literature (e.g., Bourn and Blench, 1999; Goldman, 2003; Alemayehu, Molla, & Getu 2015; Lyamuya et al., 2016; Fynn et al., 2016) and their compatibility in some circumstances is well documented (e.g., Bourn and Blench, 1999; Augustine et al., 2010; Lyamuya et al., 2016). Thus, allowing local people to use natural resources sustainably in the so-called community conserved areas as in the case of this study area would increase their likelihood to support natural resource conservation.

The fourth characteristic of the village-based conservation approach is that of involving homogeneous local communities in the management of the conservation projects. The local communities involved in the conservation approach in Loliondo Division are pastoralist Maasai communities that share similar norms and similar social-cultural backgrounds (McCabe, et al., 2010; Gardner, 2012). Intra village conflict over the use of natural resource benefits was not reported during this study, and it is likely that community homogeneity may have played a role. The theory of collective action (Ostrom, 1990; Olson, 2002), suggests that communities with shared characteristics within a defined geographical area can work collaboratively to achieve their intended objectives. The close similarity in observation of fairness and equity on the sharing of the conservation projects and fair treatment of by-laws by the study area village councils is likely to have been caused by community homogeneity. Thus, community homogeneity may have played a great role in minimizing internal conflicts of the local people within villages and facilitated fairness during the implementation of the conservation projects.

The final characteristic identified as important in maintaining the village-based conservation approach in the study area was a good collaboration between the local

community and the tourist companies involved in the conservation projects. The implementation of the conservation project at Ololosokwan village where there was a good collaboration between the village residents and And Beyond tourist company, was successful. On the other hand, conservation projects at the study villages that lacked good collaboration with tourist companies (e.g., with OBC), failed to continue. At Ololosokwan village, a special joint committee formed by the contracting parties (the village and And beyond), to oversee the implementation of the conservation project, might have helped to maintain good collaboration. Thus, collaboration among stakeholders participating in a CBC project was found to be a necessary factor for the success of the village-based conservation approach.

The above characteristics were found to influence perceptions of natural resource conservation. They facilitated local involvement in natural resource conservation and demonstrated local ownership of the conservation projects. The characteristics, if possessed by a CBC program are likely to increase local participation in natural resource conservation. The characteristics can, therefore, be used in the improvement of the existing CBC programs in Tanzania and elsewhere.

#### **4.4. Limitations of the Application of the Study Area Conservation Approach**

Although the village-based conservation approach was successful in some villages in Loliondo Division, the application of the approach to a greater extent can be applied under certain conditions. These conditions are derived from lessons learned from Loliondo Division especially on factors facilitating success or failure of the conservation projects. The conditions include: the area where the approach needs to be applied has to have well-defined land tenure rights, and the villages involved in the conservation approach have to all receive financial benefits. Other necessary conditions are the villages involved in the approach have to have well-defined boundaries, and they have to have strong local institutions (e.g., village councils). Finally, the area needs to have a coordination institutional to coordinate land use activities.

As in the case of this study area, the discontinuity of the conservation project was much affected by unclearly defined land tenure rights of the local communities. In order for the local people to make final decisions about land uses within a village, they need to have the village land ownership status. In the case of Tanzania, a village needs to have a village land certificate provided under the Village Land Right Act No. 5 of 1999. In this study area, for example, for the villages to have the ability to sign contractual agreements with the tourist companies, the villages needed to have land certificates showing they owned land. Thus, the lack of land tenure rights of the local people limits the application of the village-based conservation approach.

The absence of clearly defined village boundaries can also limit the application of the conservation approach. Clearly defined boundaries are needed to avoid inter-village conflicts over access to natural resources. They are useful for the villages to understand the boundaries of their natural resources and avoid renting tourist companies lands that do not belong to the village. In this study area, the existence of village boundaries played a great role in easing the contractual agreements between the study villages and the tourist companies as well as helped to reduce conflicts between neighboring villages. Thus, the absence of clearly defined village boundaries can limit the application of this study area conservation approach.

Further, when some villages adjacent to a PA where the approach needs to be applied are not receiving conservation benefits while others are receiving, the application of the approach may be limited. The idea around CBC is to create programs that provide financial benefits which motivate communities around PAs to value natural resource conservation (Nelson and Agrawal, 2008; Baldus, 2009). When some villages receive benefits while others do not, the intended conservation objective for the PA may not be achieved. In this study area, that was not a limitation as all study villages had individually signed contracts with photographic tourist companies and therefore received benefits. Thus, for this study area conservation approach to be applicable

elsewhere, all villages adjacent to PAs need to individually be receiving conservation benefits.

In addition, the absence of strong local institutions (e.g., village councils) can also limit the application of the village-based conservation approach. Strong local institutions are needed to effectively govern the implementation of the conservation projects. In this study area, for example, the presence of village councils and village assemblies enabled the smooth running of the conservation projects. The village councils were representatives of local communities that are democratically elected and therefore represented the interest of the local communities. Thus, without strong and trusted local institutions, the village-based conservation approach will unlikely be applicable.

Lastly, one idea around CBC programs is to be able to conserve natural resource ecosystems adjacent to more strictly protected areas (Baldus, 2009). The single village approach to natural resource conservation can cause ecosystem fragmentation if villages act independently on conservation and utilization of natural resources. Without communication among themselves, the villages may develop conflicting land use plans. The use of a coordination body (i.e., the ward development committee in case the conservation area covers the ward), could be appropriate. The coordination body would be responsible for the facilitation of land use plans within villages that will take into account connectivity between the village conserved areas. The coordination body will also facilitate the development of by-laws that govern the entire community conservation area.

#### **4.5. Challenges Affecting the Conservation Approach in Loliondo Division and their Recommendations.**

Even though this study results have shown the conservation approach to be effective in terms of governance quality and social-ecological contributions, the approach in this study area faces various challenges permitting it to successfully achieve its indented objectives. The challenges presented in this section, therefore, are specific to the implementation of conservation projects under the village-based conservation

approach in this study area. These challenges include the multiple land use status of the study area, low livelihood diversification, low benefits at the family level, concerns on performance and transparency of village councils, and increased local population. The challenges are discussed below along with the recommendations to address them.

#### **4.5.1. The Multiple Land Use Status of the Study Area**

The major challenge that affected the implementation of the village-based conservation approach in this study area is the multiple land use status of the study area without a proper governance type to accommodate differing interests of stakeholders involved. Following the lack of such inclusive governance, a longstanding land-related conflict between the local communities and a hunting tourist company (OBC) backed by the central government evolved (TNRF, 2011; Rurai, 2012; Gardner, 2016). The result of the conflict is a deteriorated relationship between the conflicting parties which had a negative impact on both conservation and local livelihoods.

This study recommends the use of shared governance capable of accommodating the interests of all stakeholders with interests in Loliondo Division. Shared governance that accommodates the interest of local communities, the central government, and the tourist companies would help to end the long-standing conflict in Loliondo Division and ensure natural resources are conserved for the benefit of current and future generations. Currently, there are ongoing efforts<sup>28</sup> to end the conflict although the outcomes are not yet known. The conflicting parties should stop competing over access and governance of the natural resources and work towards a common goal—conservation and improve livelihoods. A major complaint of the local people in many of the study area villages is their unrecognized land tenure rights. Local land tenure rights should be recognized and negotiations about a better way to

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<sup>28</sup>In December 2016, the Prime Minister of Tanzania visited the Loliondo Division and pledged to end the conflict over natural resource use in Loliondo. He delegated his powers to the Arusha Regional Commissioner to form a working committee that would use participatory mechanisms to find out solutions from stakeholders to end the conflict. As of April 2017, the committee headed by the Arusha Regional Commissioner handed over their final report to the Prime Minister for further decisions.

conserve the natural resources in the study area would commence. The negotiations to ending the conflict should consider using trade-offs and hard choice principles (e.g., McShane, et al., 2011) as well as a conflict resolution approach (e.g., Davidson and Wood, 2004) to attain a win-win solution. The efforts should also ensure local participation is guaranteed throughout the negotiation process.

Once the conflict is resolved (as above), land-use plans that accommodate wildlife conservation, livestock grazing, small-scale cultivation, and tourism activities, should be applied. The land-use plans in all study villages should consider the areas adjacent to the SENAPA as a conservation area. The plans should also ensure the conservation areas are connected between one village and another to avoid land fragmentation that would affect wildlife movements (Fahrig, 2003). The implementation of land-use plans that accommodate all forms of activities taking place in Loliondo Division would reduce the tension between land users in the study area. The land use planning process should, however, be truly participatory (Shahmirzadi, 2012) and ensure all stakeholders<sup>29</sup> get involved.

#### 4.5.2. Local Concerns over Performance and Transparency of their Village Councils

This study's findings have shown that the local people have concerns about the capacity of their village councils on managing the financial benefits accrued from the conservation projects. The village councils lacked proper documentation, periodic reporting, and transparency of the benefits received from the conservation projects. This study, therefore, recommends building local capacity in financial management, project management, negotiation skills<sup>30</sup> and the development of strategic plans. There are many local civil society organizations (CSOs) from Loliondo Division that could help to build local capacity—the Pastoralist Livelihood Support and Empowerment Program (PALISEP), Ngorongoro NGOs Network (NGONET), Ujamaa Community Resource Team

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<sup>29</sup> Stakeholders include the local communities, the central government, the tourist investors, and others with an interest in wildlife conservation and the improvement of local livelihoods.

<sup>30</sup> These are necessary skills to enable the local people to negotiate better deals with the private investors.



(UCRT) and Pastoral Women Council (PWC). These civil society organizations have invested much in lobbying and advocating for local land rights in the area. These CSOs would also turn their efforts towards building local capacity on issues that will ensure effective natural resource conservation and good use of the financial benefits gained by the local communities.

To improve transparency, the village councils need to conduct periodic meetings with community members as required by the Local Government (District Authorities) Act of 1982, and use other communication means such as displaying their day-to-day activities on the public information boards in each of the study village offices. This is already happening in Ololosokwan village and other study villages should follow that example. The village councils should also take the advantage of the development of telecommunication technology in Tanzania to further improve their transparency through mobile calls and mobile applications communications.

#### **4.5.3. Low Livelihood Diversification and Low Family Level Benefits**

The results have shown that there is little local livelihood diversification in Loliondo Division even though there are permanent tourist camps and some villages receive financial benefits that could be used to diversify local livelihoods (e.g., Ololosokwan village). The lack of livelihood diversification may have caused the perceived low projects' benefits to individual families. Diversifying the local economy will reduce the local dependency on the natural resource base. To ensure livelihood diversification in Loliondo Division, this study recommends that the local people should be encouraged to invest in the tourism business, the village council should form community entrepreneurship groups and use the financial benefits obtained from the conservation projects to provide small loans to community groups to help them implement environmentally friendly<sup>31</sup> projects. Some examples of community entrepreneurship groups have already started in some study area villages. One example

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<sup>31</sup> These are projects that have less impact on natural resource conservation (e.g., beekeeping would be a good fit in Loliondo Division).

is the Community Conservation Banks (COCOBA<sup>32</sup>) groups at Oloirien study village. This study further recommends that the contracts between village councils and tourist companies should contain terms and conditions that require the existing tourist companies to conditionally employ local people who have knowledge and skills to work in their tourism business. A combination of these recommendations will diversify the local economy and individual families may experience increased income.

#### **4.5.4. Increased Local Population**

Population growth is another challenge facing the implementation of the village-based conservation approach in Loliondo Division. The local population in Loliondo Division is increasing by a growth rate of 5% annually (the United Republic of Tanzania, 2012). The increase in local population with more than 90% depending on the natural resource base (Appendix B), has created more tension over access to natural resources and it will have an increasingly adverse impact on natural resource conservation in the long run. The factors that can explain the growing population, among others, are the culture of the local people including polygamy and early marriage as well as improved social services such as healthcare infrastructure which have reduced the local mortality rate. However, the population growth challenge is often ignored by many studies for ethical reasons (Hopnina and Washington, 2016) but this study sees it as one of the challenges that affect the conservation projects and, if not addressed, will derail long-term conservation objectives in this study area.

This study recommends that family planning education should be brought in this study area by civil society organizations (e.g., NGOs). For a long-term solution, the local communities should use the financial benefits from the conservation projects to invest more in education projects. Education to local people can be a multipurpose solution to many of the conservation project challenges as it can help the local people to gain new knowledge useful for livelihood diversification, increase local capacity to manage the

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<sup>32</sup> The Frankfurt Zoological Society supports the COCOBA projects at Oloirien village by providing entrepreneurship training and giving small start-up loans to community groups

conservation projects, and help in slowing down population growth. With education, the local people can create or find alternative jobs with less dependency on the natural resource base (e.g., employment in the government or private sector in and outside this study area). With education, local people may change their traditional lifestyle (e.g., polygamy which leads to increased population) to a more modern lifestyle (e.g., monogamy which may not result in high population growth as polygamy; Kolowski and Holekamp, 2006).

#### **4.6. Study Weakness and Limitations**

This section outlines some of the study limitations and efforts made to counter these limitations where possible. The limitations which are discussed in detail below are those related to data collection techniques, the illiteracy level of the study respondents, complexity of the study area governance (i.e., the existence of two nonconcurrent conservation approaches), selective bias memory of the respondents, positionality of the researcher, and the overall use of local perceptions.

##### **4.6.1. Sampling Techniques and Sample Size Weaknesses**

One of the sampling techniques used to select respondents was snowball sampling. Among the challenges of using the technique is the probability to collect information of the same nature as the first approached respondents are likely to suggest other respondents who they feel comfortable with or hold worldviews similar to theirs (Cohen and Arieli, 2011). In such circumstances, the data collected using the snowball sampling technique are subject to bias and cannot be generalized. As the technique was used during the selection of this study respondents, the results are likely to have been biased.

Further, this study used opportunistic sampling which might have also affected the study results. Among the disadvantages of opportunistic sampling is the fact that not all individuals in the study population have an equal chance to be selected (Robinson, 2011; Newing, Eagle, Puri, & Watson, 2011). However, in each of the study villages, a systematic sampling technique was first used to obtain the quotas of the

populations interviewed from each sub-village within the study villages. The study also used other data collection techniques such as focus group discussions and key informant interviews for corroboration of the study results.

In addition, the household survey sample size used in this study (i.e., n=330), was designed to represent the entire study area population (i.e the Loliondo Division) and not designed to represent the populations of individual study villages. The sample for the entire study area was divided by the number of study area villages to obtain the study participants. Thus, the sample sizes for each study villages were small and the results may not represent the views of each of the study village populations. The results, therefore, might not be generalizable but only show an indication of the perceptions of the study area residents.

#### **4.6.2. Low Representation of Women in the Study Samples**

The study samples used in each of the data collection techniques were dominated by the male gender. The study design was not gender-sensitive enough to collect equal information from both men and women. The Maasai community is a male dominant culture that would have required special attention during the study design to ensure more inclusion of women. However, the general low representation of women in this study may have no serious implications for the results because in reality, the information required from FGDs, for example, was to come from community leaders. But, in the study area, leadership positions turned out to be held by more men than women. It, therefore, affected gender representation but not the quality of the required information because the selected participants are those with adequate knowledge of the conservation projects as they had or have been involved in the projects. The gender issue in this study, however, provides a room for the improvement of future research designs targeting male dominant communities such as the Maasai. Gender-sensitive research designs would be a better approach to adapt to ensure more women representation.

#### **4.6.3. The Limitations Associated with the Illiteracy of the Study Respondents**

The level of understanding of the study respondents (especially of the household category) was too low to understand some of the governance concepts contained in the surveys. One example is the meaning of strategic plans. It was difficult for the researcher to explain strategic plans to respondents and in the most part, strategic plans were explained as a “community vision” instead of its actual meaning i.e., written strategic plans. The use of the Likert scale may also have had an impact on the study results as the study respondents seemed to prefer straightforward answers (e.g., agree or disagree). Other studies also found the challenges including with the Maasai people not willing to answer the continuum questions of the Likert scale questions (e.g., Browne-Nuñez and Jonker, 2008). Thus, the level of illiteracy of the study respondents is likely to have had an impact in this study results.

#### **4.6.4. Existence of Two Non-Concurrent Conservation Approaches in the Study Area**

There could be confusion amongst the respondents regarding the precise tourism projects being addressed as there were two types of contractual land use agreements signed for conservation and use of natural resources in the study area. One is supported by local communities (the photographic tourism contracts) and the other is not supported by local communities (the hunting tourism contracts). Both types of contracts aim to utilize wildlife resources for tourism within the same area. Although this study evaluated the effectiveness of the village-based conservation approach which involved the contractual agreements with photographic tourism companies, it is likely that the negative local perception towards the hunting tourism also affected the views of the local people of wildlife conservation in general. The local people may have exaggerated perceptions of the conservation projects (i.e., more negatively) if their perceptions reflect the current denied benefits and access to natural resources by OBC and the central government. Also, the local people may have exaggerated their perceptions (i.e., more positively) if they attribute the conservation benefits they

received from their contractual agreements with the tourist companies which many of the study villages are no longer receiving.

The study was aware of the photographic and hunting arrangement contradiction and therefore the research team explained clearly to the respondents the objective of the study and its focus on the conservation arrangement between the local community and the photographic tourism companies and not with OBC. The explanation may have helped to keep the respondents focused on the assessment of the village-based conservation approach and not to confuse it with their perceptions of their relationship with OBC and the central government.

#### **4.6.5. Selective Memory Bias**

This study involved the evaluation of conservation projects which, in most part, are no longer implemented. Only one study village (Ololosokwan village) was implementing a conservation project at the time of this study. Therefore, respondents from study villages other than Ololosokwan had to recall events that occurred in the past of which there is a likelihood that some respondents might have forgotten. This might have affected the study results and make it difficult to confidently conclude the effectiveness of the study area conservation approach using the success of a single study village. However, because this study was interested in the effectiveness of study area conservation approach, local perceptions from Ololosokwan village can still provide the study with the indication of the approach effectiveness based on the characteristics possessed by the approach. Thus, while acknowledging selective memory bias that may have affected this study results because of the inactiveness of conservation projects for about seven years by the time of this study, the results from Ololosokwan village can still be used to indicate the study area conservation approach.

#### **4.6.6. Positionality of the Researcher**

The main researcher for this study is a Maasai, and the study subjects are also the Maasai people. It is likely that the researcher arrives at certain conclusions based on his pre-existing general knowledge of the study respondents. Wolcott, (1995), for

example, dismisses the questioning of “objectivity” of the researcher as people have bias based on their interest. According to Wolcott, a certain amount of interest in a group or people is a prerequisite to generate the energy needed for the research activity. However, because this study was about the Maasai people and the researcher was a Maasai who has the interest of the Maasai way of life, the study results may be subject to bias. The researcher may see the challenges that the research addressed only through the eyes of the cultural group of which he is a member and this may inhibit new perspectives. Conversely, there is an advantage for this research to be conducted by a Maasai researcher who has extensive knowledge about the Maasai way of life and can communicate effectively with respondents,

#### **4.6.7. The Use of Perceptions**

Most of this study’s findings are based on local perceptions and not on empirical measurements. The few empirical data obtained (e.g., revenue and expenditure of the tourism financial benefits), were inconsistent. Some study villages lacked records in some years and therefore made it difficult to conclude the exact amount received by each study village. The study also relied heavily on local perceptions of the conservation projects. The fact that perceptions may not be accurate and are subject to change depending on the situation of the study respondents (Bennett, 2016; Beyerl, Putz, & Breckwoldt, 2016), may result in bias. To minimize the limitations of the use of local perceptions, this study employed a mixed method’s research design that collected both qualitative and quantitative data from the content review, focus groups, key informants, and the households’ surveys. These multiple sources of data are likely to have minimized the subjective research bias through triangulation of data. However there was inadequate time to provide empirical data to corroborate many aspects of the study, such as the frequency and attendance at Village Council meetings, total employment by ecolodges, wildlife trends, fire occurrence and similar factors that can be addressed directly through measurements and this deficiency is noted in the list of future research opportunities in the next section.

#### **4.7. Areas of Future Research and Improvement**

The results of this study suggest areas for future research relevant to this study area and elsewhere as assessing the impact of pastoralist livelihood change to their coexistence with wildlife conservation. Future research also in CBC approach could help to address a current staggering challenge on benefit sharing among WMA member villages. Further, future research also could consider improving data collection techniques through the integration of local perceptions with other forms of data collection techniques. These recommendations are discussed in detail in the sections below.

##### **4.7.1. Assess the Impact of Pastoralist Livelihood Changes and their Coexistence with Wildlife Conservation**

This study found that the local people embrace their traditional ecological knowledge of integrating wildlife conservation and livestock keeping. Many studies have acknowledged the compatibility of wildlife conservation and livestock keeping under some circumstances (e.g., Bourn and Blench, 1999; Homewood et al., 2001; Goldman, 2003; Nelson, 2012). Others suggest integration mechanisms and limitations (e.g., Augustine et al., 2010; Fynn et al., 2016). However, pastoral communities have been changing from being pure pastoralists to becoming agro-pastoralists (Conroy, 2009; Homewood, Kristjanson, & Trench, 2009; McCabe et al., 2010). Therefore, further research is needed to understand how the pastoralists' change of livelihoods to include crop cultivation could have affected their attitudes towards the interaction of wildlife conservation, livestock keeping, and now crop cultivation.

##### **4.7.2. Determine a Community-driven Benefit Sharing Mechanism in Community-based Conservation Programs.**

One of the major challenge facing many CBC programs especially in Tanzania is the lack of a fair benefit-sharing mechanism among villages participating in a single conservation project (Benjaminsen et al., 2013; Green and Adams, 2015; Moyo et al., 2016). The existing mechanism is based on a top-down approach and therefore contested by many villages. Future research should determine local perceptions of a fair



benefit-sharing mechanism in CBC programs that could help reduce the existing conflicts on benefit sharing among local communities.

#### **4.7.3. Integration of Perceptions with Other Forms of Data Collection Techniques**

To a large extent, this study evaluated both social and ecological contributions of conservation projects using local perceptions and therefore lacks empirical data on aspects such as the conservation of biological integrity, the actual economic status of individual families, or details on governance events, such as numbers of meetings and attendance. This study, therefore, suggests that future research aspires to include empirical corroboration data to supplement local perceptions. For ecological integrity assessment, local perceptions can be integrated with other research methods such as GIS and remote sensing (Mass, 2005; Chape, Harrison, Spalding, & Lysenko 2005; Hall et al., 2013), and standard biological techniques for assessing species richness and abundance (González-Maya, Viquez-R, Belant, & Ceballos, 2015). For social-economic assessment of the local people, poverty assessment tools such as that proposed by USAID (<https://www.povertytools.org/>), and IFAD (<https://www.ifad.org/topic/overview/tags/mpat>), can be used and efforts need to be made to collect the basic data for such tools.

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## 6. APPENDICES

### Appendix A: Tourism Companies Which Signed Contractual Agreements with Local Communities in Loliondo Division

S/N	COMPANY NAME	VILLAGE NAME	ACTIVITIES	STATUS
1	Ortello Business Corporation (OBC)	Ololosokwan, Soitsambu, Oloipiri, Oloirien, Maaloni, Arash	Private Hunting Tourism, Permanent Camp	Operational
2	Thomson Safari	Soitsambu/Sukenya	Photographic Tourism, Permanent Tended Camp	Operational
3	Buffalo Luxury Camp	Ololosokwan	Photographic Tourism, Permanent Camp	Operational
4	And Beyond	Ololosokwan	Photographic Tourism, Permanent Tended Camp, Walking Tourism, Cultural Tourism	Operational
5	Dorobo Safaris	Oloipiri, Oloirien, Maaloni	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations
6	Explorer	Arash	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations
7	Royal Safaris	Soitsambu	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations
8	Hope safaris	Oloipiri	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations
9	Sokwe safaris	Oloipiri	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations
10	Nomads	Ololosokwan	Photographic Tourism, Temporary Camping, Walking Safari, Cultural Tourism	Stopped operations



## Appendix B: Demographic Characteristics of the Study Respondents

		<b>STUDY VILLAGES</b>						
	<b>Demographic Characteristics</b>	<i>Oloipiri %</i>	<i>Oloirien %</i>	<i>Soitsambu %</i>	<i>Ololosokwan %</i>	<i>Maaloni %</i>	<i>Arash %</i>	<i>Average %</i>
1	<b>GENDER</b>							
	Male	53.8	63.6	54.2	54.5	53.6	73.6	64.8
	Female	46.2	36.4	45.8	45.5	44.6	26.4	35.2
2	<b>AGE</b>							
	20-29	78.8	41.8	50.8	56.4	55.4	43.4	53.0
	30-39	13.5	41.8	10.2	20.0	19.6	43.4	26.1
	40-49	5.8	7.3	22.0	12.7	12.5	7.5	12.1
	50-59	0.0	7.3	13.6	9.1	8.9	1.9	6.1
	60+	1.9	1.8	3.4	1.8	1.8	3.8	2.7
3	<b>RESIDENCE</b>							
	Born Here	84.6	90.9	89.8	96.4	94.6	96.2	92.4
	Immigrant	15.4	9.1	10.2	3.6	3.6	3.8	7.6
4	<b>EDUCATION</b>							
	Never Attended	26.9	34.5	28.8	41.8	41.1	37.7	36.1
	Primary School	53.8	61.8	45.8	43.6	42.9	41.5	48.5
	Ordinary Secondary School	15.4	1.8	16.9	7.3	7.1	11.3	9.7
	Advanced Secondary School	15.4	1.8	16.9	7.3	7.1	11.3	9.7
	Diploma	1.9	1.8	6.8	3.6	3.6	0.0	2.7
	University College	0.0	0.0	0.0	1.8	1.8	9.4	2.1
4	<b>ECONOMY</b>							
	Livestock Keeping	90.4	98.2	93.2	98.2	96.4	92.5	95.2
	Cultivation and Livestock Keeping	90.4	61.8	69.5	67.3	66.1	88.7	78.2
	Employment in a Conservation Project	1.9	0.0	5.1	1.8	1.8	3.8	2.1
	Employment in the Government	1.9	3.6	8.5	0.0	0.0	7.5	4.5
	Engage in Petty Business	7.7	0.0	13.6	10.9	10.7	1.9	6.1
	Engaging in Tourism Business	0.0	1.8	1.7	3.6	3.6	0.0	1.2
	Engage in Livestock Business	1.9	1.8	1.7	5.5	5.4	3.8	2.7

## Appendix C: Policies and Laws Governing Wildlife Conservation in Tanzania

Wildlife Laws and Policy	Laws and Policy Content Summary
<b>Wildlife Act of 1974</b>	Provided the basic framework for wildlife management in Tanzania and the allocation of existing rights and authority. It concerned itself primarily with the creation of and provisions for certain protected areas (GRs and GCAs), and the regulation of wildlife uses throughout mainland Tanzania
<b>Wildlife Policy of 1998</b>	Introduced the concept of wildlife decentralization process from government governance alone to include shared governance with local communities
<b>Village Land Act No. 4 and No. 5 of 1999</b>	The Land Acts establishes three categories of land: general land, reserved land, and village land. The Village Land Act No. 5 deals with the management of village land, while the other deals primarily with the management of reserved land and general land
<b>Wildlife Conservation (Tourism Regulation) 2002</b>	Prohibits Photographic tourism in hunting blocks, in areas adjacent to national parks and NCA without a written permission from WD
<b>Wildlife Conservation (WMA Regulation) 2002</b>	Provide for the creation of WMAs on village lands and implementation of the 1998 Wildlife Policy objectives. The regulations allow communities to become corporate entities and participate in and benefit from wildlife utilization in WMAs.
<b>Wildlife Policy of 2007</b>	Provides direction for wildlife subsector in sustainable conservation of wildlife and wetland resources.
<b>Wildlife Conservation Act of 2009</b>	Was to enhance the protection and conservation of wildlife resources and its habitats in GRs and GCAs, WMAs, dispersal areas, migratory route corridors, and buffer zones and of all animals found in areas adjacent to these areas by putting in place appropriate infrastructure and sufficient personnel and equipment.
<b>Wildlife Conservation (Tourism Hunting Regulation) 2010</b>	Require the Wildlife Division to conduct an in-depth analysis or evaluation of the performance of all hunting companies in the third year of the hunting term. This analysis is used to determine if the company is eligible for the renewal of the hunting offer the following hunting term.
<b>Wildlife Conservation (WMA) Regulation of 2012</b>	Provide a framework for the establishment of WMAs and their management in village lands

## Appendix D: Uvic Ethics Certificate



Office of Research Services | Human Research Ethics Board  
Administrative Services Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada  
T 250-472-4545 | F 250-721-8960 | [uvic.ca/research](http://uvic.ca/research) | [ethics@uvic.ca](mailto:ethics@uvic.ca)

### Certificate of Approval

PRINCIPAL INVESTIGATOR: Emmanuel Leyani	ETHICS PROTOCOL NUMBER: 16-190
UVic STATUS: Master's Student	Minimal Risk Review - Delegated
UVic DEPARTMENT: GEOG	ORIGINAL APPROVAL DATE: 09-Jun-16
SUPERVISOR: Dr. Philip Dearden	APPROVED ON: 09-Jun-16
	APPROVAL EXPIRY DATE: 08-Jun-17

PROJECT TITLE: Assessment of the Effectiveness of Loliondo Pastoralist Community-based Conservation Approach

RESEARCH TEAM MEMBER: Dr. Philip Dearden (UVic)

DECLARED PROJECT FUNDING: McGill University (Institutional Canopy of Conservation Project)

**CONDITIONS OF APPROVAL**

This Certificate of Approval is valid for the above term provided there is no change in the protocol.


**Modifications**  
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

**Renewals**  
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

**Project Closures**  
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

**Certification**

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.



Associate Vice-President Research Operations

Certificate Issued On: 09-Jun-16

16-190 Leyani, Emmanuel

## Appendix E: Research Permission Letter from Ngorongoro District

### HALMASHAURI YA WILAYA YA NGORONGORO (Barua zote zitumwe kwa Mkurugenzi Mtendaji Wilaya)

**MKOA WA ARUSHA**  
Simu Namba 027-2535051  
Fax Namba 2535018/2535264



Ofisi ya Mkurugenzi Mtendaji (W),  
Idara ya Maliasili na Ardhi,  
S. L. P. 1,  
**LOLIONDO.**

**Kumb. Na. NGOR/DC/G.I/I/VOL I/34**

**Tarehe: 22/07/2016**

Wenyeviti/Watendaji wa vijiji,

TARAFI YA LOLIONDO

**YAH: RUHUSA YA KUFANYA UTAFTI KWA NDUGU EMMANUEL KILELI  
LEYANI KATIKA TARAFI YA LOLIONDO**

Napenda kumtambulisha kwako Mtajwa hapo juu kuwa ni Mwanafunzi wa Chuo kikuu Victoria kilichopo nchini Canada na anasoma shahada ya uzamili [Master Degree] ya Jiografia na uhifadhi wa mazingira.

Mwanafunzi mtajwa hapo juu anategemea kufanya utafiti inayohusu Tathimini ya ufanisi wa miradi ya uhifadhi ya kijamii ya wafugaji katika Tarafa ya Loliondo (Assessment of the Effectiveness of the Loliondo Pastoralist Community-based conservation Approach in Loliondo Division). Vijiji ambavyo anategemea kufanyia utafiti huo ni pamoja na Ololosokwan, Soitsambu, Oloipiri, Oloirien/Magaiduru, Maaloni na Arash. Hivyo naomba apewe ushirikiano na msaada unaostahili.

Nakutakia kazi njema.



KNY: MKURUGENZI MTENDAJI [W]  
NGORONGORO

Kny: MKURUGENZI MTENDAJI  
HALMASHAURI YA WILAYA YA NGORONGORO

**Nakala:**

- Mkurugenzi Mtendaji (W) Ngorongoro
- Madiwani wa kata za Ololosokwan, Soitsambu, Oloipiri, Lorien, Losoito-Maaloni na Arash

## **Appendix F: Focus Group Discussion Questionnaire Interview Guide**

**Village Name:** ....., **Date:** ..... **# of participants:** .....

**Activity objective:** To assess governance effectiveness of Loliondo pastoralist incentive-based conservation project

### **Project Assessment**

#### **Step 1: History and culture**

**To Examine the local history and the cultural traits and values of peoples vis-à-vis the concept and practice of the conservation projects.**

#### **Guiding questions**

1. Are there any community-based conservation projects implemented in your village?
2. When was the incentive-based conservation project started in your village? By whom?
3. Who took part in the process and positively contributed to it? Who opposed it?
4. Did some rights-holders or stakeholders take the lead? Did others feel “left out”?
5. What existed before the project start?
6. Who was then in charge of deciding about natural resources?
7. Was there some form of continuity when the project was started?
8. Who were the “winners” and “losers”?
9. How did the situation evolve? What does remain of what was in place before the project?

#### **Step 2: Governance Type**

**Clarifying the governance type for the conservation project**

#### **Guiding questions**

10. Who decided to start the conservation project? Why, how and who else was involved?
11. Who decided the main management objective and developed any management plan?
12. Who provided finances, time and physical effort?
13. Who provided political and moral support?
14. Who drew the boundaries? Who decided any zoning?
15. Who has been maintaining those decisions, or changing them, since the establishment?

16. What are the benefits brought by the conservation projects?
17. What are the challenges encountered by the village during the implementation of the conservation projects?

### **Step 3: Right-holders and stakeholders Analysis.**

**Identifying the actors and institution(s) directly concerned with the conservation project and its natural resources, and distinguish them on the basis of their legal and customary rights, interests, concerns, and capacities.**

#### **Guiding questions**

18. What actors and institution(s) are concerned about the project?
19. Who, among them, has socially recognized rights to the relevant land and natural resources?
20. Who has legitimate interests and concerns, and possibly unique relevant capacities, but cannot claim socially recognized rights?

### **Step 4: Management units**

**Examine the conservation area and its surroundings and identify any relevant management units and**

**the rights-holders or stakeholders with the capacity and willingness to contribute to governing those units**

#### **Guiding questions**

21. Are there management units or zones— within the conservation area or related to it in the larger landscape—closely associated with one or more rights-holders or stakeholders?
22. Do such rights-holders or stakeholders have the capacity and willingness to contribute to governing such units and supporting their conservation?

### **Step 5: Governance Process**

**To determine how decision-making actually takes place for the key issues related to the protected area, and assess whether authority and responsibility are exercised legitimately, purposefully, effectively, accountably and fairly.**

23. How are decisions actually made for the key issues concerning the project implementation?
24. Are good governance principles upheld?

## **Appendix G: Key Informant Questionnaire Interview Guide**

### **A. Respondent particulars**

Occupation: \_\_\_\_\_ Gender: Male \_\_\_ Female \_\_\_ Age \_\_\_ Date of interview:

\_\_\_\_\_

**Objective:** Evaluate the Loliondo pastoralist community-based conservation program's perceived benefits to local community and biodiversity conservation.

### **B. Community participation**

1. Are you aware of the Loliondo pastoralist incentive-based conservation projects?
2. Were communities involved in the process of establishment of the conservation projects? If yes, how
3. Did community members participate during the establishment of the conservation projects and decision-making process? Tell me to what extent was the participation.
4. Do you know how are communities now involved in the process of decision-making in the project implementation process?

### **C. Perceptions about the impact of Loliondo Pastoralist CBC program to local livelihoods**

5. What changes in livelihoods are attributed to the establishment of the conservation projects, if any? Examples?
6. Can you tell me what are the benefits at the community level the local people experience as a result of the implementation of the conservation projects? if any?
7. What about the conservation project benefits at the household level? How actually the family benefits directly as a result of the conservation projects.
8. What natural resources the community increased access as a result of the conservation projects? Did water sources improve, availability of firewood, medicinal plants etc?
9. What natural resources did the community fail to access because of the establishment of the conservation projects? Did the projects hinder community access to water sources, a collection of firewood, medicinal plants etc?
10. Did the establishment of the conservation project any cost to community members? If yes, can you explain what are the cost?
11. Are there any challenges the conservation projects currently facing? Can you explain?

### **D. Perceptions about the impact of Loliondo pastoralist CBC projects on biodiversity conservation**

12. In what ways are communities involved in natural resource conservation in Loliondo? Examples?

13. What are the biodiversity changes attributed to the implementation of the conservation projects over the past five years? Example of the changes can be increased or decreased forest, wildlife species etc?
14. Are there any challenges faced by biodiversity as a result of the implementation of the conservation projects?
15. What is the most notable impacts of the conservation projects in conserving biodiversity in Loliondo?
16. Did the conservation project increase the number of wildlife species? If yes, can you tell what are the most species in increased in the division now than before the conservation projects?
17. I would like to know your perceptions about the incentive-based conservation projects governance effectiveness in Loliondo division? **Use appendix I**
18. Do you have any suggestions for the improvement of the project for the better conservation of biodiversity and livelihood improvement? Please give your suggestions?

**Thank you for your time and willingness to participate in this interview**



## Appendix H: Household Questionnaire Interview Guide – Social-ecological Data

**Objective:** Evaluate the Loliondo pastoralist community-based conservation program's perceived benefits to local community and biodiversity conservation.

Name of Village..... Sub-village..... Date.....

Name of Research assistant.....

### A. Demographic Data

This section asks you to please describe your personal particulars

1. Gender      1. Male   2. Female
2. How old are you?
  1. 20-29 years
  2. 30-39 years
  3. 40-49 years
  4. 50-59 years
  5. 60+
3. What is the highest level of school you attended?
  1. Not attended any school
  2. Primary school
  3. Ordinary secondary school
  4. Advanced secondary school
  5. Diploma
  6. University
  7. Other (specify).....
4. How long have you lived in the village?   1. Born here   2. Number of years .....
5. How many economic activities you do to earn a living from the following list? Mention them according to their importance to you.
  1. Livestock keeping
  2. Crops cultivation: ..... acres
  3. Employment in the conservation program
  4. Employment in government institution (specify).....
  5. Engage in petty trade

6. Engaging in tourism business
  7. Engaging in livestock business
  8. Other activities (specify).....
6. How many people are currently living in your household? .....

**B. Community participation**

7. Are you aware of the incentive-based conservation project implemented in your village?

**1. Very aware 2. Moderate aware 3. Not aware**

8. How were communities involved in the process of establishment of the conservation project?

1. Through village meetings
2. Attended various seminars on wildlife conservation
3. Participated in decision-making through village leaders meetings
4. Participated in demarcating the conservation area boundaries
5. Others (specify).....

9. How was the participation of community members in the establishment and decision-making process of the conservation project?

1. Full participation (100%)
2. Moderate participation (50% or less)
3. Low participation (25% or less)
4. No participation (0%)
5. other (specify) .....

10. How are communities now involved in the process of decision-making in the project implementation process?

1. Through village meetings
2. Attended various seminars on wildlife conservation
3. Participated in decision-making through village leaders meeting
4. Participated in demarcating the conservation area boundaries
5. Others (specify).....

**C. Perceptions about the impact of Pastoralist community-based Conservation Project to local livelihoods**

The following sections ask for your opinion about the contribution of the conservation project to enhancing conservation of biodiversity, and livelihood benefits at the family level and at the community at large. Since we are interested in your opinions, there are no wrong answers. Please answer the following questions by checking in the correct answer(s) among the options provided:

11	What changes in livelihoods are attributed to the establishment of the conservation project over the last five years?	
	1. Increased livelihood diversification	
	2. Increased employment opportunities	
	3. Increased access to natural resources	
	4. Decreased access to natural resources	
	5. Others (specify)	
12	What benefits at the community level were accrued from the conservation projects, if any?	
	1. Increased access to education	
	2. Increased access to water supply	
	3. Increased access to health services	
	4. Improved infrastructure	
	5. Others (specify)	
13	What benefits at the household level community members experience as a result of the conservation project?	
	1. Increased income	
	2. Access to education scholarship	
	3. Access to loans	
	4. Access to employment opportunities	

	5. Involvement in small business	
	6. Reduced contribution to community projects	
	7. Others (specify)	
14	What natural resources the did community increased access as a result of the conservation project?	
	1. Water sources	
	2. Pasture land	
	3. Wild Meat	
	4. Herbal medicines	
	5. Others (specify)	
15	What natural resources did the community fail to access because of the establishment of the conservation project?	
	1. Water sources	
	2. Pasture land	
	3. Wild Meat	
	4. Herbal medicines	
	5. Others (specify)	
16	What costs did the community experience as a result of the establishment of the conservation project?	
	1. Reduced pasture land	
	2. Human-wildlife conflicts	
	3. Village vs investors' conflicts	
	4. Village vs government conflicts	
	5. Village vs village conflicts	
	6. Individual vs conservation project conflicts	
	7. Others (specify)	

17	What are the challenges the conservation project is currently facing in achieving livelihood benefits?	
	1. Lack of transparency in the project implementation	
	2. Lack of strategic plans for investment of the financial benefits	
	3. Lack of tourism investors	
	4. Insufficient benefits	
	5. Lack of community support	
	6. Increased land conflicts	
	7. Other (specify)	

**D. Local people perceptions about the impact of community-based conservation project on biodiversity conservation**

18	In what ways are the people involved in biodiversity conservation in your village	
	1. No involvement	
	2. Participate in protection and provide information on illegal events	
	3. Provide conservation education to others	
	4. Follow conservation regulations and by-laws	
	5. Other (specify)	
19	What do you think are the most positive impacts of the conservation project in conserving biodiversity in Loliondo?	
	1. Increased wildlife population	
	2. Increased protected areas for conservation	
	3. Increased forest conservation	
	4. Reduced bushfires	
	5. Increased flagship species	
	6. Increased endangered species	
	7. Others (specify)	

20	What wild animal do you think have increased as a result of the conservation project in your village?	
	1. Elephant	
	2. Giraffe	
	3. Buffalo	
	4. Wildebeest	
	5. Zebra	
	6. Antelope	
	7. Hyena	
	8. Monkey	
	9. Topi	
	10. Other wild animals (specify)	
21	What are other biodiversity improvements attributed to the project implementation in your village	
	1. Improved conservation of water sources	
	2. Increased forest cover	
	3. Increased number of birds	
	4. Improved rangelands	
22	What are the major challenges the conservation project implementation faced over the past five years?	
	1. No local participation	
	2. Generation of low-income	
	3. Wildlife poaching	
	4. Increased human population	
	5. Increased number of livestock	
	6. Increased cultivation	

	7. Others (specify)	
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The following sections ask for your opinion about the contribution of the conservation project to enhancing conservation of biodiversity and livelihood benefits at the family level and at the community at large. Since we are interested in your opinions, there are no wrong answers. Please agree or disagree with the statements that follow according to the following scale:

Scale 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Qn #	Perception	1	2	3	4	5
23.	Adoption of the incentive-based conservation program was a good idea?					
24.	Your community did not benefit from the conservation project for the past five years					
25.	The conservation project helped your household income to increase over the last five years					
26.	Wildlife conservation has brought alternative sources of income in the village					
27.	Social services like (school, health care, access to water) have improved in your village over past five years					
28.	There is more access to credits/loan in your village because of wildlife conservation					
29.	It easier to access farmland now than before					
30.	The trend for problem animals has been reduced					
31.	Grazing area in your village is easily accessible now					
32.	Livestock should not be grazed in a conservation area in the village					
33.	Grazing livestock in a conservation area affect conservation of natural resources					
34.	You can access firewood, poles, and thatching grasses easily as before the conservation project					

35.	It is easier now to access bushmeat than before					
36.	There is more involvement in wildlife conservation now than before the conservation project					
37.	There is more poaching in the area now than before the conservation project					
38.	There is an increased number of wild animals around the village now than before the conservation project					
39.	The conservation project helped conserve water sources in the village					
40.	There are fewer bushfires now than before conservation project					
41.	There is more conservation awareness in your village than before the conservation project					

42. What should be done to ensure that the conservation project continues to support biodiversity conservation and improve local livelihood? Please briefly comment: -

(1) To support biodiversity conservation

(2) To improve local livelihood



## Appendix I: Household Questionnaire Interview Guide – Governance

The following section seeks your perception about the Loliondo pastoralist community-based conservation projects institutional governance. Since we are interested in your opinions, there are no wrong answers. Please agree or disagree with the statements that follow according to the following scale:

Scale 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Qn #	Perception	1	2	3	4	5
	<b>Legitimacy and Voice</b>					
1	Participation is assured at all level					
2	Consensus orientation is considered during decision-making process					
	<b>Direction</b>					
3	There is a strategic vision shared by leaders and the entire community with regard to conservation and community development					
	<b>Performance</b>					
4	The governing institutions are responsive on serving community members					
5	Governing institutions are effective and efficient					
	<b>Accountability</b>					
6	Leaders are accountable to the community					
7	There is transparency as there is a flow of information about the program implementation					
	<b>Fairness</b>					
8	All men and women have opportunities to improve their well-being.					
9	Benefits are shared fairly to all community members					
10	By-laws are fair and enforced impartially.					

## Appendix J: Post Hoc Comparison (Tamhane T2) Test Results

Study village	Study village	Participati on	Consens us Orientati on	Strategic Vision	Responsive ness	Effectiveness and Efficiency	Accountabi lity	Transparency	Equal Opportunit ies	Fair Benefit Sharing	Fair enforcement of by-laws
Oloipiri	Oloirien	.999	1.000	1.000	.928	.988	.764	1.000	.589	1.000	.441
	Soitsambu	.027*	.057	.024*	.045*	.077	.979	.030*	.002*	1.000	1.000
	Ololosokw an	.000*	.000*	.000*	.881	.116	.993	.000*	.000*	.749	1.000
	Maaloni	.969	.998	.941	.546	.787	.985	1.000	.995	.999	.996
	Arash	.016*	.105	.623	1.000	1.000	1.000	.823	.291	.786	1.000
Oloirien	Oloipiri	.999	1.000	1.000	.928	.988	.764	1.000	.589	1.000	.441
	Soitsambu	.103	.048*	.012*	.000*	.000*	.044*	.022*	.287	1.000	.412
	Ololosokw an	.000*	.000*	.000*	.043*	.002*	.078	.000*	.011*	.987	.296
	Maaloni	1.000	.998	.941	1.000	1.000	1.000	1.000	.998	.798	.936
	Arash	.056	.090	.580	.439	.602	.665	.718	1.000	.202	.085
Soitsambu	Oloipiri	.027*	.057	.024*	.045*	.077	.979	.030*	.002*	1.000	1.000
	Oloirien	.103	.048*	.012*	.000*	.000*	.044*	.022*	.287	1.000	.412
	Ololosokw an	.432	.835	.076	.924	1.000	1.000	.750	.905	.986	1.000
	Maaloni	.250	.491	.374	.000*	.000*	.064	.042*	.016*	.662	.998
	Arash	1.000	1.000	.746	.083	.244	.786	.846	.554	.115	1.000
Ololosokw an	Oloipiri	.000*	.000*	.000*	.881	.116	.993	.000*	.000*	.749	1.000
	Oloirien	.000*	.000*	.000*	.043*	.002*	.078	.000*	.011*	.987	.296
	Soitsambu	.432	.835	.076	.924	1.000	1.000	.750	.905	.986	1.000
	Maaloni	.001*	.009*	.000*	.005*	.000*	.153	.000*	.000*	.073	.977
	Arash	.496	.495	.001*	.992	.335	.920	.053	.028*	.006*	1.000
Maaloni	Oloipiri	.969	.998	.941	.546	.787	.985	1.000	.995	.999	.996
	Oloirien	1.000	.998	.941	1.000	1.000	1.000	1.000	.998	.798	.936
	Soitsambu	.250	.491	.374	.000*	.000*	.064	.042*	.016*	.662	.998
	Ololosokw an	.001*	.009*	.000*	.005	.000*	.153	.000*	.000*	.073	.977
	Arash	.144	.698	1.000	.097	.195	.963	.969	.930	.999	.796
Arash	Oloipiri	.016*	.105	.623	1.000	1.000	1.000	.823	.291	.786	1.000
	Oloirien	.056	.090	.580	.439	.602	.665	.718	1.000	.202	.085
	Soitsambu	1.000	1.000	.746	.083	.244	.786	.846	.554	.115	1.000
	Ololosokw an	.496	.495	.001*	.992	.335	.920	.053	.028*	.006*	1.000
	Maaloni	.144	.698	1.000	.097	.195	.963	.969	.930	.999	.796

\*significant at p value < 0.05