

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. Ana Maria Peredo, (Department of Geography, School of Environmental Studies)

**Committee Member**

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

**Committee Member**

Dr. Marlea Clarke, (Department of Political Science)

**Outside Examiner**

## **Abstract**

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## **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 local people depend on a natural resource base. One of the proposed solutions to help reduce the challenges is the use of a community-based conservation (CBC) approach. This study uses local perceptions to assess the effectiveness of a CBC approach used 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 a mixed methods

research design comprised of content review, focus group discussion, key informant interviews, and household surveys related to six case study villages. The overall results show good quality of governance of the conservation approach; however, there are concerns over performance of the village councils. The approach is also perceived to have improved local livelihoods by delivering benefits particularly in the community rather than 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. Flagship and endangered species numbers, however, remain low. There are also concerns over local involvement in biodiversity conservation. Overall, 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 the CBC approach in Loliondo Division can be an effective approach able 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 has 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, between 1970 and 2012, the populations of terrestrial species dropped by 38%, marine species dropped by 36%, and freshwater species by 81% (UNEP–WCMC and IUCN, 2016). 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 Report 5 in 2014 (UNEP 2016), 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 loss of habitat (Sala et al., 2000; Bellard et al, 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 also protecting remaining habitats and species (Masanja, 2014; Lopoukhine et al, 2012). Protected Areas (PAs) are, however, the main way of achieving the latter (Dearden et al., 2005; Lee et al, 2007; Lopoukhine et al., 2012; Borrini-Farayerben, 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 et al., 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 peoples 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 et al., 2010; Dressler et al., 2010). Thus, PAs are anticipated to be fundamental for achieving many of the Aichi target 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 et al., 2013). Protected Areas in the past largely relied on making 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 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 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 et al., 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 et al., 2013; Mbaiwa, 2015). Such programs have been underway for some time in sub-Saharan African 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, 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 the model developed by Maasai villages in Loliondo Division in northern Tanzania which differs from the usual model used in South African countries and in 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 (Baldus, 2009, Mshale, 2008; Songorwa, 1999). 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 and governments committed to sharing governance roles with local communities in the newly established local conserved areas under the CBC approach (Kiwango et al., 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 by 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 states and local communities. It also encouraged the inclusion of local communities into decision making bodies in state PAs (Deader et al., 2005).

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 region, for example, several villages are convinced 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 Cruocher, 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 (Creuter et al., 2010; Calhoun et al., 2014). However, the CBC approach that involving the grouping of several village lands is widely used 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 had to undergo several assessments to qualify (Wilfred 2010; Kiwango et al., 2015). According to the WMA regulation of 2012, the necessary requirement to establish a local PA under CBC programs in Tanzania the land under consideration 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]” Kiwango et al., (2015 pg., 1087)

Rarely a single village land qualifies the assessments and therefore joining more than one village lands 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”*.

In the sub-Saharan Africa region, 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).

As 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). They 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 et al., 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 et al. 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 positively change local perception towards biodiversity conservation and hence encourage their participation in the protection of biodiversity (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 Low-income Countries 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 (Baird and Leslie, 2013; Humavindu and Stage, 2014), internal conflicts among villages participating in a single conservation project, (Benjaminsen et al., 2013; Green and Adams 2015; Moyo et al., 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 (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 joined pieces of lands belong to communities with different ethnic backgrounds with their traditions, beliefs, and perceptions often differ in the way they value, protect, and use natural resources can undermine conservation efforts (Acquah et al., 2013; Agyare et al., 2013; Stone and Nyaupane, 2014). According to the theory of collective action, the grouping of communities with different characteristics can result in reduced cooperation in a common resource governance (Ostrom, 1990; Agrawal, 2001; Olson, 2002; Agrawal, and Chhatre 2006; Hauzer et al., 2013). As a result, the CBC programs become ineffective in achieving their intended goals (Brooks et al., 2013; Stone and Nyaupane 2014).

The design of the programs further had limited local inputs as local participation and engagement was in the form of tokenism (Benjaminsen et al., 2013; Brooks et al., 2013). Quite often the local leaders accepted the establishment of the programs without full consultation with their constituencies (Mshale et al., 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 came to become 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) share different perspectives on biodiversity conservation (Songorwa, 1999, Baldus, 2009; Murphee, 2009). The interest of conservation practitioners is to conserve biodiversity while many of the local people are interested in safeguarding their livelihood through accessing the natural resources subject to conservation (Murphee, 2009; Baldus, 2009). As a result, the local communities develop a feeling that they are unjustly treated and that causes long-standing conflicts which are unhelpful to neither 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 simplistic definition. The definition of governance has three dimensions: 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 et al., 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 et al., 2003; Dearden et al, 2005; Borrini-Fayerabend et al., 2013).

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

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, namely: governance by governments, shared governance, private governance and governance by indigenous peoples and local communities. According to Borrini-Fayerabend et al. (2013), the appropriate form of governance 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 which involves various levels of management across international borders.

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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).

- 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 are related to each other as all are aimed at effective management of PAs (Eklund and Cazeba, 2016). As described above, the difference 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 (Borrini-Feyerabend et al., 2013; Frank and Booker, 2015).

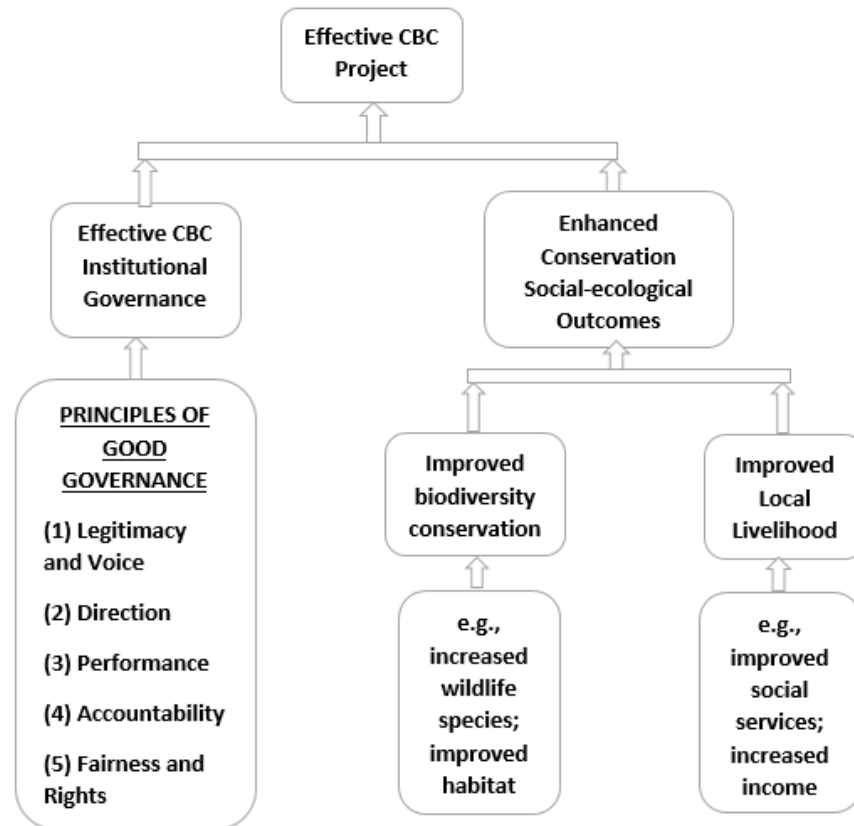
#### **1.2.1. Protected Areas Governance by Indigenous People and Local Communities**

Governance of many locally PAs managed under CBC approach involves shared governance between the local communities, the government, and sometimes 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). 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 locally PAs under CBC programs in 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 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 paper, the conservation approach emerged out of the agreement is referred as *village-based conservation approach*. The approach is controversial and is not largely supported by the government and following the lack such 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 (Borrini-Fayerabend et al., 2013).
- Second, it evaluates the livelihood and biodiversity benefits of the conservation approach in the study area based mainly on the perceptions of local people (Bennet, 2016).



**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 governing institutions are capable to achieve the PA's intended objectives. 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 for these reasons:

- Governance is the variable with the most potential to improve global 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 conservation program level (Agyare et al., 2013; Kisingo et al., 2013). For individual PAs, such as community-based conservation projects, the 2013 IUCN guidelines (Borrini-Feyerabend et al., 2013 pg. 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 governance for PAs (Borrini-Feyerabend, et al., 2013; Franks and Booker, 2015; Ecklund and Cabeza, 2016).

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

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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 pg. 69).

The Five Principles of Good Governance	Characteristics/Criteria for Good Governance
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 Cazeba, (2016), the PAs good governance principle 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 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 local institutions to satisfactorily perform 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 out of natural resources as well as fairly enforce conservation regulations to their constituencies.

The assessment of PAs governance assessment was not limited to the use of the 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 on top of Lockwood's (2010) seven principles of good governance. Although these scholars modified the IUCN good governance principles in PA governance assessment based on their study purpose, the IUCN principles of good governance form 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 this study area. 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 strategic plans 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 looked at 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 et al., 2013). The effectiveness of PAs can be evaluated using local peoples' desired and perceived outcomes of the conservation projects (e.g., Heck et al 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.

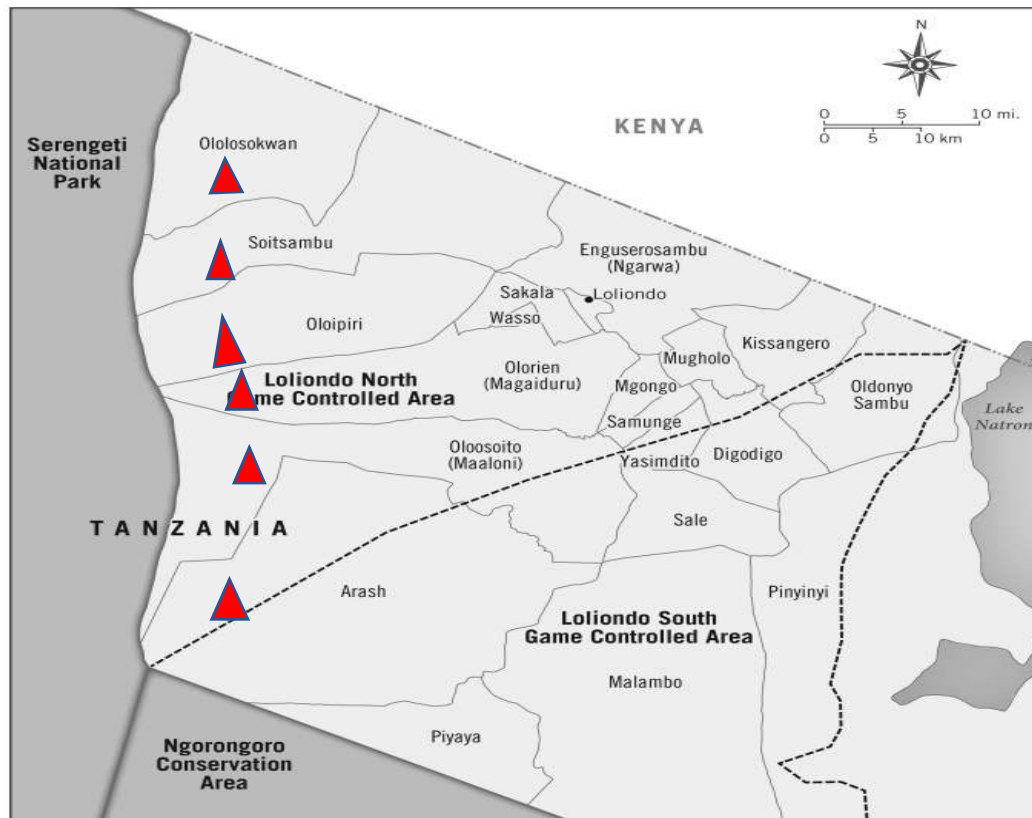
This study, therefore, assesses social-ecological outcomes of the village-based conservation projects in Loliondo by evaluating the projects' perceived contributions to biodiversity conservation and local livelihood improvement. The study evaluates the projects' contribution to biodiversity conservation 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 et al., 2015). The study area comprises six villages bordering the Serengeti National Park (SENAPA) in the east. They 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 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.



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

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

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 et al., 2002). The main economic activity of the study area residents 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 et al., 2010). In the study area, the Maasai now cultivate maize, bean, and sweet potatoes (McCabe et al., 2010; Rurai, 2012; Bartel., 2014).

Before the creation of the SENAPA in 1959, the Maasai of Loliondo occupied the Serengeti, 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. The hunting tourism business is carried out by Ortello Business Corporation (OBC). Ortello Business Corporation has a hunting 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.

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 below, 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 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.

**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).



#### 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).

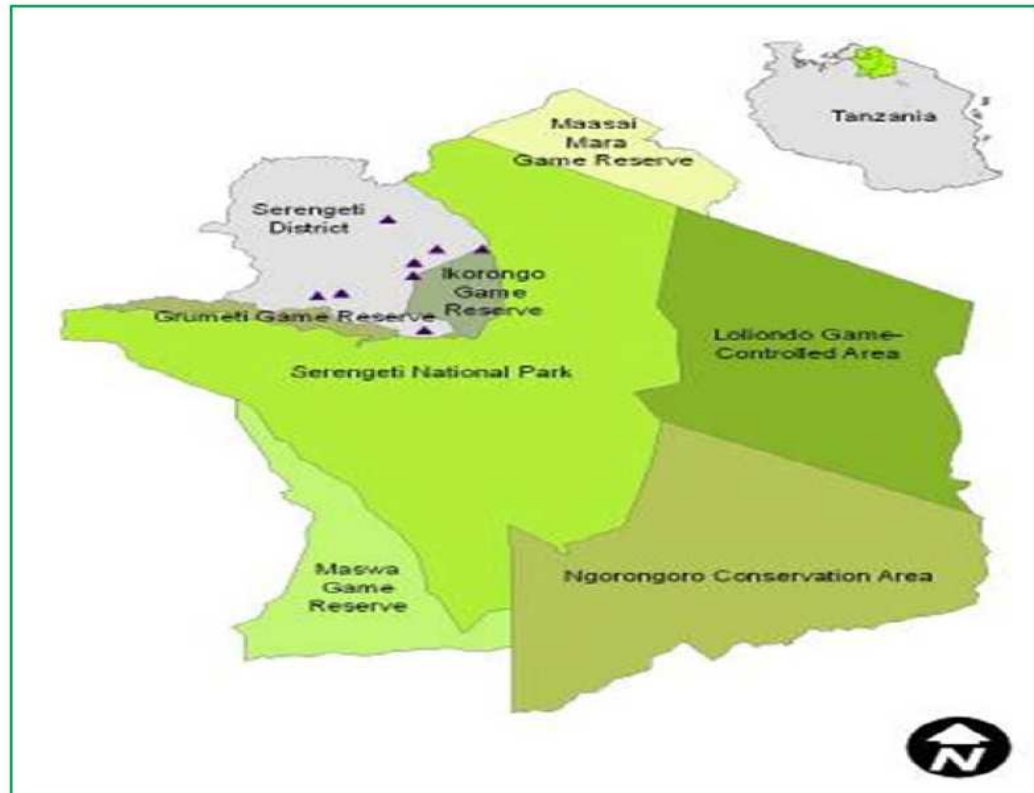


Figure 1.3. Map of the Serengeti-Mara Ecosystem.

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

These functions include the sustenance of the wildebeest migration. The Loliondo area is part of 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. In addition, the water sources for the Park (e.g., the Pololet and Grumeti Rivers) have their

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

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 water to the SENAPA.

The study area is also a strategic area that supports local livelihoods 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 (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 permanent tourist camps, pastoralism remains the main activity and crop cultivation the second (Appendix B). According to locals, the tourist camps provide little employment to the local people as many of their employees originate 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, debt, and fines for offenses committed, to mention a few, are done in terms of livestock. Thus, the Loliondo Division is an important area which supports 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 conservation and local livelihoods, the area has experienced 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 of the international tourism companies conducting tourism business within the Division (TNRF, 2011; Nelson, 2012; Rurai, 2012; Gradner, 2016). The main source of conflict pertains to the multiple land use status in the study area

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

without a proper governance type 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 OBC. 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, 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). Because the local communities have the land rights, they used their village councils to sign contracts with tourist companies interested in the photographic tourism business in Loliondo Division.

Due to the existence of the two agreements aimed for 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. 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. In the aftermath of the conflict, the study area villages with exception of Ololosokwan village stopped the implementation of the conservation projects. 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. However, the proposal faced backlash locally and internationally so it backed off the plan and is now in negotiation with the local communities (Bartels, 2014; Gardner, 2016).

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 implemented in many study villages at the time of this study, the study used local present and past experience of the approach evaluate its effectiveness. The following sections discuss the research methods employed to collect the data used in this thesis.

### **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. This study relied heavily on local perceptions to evaluate perceived 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

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

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 in the study area, biodiversity conservation, and conservation 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 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.

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

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., 2001; Blench, 2001; Lyamuya 2016) 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 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 allowed the researchers to identify suitable respondents from a population of interest (Robinson, 2011). The study used a semi-structured questionnaire guide (Appendix G) to interview the study respondents. This study interviewed a total of 25 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 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%). Twelve percent of the respondents were between 40 and 49 years old, and 12.1% of respondents were between 50 and 59 years old. 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 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 were found to be livestock keepers (95.2%), 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 (2.7%).

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

Notes from each FGD 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 and 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) analysis was performed 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 interpretation.

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

Three chapters follow this Introduction. Chapter two 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 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, synthesis, 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 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, for the people. Since the 1980s, central governments in low-income countries have increasingly adopted 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 in reality 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 fails to achieve the improvement of local livelihood goal (Lele et al., 2010; Dressler et al., 2010; Moyo et al., 2016), with the reasons of the failure partly associated with 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 et al., 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 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 Eastern 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 (ADMADe) 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 et al., 1995; USAID, 2000; Baldus, 2009). One of the objectives of these programs was to involve the communities in 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 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 (Igoe and Croucher, 2007; Baldus, 2009; Kiwango et al., 2015).

However, through a long-term lobbying and advocacy by conservation organizations to the government of Tanzania, the CBC idea was later scaled up to become a countrywide conservation agenda in 1998 through the introduction of a new wildlife policy 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 bureaucracy 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 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 21 WMAs had been established with 17 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, despite being established on community lands, decisions over conservation, utilization, and allocation of benefits are done by the central government through the Wildlife Division (Igoe and Croucher, 2007; Baldus,

2009; Kiwango et al., 2015; Moyo et al., 2016). Thus, in “reality” the WMAs programs in Tanzania to a large extent are not in the form of CBC.

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 et al., 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 the inability to deliver benefits to local communities that outweigh the costs of conserving wildlife, as well as the WMA member villages conflict over benefit sharing (Benjaminsen et al., 2014; Green and Adams, 2015). 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). The WMA challenges are partly caused by the lack of good governance (Baldus, 2009; Wilfred, 2010; USAID, 2013).

Apart from the few well-known WMAs (e.g., Burunge, Ikona, Enduiment, and Mbomipa), the majority of WMAs generate very low or no financial benefits to local communities (USAID, 2013; WWF, 2014; Kiwango et al., 2016). Many rarely reported WMAs (e.g., Wami-Mbiki, Ukutu, Liwale, Uluma) are not economically profitable enough to compensate local communities for the cost of conserving wildlife (USAID, 2013; WWF, 2014). 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 protected areas (PAs) had been individually signing contracts with tourist companies and used the funding for their own 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 individual villages contributed to the WMA and how much wildlife damage each face compared to others (the United Republic of Tanzania, 2012). This 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).

The fact that the final decision on wildlife conservation and utilization in the WMA still rest in the hands of the central government despite decentralization is problematic (Baldus, 2009; Green and Adams 2015; Robinson and Makupa 2015; Kiwango et al., 2015; Gardner 2016). As discussed earlier, the government 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 control and fully benefit from wildlife conservation (Baldus, 2009; Gardner, 2012; Kiwango et al., 2015). 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).

Finally, the WMA programs lack local support because of the low local awareness of the WMA programs (e.g., Songorwa 1999; Benjaminsen et al., 2013;



USAID, 2013; Green and Adams, 2015). Earlier, before the introduction of 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 perception 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). 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 the 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, the WMAs are perceived negatively and they are seen as "national parks" inside village lands.

Although wildlife management in Tanzania WMAs is supposed to be in the form of shared governance between the local communities and the central government, the central government seems to have more decision powers than the local communities

who in “reality” are the owners of the natural resources indented for conservation (Igoe and Croucher, 2007; Mshale, 2008; Baldus, 2009; Kiwango et al., 2016). Shared governance requires that stakeholders involved are satisfied with decisions made and interests of either party are taken into consideration (Borrini-Fayerabend, 2011; Franks and Booker, 2015). However, that is not the case in Tanzania and therefore the management of the WMAs continues to be problematic (Moyo et al., 2016).

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. In summary, the challenges that need to be addressed by a new approach 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; Bejaminsen 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 this approach and the focus of this paper 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 which traditionally conserved wildlife on their communal lands signed contractual agreements with tourist companies. 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 which 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 which 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 which are legal entities representing 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 employs an integrated system coupling tourism and pastoralist activities using pastoralist traditional ecological knowledge of livestock and wildlife interaction (Goldman, 2011; Lyamuya et

al., 2016). Unlike the predominant WMA model used in Tanzania which groups together several villages to conserve and share conservation benefits, the village-based conservation approach in Loliondo uses a single village model to communally conserve and share conservation benefits. 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 (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 Loliondo 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 paper, village lands set aside by the villagers for conservation and tourism are referred to as *conservation projects*. Many of the photographic tourism companies who signed contracts had temporary camps in Loliondo that were actively used only during the tourist season (mainly between June and December).

A village council which is part of the village-level government in Tanzania<sup>9</sup> has executive powers to decide 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

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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.

enter into agreements with other entities. It can sue and be sued and it 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 Officer (VEO). The village assembly which is the supreme power of the village-level government (consisting of all adult village members) 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, namely: 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 contrasted in Table 2.1, the conservation approach used in Loliondo Division is different from the WMA approach used in Tanzania and therefore it is important to evaluate it to give an understanding of other existing CBC approaches in the country.

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

S/N	Features	Village-based Conservation Approach	Wildlife Management Area (WMA) Approach
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 process.

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 (OEACMs) 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.

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 et al. (2013), PA governance is assessed because governance strongly influences 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, include power and achievement as well as Lockwood's (2010) seven principles of good governance. Although these scholars have suggested additional principles, this study adheres to the accepted IUCN framework (Borrini-Feyerabend et al., 2013).

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 et al 2016) and local unit levels (Agyare et al., 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 the good governance framework.

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

### **2.2.1 The Study Area**

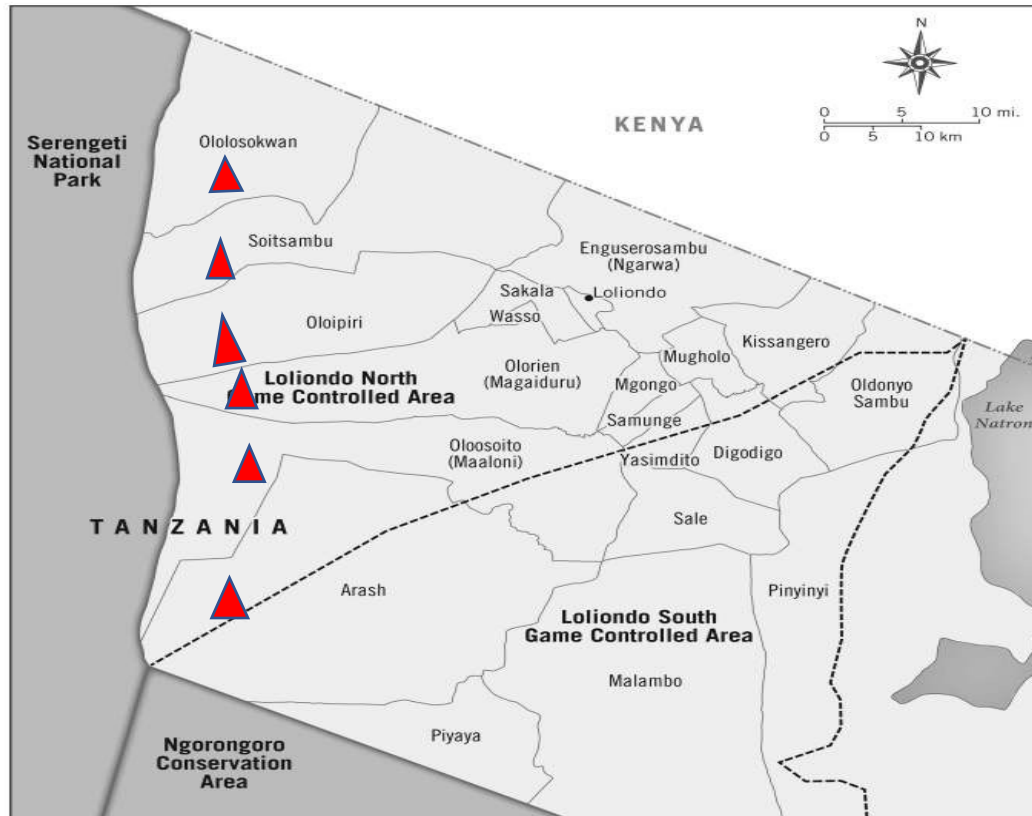
The study area, for this research, was the Loliondo Division in Ngorongoro District North of Tanzania. The study area covers six villages found along the eastern border of the Serengeti National Park (SENAPA). The study villages (Ololosokwan, Soitsambu, Oloipiri, Olorien, Maaloni, and Arash), were chosen because of implemented conservation projects involving consumptive and non-consumptive tourism investment (Gardner, 2012; Green and Adams, 2015). The study 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, 2010, Ojalammi, 2006; Rurai, 2012; Bartel, 2014). The 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. The study area (Loliondo Division) overlaps with the Loliondo GCA (Figure 2.1). 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 (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 Local Government Act of 1984 give the local communities powers to manage the village lands and resources found on the lands.

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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.





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

Adapted from TNRF (2011).

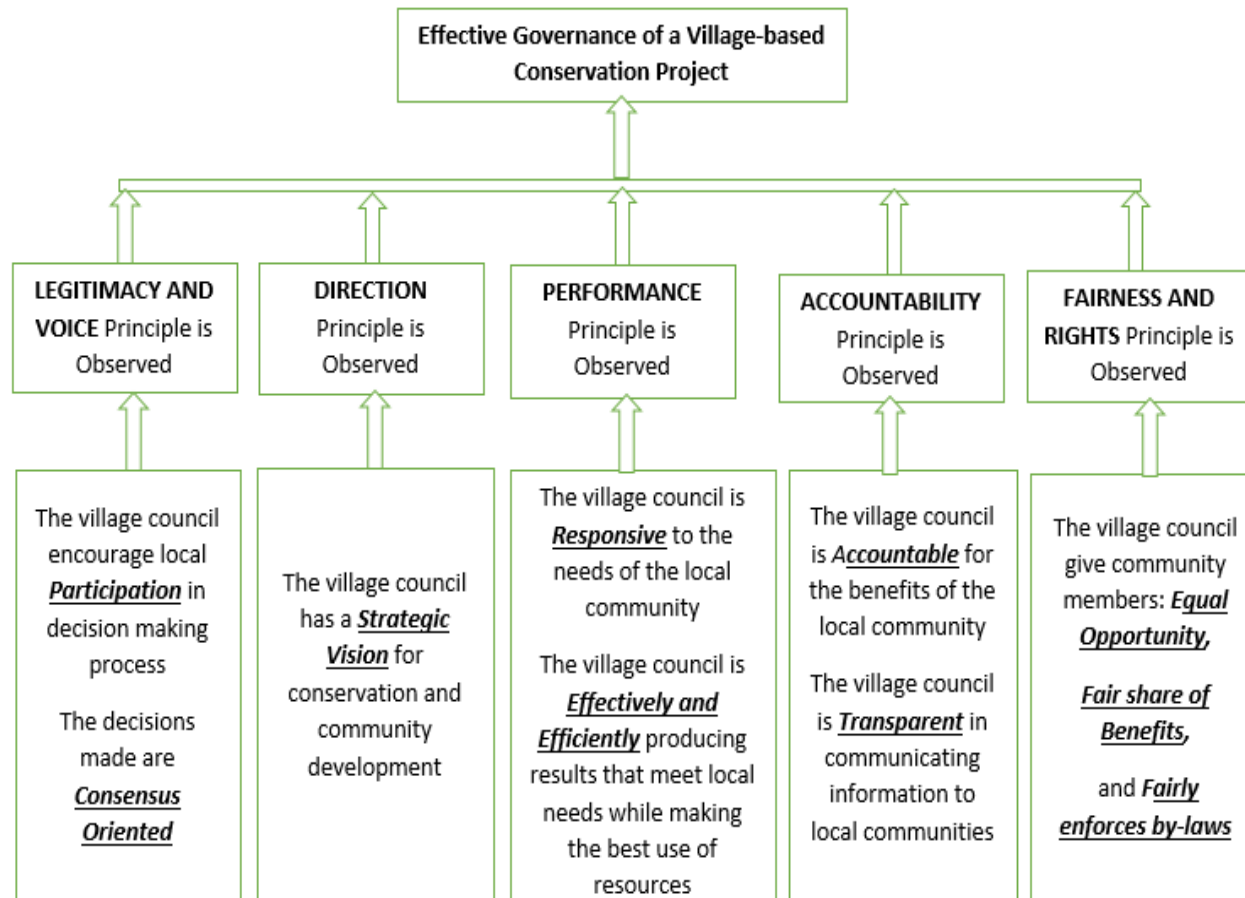
Because the local communities in Loliondo had the legal standing of the use of their lands, they managed to sign contracts with the tourist companies that were interested in running photographic tourism businesses on village lands. At the same time, since the study area was designated as a GCA (in most 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 (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 written permission from the government. 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, a strictly PA category in Tanzania (The United Republic of Tanzania, 2013). However, the local communities protested the proposal as they claimed the entire Loliondo Division 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. The conservation approach also was only active in one study village, namely Ololosokwan, as many photographic tourism companies stopped their operations following the government ban. Ololosokwan village had a permanent lodge which was unaffected by the ban.

This paper 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 creation of village-based conservation projects implemented under the single village CBC 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 principles of good governance framework (Graham et al., 2003) to evaluate governance quality of the village councils.



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

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

Every principle used in the evaluation is assessed using the underlined characteristics shown in Figure 2.2 above. 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. In addition, 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.

### **2.3. Research Methods**

The study uses a mixed methods research design to collect both primary and secondary data necessary to achieve its intended objective. 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 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 as 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. 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 were 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  $N = 14,753$ , 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 the 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 also depended on 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>) analysis was performed which shows the strength of such difference, 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 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

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<sup>11</sup> 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?)



## 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). 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 (substantial) for fair enforcement of by-laws. The high Eta value indicates large variations in the way the village councils observed the governance characteristics, while the low Eta value indicates low variations on the way the village councils observed 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.

**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>	<b>6</b>
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>	<b>1</b>
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

### **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 be observed 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 have strategic plans for conservation and community development. The results further indicate that in all the study villages the results for strategic vision characteristic are statistically significant ( $p$ -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 community. 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 ( $p\text{-value} = 0.000$ ), 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 which is under the same principle, 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 ( $p\text{-value} = 0.000$ ), 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 ( $p\text{-value} = 0.005$ ), 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 ( $p\text{-value} = 0.062$ ) 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 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 villages 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 local people have concerns 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. By using the Post hoc comparison (*Tamhane's T2*) Test, the results show that significant differences exist among the villages in relation to adherence to the governance principles. 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 statistically significant ( $p\text{-value} < 0.005$ ) 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 ( $p\text{-value} = 0.002$ ) and Maaloni ( $p\text{-value} = 0.000$ ). 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, and hence it is likely to be perceived positively by community members.

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

Soitsambu village is the second after Ololosokwan village with high 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 Soitsmabu 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 statistically insignificant results between the village and Ololosokwan can be attributed to the influence of the neighboring Ololosokwan village that shares borders and has social and cultural similarities.

#### **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 characteristics (mean = 3.74). On the other hand, the lowest scores were scored by fair benefit sharing (mean = 3.06), and the efficiency and effectiveness characteristic (mean = 3.25). 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 village leaders of Arash, for example, refused to sign one of the pre-prepared contracts by the district government and OBC for study area villages to sign in 2008. 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) while strategic vision observed less (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 both characteristics as the mean scores of these characteristics 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 have concerns about the performance of their village council.

In comparison, the results from this village are statistically significant ( $p\text{-value} < 0.05$ ) 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 ( $p\text{-value} > 0.05$ ) 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 locals resulting in similar shared norms of these village residents.

#### **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). In 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 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 Oloirien village are not significantly different ( $p\text{-value} > 0.05$ ) with the results from the other study villages except for Ololosokwan 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 small variation on the observation of the fairness and rights principle by the village councils in all study villages. The findings from this village on the fairness and rights principle suggest that despite the existing differences on the village council's observation of the principles of good governance between Oloirien and the other study villages, there are some characteristics where such difference is significantly reduced (e.g., on the fairness and rights principle). At the time of this study, this 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 is 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 to natural resource conservation used by pastoralist communities in Loliondo Division. Overall, the findings indicate the village councils governing the conservation approach have observed the good governance principles and therefore the quality of governance in the study area is "good." However, the observation of the governance principles differed in their assessments by the local people. The strategic vision principle was the most observed principle by the village councils, while the performance principle was the least observed principle. Various factors explain the differences but mainly the status of the implementation of the conservation projects in the study area (i.e., whether the study village is still implementing the project or not), is a main underlying cause. 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 local livelihood improvement in this study area. 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 approach and the village councils' perceived strategic vision for conservation and community development represent 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. 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 for them to 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. Mwakaje et al. (2013) 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 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., 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 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 was 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. 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 an attribute of the Maasai social life (Galaty, 1982; Iktipis et al., 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. Within the study area, the majority of the residents are pastoralists who 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 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. This result raises the necessity of the study villages to share the 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 concludes that communities with similar characteristics and shared norms are more likely to cooperate in the management of a common resource (Ostrom, 1990; Olson, 2002; Gibson and Agrawal, 2009; 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**

The results on legitimacy and voice indicate concerns about local participation in decision making as well as on reaching consensus on the decisions made. 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 ranked the fifth and the sixth in terms of observation by the village councils. In a “truly” CBC project (i.e., a locally initiated conservation project), the legitimacy and voice principle should be among the most observed principles by the village councils as the governance of the conservation



projects should have been in the hands of the local people (Measham and Lumbasi, 2013). However, this was not the case in this study.

The findings can perhaps be attributed to governance complexity that exists in multiple land use areas without clear channels of separation of powers and responsibilities among stakeholders (Agyare et al., 2013; Randal et al., 2015). The study area is a multiple land use area within the Serengeti ecosystem of which local communities exercise their powers to govern natural resources to help improve their livelihoods. But at the same time, the central government exercise its powers to govern conservation and utilization of natural resources within the same area without proper mechanisms necessary to involve local communities in the process. The contractual agreement between the central government and OBC for example, that aimed for conservation and utilization of natural resources within the study area, did not get approval from the local people yet the land is said to be a village land (TNRF, 2011; Nelson 2012). Further, the ban of the conservation projects in many study villages by the central government reduced village councils' ability to involve village residents in natural resource conservation. The local communities, therefore, may perceive their village councils not ensuring legitimacy and voice in natural resource conservation as the responsibilities to conserve natural resources was taken by the central government.

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 village assemblies and when they do, few community members come to the meetings and therefore fail to meet the quorum needed to proceed with the meetings. In this circumstance, the meetings get postponed and that cause low participation of the community members in development activities. 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, 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' legitimacy and voice.

#### **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 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) at this village area 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 (Schmitt 2010; Mwakaje et al., 2013; Ngirwa et al., 2013; Robinson and Makupa, 2015). Mwakaje et al. (2013) and Robinson and Makupa (2015), for example, report poor governance of conservation financial benefits for communities around the Serengeti ecosystem due to low financial management skills. Managing projects that involve planning and financial management requires training personnel which is mostly offered by international donor organizations (Baldus, 2009; Wilfred, 2010; WWF, 2014) but these organizations were not part of the village-based conservation approach used in Loliondo Division and therefore the village councils did not benefit out of their capacity building.

The concerns over the village councils' performance in this study area are attributed to the low level of education and lack of capacity building of the local leaders and the local people in general. Based on these 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 village. Due to the lack of paying jobs in the study area, the few local graduates usually go to town to find jobs. The migration of graduates from villages to towns offers the opportunity to the community members with a low level of education and fewer professional skills to become community leaders of 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). 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. 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 study found that the governance of the conservation approach is effective as the quality of governance of the village councils in the study area 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 develop conservation projects, and improve local livelihoods, and

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 were found to be of concern to the local people. The local people have concerns on the village council's effectiveness and efficiency in managing conservation projects, the councils' assurance of legitimacy and voice on natural resources management as well as concerns about the council's transparency 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 in the quality of governance among the study village councils 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 status of project implementation determined local decision-making powers in natural resource management by the village councils at the time of this study. The villages that were implementing the conservation projects (e.g., Ololosokwan village), had more powers on decision-making process over natural resource conservation and utilization while the rest of study villages that were no longer implementing the projects had limited decision-making powers. The powers to make decisions on natural resource conservation and utilization, therefore, contributed to the differences in the quality of governance within the study area.

Further, the homogeneity of the study area residents which is an attribute to the fair sharing of benefits and fair enforcement of by-laws in the study area helped to discourage the view of outgroup versus in groups within study villages. All study villages were occupied by Maasai pastoralists. The absence of in-group versus outgroups within

the study area villages enabled the village councils to be perceived as having fairly treated their respective village residents on the use of the conservation benefits.

Based on the results from Ololosokwan village where the village-based conservation approach is still active, this study concludes that the governance of the conservation “approach” in this study area can be effective and hence suggest that the local people are capable of managing natural resources by themselves if given a chance. At Ololosokwan village, all evaluated governance characteristics have scored mean scores corresponding to a “good quality of governance.” Unlike other study villages, the Ololosokwan village council had more powers over decision-making process over natural resource conservation and utilization because the village residents had secured land tenure rights. The rest of the study villages failed to secure the land tenure rights because of the overlap between the study area village lands and the GCA and unwillingness of the central government to grant them the land tenure rights. The overlap resulted in a governance challenge as the study area had multiple objectives and therefore multi levels of governance institutions were involved without proper mechanisms to separate decision-making powers over natural resource management. The lack of proper mechanisms to coordinate the overlapping management activities within the study area resulted in a conflict of interests between the study area residents, OBC, and the central government which is the major challenge of the application of the village-based conservation approach in this study area. 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 effective CBC approach in Loliondo Division and elsewhere.

### **2.7.2. Recommendations**

The following are recommendations to 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). Currently, 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) and conflicting interests of stakeholders involved in conservation and community development without proper mechanisms to coordinate their activities. This paper recommends the ending of the conflict and establishes a co-management governance approach in the study area. It also 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). 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.

This study's results also showed the low performance of the village councils when they exercise their duties. This study 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 electing educated local officials 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 which 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. 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 et al., 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. In this study area, for example, the pastoralists should be made aware of the limits of the integration of wildlife conservation and pastoralism (Augustine et al., 2010; Fynn et al., 2016).

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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.



**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 were from one culture (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 in this study area, 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 programs.

## **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 and was discussed extensively at the 3rd World Parks Congress in Bali (The Bali Declaration, 1983) and was subsequently recommended by many researchers (e.g., Brockelman and Dearden 1990; Neumann, 2000). However, the 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 et al., 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 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 benefits from these programs help 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 an important approach 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 (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).

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 social–economic benefits from the conservation projects can also undermine biodiversity conservation as the local people may migrate close to PAs (Wittemyer, et al., 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 social

economic 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 criticize the 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 et al., 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 Amanda 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 the number of WMAs 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 et al., 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).

As the significance of the CBC approach in the sub-Saharan Africa region on reducing the loss of biodiversity and on reducing local poverty is recognized, yet the approach is faced with numerous challenges, recent research on the 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 research particularly in Tanzania has been on the multi-village CBC approach (i.e., the WMA approach). Various recommendations for the improvement of CBC programs 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 where individual villages seek to achieve both conservation and livelihood benefits. It is a conservation approach where individual villages which 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 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 villages annual village land access fees (Rurai, 2012; Gardner, 2016). Between 1992 to the late 2000s, 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. At the time of this study, the village-based conservation approach was, therefore, operational at one of the six villages in this study area. This study 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., 2011; 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, the majority have moved from being pure pastoralists to becoming agro-pastoralists (Ojalammi, 2006; McCabe et al., 2010; Rurai, 2012).

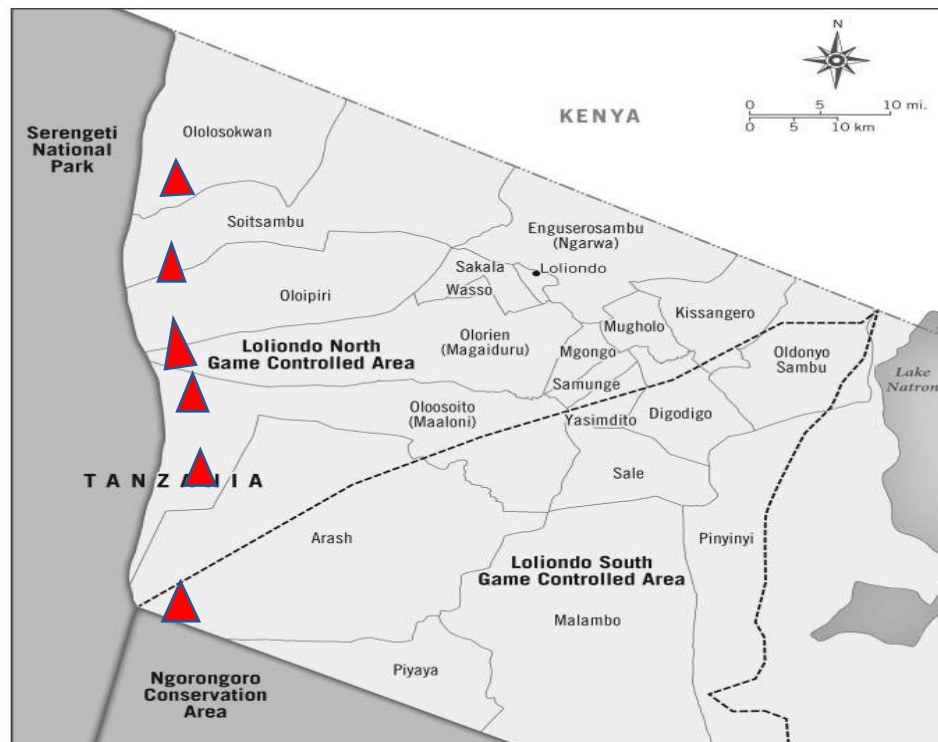


Figure 3.1. Map of Loliondo Division

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 land status in 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 Loliondo Division (1,500 square kilometers) to a Game Reserve (GR) and the rest (2,500 square kilometers) to 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 Loliondo Division belongs to local communities and

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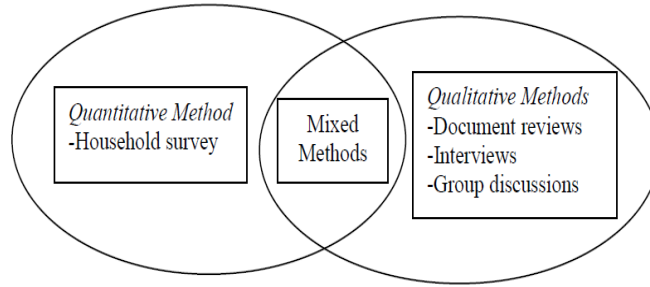
<sup>15</sup> The village land is governed by the village government using Village Lands and Local Government Authorities Acts while the wildlife is governed by the central government using Wildlife Conservation Laws and Policies.

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.

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, the 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, the financial benefits from the hunting tourism provide a valuable comparison in looking at the benefits derived from these different sources.

### **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. Field work 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 2016) 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 methods 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 were done by the research<sup>16</sup> team 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 project's contributions to local livelihoods and, second, the 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. As well, the study area villages directly received the following total amounts of financial contributions from OBC 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	Oloolosokwan	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	The Government						3,259,000
10.2	The Local Communities						610,000	The Local Communities						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.

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. As well, the study area villages directly received the following total amounts of financial contributions from OBC 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).

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 (e.g., Dorobo Safari, And Beyond, Explorer, Hope, Sokwe Safari, Nomads, and Royal Safari—see Appendix A) that signed contracts with the study area villages 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 to 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 OBC and the local communities which intensified in 2009 (more details on this conflict in TNRF, 2011; Rurai, 2012; Gardner, 2016). In the

aftermath of the conflict, OBC stopped paying the regular land access fees to the study area villages and, as well, the central government 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 stopped paying the study area villages with the exception of Ololosokwan study village as it had a permanent camp built on its land.

The amount 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. However, the nature of the contracts (i.e., duration of the contract and the amount paid) between the local communities and tourist companies, determined the amount of benefits received. Ololosokwan village, for example, which is the lead village in terms of conservation financial benefits has a long-term contract with And Beyond tourism company. On the other hand, study villages Arash and Maaloni which seemed to have received the least financial benefit in the study area, although they lacked data on financial records from photographic tourism between 1992 to 2008, the tourism business was banned and stopped to receive benefits for about eight years by the time of this study. 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 3.13. 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.

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

### 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>	<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	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. the local engagement in small business was mainly found to be in Soitsambu (13.6%), Ololosokwan (10.9%), and Maaloni (10.7%). All these three village centers are found on

the main roads and therefore the ability of the local people to do business may be attributed to the accessibility of the villages by road which makes it easier for the delivery of goods and services. 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 found to not guarantee employment to the local people despite the existence of permanent camps such as Klein's camp owned by And Beyond and the *OBC* camp both found in the study area. 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 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 within the study area can affect 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 are the remoteness of the village centers away from the main road used by 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 local village center where the local people could become employed in tourism. Likewise, Ololosokwan, Soitsambu, and Maaloni villages have their village centers on the main roads and the data have shown that they are not much

engaged in tourism either. Thus, village accessibility by road is not the only factor that determines why the local people in this study area are engaged or not engaged in the tourism business. If it was the case, these villages that are on the main road used 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 does 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	7.3	7.1	5.7	23.2
3	Improved Infrastructure	9.6	10.9	8.5	100.0	8.9	0.0	23.0
4	Access to Health Services	38.5	3.6	30.5	16.4	0.0	1.9	15.1
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 health care 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 high negative 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. 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. However, all respondents from Ololosokwan village perceived the conservation projects to provide benefits at the community level. Study respondents perceiving the conservation projects had no benefits at the community level were 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 accompanied 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 necessarily helping the local people. The reason for this local attitude towards OBC can be attributed to the longstanding conflict between the study area communities and the company over access to natural resources. The view of 31% of the people 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 within 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. Wildlife 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

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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 as not beneficial 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

<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.

conservation projects to have helped the local communities engage in small business within the community.

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

S/N	<i>Family Level Contributions</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	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 in the study area 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>Ololosokwan %</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 the results show that 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), this implies that half of the study respondents perceived no involvement. A direct question on this topic revealed that 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 also 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%). No respondents from Ololosokwan village perceived 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, is where OBC has a permanent camp (at Kirtalu sub-village), and therefore the village may have been exposed to more resource-use restrictions than others. 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, especially if hunting is done without the consent of the local people (e.g., as is the case of this study area).

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 have shown positive perceptions towards the conservation projects' contributions to biodiversity conservation. 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. However, 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 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. 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.

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

Table 3.7 shows local perceptions of increased wildlife abundance in their respective villages and in the overall study area.

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

S/N	Wildlife Species	STUDY VILLAGES						
		Oloipiri %	Oloirien %	Soitsambu %	Ololosokwan %	Maaloni %	Arash %	Average %
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

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 (69.3%). Other local perceptions of wildlife increases are for giraffes (46.5%), buffaloes (29.1), and other animals, e.g., lions and leopards (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 daily with wildlife 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

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



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 crop cultivation activities (Table 3.4). However, at Oloipri village, despite 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 Oloipri 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 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 and therefore the implementation of the conservation approach was affected and its outcomes overshadowed at all villages except for Ololosokwan. The results from Ololosokwan village, thus 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 results of the conservation projects contributions to local livelihoods have 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, 2016; Mbaiwa, 2015; Robinson and Makupa, 2015). The projects also were 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 these projects to local employment and to small businesses in the community, as well as their inability to provide loans to families that could be used to increase family incomes (see Table 3.4). The inability of the projects to have more impact at the family level implies that the income of the local people does not depend much on the presence of the conservation projects of which there is a likelihood that the projects may fail to receive full local support if the situation remains unchanged. However, about 11% of respondents perceived the conservation benefits to have reduced their family contribution to community level projects of which is also an indirect contribution to individual families. According to this study FGDs, before the introduction of the conservation projects, community development activities such as the construction of schools, and water infrastructures was to be contributed by individual community members both financially and in kind. But after the conservation projects, village governments used the benefits accrued from the projects to help improve the community social services and stopped to demand financial donations from individual

community members. If the study villages use the financial benefits effectively to improve the community social services, there is a possibility that benefits from conservation projects will have more effect at the family level and therefore help 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. Makupa et al., (2013), for example, further pointed out that conservation benefits at the family level are important because changing local perceptions to favor natural resource conservation requires reducing the negative impacts of natural resource conservation to individual families around PAs.

Quite often, the adverse impacts of wildlife conservation (e.g., crop damage and livestock loss) are mainly felt by the families impacted and not necessarily the whole community (Makupa et al., 2013). 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 not found to be 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 for the more the local people demand access to natural resources, the more conflict they will have with conservation managers protecting the loss of biodiversity (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 study findings by

Snyder and Sulle, for example, that found the local people to have been using 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 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 Amanda, 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 (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, 2013; 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 therefore it is very likely that the CBC approach could give positive results as in the case of Ololosokwan village. However, in most cases, the CBC projects are initiated in places that are not attractive to tourists and therefore the local people may lose their livelihoods to biodiversity conservation and not derive any benefits. 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 it 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 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, location close to a tourist destination and the capacity of the managing CBO, but also diversification of income generating activities (McCabe et al., 2010; Homewood et al., 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 this study area conservation projects to local livelihoods 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 impact of the conservation projects in this study area can, therefore, be large to an extent that this study could haven't captured. 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 conservation efforts most directly 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 (Table 3.5), improved biodiversity conservation (Table 3.6) and increased wildlife abundance (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 et al., 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, indicating that the village-based conservation approach might have helped to discourage the practice. Thus, the conservation approach helped to discourage local practices that can have detrimental effects on natural resource conservation and hence helped to maintain biodiversity within Loliondo Division.

The local perceptions also indicated the conservation projects to have helped to increase forest cover and wildlife habitats and have enhanced conservation in PAs (i.e., the SENAPA and the NCA) close to this study area. 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 is 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 (TAWIRI et al., 2014) while others show fluctuation in small



mammals' abundance (Byrom et al., 2015). This study results 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%). However, this study's results have shown decreased buffalo abundance while showing increased elephant abundance. 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 study area. 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 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 the study, 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 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 service 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

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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.

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.

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 agreements 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). About 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.

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. Despite the fact that the Maasai people are reported to not consume wild meat, that does not mean poaching is not happening at all in this study area. It happens although the intensity is 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 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 happening in Loliondo Division and therefore is not an issue that the local people should 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 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 capacity, creating conservation awareness and enforcing the law.

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-

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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>

making bodies. A GR is a PA category that prohibits all local human activities. The local perception in this study area is that the government's 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 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). At Ololosokwan village where the local people continued to implement the conservation projects under the village-based conservation approach, village residents obey by-laws created for the sustainable use of natural resources. At this study village, the local community was part of the creation 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 was mainly due to the introduced form of PA that limits the implementation of the local village-based conservation approach and aims to reduce local access to natural resources.

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

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<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>

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. (2016) found that the majority of the Maasai pastoralists in Loliondo Division, especially women, expressed negative attitudes towards the conservation of large carnivores. Elsewhere, wildlife relations especially wild cats (lions, leopards), is reported to be a practice by Maasai pastoralists (Kisui, 2008; Hazzah et al., 2009; Blackburn et al., 2016; Hazzah et al., 2017). Most of the wild cat 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, can be attributed to the low abundance of the flagship and endangered species reported in this study results. Further, the Tanzania Wildlife Conservation (Dangerous Animal Consolation) Regulation 2011 provides little support to families whose properties are damaged by wildlife; in addition, the process to obtain consolation 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 few aspects worth to mention that were associated with the success of the village-based conservation approach at Ololosokwan village discussed in this paper as well identified during in depth interview with this study area respondents. These reasons include village land ownership status, good collaboration between And Beyond and the local community, integration of wildlife conservation and livestock keeping, and sustenance of financial benefit by And Beyond to the local community. although their in-depth discussion will be in the next chapter, the 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) pg. 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

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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.

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 local livelihood improvement 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. It, therefore, calls for the reconsideration of the revival of the approach in this study area for continuity of biodiversity conservation and local livelihoods improvement.

In many study villages, the conservation projects implemented under the approach are perceived by the local people to have helped decrease bushfires, improve wildlife habitats and maintained wildlife abundance. Furthermore, the local community perceived the conservation projects 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. The results indicate that the conservation approach has contributed few benefits at the family level as the projects were not able to provide more employment and business opportunities necessary to increase individual family incomes. Further, biodiversity outcomes such as increased endangered and flagship species remained low. As well, the local communities decreased their involvement in natural resource conservation following the conflict over natural resources in the study area.

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). In 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 local people perceived the conservation projects 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 promises 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 their 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 village-based conservation approach in the study area continues its contribution to 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 resolutions that consider win–win situation would be of vital importance. McShane et al., 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 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 as village government need to use the conservation benefits in projects that provide income to individual families. Specific to this study area, beekeeping projects, cultural tourism that involves the selling of handmade crafts business, and provision of loans to community entrepreneurship groups should be considered.

Finally, this paper acknowledges the lessons learned from this study area 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. When the lands belong to local communities, the autonomy should include local ownership of the natural resources and over decision making on conservation and sustainable use of those resources. 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 clearly defined and clear governance roles articulated to stakeholders including local communities.

Second, sustainable use of natural resources in community conserved areas should be allowed to ensure that the local benefit from the conserved natural resources. the CBC approach emerged out of the failure of the “fence-and-fire” approach used in state protected areas (Mshale, 2008; Baldus, 2009), repeating the “fine-and-fence” approach in community conserved areas, is likely to bring conservation back to failure. 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 and, at the same time, should also raise awareness of the limitations of the application of such knowledge (eg., for wildlife livestock co-existence; Augustine et al., 2011; 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.

## **Chapter 4: CONCLUSION**

### **4.1. Introduction**

The overall purpose of this thesis was 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 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 of Other Effective Area-based Conservation Measures (OEACMs) to help achieve the Aichi Target 11 by 2020 and the global Sustainable Development Goals by 2030 (Jonas, 2014; UNEP, 2016). There is no doubt that 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), with the main causes of the loss being habitat loss and degradation, over-exploitation, alien invasive species, climate change and pollution (UNEP, 2016). It is also commonly agreed that Protected Areas (PAs) are an effective means to reduce that loss (Lopoukhine et al., 2012; Borrini-Farayerben et al., 2013). Despite being crucial to protect biodiversity loss, the PAs are also facing major threats (Chenevix-Trench, 2005; Sekhran et al., 2010; Lambi et al., 2012; Kideghesho, 2013), mainly from human activities (UNEP-WCMC and IUCN, 2016). The CBC approach is one of the proposed solutions to address current PA challenges (Nelson and Agrawal, 2008; Baldus, 2009). However, the CBC approach also faces challenges 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. Thus, the assessment of OEACMs is crucial to evaluate their effectiveness in helping to address the biodiversity loss problem.

The Loliondo conservation approach in northern Tanzania, unlike the majority of CBC, approaches in the region, to a large extent is managed by local people. The

purpose of this study was to assess this 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 in the Study Area**

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. 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. Because the conservation approach was operating at a small scale (e.g., single villages), the scale of governance was also small. The local community in that circumstance can hold their leaders accountable as they can reach them whenever they need (Agrawal, 2001). This finding is important as without the village council’s answerability to the local communities for the use of conservation funding, the local people would likely not

support 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 with 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 conservation benefits. In addition, the homogeneity of community members within this study area was found to have played a major role, as in most cases there was no in-group versus outgroups within study villages. Quite often, communities involved in the traditional CBC programs are heterogeneous in terms of their cultural backgrounds and 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). This finding also is important for biodiversity conservation as quite often communities involved in CBC programs are not satisfied with the sharing of conservation benefits which results in inter-village conflicts (Green and Adams, 2015; Moyo et al., 2016). In this study area, however, benefit sharing was not a problem as villages sign contracts individually with tourist companies that request access to their village lands and directly pay the individual villages.

On the other hand, the observation of other good governance principles (i.e., the performance principle and legitimacy and voice principle) have generated local concerns over the village-based conservation approach. The local people have concerns on the village council's 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 of which can result into inappropriate use of the funding which can also also result into low performance. The study results also indicate a low level of education of the local leaders and the entire community to be an attribute to the concerns over the low performance of the village councils. 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 local people further showed concerns over the legitimacy and voice of their village councils over the management of the natural resources in the study area. This result is relevant based on the governance complexity existing in the study area due to the multiple land use status of the study area. Competing interests over natural resource governance between the local communities, the central government, and tourist companies, lead to a longstanding conflict resulted in the ban of the conservation approach in many of the study villages. Due to the ban, it is likely that village councils' participation in natural resource conservation decision-making processes will have been reduced. The reduced village councils' participation in natural resource decision-making processes may have resulted in their inability to involve local communities in natural resource conservation and hence local concerns over their village councils' observation of legitimacy and voice principle. The implication of this finding is negative to conservation as, without local participation in conservation planning, the implementation of the conservation plans will hardly be achieved (Songorwa, 1999; Baldus, 2009).

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 at least once in a three-month period. It is at this meeting the villages discuss challenges and opportunities available in their village. 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 took away the main reason for villages to come together and discuss the use of the conservation funding. Apart from conservation issues in the study area, there are also other matters that need to be communicated in the village. 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. This was not a positive finding as, without transparency, the communities are unlikely to show cooperation (King, 2014; Frank and Booker, 2015).

All in all, at Ololosokwan village where the conservation approach was in practice, 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. 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 implemented, this study suggests that the governance of the conservation approach in Loliondo Division is potentially effective. However, it should be noted that this finding is based on the single remaining case study where a project is still active and it would be unwise to generalize too broadly from a single example.

#### **4.2.2. The Social–Ecological Contributions of the Conservation Approach in the Study Area**

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. These 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.

The village-based conservation projects, however, had a low impact on individual families as very few employment activities were created because very few business opportunities were created. 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 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 other study area villages, benefits have started to reach some individual families through scholarships provided by the village council to every village resident who wishes to pursue studies up to the level of a bachelor degree

Although the lack of benefits of the CBC projects at the family level is widely discussed as an obstacle to changing negative local perceptions of natural resource conservation (e.g., Songorwa, 1999; Alkan, 2009; Makupa et al., 2013; Downie, 2015), the ability of the village-based conservation approach in this study area to integrate wildlife conservation and livestock keeping, maintained positive local perceptions towards 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 to their livelihoods as it does to many CBC programs (Gardner, 2012; Nelson, 2012)

#### **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) within the village-conserved area and the limited or regulated livestock grazing within the locally conserved areas. As a result, village lands witnessed an increased abundance of wildlife. Even though the density of wildlife remained high in community lands, the abundance of endangered and flagship species was perceived to have remained low indicating the limitation of the CBC approach to natural resource conservation while reminding us of the importance of having PAs specific for conservation alone (e.g., category I protected areas) to host wildlife species that cannot coexist with human activities (Augustine et al., 2010; Fynn et al., 2016).

The conservation projects helped to improve the conservation of water sources for domestic, livestock and wildlife use. The Grumeti and Pololet Rivers, for example, which channel water to the SENAPA all originate 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 pastoralist 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 has 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 the pasture using bushfires and having areas in which 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 also reduced grazing land could 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 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. Further, the proposal put forward by the central government of seizing part of the village lands to create a restricted protected area (PA), in this case, a Game Reserve (GR), was strongly opposed by the local people and hence might have negatively influenced local involvement in wildlife conservation. The attempts to interfere with local involvement in natural resource conservation as in the case of this study area is likely to interfere with the longstanding coexistence of pastoralist communities and wildlife conservation (Bourn and Blench, 1999; Goldman, 2003; Mapinduzi et al., 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 faced by local communities after the proposed GR because the local people will not

be allowed to undertake their routine livelihood activities within their own village lands after the land seizure. Doing so, the idea of CBC that should involve the sustainable use of natural resources will be undermined.

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

There are features 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 features 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 was possible because the local people legally owned the land. Initially, all the villages in Loliondo Division had Land Title Deeds which enabled them to sign contractual agreements with photographic tourism companies. 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 tourist companies. 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) at the time of this study. 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 village-based conservation approach in Loliondo Division 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, 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 Loliondo Division 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 human 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 “fine-and-fence” approach used in PAs which led to the rise of CBC approach was due to limited access to natural resources by local communities in this PAs (Mshale, 2008; Neumann, 2004). 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 et al., 2015; Lyamuya et al., 2016; Fynn et al., 2016) and their compatibility is well documented (e.g., Bourn and Blench, 1999; Augustine et al., 2010; Lyamuya et al., 2016). Thus, allowing local people to sustainability use natural resources 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 to commonly conserve and use the financial benefits accrued from the conservation projects. The local communities involved in the conservation approach in Loliondo Division are agro-pastoral Maasai communities with similarly shared norms and similar social–cultural backgrounds. Because of this homogeneity, is likely that is why in village conflict over the use of natural resource benefits was not reported. 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. In this study area, because of the homogeneity of the local communities involved in the conservation projects, it is likely that communities were able to agree on important decisions necessary to sustain conservation and improve their local livelihood. Community

homogeneity further ensured fairness and equity on the sharing of the conservation projects as well as on the implementation of by-laws governing the natural resource use. Thus, community homogeneity played a great role in minimizing internal conflicts of the local people within villages and made them focus on the implementation of the conservation projects for both social and ecological benefits in Loliondo Division.

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 where there was not a good collaboration between village residents and tourist companies (e.g., OBC), failed to continue. 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.

#### **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. The conditions include the area where the approach needs to be applied has to have well-defined land tenure rights, all villages involved receive financial benefits, the villages involved have to have well-defined village boundaries, and finally the villages need to have strong local institutions.

As in the case of this study area, the discontinuity of the conservation project was much affected due to 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 land ownership. In the case of Tanzania, a village needs to have a village land certificates provided under the Village Land Right Act No. 5 of 1999. To sign



contractual agreements with the tourist companies in this study area, for example, 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 where are the boundaries of their natural resources to avoid renting tourist companies lands that do not belong to them. 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. Thus, the absence of clearly defined village boundaries can limit the application of this study area conservation approach.

Further, when the study villages adjacent to a PA where the approach needs to be applied are all not receiving conservation benefits, 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 other don't, 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 tourism companies and therefore received benefits. Thus, for this study area conservation approach to be applicable elsewhere, villages adjacent PAs need to be individually receiving conservation benefits.

Lastly, 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.

#### **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 in more details 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 (TNR, 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 interest in Loliondo Division. A shared governance that accommodates the interest of local communities, the central government, and the tourist companies would help to end the long-standing conflict

within the study area 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. One of the options to end the conflict is by stakeholders to 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 this study areas villages is their unrecognized land tenure rights. Local land tenure rights should be recognized and negotiations about a better way to conserve the natural resources in the study area would commence. The negotiations to ending the conflict should consider using trade-offs and hard choices principle (e.g., McShane, 2011) as well as conflict resolution model (e.g., Davidson and Wood, 2004). 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 also should ensure the conservation areas are connected between one village and another to avoid the fragmentation that would affect wildlife movements (Fahrig, 2003; Zuidema et al., 2009). 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.

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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.

<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.

#### **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 (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. 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

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

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 villages. One example 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 tourism 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.

#### **4.5.5. 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 Loliondo Division 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 health care infrastructure which have reduced the local mortality rate. However, the population growth challenge is often

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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).

<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

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 Loliondo Division.

This study recommends that family planning education should be brought in this study area by civil society organization (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, increased local capacity to manage the 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 as high a population growth as polygamy; Kolowski and Holekamp, 2006).

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

This study has limitation necessary to acknowledge and mention actions taken. The limitations which are discussed in detail below are those related to data collection techniques, complexes 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. The Use of Opportunistic Sampling**

One of the sampling techniques used to select respondents in this study was opportunistic sampling because of the scattered population in the study area and the time available for data collection. 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 et al., 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. Within the sub-villages, the researchers moved from homestead to homestead until the quotas were completed. Although the sampling design was not fully systematic, still the use of equal quota sampling in each of the sub-villages enabled researchers to get representative samples from each of the study villages and therefore the data represent the views of the wider study area. The study also used other data collection techniques such as focus group discussions and key informant interviews for corroboration of the study results.

#### **4.6.2. 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 with their contractual agreements with the tourist companies which many of the study villages are no longer receiving.

The study was aware of this 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.

#### **4.6.3. 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, people had to recall events that occurred in the past which some respondents were likely to have forgotten. The segregation of data from the study area (i.e., study villages) instead of aggregate data (i.e., the entire Loliondo Division) helped to see the difference in perceptions between villages that still implement the conservation projects and those which are no longer implementing the conservation projects and helped to make an overall conclusion about the effectiveness of the conservation approach in the study area.

#### **4.6.4. Positionality of the Researcher**

The main researcher for this study is a Maasai, and the study subjects are also Maasai people. It is likely that the researcher arrives at certain conclusions based on his pre-existing general knowledge of the study respondents. However, the main researcher did not come from this study site and in this case, declares to have acted as a “researcher” who is eager to find the truth and not as an advocate or activist who might be pushing the in group agenda forward. The researcher, therefore, used the extensive knowledge he possessed about the Maasai way of life as an opportunity to collect trustworthy data necessary to improving the study findings.

#### **4.6.5. The Use of Perceptions**

Most of this study’s findings are based on local perceptions and not on empirical measurements. The fact that perceptions may not be accurate and are subject to change depending on the situation of the study respondents (Bennett, 2016; Beyerl, et



al., 2016), may result in bias. To minimize the limitation, this study used 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.

#### **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 et al., 2009, McCabe et al., 2010). Therefore, further research is needed to understand how the pastoralists change of livelihoods to include crop cultivation and how this could affect their attitudes towards the interaction of wildlife conservation, livestock keeping, and crop cultivation.

#### **4.7.2. Determine a community-driven benefit sharing mechanism in Community-based conservation projects.**

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.

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

This study evaluated both social and ecological contributions of conservation approach projects and to a large extent, it used local perceptions and therefore lacks hard data on the conservation of biological integrity or actual financial, livelihood data at the family level. This study therefore suggests that future research aspires to assess the social–ecological impacts of conservation initiatives, and moves from using only local perceptions (Bennett, 2016) to using or integrating other empirical data collection methods such as GIS and remote sensing (Mass, 2005; Chape et al., 2005; Hall et al., 2013), and species richness and abundance (González-Maya, et al., 2015).

## 5. REFERENCES

- Acquah, E. (2013). Human-wildlife Interactions, Nature-based Tourism, And Protected Areas Management: The Case of Mole National Park and the Adjacent Communities in Ghana. PhD. Dissertation. *University of Victoria* (Canada). Retrieved from <http://search.proquest.com/openview/c3db028d075e100cff18c6aa0424c476/1?pq-origsite=gscholar&cbl=18750&diss=y>
- Agrawal, A. (2001). Common Property Institutions and Sustainable Governance of Resources. *World Development*, 29(10), 1649–1672.
- Agrawal, A., and Gibson, C., (1999). Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. *World Development*, 24(4); 629-649
- Agyare, A. K., Murray, G., Dearden, P., & Rollins, R. (2015a). Understanding Inter-Community Performance Assessments in Community-based Resource Management at Avu Lagoon, Ghana. *Environment, Development, and Sustainability*, 17(6), 1493–1508. <https://doi.org/10.1007/s10668-014-9617-7>
- Agyare, A., Murray, G., Dearden, P., & Rollins, R. (2013). Polycentric Governance and Social-Ecological Performance of Community Resource Management Areas in Ghana. PhD Dissertation. *University of Victoria. Canada*.
- Agyare, A., Murray, G., Dearden, P., & Rollins, R. (2015b). Conservation in Context: Variability in Desired and Perceived Outcomes of Community Based Natural Resources Governance in Ghana. *Society & Natural Resources*, 28(9), 975–994. <https://doi.org/10.1080/08941920.2015.1042127>

- Aktipis, C. A., Cronk, L., & de Aguiar, R. (2011). Risk-Pooling and Herd Survival: An Agent-Based Model of a Maasai Gift-Giving System. *Human Ecology*, 39(2), 131–140. <https://doi.org/10.1007/s10745-010-9364-9>
- Alemayehu K, Molla, E & Addis Getu, A, (2015). Livestock-Wildlife Interactions as a Threat for Community Based Ecotourism Development at Simien Mountains National Park, Ethiopia. *African Journal of Basic & Applied Sciences* 7 (6): 320-327. DOI: 10.5829/idosi.ajbas.2015.7.6.96264
- Alkan, H., Korkmaz, M., & Tolunay, A. (2009). Assessment of Primary Factors Causing Positive or Negative Local Perceptions on PAs. *Journal of Environmental Engineering and Landscape Management*, 17(1), 20–27. <https://doi.org/10.3846/1648-6897.2009.17.20-27>
- Augustine, D. J., Veblen, K. E., Goheen, J. R., Riginos, C., & Young, T. P. (2011). Pathways for Positive Cattle-Wildlife Interactions in Semi-Arid Rangelands. Conserving Wildlife in African Landscapes: *Kenya's Ewaso Ecosystem*. Retrieved from [https://works.bepress.com/kari\\_veblen/11/download/](https://works.bepress.com/kari_veblen/11/download/)
- Baird, T. D., & Leslie, P. W. (2013). Conservation as Disturbance: Upheaval and Livelihood Diversification Near Tarangire National Park, Northern Tanzania. *Global Environmental Change*, 23(5), 1131-1141. DOI: 10.1016/j.gloenvcha.2013.05.002
- Baldus, R. D., (2009). A Practical Summary of Experiences after Three Decades of Community-Based Wildlife Conservation in Africa “What Are the Lessons Learnt?” Rome, Italy: CIC & FAO. Retrieved from [http://www.cic-wildlife.org/wp-content/uploads/2012/12/Technical\\_series\\_5.pdf](http://www.cic-wildlife.org/wp-content/uploads/2012/12/Technical_series_5.pdf)
- Bandyopadhyay, S., Humavindu, M., Shyamsundar, P., & Wang, L. (2009). Benefits to Local Communities from Community Conservancies in Namibia: An Assessment.

*Development Southern Africa*, 26(5), 733–754.

<https://doi.org/10.1080/03768350903303324>

Barrett, C. B., & Arcese, P. (1995). Are Integrated Conservation-Development Projects (ICDPs) Sustainable? On the Conservation of Large Mammals in Sub-Saharan Africa. *World Development*, 23(7), 1073–1084. [https://doi.org/10.1016/0305-750X\(95\)00031-7](https://doi.org/10.1016/0305-750X(95)00031-7)

Bee, F. K., Diyamett, M. L. N., & Towo, E. N. (2002). Challenges to Traditional Livelihoods and Newly Emerging Employment Patterns of Pastoralists in Tanzania. Geneva. ILO.

Bellard, C., Bertelsmeier, C., Leadley, P., Thuiller, W., & Courchamp, F. (2012). Impacts of Climate Change on the Future of Biodiversity: Biodiversity and Climate Change. *Ecology Letters*, 15(4), 365–377. <https://doi.org/10.1111/j.1461-0248.2011.01736.x>

Benjaminsen, T. A., & Svarstad, H. (2010). The Death of an Elephant: Conservation Discourses Versus Practices in Africa. *Forum for Development Studies*, 37(3), 385–408. <https://doi.org/10.1080/08039410.2010.516406>

Benjaminsen, T. A., Goldman, M. J., Minwary, M. Y., & Maganga, F. P. (2013). Wildlife Management in Tanzania: State Control, Rent Seeking and Community Resistance: Wildlife Management in Tanzania. *Development and Change*, 44(5), 1087–1109. <http://doi.org/10.1111/dech.12055>

Bennett, N. (2016). Using Local Perception as Evidence to Improve Conservation and Environmental Management. *Conservation Biology*, 00, (0), 1–11. <https://doi.org/10.1111/cobi.12681>

Berkes F. (2004). Rethinking Community-based Conservation. *Conservation Biology*, 18 (3) 621 – 630. DOI: DOI: 10.1111/j.1523-1739.2004.00077.x

- Berkes, F. (2006). The Problematique of Community-based Conservation in a Multi-level World. In Biennial Meeting of the International Association for the Study of Commons (IASC), Bali, Indonesia. Retrieved from <https://dlc.dlib.indiana.edu/dlc/handle/10535/1880>
- Berkes, F. (2007). Community-based Conservation in A Globalized World. *Proceedings of the National Academy of Sciences*, 104(39), 15188–15193.
- Betts, M. G., Wolf, C., Ripple, W. J., Phalan, B., Millers, K. A., Duarte, A., ... Levi, T. (2017). Global forest loss disproportionately erodes biodiversity in intact landscapes. *Nature*, 547(7664), 441–444. <https://doi.org/10.1038/nature23285>
- Beyerl, K., Putz, O., & Breckwoldt, A. (2016). The Role of Perceptions for Community-Based Marine Resource Management. *Frontiers in Marine Science*, 3. <https://doi.org/10.3389/fmars.2016.00238>
- Biggs, R., Simons, H., Bakkenes, M., Scholes, R. J., Eickhout, B., van Vuuren, D., & Alkemade, R. (2008). Scenarios of Biodiversity Loss in Southern Africa in the 21st Century. *Global Environmental Change*, 18(2), 296–309. <https://doi.org/10.1016/j.gloenvcha.2008.02.001>
- Blackburn, S., Hopcraft, J. G. C., Ogutu, J. O., Matthiopoulos, J., & Frank, L. (2016). Human-wildlife Conflict, Benefit Sharing and The Survival of Lions. In Pastoralist Community-based Conservancies. *Journal of Applied Ecology*, 53(4), 1195–1205. <https://doi.org/10.1111/1365-2664.12632>
- Blackstock, K. (2005). A critical look at community based tourism. *Community Development Journal*, 40(1), 39–49. <https://doi.org/10.1093/cdj/bsi005>
- Blench, R. (2001). “You Can’t Go Home Again’: Pastoralism in the New Millennium. Overseas Development Institute London. Retrieved from

<https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/6329.pdf>

Borrini-Farayerbend, G. (2011). Co-management and Shared Governance – the “Effective and Equitable Option” for Natural Resources and Protected Areas? In Spelchan, D. G., Nicoll, I. A., & Nguyen, T. P. H. Co-management/Shared Governance of Natural Resources and Protected Areas in Viet Nam. Vietnam: Deutsche Gesellschaft Für Internationale Zusammenarbeit (GIZ). Retrieved from [http://www.academia.edu/download/28983783/proceedings\\_master\\_en.pdf](http://www.academia.edu/download/28983783/proceedings_master_en.pdf)

Borrini-Feyerabend, G., Dudley, N., Jaeger, T., Lassen, B., Broome, N., Phillips, A., & Sandwith, T (2013). Governance of Protected Areas: From Understanding to Action. Best Practice Protected Area Guidelines Series No. 20, Gland, Switzerland: IUCN. xvi + 124pp. retrieved from [http://cmsdata.iucn.org/downloads/governance\\_of\\_protected\\_areas\\_\\_\\_from\\_understanding\\_to\\_action.pdf](http://cmsdata.iucn.org/downloads/governance_of_protected_areas___from_understanding_to_action.pdf)

Bourn, D., & Blench, R., (Eds.) (1999). Can Livestock and Wildlife Co-Exist? An Interdisciplinary Approach; Livestock, Wildlife, and People in The Semi-Arid Rangeland of Eastern Africa. London: *Development Institute*. Available online at <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8087.pdf>

Bray, D., & Velazquez, A. (2009). From Displacement-based Conservation to Place-based Conservation. *Conservation and Society*, 7(1), 11. <https://doi.org/10.4103/0972-4923.54791>

Brennan, J., & Others. (2012). Managed Relocation: Integrating the Scientific, Regulatory, and Ethical Challenges. *BioScience*, 62(8), 732–743. <https://doi.org/10.1525/bio.2012.62.8.6>

- Brockelman, W., & Dearden, P. (1990). The Role of Nature Trekking in Conservation: A Case-study in Thailand. *Environmental Conservation*, 17(2), 141-148.  
doi:10.1017/S037689290003191X
- Brockington, D. (2002). Fortress Conservation: The Preservation of the Mkomazi Game Reserve, Tanzania. Oxford: Bloomington: International African Institute in association with James Currey; Indiana University Press.
- Brooks, J., Waylen, K. A., & Mulder, M. B. (2013). Assessing Community-based Conservation Projects: A Systematic Review and Multilevel Analysis of Attitudinal, Behavioral, Ecological, and Economic Outcomes. *Environmental Evidence*, 2(1), 2.
- Browne-Núñez, C., & Jonker, S. A. (2008). Attitudes Toward Wildlife and Conservation Across Africa: A Review of Survey Research. *Human Dimensions of Wildlife*, 13(1), 47–70. <https://doi.org/10.1080/10871200701812936>
- Butchart S. H, Walpole M, Collen B, van Strien A, Scharlemann J. P, Almond RE, Baillie JE, others (2010). Global Biodiversity: Indicators of Recent Declines. *Science*. 328(5982):1164 - 1168. DOI: 10.1126/science.1187512
- Byrom, A., Ruscoe, W., Nkwabi, A., Metzger, K., Forrester, G., Craft, M.... (2015). Small Mammals Diversity and population Dynamics in the Greter Serengeti Ecosystem. In Sinclair et al., (Eds.), Serengeti IV. Sustaining Biodiversity in a Coupled Human-Natural System (pp. 323-357). Chicago, USA: University of Chicago Press.
- Calhoun, A. J. K., Jansujwicz, J. S., Bell, K. P., & Hunter, M. L. (2014). Improving Management of Small Natural Features on Private Lands by Negotiating the Science-Policy Boundary for Maine Vernal Pools. *Proceedings of the National Academy of Sciences*, 111(30), 11002–11006.  
<https://doi.org/10.1073/pnas.1323606111>



- Campbell, L. M., & Vainio-Mattila, A. (2003). Participatory Development and Community-based Conservation: Opportunities Missed for Lessons Learned? *Human Ecology*, 31(3), 417–437.
- Chaigneau, T., & Brown, K. (2016). Challenging the Win-Win Discourse on Conservation and Development: Analyzing Support for Marine Protected Areas. *Ecology and Society*, 21(1). <https://doi.org/10.5751/ES-08204-210136>
- Chape, S., Harrison, J., Spalding, M., & Lysenko, I. (2005). Measuring the Extent and Effectiveness of Protected Areas as an Indicator for Meeting Global Biodiversity Targets. *The Royal Society*, 360, 443–455. DOI:10.1098/rstb.2004.1592
- Chauvet, G. (2015). Coupling Methods for Multistage Sampling. *The Annals of Statistics*, 43(6), 2484–2506. <https://doi.org/10.1214/15-AOS1348>
- Chenevix-Trench, H. (2005). Managing Mountain Protected Areas: Challenges and Responses for the 21st Century. *Mountain Research and Development*, 25(4), 387–388. [https://doi.org/10.1659/0276-4741\(2005\)025\[0387:MMPACA\]2.0.CO;2](https://doi.org/10.1659/0276-4741(2005)025[0387:MMPACA]2.0.CO;2)
- Conroy, A. (2013). Maasai Agriculture and Land Use Change. Livestock, Environment and Development Initiative (LEAD) of the FAO Electronic Newsletter, 5(2), 1. Retrieved from [http://www.fao.org/fileadmin/templates/lead/pdf/05\\_article01\\_en.pdf](http://www.fao.org/fileadmin/templates/lead/pdf/05_article01_en.pdf)
- Darling, D., & Bittel, S. (1991). Strategic Planning for Community Development. Community Development Series. Cooperative Extension Service. *Manhattan Kansas*. Retrieved from <https://www.bookstore.ksre.ksu.edu/pubs/L830.pdf>
- Davidson, J., & Wood, C. (2004). A Conflict Resolution Model. *Theory into Practice*, 43(1), 6–13. Retrieved from <https://testnewhome.files.wordpress.com/2012/10/a-conflict-resolution-model1.pdf>

- Dearden P., (1995). Park Literacy and Conservation. *Conservation Biology* 9(6), 1654 – 1656. DOI: 10.1046/j.1523-1739.1995.09061654.x
- Dearden, P., Bennett, M., & Johnston, J. (2005). Trends in Global Protected Area Governance, 1992–2002. *Environmental Management*, 36(1), 89–100.  
<https://doi.org/10.1007/s00267-004-0131-9>
- Downie, B. K. (2015). Conservation Influences on Livelihood Decision-Making: A Case Study from Saadani National Park, Tanzania. Ph.D. Dissertation. University of Victoria, Canada. Retrieved from <http://dspace.library.uvic.ca/handle/1828/6266>
- Downie, B. K., & Dearden, P. (2017). Short-term Needs Trump Conservation in Household Livelihood Decision-Making around Saadani National Park, Tanzania. *South African Geographical Journal*, 1–14.  
<https://doi.org/10.1080/03736245.2017.1342210>
- Dressler W. et al. (2010). From hope to crises and back again? A critical history of the global CBNRM narrative. *Environmental Conservation*, 37(1). DOI: 10.1017/S0376892910000044
- Dudley, N. (Eds.) (2008). Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN. x + 86pp. Retrieved from [http://cmsdata.iucn.org/downloads/guidelines\\_for\\_applying\\_protected\\_area\\_management\\_categories.pdf](http://cmsdata.iucn.org/downloads/guidelines_for_applying_protected_area_management_categories.pdf)
- Dyer, J., Stringer, L. C., Dougill, A. J., Leventon, J., Nshimbi, M., Chama, F., ... others. (2014). Assessing Participatory Practices in Community-based Natural Resource Management: Experiences in Community Engagement from Southern Africa. *Journal of Environmental Management*, 137, 137–145.
- Eby, S., Dempewolf J., Holdo, R., & Metzger, K., (2015). Natural Sources and Heterogeneity and Disturbance. In Sinclair et al., (Eds.), Serengeti IV. Sustaining

Biodiversity in a Coupled Human-Natural System (pg. 73-74). Chicago, USA:  
University of Chicago Press.

Eklund, J., & Cabeza, M. (2016). Quality of Governance and Effectiveness of Protected Areas: Crucial Concepts for Conservation Planning: Governance and Protected Area Effectiveness. *Annals of the New York Academy of Sciences*, 1399(1), 27–41.  
<https://doi.org/10.1111/nyas.13284>

Enghoff, (1990). Commission on Nomadic People. Wildlife Conservation, Ecological Strategies, and Pastoral Communities. A Contribution to the Understanding of Parks and People in East Africa. Nomadic People, 23-27. Retrieved from  
[http://iuaes.org/downloads/comm/cnp/journal/Wildlife\\_conservation\\_ecological\\_strategies\\_and\\_pastoral\\_communities\\_M\\_Enghoff.pdf](http://iuaes.org/downloads/comm/cnp/journal/Wildlife_conservation_ecological_strategies_and_pastoral_communities_M_Enghoff.pdf)

Fahrig, L. (2003). Effects of Habitat Fragmentation on Biodiversity. *Annual Review of Ecology, Evolution, and Systematics*, 34(1), 487–515.  
<https://doi.org/10.1146/annurev.ecolsys.34.011802.132419>

Franks, P., & Booker, F. (2015). Shared governance of Protected Areas in Africa: Case studies, lessons learned and conditions of success. IIED, London. Retrieved from  
[http://papaco.org/wp-content/uploads/2015/04/PAPACO-study-18\\_GOVERNANCE-STUDY-1-FINAL-REPORT-SHARED.pdf](http://papaco.org/wp-content/uploads/2015/04/PAPACO-study-18_GOVERNANCE-STUDY-1-FINAL-REPORT-SHARED.pdf)

Freese, C.H., 1998. Wild Species as Commodities: Managing Markets and Ecosystems for Sustainability. Island Press, Washington, DC.

Frey, B. and Stutzer, A. (2006). Environmental Morale and Motivation. Institute of Empirical Research in Economics. The University of Zurich. Working Paper Series. ISSN 1424-0459. Retrieved from <http://crema-research.ch/papers/2006-17.pdf>

- Fuhlendorf, S. D., & Engle, D. M. (2004). Application of the Fire–grazing Interaction to Restore a Shifting mosaic on Tallgrass Prairie. *Journal of Applied Ecology*, 41(4), 604–614.
- Fynn, R. W. S., Augustine, D. J., Peel, M. J. S., & de Garine-Wichatitsky, M. (2016). REVIEW: Strategic Management of Livestock to Improve Biodiversity Conservation in African Savannas: A Conceptual Basis for Wildlife-livestock Coexistence. *Journal of Applied Ecology*, 53(2), 388–397.  
<http://doi.org/10.1111/1365-2664.12591>
- Gadd, M. E. (2005). Conservation Outside of Parks: Attitudes of Local People in Laikipia, Kenya. *Environmental Conservation*, 32(1), 50–63.  
<https://doi.org/10.1017/S0376892905001918>
- Galaty, J. G. (1982). Being “Maasai”; Being “People-of-Cattle”: Ethnic Shifters in East Africa. *American Ethnologist*, 9(1), 1–20.
- Gardner, B. (2012). Tourism and the politics of the global land grab in Tanzania: markets, appropriation, and recognition. *Journal of Peasant Studies*, 39(2), 377–402.  
<http://doi.org/10.1080/03066150.2012.666973>
- Gardner, B. (2016). *Selling the Serengeti: The Cultural Politics of Safari Tourism*. Athens, University of Georgia Press. USA
- Gargallo, E. (2015). Conservation on Contested Lands: The Case of Namibia’s Communal Conservancies. *Journal of Contemporary African Studies*, 1–19.  
<http://doi.org/10.1080/02589001.2015.1065575>
- Goldman, M. (2003). Partitioned Nature, Privileged Knowledge: Community-based Conservation in Tanzania. *Development and Change*, 34(5), 833–862.

- González-Maya, J., Viquez-R, L., Belant, J., & Ceballos, G. (2015) Effectiveness of Protected Areas for Representing Species and Populations of Terrestrial Mammals in Costa Rica. *PLoS ONE* 10(5): e0124480. DOI: 10.1371/journal.pone.0124480
- Graham, J., Amos, B., & Plumptre, T. (2003). Principles for Good Governance in the 21st Century. Policy Brief, 15, 1–6. Retrieved from [http://iog.ca/wp-content/uploads/2012/12/2003\\_August\\_policybrief151.pdf](http://iog.ca/wp-content/uploads/2012/12/2003_August_policybrief151.pdf)
- Green, E., & Adams, M. (2015). Green Grabbing and the Dynamics of Local-level Engagement with Neoliberalization in Tanzania's Wildlife Management Areas. *The Journal of Peasant Studies*, 42(1), 97–117. <http://doi.org/10.1080/03066150.2014.967686>
- Griggs, D., Stafford-Smith, M., Gaffney, O., Rockström, J., Öhman, M. C., Shyamsundar, P., ... Noble, I. (2013). Policy: Sustainable Development Goals for People and Planet. *Nature*, 495(7441), 305–307.
- Groves, C. R., Jensen, D. B., Valutis, L. L., Redford, K. H., Shaffer, M. L., Scott, J. M., ... Anderson, M. G. (2002). Planning for Biodiversity Conservation: Putting Conservation Science into Practice. *BioScience*, 52(6), 499–512.
- Hall, J. M., Burgess, N. D., Rantala, S., Vihem Ki, H., Jambiya, G., Gereau, R. E., ... Kizaji, A. (2014). Ecological and Social Outcomes of a New Protected Area in Tanzania. *Conservation Biology*, 28(6), 1512–1521. <https://doi.org/10.1111/cobi.12335>
- Hauzer, M., Dearden, P., & Murray, G. (2013). The Effectiveness of Community-based Governance of Small-scale Fisheries, Ngazidja Island, Comoros. *Marine Policy*, 38, 346–354. <https://doi.org/10.1016/j.marpol.2012.06.012>
- Hazzah, L., Bath, A., Dolrenry, S., Dickman, A., & Frank, L. (2017). From Attitudes to Actions: Predictors of Lion Killing by Maasai Warriors. *PloS One*, 12(1), e0170796.

- Hazzah, L., Mulder, M., & Frank, L. (2009). Lions and Warriors: Social Factors Underlying Declining African Lion Populations and the Effect of Incentive-based Management in Kenya. *Biological Conservation*, 142(11), 2428–2437. <https://doi.org/10.1016/j.biocon.2009.06.006>
- Holechek, C., Bengaly, K., & Kinyamario, J. (2017). Human Population Growth, African Pastoralism, and Rangelands: A Perspective. *Rangeland Ecology & Management*, 70(3), 273–280. <https://doi.org/10.1016/j.rama.2016.09.004>
- Homewood, F., Trench, P., & Brockington, D. (2012). Pastoralist Livelihoods and Wildlife revenues in East Africa: a case for coexistence? *Pastoralism*, 2(1), 1–23.
- Homewood, F., Kristjanson, P., & Trench, P. (Eds.). (2009). *Staying Maasai?* New York, NY: Springer New York. Retrieved from <http://link.springer.com/10.1007/978-0-387-87492-0>
- Homewood, F., Lambin, E., Coast, E., Kariuki, A., Kikula, I., Kivela, J., ... Thompson, M. (2001). Long-term changes in Serengeti-Mara Wildebeest and Land Cover: Pastoralism, Population, or Policies? *Proceedings of the National Academy of Sciences*, 98(22), 12544–12549. <https://doi.org/10.1073/pnas.221053998>
- Humavindu, M. N., & Stage, J. (2015). Community-based Wildlife Management Failing to Link Conservation and Financial Viability: Finances of Community-based Wildlife Management. *Animal Conservation*, 18(1), 4–13. <http://doi.org/10.1111/acv.12134>
- Hutton, J., & Leader-Williams, N. (2003). Sustainable Use and Incentive-driven Conservation: Realigning Human and Conservation Interests. *Oryx*, 37(02). <http://doi.org/10.1017/S0030605303000395>

- Igoe, J., & Croucher, B. (2007). Conservation, Commerce, and Communities: The Story of Community-based Wildlife Management Areas in Tanzania's Northern Tourist Circuit. *Conservation and Society*, 5(4), 534 - 561.
- IUCN (2017). The IUCN Red List of Threatened Species. Version 2017-1. Available at <http://www.iucnredlist.org>
- Jonas, H. D., Barbuto, V., Jonas, Kothari, A., & Nelson, F. (2014). New Steps of Change: Looking Beyond Protected Areas to Consider Other Effective Area-based Conservation Measures. *PARKS*, 20(2), 111–128.  
<https://doi.org/10.2305/IUCN.CH.2014.PARKS-20-2.HDJ.en>
- Joppa, L. N., Loarie, S. R. and Nelson, A. (2010). Measuring Population Growth Around Tropical Protected Areas: Current Issues and Solutions. *Tropical Conservation Science*, 3 (2), 117-121. Available online: [www.tropicalconservationscience.org](http://www.tropicalconservationscience.org)
- Kaswamila, A., Russell, S., & McGibbon, M. (2007). Impacts of Wildlife on Household Food Security and Income in the Northeastern Tanzania. *Human Dimensions of Wildlife*, 12 (6), 391 - 404. <http://dx.doi.org/10.1080/10871200701670003>
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The Worldwide Governance Indicators: Methodology and Analytical Issues. *Hague Journal on the Rule of Law*, 3(2), 220–246.
- Kideghesho, J. R. (2016). The Elephant Poaching Crisis in Tanzania: A Need to Reverse the Trend and the Way Forward. *Tropical Conservation Science*, 9 (1), 369-388.
- Kideghesho, J., Rija, A., Mwamende, K., & Selemani, I. (2013). Emerging issues and challenges in conservation of biodiversity in the rangelands of Tanzania. *Nature Conservation*, 6, 1–29. <https://doi.org/10.3897/natureconservation.6.5407>

- King, N. A. S. (2014). Transparency Enhancement in Tanzania: A Focus on Local Government Administration in Mbeya District. *International Journal of Humanities Social Sciences and Education*, 1 (6), 34-39.  
DOI=10.1.1.681.5618&rep=rep1&type=pdf
- Kisingo, A. W., Dearden, P., Rollins, R. B., (2013). Governance of Protected Areas in the Serengeti ecosystem, Tanzania. *Ph.D. Dissertation*. University of Victoria, Canada
- Kisingo, A., Rollins, R., Murray, G., Dearden, P., & Clarke, M. (2016). Evaluating “Good Governance”: The Development of a Quantitative Tool in the Greater Serengeti Ecosystem. *Journal of Environmental Management*, 181, 749–755.  
<https://doi.org/10.1016/j.jenvman.2016.08.002>
- Kissui B. (2008). Livestock Predation by Lions, Leopards, Spotted Hyenas, and their Vulnerability to Retaliatory Killing in the Maasai Steppe, *Tanzania. Animal Conservation*, 11, 422–432. DOI: 10.1111/j.1469-1795.2008.00199.x
- Kiwango, W. A., Komakech, H. C., Tarimo, T. M., & Martz, L. (2015). Decentralized Environmental Governance: A Reflection on its Role in Shaping Wildlife Management Areas in Tanzania. *Tropical Conservation Science*, 8(4), 1080–1097.  
Available online: [www.tropicalconservationscience.org](http://www.tropicalconservationscience.org)
- Kolowski, J. M., & Holekamp, K. E. (2006). Spatial, Temporal, and Physical Characteristics of Livestock Depredations by Large Carnivores Along a Kenyan Reserve Border. *Biological Conservation*, 128(4), 529-541. DOI: 10.1016/j.biocon.2005.10.021
- Kopinina, H., & Washington, H. (2016). Discussing Why Population Growth is Still Ignored or Denied. *Chinese Journal of Population Resources and Environment*, 14(2), 133–143. <https://doi.org/10.1080/10042857.2016.1149296>
- Kreuter, U., Peel, M., & Warner, E. (2010). Wildlife Conservation and Community-Based Natural Resource Management in Southern Africa’s Private Nature Reserves.



*Society & Natural Resources*, 23(6), 507–524.

<https://doi.org/10.1080/08941920903204299>

Lee, T. M., Sodhi, N. S., & Prawiradilaga, D. M. (2007). The importance of Protected Areas for the forest and endemic avifauna of Sulawesi Indonesia. *Ecological Applications*, 17(6), 1727–1741.

Lele, S., Wilshusen, P., Brockington, D., Seidler, R., & Bawa, K. (2010). Beyond Exclusion: Alternative Approaches to Biodiversity Conservation in The Developing Tropics. *Current Opinion in Environmental Sustainability*, 2(1–2), 94–100.

<https://doi.org/10.1016/j.cosust.2010.03.006>

Lengoibonia, M., Van Der Molena, P., & Bregtb, A. K. (2009). Pastoralism within Land Administration: Seasonal Interactions and Access Agreements between Pastoralists and Non-Pastoralists-A Case of Northern Kenya<sup>1</sup>. Retrieved from [https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/2355/lengoiboni\\_wow4.pdf?sequence=1](https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/2355/lengoiboni_wow4.pdf?sequence=1)

Levine, T. R., & Hullett, C. R. (2002). Eta Squared, Partial Eta Squared, and Misreporting of Effect Size in Communication Research. *Human Communication Research*, 28(4), 612–625.

Lindenmayer, D. B. (2015). Continental-level Biodiversity Collapse. *Proceedings of the National Academy of Sciences*, 112(15), 4514–4515.

<https://doi.org/10.1073/pnas.1502766112>

Lockwood, M., (2010). Good Governance for Terrestrial Protected Areas: A Framework, Principles and Performance Outcomes. *Journal of Environmental Management*, 91(3), 754–766. <https://doi.org/10.1016/j.jenvman.2009.10.005>

Lopoukhine, N., Crawhall, N., Dudley, N., Figgis, P., Karibuhoye, C., Laffoley, D., ... Sandwith, T. (2012). Protected Areas: Providing Natural Solutions to 21st Century

Challenges. *Surveys and Perspectives Integrating Environment and Society*, 5 (2), 117 – 131. Retrieved from <http://sapiens.revues.org/1254>

Lyamuya, R. D., Masenga, E. H., Fyumagwa, R. D., Mwita, M. N., & Røskoft, E. (2016). Pastoralist Herding Efficiency in Dealing with Carnivore-Livestock Conflicts in The Eastern Serengeti, Tanzania. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 12(3), 202–211. <https://doi.org/10.1080/21513732.2016.1163735>

MacKenzie, C. A., Salerno, J., Hartter, J., Chapman, C. A., Reyna, R., Tumusiime, D. M., & Drake, M. (2017). Changing Perceptions of Protected Area Benefits and Problems Around Kibale National Park, Uganda. *Journal of Environmental Management*, 200, 217–228. <https://doi.org/10.1016/j.jenvman.2017.05.078>

Maddox, T. M. (2003). The Ecology of Cheetahs and Other Large Carnivores in a Pastoralist-dominated Buffer Zone. *PhD Thesis*. The University of London. Retrieved from [http://www.carnivoreconservation.org/files/thesis/maddox\\_2003\\_phd.pdf](http://www.carnivoreconservation.org/files/thesis/maddox_2003_phd.pdf)

Makupa, E., Canessa, R., & King L., (2013). Conservation Efforts and Local Livelihoods in Western Serengeti, Tanzania: Experiences from Ikona Community Wildlife Management Area. *PhD. Dissertation*. University of Victoria, Canada

Manfredo, M. J., Teel, T. L., & Dietsch, A. M. (2016). Implications of Human Value Shift and Persistence for Biodiversity Conservation: Value Shift and Conservation. *Conservation Biology*, 30(2), 287–296. <https://doi.org/10.1111/cobi.12619>

Mapinduzi, A. L., Oba, G., Weladji, R. B., & Colman, J. E. (2003). Use of Indigenous Ecological Knowledge of the Maasai Pastoralists for Assessing Rangeland Biodiversity in Tanzania. *African Journal of Ecology*, 41(4), 329–336. <https://doi.org/10.1111/j.1365-2028.2003.00479.x>

- Marques, A., Pereira, H. M., Krug, C., Leadley, P. W., Visconti, P., Januchowski-Hartley, S. R., Walpole, M. (2014). A Framework to Identify Enabling and Urgent Actions for the 2020 Aichi Targets. *Basic and Applied Ecology*, 15(8), 633–638.  
<http://doi.org/10.1016/j.baae.2014.09.004>
- Mas, J. (2005). Assessing protected area Effectiveness using Surrounding (buffer) areas Environmentally Similar to the Target Area. *Environmental Monitoring and Assessment*, 105: 69–80; DOI: 10.1007/s10661-005-3156-5
- Masanja, G. (2014). Human Population Growth and Wildlife Extinction in Ugalla Ecosystem, Western Tanzania. *Journal of Sustainable Development Studies*, 5 (2), 192-217
- Matinyi, M., (2016, Dec 3rd). Majaliwa huu ndio ukweli wa Loliondo. Retrieved on 12th May 2017, from <http://mtanzania.co.tz/majaliwa-huu-ndiyo-ukweli-wa-loliondo/>
- Mbaiwa J. (2015). Community-based Natural Resource Management in Botswana. In Duim et al., (Eds). Institutional Arrangements for Conservation, Development and Tourism in Eastern and Southern Africa (pg. 59-80). *Development and Tourism in Eastern and Southern Africa*. DOI 10.1007/978-94-017-9529-6\_4
- Mbaiwa, J., Stronza, A., & Kreuter, U. (2011). From Collaboration to Conservation: Insights from the Okavango Delta, Botswana. *Society & Natural Resources*, 24(4), 400–411. <https://doi.org/10.1080/08941921003716745>
- Mbano, B. N. N., Malpas, R. C., Maige, M. K. E., Symonds, P. A. K. & Thompson, D. M. (1995). The Serengeti Regional Conservation Strategy. In Sinclair, A. R. E. & Arcese, P. Serengeti II. Dynamic, Management, and Conservation of an Ecosystem (2nd Eds., pp. 605–616). Chicago University Press: Chicago
- Mbifung Lambi, C., Ndzifon Kimengsi, J., Givencheh Kometa, C., & Sunjo Tata, E. (2012). The Management and Challenges of Protected Areas and the Sustenance of Local

- Livelihoods in Cameroon. *Environment and Natural Resources Research*, 2(3).  
<https://doi.org/10.5539/enrr.v2n3p10>
- McCabe, J. T., Leslie, P. W., & DeLuca, L. (2010). Adopting Cultivation to Remain Pastoralists: The Diversification of Maasai Livelihoods in Northern Tanzania. *Human Ecology*, 38(3), 321–334. <https://doi.org/10.1007/s10745-010-9312-8>
- McShane, T. O., Hirsch, P. D., Trung, T. C., Songorwa, A. N., Kinzig, A., Monteferri, B., ... O'Connor, S. (2011). Hard choices: Making Trade-offs between Biodiversity Conservation and Human Well-being. *Biological Conservation*, 144(3), 966–972. <https://doi.org/10.1016/j.biocon.2010.04.038>
- Mdee, A., & Thorley, L. (2016). Good Governance, Local Government, Accountability and Service Delivery in Tanzania. Retrieved from [https://www.intrac.org/wpcms/wp-content/uploads/2016/11/WP2\\_Local-governance-and-accountability-in-Tz\\_Mzumbepaper\\_FINAL\\_311016.pdf](https://www.intrac.org/wpcms/wp-content/uploads/2016/11/WP2_Local-governance-and-accountability-in-Tz_Mzumbepaper_FINAL_311016.pdf)
- Measham, T. G., & Lumbasi, J. A. (2013). Success Factors for Community-Based Natural Resource Management (CBNRM): Lessons from Kenya and Australia. *Environmental Management*, 52(3), 649–659. <https://doi.org/10.1007/s00267-013-0114-9>
- Mhala, J. (2017, January 23rd). Kampuni ya OBC yaweka mambo hadharani kwa DC. Habari Leo. Retrieved on May 5th, 2017 from <http://www.habarileo.co.tz/index.php/habari-za-kitaifa/20262-kampuni-ya-orttelo-yaweka-mambo-hadharani-kwa-rc>
- Miller, B. W., Leslie, P. W., & McCabe, J. T. (2014). Coping with Natural Hazards in a Conservation Context: Resource-Use Decisions of Maasai Households During Recent and Historical Droughts. *Human Ecology*, 42(5), 753–768. <https://doi.org/10.1007/s10745-014-9683-3>

- Moyo, F., Ijumba, J., & Lund, J. (2016). Failure by Design? Revisiting Tanzania's Flagship Wildlife Management Area Burunge. *Conservation and Society*, 14(3), 232. <https://doi.org/10.4103/0972-4923.191160>
- Mshale (2008). Has Community-based Conservation Failed in Tanzania? Lessons from Local People's Attitudes and Practices Towards Conservation in Morogoro District. *Yale Tropical Resource Institute*, 27. Retrieved from <https://environment.yale.edu/tri/uploads/Mshale.pdf>
- Murphree, M. W. (2009). The Strategic Pillars of Communal Natural Resource Management: Benefit, Empowerment, and Conservation. *Biodiversity and Conservation*, 18(10), 2551–2562. <https://doi.org/10.1007/s10531-009-9644-0>
- Mwakaje, A. G., Manyasa, E., Wawire, N., Muchai, M., Ongare, D., Mugoya, C., Nikundiwe, A. (2013). Community-Based Conservation, Income Governance and Poverty Alleviation in Tanzania: The Case of Serengeti Ecosystem. *The Journal of Environment & Development*, 22(1) 51-73. DOI:10.1177/ 1070496512471949.
- Nelson, (2008). Developing Alternative Frameworks for Community-based Conservation: Piloting Payments for Environmental Services (PES) in Tanzania's Simanjiro Plains. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/Pnadt596.pdf](http://pdf.usaid.gov/pdf_docs/Pnadt596.pdf)
- Nelson, F. (2004). The Evolution and Impacts of Community-based Ecotourism in Northern Tanzania. *International Institute for Environment and Development, issue paper*, 131. London. Retrieved from <http://pubs.iied.org/pdfs/9507IIED.pdf?>
- Nelson, F. (2012). Natural Conservationists? Evaluating the Impact of Pastoralist Land Use Practices on Tanzania's Wildlife Economy. *Pastoralism*, 2(1), 1–19.

- Nelson, F. (Ed.). (2010). *Community Rights, Conservation, and Contested Land: The Politics of Natural Resource Governance in Africa*. London; Washington, DC: Earthscan.
- Nelson, F., & Agrawal, A. (2008). Patronage or Participation? Community-based Natural Resource Management Reform in sub-Saharan Africa. *Development and Change*, 39(4), 557–585.
- Neumann R (2004). Moral and Discursive Geographies in The War for Biodiversity in Africa. *Political Geography*, (23) 813–837
- Neumann, R. (2000) 'Land, Justice, and the Politics of Conservation in Tanzania', in C. Zerner (Ed.) *People, Plants, and Justice: The Politics of Nature Conservation*, pp. 117–43. New York: Columbia University Press.
- Newing, H., & Eagle, C. M. (2011). *Conducting Research in Conservation: Social Science Methods and Practice*. London: Routledge.
- Ngirwa, P. M., Kolawole, O. D., & Mbaiwa, J. E. (2013). Community-Based Natural Resource Management, Tourism and Poverty Alleviation in Southern Africa: What Works and What Doesn't Work. *Chinese Business Review*, 12(12), 789-806. Retrieved from <http://search.proquest.com/openview/ca162afc33f37f922c3af4d4d55c2134/1?pq-origsite=gscholar>
- Ngonidzashe Mutanga, C., Vengesayi, S., Gandiwa, E., & Muboko, N. (2015). Community Perceptions of Wildlife Conservation and Tourism: A Case Study of Communities Adjacent to Four PAs in Zimbabwe. *Tropical Conservation Science*, 8(2), 564–582.
- Nkwame, M. (2017, January 27th). Loliondo District conflicts 'cause investor exit'. Daily News. Retrieved on May 5th, 2017 from <http://dailynews.co.tz/index.php/home-news/47995-loliondo-district-conflicts-cause-investor-exit>

- Oates, J.F., (1999). *Myth and Reality in the Rain Forest: How Conservation Strategies are Failing in West Africa*. University of California Press, Berkeley. OECD, 1996. *Shaping the 21st Century: The Role of Development Co-operation*. OECD, Paris.
- Ojalammi, S. (2006). *Contested Lands: Land Disputes in Semi-Arid Parts of Northern Tanzania, the Case Studies from Loliondo and Sale Divisions in the Ngorongoro District. Academic Dissertation*. University of Helsinki
- Olson, M. (2002). *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press. Massachussets, USA
- Ostrom, E. (1990). Self-governance of Common Pool Resources. W97-2. Workshop in Political Theory and Policy Analysis. Indiana University. Bloomington
- Ostrom, E. (2000). Collective Action and The Evolution of Social Norms. *Journal of Economic Perspectives*, 14 (3), 137–158.
- Randal, D., Fischer, A., Nelson, A., Msuha, M., Lowassa, A., & Sandstrom, C. (2015). Multiple Functions and Institutions: Management Complexity in the Serengeti Ecosystem. In Sinclair et al., (Eds.), *Serengeti IV. Sustaining Biodiversity in a Coupled Human-Natural System* (pp. 701-735). Chicago, USA: University of Chicago Press.
- Redpath, S. M., Linnell, J. D. C., Festa-Bianchet, M., Boitani, L., Bunnefeld, N., Dickman, A., ... Milner-Gulland, E. J. (2017). Don't forget to Look Down - Collaborative Approaches to Predator Conservation: Collaborative Carnivore Conservation. *Biological Reviews*. <https://doi.org/10.1111/brv.12326>
- Robinson L. and Makupa E. (2015). Using Analysis of Governance to Unpack Community-Based Conservation: A Case Study from Tanzania. *Environmental Management*, 56, 1214-1227, DOI: 10.1007/s00267-015-0573-2

- Robinson, J.G., (1993). The Limits to Caring: Sustainable Living and The Loss of Biodiversity. *Conservation Biology* 7 (1), 20–28.
- Robson, C. (Eds.) (2011). Real World Research. A Resource for Users of Social Research Methods in Applied Settings. Wiley, UK.
- Rockström, J., Steffen, W., Noone, K., Persson, Chapin, F. S., Lambin, E. F., ... others. (2009). A Safe Operating Space for Humanity. *Nature*, 461(7263), 472–475.
- Roe, D., Mohammed, E. Y., Porras, I., & Giuliani, A. (2013). Linking Biodiversity Conservation and Poverty Reduction: De-Polarizing the Conservation-Poverty Debate: The Conservation-Poverty Debate. *Conservation Letters*, 6(3), 162–171. <https://doi.org/10.1111/j.1755-263X.2012.00292.x>
- Rurai, M (2012). Framing of Resource Use Conflicts in Loliondo Game Controlled Area-Tanzania Wildlife Tourism, Conservation, and Pastoralism interface. *Master Thesis*. Wageningen University-HOLLAND
- Ruttan, L. M., & Borgerhoff Mulder, M. (1999). Are East African Pastoralists Truly Conservationists? *Current Anthropology*, 40(5), 621–652. <https://doi.org/10.1086/300086>
- Sala, O. E. (2000). Global Biodiversity Scenarios for the Year 2100. *Science*, 287(5459), 1770–1774. <https://doi.org/10.1126/science.287.5459.1770>
- Salafsky, et al., (2001). A systematic Test Enterprise Strategy for Community-based Biodiversity Conservation. *Conservation Biology*, 15 (6), 1585 – 1595.
- Salafsky, N., & Wollenberg, E. (2000). Linking Livelihoods and Conservation: A Conceptual Framework and Scale for Assessing the Integration of Human Needs and Biodiversity. *World Development*, 28(8), 1421–1438.



- Salafsky, N., (2011). Integrating Development with Conservation: A Means to a Conservation End, Or A Mean End to Conservation? *Biological Conservation* 144, 973–978.
- Salerno, J., Borgerhoff Mulder, M., Grote, M. N., Ghiselli, M., & Packer, C. (2016). Household Livelihoods and Conflict with Wildlife in Community-based Conservation Areas Across Northern Tanzania. *Oryx*, 50(4), 702–712.  
<https://doi.org/10.1017/S0030605315000393>
- Schmitt, N. (2010). Improving Conservation Efforts in the Serengeti Ecosystem, Tanzania: An Examination of Knowledge, Benefits, Costs, and Attitudes. *Ph.D. thesis*, University of Minnesota, USA
- Scholte, P., de Groot, W.T., (2010). From Debate to Insight: Three Models of Immigration to Protected Areas. *Conservation Biology* 24 (2), 630–632.
- Seebacher, F., & Post, E. (2015). Climate Change Impacts on Animal Migration. *Climate Change Responses*, 2(1). <https://doi.org/10.1186/s40665-015-0013-9>
- Sekhran, A., Dinu, A., Mee, J., Gidda, S., Vergeichik, M., & Ervin, J. (2010). Protected Areas for the 21st century: Lessons from UNDP/GEF's Portfolio. UNDP. Retrieved from <http://bibliotecavirtual.minam.gob.pe/biam/handle/minam/1305>
- Shahmirzadi, E. K. (2012). Community-based Tourism (CBT) Planning and Possibilities: The Case of Shahmirzad, Iran. Eastern Mediterranean University (EMU). Retrieved from <http://i-rep.emu.edu.tr:8080/xmlui/handle/11129/106>
- Sinclair, A. R. E., K. L. Metzger, S. A. R. Mduma, and J. M. Fryxell (Eds.) (2015). Serengeti IV. Sustaining Biodiversity in a Coupled Human -Natural System. University of Chicago Press, Chicago, Illinois, xii+ 841 pp. ISBN-13: 978-0-226-19616-9

- Sirima, A. (2015). The Contribution of Indigenous Ecological Knowledge in Conservation of Enguserosambu Community Forest, Tanzania. *PhD Dissertation*. Retrieved from [http://tigerprints.clemson.edu/all\\_dissertations/1537/](http://tigerprints.clemson.edu/all_dissertations/1537/)
- Snider, R. (2012). Land Tenure, Ecotourism, and Sustainable Livelihoods: 'Living on the Edge' of the Greater Maasai Mara, Kenya. Retrieved from <https://uwspace.uwaterloo.ca/handle/10012/6589>
- Snyder, Katherine A.; Sulle, E. B. (2011). Tourism in Maasai Communities: A Chance to Improve Livelihoods? *Journal of Sustainable Tourism*, 19(8):935-951. DOI: <http://dx.doi.org/10.1080/09669582.2011.579617>
- Songorwa, A.N., (1999). Community-based wildlife management (CWM) in Tanzania: are the communities interested? *World Development* 27 (12), 2061–2079.
- Songorwa, A.N., du Toit, M., (2007). Hunting in Tanzania: has science played its role? *Tanzania Journal of Agricultural Sciences* 8 (1), 31–37.
- Soulé, M. (2013). The “New Conservation”: Editorial. *Conservation Biology*, 27(5), 895–897. <https://doi.org/10.1111/cobi.12147>
- Spiteri, A., & Nepal, S. K. (2006). Incentive-Based Conservation Programs in Developing Countries: A Review of Some Key Issues and Suggestions for Improvements. *Environmental Management*, 37(1), 1–14. <http://doi.org/10.1007/s00267-004-0311-7>
- Stone, M. T., & Nyaupane, G. (2014). Rethinking Community in Community-based Natural Resource Management. *Community Development*, 45(1), 17–31. <https://doi.org/10.1080/15575330.2013.844192>

- Stone, M. T., & Nyaupane, G. P. (2015). Protected Areas, Tourism and Community Livelihoods Linkages: A Comprehensive Analysis Approach. *Journal of Sustainable Tourism*, 1–21. <http://doi.org/10.1080/09669582.2015.1072207>
- Stronza A & Gordillo J (2008). Views of Ecotourism. *Annals of Tourism Research* 35(2):448-468. DOI: 10.1016/j.annals.2008.01.002
- Sule, E. (2008). Wildlife-Based Revenue Transparency Performance in Longido and Simanjiro Districts. Retrieved from <http://www.hakikazi.org/papers/Wildlife-Base-Revenue.pdf>
- Sulle, E., Lekaita, E., & Nelson, F. (2011). From promise to performance. Wildlife Management Areas in Northern Tanzania. Arusha: TNRF. Available from <http://www.maliasili.org/publications/WMA%20TNRF%20Brief%20Nov%202011.pdf>
- TAWIRI, KWS, WWF, FZS, & Paul G Allen Foundation (2014). Aerial Total Count of Elephants and Buffaloes in the Serengeti-Mara Ecosystem. Retrieved from <https://www.kws.go.ke/kws/sites/default/files/Mara%20Elephant%20Count%20Report.pdf>
- The Bali Declaration (1983). *Environmental Conservation*, 10, pp 73-73. doi:10.1017/S0376892900011978.
- The United Republic of Tanzania (1982). The Local Government (District Authorities) Act of 1982. Government Printers, Dar es Salaam
- The United Republic of Tanzania (1999). The Village Land Act No.5 of 1999. Government Printers, Dar es Salaam
- The United Republic of Tanzania (2012). The Wildlife Conservation (Wildlife Management Areas) Regulation. Government Printers, Dar es Salaam

- The United Republic of Tanzania (2013). 2012 Population and Housing Census. Population Distribution by Administrative Areas. from <https://www.meac.go.tz/sites/default/files/Statistics/Tanzania%20Population%20Census%202012.pdf>
- The United Republic of Tanzania (April 7th, 2013). Government Clarifies on Decision to Provide Huge Tracks of Land to Loliondo Residents. Retrieved on July 18th, 2017 from <http://www.mnrt.go.tz/highlights/view/government-clarifies-on-decision-to-provide-huge-tracks-of-land-to-loliondo>
- The United Republic of Tanzania. (2009). The Wildlife Conservation Act 2009. Government Printer: Dar es Salaam.
- Thompson, M., & Homewood, K. (2002). Entrepreneurs, Elites, And Exclusion in Maasailand: Trends in Wildlife Conservation and Pastoralist Development. *Human Ecology*, 30(1), 107–138.
- TNRF (2011). Integrated Pastoralist Livelihood and Wildlife Conservation? Options for Land Use and Conflict Resolution in Loliondo Division, Ngorongoro District. TNRF, Available from [http://www.maliasili.org/publications/Integrating%20Pastoralist%20Livelihoods%20and%20Wildlife%20Conservation\\_FINAL-1.pdf](http://www.maliasili.org/publications/Integrating%20Pastoralist%20Livelihoods%20and%20Wildlife%20Conservation_FINAL-1.pdf)
- UNEP. (2016). Global environment outlook: GEO-6: regional assessment for Africa. Retrieved from <https://www.unep-wcmc.org/news/geo-6-regional-assessments-launched>
- UNEP-WCMC and IUCN (2016). Protected Planet Report 2016. UNEP-WCMC and IUCN: Cambridge UK and Gland, Switzerland.
- USAID (2013). Tanzania Wildlife Management Areas. Evaluation Final Report. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/pdacy083.pdf](http://pdf.usaid.gov/pdf_docs/pdacy083.pdf)

- USAID (2015). Conservation Enterprises. Using a Theory of Change Approach to Synthesize Lessons from USAID Biodiversity Projects. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/PA00KMWR.pdf](http://pdf.usaid.gov/pdf_docs/PA00KMWR.pdf)
- USAID, (2000). The Case of the Serengeti Regional Conservation Strategy Serengeti District, Arusha Region Tanzania. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/PNACK610.pdf](http://pdf.usaid.gov/pdf_docs/PNACK610.pdf)
- Vaske, J., (2008). Survey Research and Analysis: Application in Parks, Recreation, and Human Dimensions. Venture Publishing. State College, University, Pennsylvania, US
- Veit P. (2010). Tanzania Ongoing Experiment on Wildlife Management Areas. Focus on Land Africa. Retrieved from <http://www.focusonland.com/countries/tanzania-ongoing-experiment-with-wildlife-management-areas/>
- Wade, R. (1998). Village Republics: Economic conditions for Collective Action in Southern India. Oakland: ICS Press
- Wagner, M. (2008). Impact of Bush Fire on Grazing Behavior of Herbivores in Masai Mara. Degree Project. Swedish University of Agricultural Sciences. Retrieved from <http://ex-epsilon.slu.se/id/eprint/2990>
- Walther, G. R., Post, E., Convey, P., Menzel, A., Parmesan, C., Beebee, T. J. C., ... Bairlein, F. (2002). Ecological Responses to Recent Climate Change. *Nature*, 416(6879), 389-395. DOI: 10.1038/416389a
- Watson, R. M., Graham, A. D., & Parker, I. S. C. (1969). A Census of the Large Mammals of Loliondo Controlled Area, Northern Tanzania. *African Journal of Ecology*, 7(1), 43–59.

- Western, D. and M. Wright (Eds.) (1994). *Natural Connections: Perspectives in Community-based Conservation*. Washington, DC: Island Press.
- Western, D., Groom, R., & Worden, J. (2009). The Impact of Subdivision and Sedentarization of Pastoral Lands on Wildlife in an African Savanna Ecosystem. *Biological Conservation*, 142(11), 2538–2546.  
<http://doi.org/10.1016/j.biocon.2009.05.025>
- Western, D., Waithaka, J., & Kamanga, J. (2015). Finding Space for Wildlife Beyond National Parks and Reducing Conflict Through Community-Based Conservation: The Kenya Experience. *PARKS*, 21(1), 51–62.  
<https://doi.org/10.2305/IUCN.CH.2014.PARKS-21-1DW.en>
- Wilfred, P. (2010). Towards Sustainable Wildlife Management Areas in Tanzania. *Tropical Conservation Science*, 3 (1):103-116. Available online:  
[www.tropicalconservationscience.org](http://www.tropicalconservationscience.org)
- Williams, B. K. (2011). Adaptive Management of Natural Resources—Framework and Issues. *Journal of Environmental Management*, 92(5), 1346–1353.  
<https://doi.org/10.1016/j.jenvman.2010.10.041>
- Williams, D. R., Stewart, W. P., & Kruger, L. E. (2013). The Emergence of Place-Based Conservation. In *Place-Based Conservation* (pp. 1–17). Springer. Retrieved from  
[http://link.springer.com/chapter/10.1007/978-94-007-5802-5\\_1](http://link.springer.com/chapter/10.1007/978-94-007-5802-5_1)
- Wittenmyer et al in Sanderson, M. J. (2008). Accelerated Human Population at Protected Areas Edge. *Science*, 321(5885), 121–123.  
<https://doi.org/10.1126/science.1154449>
- Woodhouse E, Homewood KM, Beauchamp E, Clements T, McCabe JT, Wilkie D, Milner-Gulland EJ. (2015). Guiding Principles for Evaluating the Impacts of Conservation

Interventions on Human Well-Being. *Philosophical Transactions. Royal Society. B* 370: 20150103. <http://dx.doi.org/10.1098/rstb.2015.0103>

WWF (2014). Tanzania's Wildlife Management Areas: A 2012 Status Report. WWF, Dar es Salaam. Retrieved from [http://www.twma.co.tz/uploads/WMA\\_Status\\_Report\\_2012\\_Final.pdf](http://www.twma.co.tz/uploads/WMA_Status_Report_2012_Final.pdf).

## 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

		STUDY VILLAGES						
	<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 Minimal Risk Review - Delegated
UVic STATUS: Master's Student	ORIGINAL APPROVAL DATE: 09-Jun-16
UVic DEPARTMENT: GEOG	APPROVED ON: 09-Jun-16
SUPERVISOR: Dr. Philip Dearden	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.

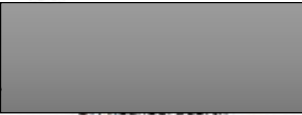
**Modifications**  
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

**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.



Emmanuel Leyani  
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 UTAFITI 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 at 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 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 benefit 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, 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 suggestion for the projects improvement for 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 asks 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 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 bush fires	
	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)	
--	---------------------	--

The following sections asks 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 farm land now than before					
30.	The trend for problem animals has been reduced					
31.	Grazing area in your village are 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 fire wood, poles and thatching grasses easily as before the conservation project					

35.	It is easier now to access bush meat 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 less bush fires 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