An assessment of ecotourism as an effective tool for sustainable forest management: The case of

Adaba-Dodola, Ethiopia

Maggie Wilder

Submitted in partial fulfillment of the requirements for the degree of:

Master of Forest Resources

University of Washington

December 2016

Committee:

Ivan Eastin

Patrick Tobin

Inroneil Ganguly

Program Authorized to Offer Degree:

School of Environmental and Forest Sciences
Abstract

Ethiopian forests have long fell victim to land conversion and illegal harvesting, producing a high rate of deforestation and continued forest degradation. Given unsuccessful conventional forest management, an ever increasing demand on the forest resources, and trends in human population growth in Ethiopia, alternate strategies for sustainable forest management are needed. Ecotourism is one such strategy. Ecotourism is one of the fastest growing tourism industries and combines sustainable natural resource management and conservation with economic development in local communities.

A case study was performed on the Adaba-Dodola Bale Trekking community-based ecotourism project to explore its impact on the sustainable forest management in the area. In the Adaba-Dodola Mountains, the deforestation rate is estimated to be 3.7%, almost four times the national average. I collected data from semi-structured interviews, focus groups, and questionnaires, and analyzed this data through coding-based methods. I found the community-based ecotourism project provided economic, environmental, and socio-cultural benefits. The alternate source of income that was directly related to the quality of the surrounding forests, increased sustainable forest use and positive attitudes towards the forests as a non-consumptive service. In addition, the project provided the opportunity for cultural exchange between hosts and visitors. However, a well-defined structure, accountability for the participants, and imposing a limit on ecotourism visitors based on the area’s environmental carry capacity are key elements in solving project’s challenges and ensuring sustainability.
Acknowledgements

I want to thank Bayu Bekele, Genene Haile, and Tarikua Betamariam for their patience, kindness, and friendship. Without them, I would not have had the opportunity to work with the Bale Trekking ecotourism project or the ability to complete my research. Thank you to the Tour Guide Association Office for leading me through the hills of Adaba and Dodola with great conversations and knowledge. And thank you to my entire Adaba family for welcoming me into their community during my time in Ethiopia. I want to thank Ivan Eastin, Patrick Tobin, and Indroneil Ganguly for their much needed guidance while completing this research. Finally, thank you to my family for supporting me throughout my entire degree program, even from 7,000 miles away.
# Tables of Contents

List of Figures ......................................................................................................................6

List of Tables .......................................................................................................................8

Introduction ..........................................................................................................................9

Background ..........................................................................................................................10

   Ethiopia ..........................................................................................................................10

   History ...........................................................................................................................11

   Economy .........................................................................................................................13

   Biogeography .................................................................................................................14

Literature Review ...............................................................................................................20

   Forest Management in sub-Saharan Africa ...........................................................20

   Environmental Issues in Ethiopia .........................................................................22

   Forest Management in Ethiopia ............................................................................24

   Ecotourism ....................................................................................................................28

   Ecotourism Case Studies ............................................................................................32

      Amboseli Biosphere Reserve ............................................................................32

      Budongo Forest Reserve ..................................................................................34

      Ranpathwala Ecotourism Project .....................................................................36

   Ecotourism in Ethiopia ...............................................................................................38

Problem Statement and Research Objectives ............................................................40

Research Methods ..........................................................................................................41

Study site ............................................................................................................................41

Forest Management Background ..............................................................................47
Ecotourism Background .................................................................................................................. 50
Data Collection ............................................................................................................................... 52
Data Analysis ........................................................................................................................................ 58
Results and Discussion ...................................................................................................................... 60
Benefits .................................................................................................................................................. 61
Costs .................................................................................................................................................. 74
Challenges ........................................................................................................................................ 76
Sustainability ...................................................................................................................................... 79
Application of Results ....................................................................................................................... 81
Recommendations ............................................................................................................................... 82
Conclusion ........................................................................................................................................ 84
Limitations ......................................................................................................................................... 85
References ......................................................................................................................................... 89
Appendix A ......................................................................................................................................... 95
Appendix B ......................................................................................................................................... 96
Appendix C ......................................................................................................................................... 97
Appendix D ......................................................................................................................................... 98
List of Figures

Figure 1. Ethiopian map with inset of location in Africa ..................................................11
Figure 2. Mean annual maximum temperatures in Ethiopia..............................................16
Figure 3. Annual rainfall in Ethiopia .................................................................................18
Figure 4. Ethiopian land cover ...........................................................................................23
Figure 5. Map of protected areas in Ethiopia.................................................................27
Figure 6. Location of the Adaba and Dodola woredas in the Oromia region of Ethiopia .42
Figure 7. African juniper forest in the Adaba, Ethiopia ....................................................44
Figure 8. Erica shrub land in the Adaba woreda, Ethiopia ................................................45
Figure 9. Once forested land, converted to agricultural fields in Adaba, Ethiopia.............46
Figure 10. Wahoro, left, and Angafu, right, hut campsites in Dodola, Ethiopia ...............50
Figure 11. Harawa tent campsite, Bale Trekking ecotourism project, Adaba, Ethiopia....51
Figure 12. Locations of ecotourism campsites in the Dodola and Adaba woredas. .........52
Figure 13. Locations of focus groups conducted at the ecotourism campsites in the Dodola and Adaba woredas ...................................................................................................................54
Figure 14. Focus group at the Angafu campsite ..............................................................56
Figure 15. Excerpt from focus group notes and examples of coding ...............................59
Figure 16. Flowchart of the positive feedback cycle created by the Bale Trekking ecotourism project ................................................................................................................................67
Figure 17. A visualization of the trend diagram that was drawn during the Angafu focus group in the Dodola woreda ...........................................................................................................69
Figure 18. A visualization of the trend diagram that was drawn during the Angafu focus group in the Dodola woreda ..........................................................................................................................70

Figure 19. Graph of Bale Trekking ecotourism project tourism numbers between the years of 1998 to 2014 ..................................................................................................................................71

Figure 20. Cross matrix for the relationship between community economic benefit codes and trend codes. .........................................................................................................................73

Figure 21. Summary of environmental, economic, and socio-cultural benefits of the Bale Trekking ecotourism project. ...........................................................................................................74
List of Tables

Table 1. Number of focus group respondents by biological sex, their level of participation in ecotourism, and their membership status in a WAJIB ................................................................. 55

Table 2. Number of questionnaire respondents by biological sex, their level of participation in ecotourism, and their membership status in a WAJIB ....................................................... 57

Table 3. Number of case study participants employed by ecotourism job type .................. 61

Table 4. Questionnaire response percentages to selected questions based on breakdown of biological sex, WAJIB membership, and ecotourism participation (%). ......................... 64

Table 5. Codes categorizing benefits of the Adaba-Dodola ecotourism project and the frequency seen in data coding ............................................................................................................. 74

Table 6. Codes categorizing costs of the Adaba-Dodola ecotourism project and the frequency seen in data coding ............................................................................................................. 76

Table 7. Codes categorizing challenges of the Adaba-Dodola ecotourism project and the frequency seen in data coding ............................................................................................ 79

Table 8. Codes categorizing the sustainability of the Adaba-Dodola ecotourism project and the frequency seen in data coding .......................................................................................... 81
Introduction

Throughout Ethiopia, the trend of land conversion and forest degradation has led to the need for alternate forest management methods. Forests originally covered 35% of Ethiopia’s land mass, but now only stretch over an estimated 12.5% of the land (World Bank Group, “Forest area,” 2016). According to the Ethiopian Biodiversity and Tropical Forests Assessment conducted by USAID in 2008, 148,000 hectares of forests were lost annually. In addition to land use conversion, settlement in forested areas, firewood extraction, and illegal timber harvesting contribute significantly to deforestation. With a rapidly increasing population, the demand and pressure on forest resources is rising, but supply is decreasing. Conventional forest management methods such as confiscation of illegal forest products, forest boundary demarcation, and awareness creation, are ineffective (Kubsa & Tadesse, 2002). The need for alternate forest management and conservation strategies is critical. Ecotourism is one possible strategy for sustainable forest management.

Ecotourism provides a non-consumptive, market-based means for forest utilization and livelihood diversification for host country communities. Creating a participatory ecotourism program can generate income through the sustainable use and conservation of forest resources (Wichramasinghe, 2009). It can cultivate a sense of ownership of the forest ecosystem throughout local populations, increasing the use of sustainable forest management practices. The integration of economic development and forest management provides a unique opportunity to create a sustainable, beneficial project.

During my Peace Corps service in Ethiopia, I had the opportunity to live in and work with the communities of Adaba and Dodola. These two districts are located on the eastern portion of the Bale Mountains and are home to one of the last intact Afromontane forests in the
country. A community-based ecotourism project offering hiking and horse trekking through the mountains was present in these districts. I was fortunate to work with this project to develop a case study that focused on assessing the ecotourism project’s effectiveness as an alternate strategy for sustainable forest management.

Using data gathered through interviews, focus groups, and questionnaires, I identified the environmental, economic, and socio-cultural benefits and costs of the project. In addition, I outlined the challenges and possible improvements to increase the project’s positive impacts and sustainability. It is anticipated that the conclusions resulting from this study will increase the knowledge and understanding of the Bale Trekking ecotourism project’s influence on sustainable forest management and economic development, and provide recommendations for the improvement of the project and its application to other areas of Ethiopia.

Background

Ethiopia

Ethiopia, formally Federal Democratic Republic of Ethiopia, is located on the horn of Africa bordered by Eritrea, Djibouti, Somalia, Kenya, South Sudan, and Sudan. Ethiopia consists of nine ethnically-based regional states and two chartered cities. The regional states include Oromia, Amhara, Tigray, Afar, Gambela, Somali, Harari, Benishangul-Gumuz, and Southern Nations, Nationalities, and Peoples’ Region. The administrative cities include Dire Dawa and Addis Ababa, also the country’s capital. The regions are then further broken down into zones, districts (called woredas), and municipalities (called kebeles). A map of Ethiopia and its location in Africa is presented in Figure 1. The population of Ethiopia is estimated to be 100 million in 2016 (Central Intelligence Agency, 2016). Major ethnic groups include Oromo (35%), Amhara (27%), Somali (6%), Tigray (6%), Sidama (4%), Gurage (2.5%), and Waliata (2.5%), and over
80 languages are spoken. The most common religion is Ethiopian Orthodox, accounting for 44% of the population, followed by Islam at 34% and Protestant with 19%. Traditional faiths, such as Animism, only accounts for 3% of the population (Central Intelligence Agency, 2016).

History

Ethiopia is one of the oldest countries in Africa and has varied geographically and politically over its history. In ancient times, the territory was centered around the capital of Axum, just 160 km from the coast of the Red Sea (Marcus, 1994). As the times and leaders changed, the capital was moved to Gondar in the 15th century, and eventually settled in the center of the current territory in Addis Ababa (Marcus, 1994). The modern territory of Ethiopia was
consolidated in the 19th and 20th centuries, and the present area reflects the secession of Eritrea in 1993 (Marcus, 1994).

Prominent in modern world affairs, Ethiopia was invaded twice by Italy, first in the late 1800s, and later in the 1930s. Italian forces were defeated in the first invasion at the Battle of Adwa under the leadership of Emperor Menelik II (Crummey et al., “Ethiopia,” 2016). In 1935, fascist Italy invaded Ethiopia for a second time and occupied the country for six years. With help from British troops, Italy was defeated and Emperor Haile Selassie (also known as Ras Tafari) was restored to power in 1941. After the end the World War II, Ethiopia returned to full sovereignty and the imperial administration was restored (Marcus, 1994).

Emperor Haile Selassie ruled until the state was overthrown in a military coup in 1974, after which Teferi Benti became the head of state, only to be quickly replaced by Mengistu Haile Mariam (Marcus, 1994). Commonly known as “the Derg”, Mengistu and the military ruled the country until 1991. During this time, Ethiopia experienced genocide by the government, known as the Red Terror, and the worst famine in decades, leading to the deaths of hundreds of thousands of Ethiopians (Marcus, 1994). The Ethiopian People’s Revolutionary Democratic Front (EPRDF) gained control of Addis Ababa in 1991 and created a provisional governmental. In 1994, the new constitution divided the country into the nine regional states that still exist today. Negasso Gidada was named the titular president and Meles Zenawi was appointed Prime Minister (Marucs, 1994) the next year. Meles remained Prime Minister until his death in 2012, when the Deputy Prime Minister and Foreign Minister Hailemariam Desalegn took his place (Crummey et al., “Ethiopia,” 2016). Today, the EPRDF coalition, specifically the Tigranyan People’s Liberation Front, still controls the parliament holding all seats with PM Hailemariam leading the country (Tarikua B., personal communication, June 2015). Based on a score of 100,
where 0 is highly corrupt and 100 is very clean, Ethiopia scores a 33 on the Corruption Perceptions Index, and previously scored a 22 in 2005. Ethiopia has one of the highest scores in eastern Africa, surpassed only by Djibouti with a 34 (Transparency International, 2016). However, in the world, Ethiopia easily falls in the lower half, ranking 103 out of 168 countries. This fact and Ethiopia’s low score does suggest a high level of corruption (Transparency International, 2016).

**Economy**

Ethiopia has one of the fastest growing economies in Africa with an annual average increase of 10.8% in its gross domestic product (GDP) since 2005 (African Development Bank Group, 2016). Agriculture is the largest economic sector in total production and contribution to economic growth, and employs about 85% of Ethiopia’s population. This is due to domestic consumption of food and manufacturing raw materials (Ethiopian Government Portal, 2016), as well as the production and exportation of coffee. Coffee alone makes up over 60% of Ethiopian exports (Ethiopian Government Portal, 2016). Forestry accounts for 5.5% of the agriculture sector (Amente, 2005). However, agriculture only accounts for 39% of national GDP, which is led by the services industry with 46% (African Development Bank Group, 2016). Manufacturing follows with a 15% contribution to total GDP, which measured 61.54 billion USD in 2015 (World Bank Group, “Ethiopia,” 2016).

Ethiopia is still one of the poorest countries in the world with a significantly lower regional per capita income, the 12th lowest in Africa and ranked 202nd out of 217 in the world (World Bank Group, “Gross national income,” 2016). However, the recent trends in economic growth has led to reduction in poverty and unemployment (World Bank Group, “Ethiopia,” 2016). For example, in 2000, 56% of the population were living in extreme poverty, defined as
having a purchasing power parity (PPP) below $1.25 USD per day. In 2011, only 31% were living in extreme poverty (World Bank Group, “Ethiopia Poverty,” 2015). In addition, the unemployment rate dropped by 3.6% between 2009 and 2016 (Central Intelligence Agency, 2016 as cited by Trading Economics, 2016). However, these reductions do not reflect the continuing income inequality in Ethiopia (Gebre-Selassie, 2013). The inequality within rural areas has stayed relatively the same over the years, but has risen in urban areas since 1995 (Dercon et al., 2008). The urban-to-rural income ratio was measured at 5.4:1 in 2011 (Belachew, 2014) and the inequality adjusted Human Development Index (HDI) 0.312 (United Nations Development Programme, 2015). A HDI coefficient closer is 0 indicates a more equal society and a value closer to 1 indicates a highly unequal nation (Belachew, 2014). Additionally, increased inflation and an unbalanced trade deficit are some challenges facing the Ethiopian economy (African Development Bank Group 2016). However, prudent, pro-poor fiscal policies and constant public investment are expected to lead to continued economic growth primarily in the agricultural and services sectors (African Development Bank Group, 2016).

Biogeography

Geographically, Ethiopia covers 1,104,300 km² (Central Intelligence Agncy, 2016) and consists of five topographic features: the western highlands, the western lowlands, the eastern highlands, the eastern lowlands, and the rift valley (Crummey et al., “Ethiopia: Relief,” 2016). Its topographic features represent a diversity of ecoregions including eastern deserts, southwestern tropical forests, and central mountain ranges (World Atlas, 2016). Part of the East African Rift System, the Rift Valley running from the northeast to the southwest is bordered by two plateaus carrying the eastern and western highlands including the highest point, Mount Ras Dashen, at an elevation of 4,533 meters above sea level (MSL) (Central Intelligence Agency,
Over 40% of Ethiopia’s land mass sits at an altitude of 1,500 MSL or higher (Tesfa & Mekuriaw, 2014) and Ethiopia includes over 50% of the land in Africa that is >2,000 MSL (Bielli et al., 2001). Due to the favorable conditions this area provides, such as mild temperatures, fertile soil, and high rainfall, about 80% of Ethiopia’s population resides in the highlands (Amente, 2005). In the northeast region of Afar, the Denakil Depression is the lowest point in Ethiopia at 125 meters below sea level (Central Intelligence Agency, 2016). The diversity of geographic locations and altitudinal ranges results in a wide range of climate and ecology.

The climate of Ethiopia can be characterized by three environmental zones—cool, temperate, and hot. Respectively, these are known as dega, weina dega, and kolla in Ethiopia (Ofcansky & Berry, 1991). The cool zone includes the highlands in central Ethiopia, which is generally located at an elevation > 2,400 MSL. The mean annual temperature in this zone is between 15-20°C, with warmest months being March to May. Snow and light frosts can occur in the coldest months in this zone (McSweeney et al., 2008). Between elevations of 1,500–2,400 MSL, the temperate zone experiences an average annual temperature of 20-25°C (McSweeney et al., 2008). The hot zone (e.g., terrain <1,500 MSL) experiences an average daytime temperature of 25-30°C, but can reach as high as 50°C in the arid and semiarid lowland regions. The temperature in this zone varies more than the other two climatic zones (McSweeney et al., 2008).

In addition, temperatures have been rising for the past half century in Ethiopia. The mean annual temperature throughout Ethiopia increased by 1.3°C between 1960 and 2006 (McSweeney et al., 2008). This amounts to 0.28°C per decade. However, increases in temperatures are easily seen year to year. For example, in 2013, maximum temperatures throughout the country reached 43.5°C and minimum temperatures dropped as low as -3.8°C.
(Ethiopian National Meteorological Agency, 2013). Just two years later, the highest temperature recorded was 44.5°C in summer, the main rainy season and, commonly, the coldest season (Ethiopian National Meteorological Agency, 2015). In addition, the number of ‘hot’ days and nights have increased substantially, while frequency of the ‘cold’ days and nights have decreased (McSweeney et al., 2008). In this context, ‘hot’ is defined as “the temperature exceeded on 10% of days or nights in current climate of that region and season,” and ‘cold’ defined as “the temperature below which 10% of days or nights are recorded in current climate of that region and season.” (McSweeney et al., 2008). By the 2060s, the mean annual temperature is projected to increase by 1.1°C to 3.1°C (McSweeney et al., 2008). Mean annual maximum temperatures are pictured in Figure 2.

![Figure 2](image-url)
The Inter-Tropical Convergence Zone (ITCZ) is the main driver of seasonal rainfall in Ethiopia. Most of Ethiopia experiences one main rainy season, known as Meher or Kiremt, between the months of June and September (McSweeney et al., 2008). Up to 350 mm of rainfall per month can be recorded during this time in the wettest regions. The ITCZ is at its northernmost position during these months (McSweeney et al., 2008). Southern parts of Ethiopia experience an additional wet season between the months of February and May, called Belg, with much smaller rainfall amounts (McSweeney et al., 2008). The eastern most region of Ethiopia experiences very little rainfall at any time during the year (McSweeney et al., 2008).

The mean annual rainfall is highest in the southwestern region, measuring about 1,500 mm, but can be as high as 3,500 mm a year in small pocket areas (McSweeney et al., 2008). The mean annual rainfall gradually decreases towards the north and east. In the north-central plateau, the annual rainfall is about 1,100 mm. The southeastern region receives about 700 mm/year and the northeastern area receives the lowest at about 500 mm/year (McSweeney et al., 2008). The annual rainfall is depicted in the Figure 3. However, the ITCZ is sensitive to deviations in the Indian Ocean sea-surface temperatures which can lead to large variations in frequency and duration of rainfall in Ethiopia. For example, the El Niño in 2015 resulted in one of the worst droughts in Ethiopia in 50 years (European Commission, 2016).
Ethiopia is considered one of the top 25 biodiversity-rich countries in the world (Amare, 2015), and is home to a large variety of flora and fauna. The major ecosystems include Afroalpine and sub-Afroalpine, montane dry forest and scrub, dry montane evergreen and evergreen scrub, montane moist forest, acacia-comiphora woodland, combretum-terminalia woodland, lowland humid forest, aquatic, wetlands, and desert and semi desert (Ethiopian Institute of Biodiversity Conservation, 2005). Throughout the many types of ecosystems there are over 6,000 plants species (the 5th largest level of floral diversity in Africa [Amare, 2015]), 800 species of birds, and 277 mammalian species, 29 of which are native to Ethiopia (Ethiopian Institute of Biodiversity Conservation, 2005). Sixteen of the 861 recorded bird species are found only in Ethiopia and eight family of birds are native to the country. Notable native birds include...
the Thick-billed Raven, Wattled Ibis, Black-winged Lovebirds, and White-collard Pigeon (Ethiopian Institute of Biodiversity Conservation, 2005). Also, some of the most famous native animals include the Abyssinian Lion, Gelada Baboon, Mountain Nyala, Ethiopian Wolf, Walia Ibex, Swayne’s Hartebeest, African Wild Ass, and Dibatag (Ethiopian Institute of Biodiversity Conservation, 2005). The first six are endemic to Ethiopia. Many of these species can be found in the two biodiversity-hotspots located in Ethiopia—Eastern Afromontane and Horn of Africa (Amare, 2015).
Literature Review

Forest Management in sub-Saharan Africa

Over 70% of the sub-Saharan African (SSA) population depends on forest and woodlands for their livelihood. Forests and woodlands also supply about 60% of all energy for this area and forest-related activities and products account for a large portion of most of the countries’ GDPs (Profor, 2012). Even with significant financial aid to forestry sectors in SSA, sustainable management of forests is below expectations. On average, the rate of deforestation in SSA is less than 1% (Profor, 2012). The poor, local communities are commonly the ones who carry the brunt of the costs of environmental degradation (World Bank Group, “Forest area,” 2016). As with many regions characterized by developing countries, the relationship between population growth and poor agricultural practices drives deforestation, loss of biodiversity, and habitat fragmentation. At the local level, agricultural expansion, infrastructure development, overgrazing, and unrestrained fuelwood and timber harvesting directly impact forest degradation (Profor, 2012).

Fundamental challenges faced by SSA countries include the prevention of wasteful deforestation, augmentation of the resource base through regeneration of natural environments, and revitalization of forest policies to support wide-spread adoption of sustainable forest management practices (Profor, 2012). In addition, land ownership adds complexity to the problem of forest management in SSA. Land under common ownership or state ownership each have their own unique issues. Obstacles arise with the “tragedy of the commons” on community-owned land and lack of investment in management is seen in state-owned forests (Ribot et al., 2010). When developing sustainable management plans it is essential to have an appropriate mix of capacity building and control because sustainable management techniques usually require
more technical expertise and can be less profitable (World Bank Group, 1994). This is especially important when potential highly profitable forests attract outside investments and benefits are minimal to the local communities (World Bank Group, 1994).

Management practices to address these challenges cannot be applied uniformly throughout the region because of the considerable diversity of countries’ circumstances. Each country will dictate the measures implemented to address the forest management challenges (Profor, 2012). Some themes, however, remain constant when dealing the difficulties. These themes include: the need to balance economic development and conservation goals; the need to adopt cross-sectoral approaches to forestry development and management; and the need for governments to form partnerships with all stakeholders, such as local communities, NGOs, and private organizations (Profor, 2012).

Countries can meet these critical improvements through actions such as involving farmers and local communities in forestry activities and decision-making; improving the dissemination of forest-related knowledge and technology; developing human resources and building capacity; and forest policy and legislative reform (Profor, 2012). It is common to develop tree planting policies to help tackle the problem of deforestation, but the long-term timeline for experiencing benefits from this activity might affect the perspective and investment of the local communities (World Bank Group, 1994).

Involvement of local communities and decentralization of the forest management has been common throughout SSA since the 1980s as a way to combine conservation efforts and rural development (Ribot et al., 2010). Still, there has been little realization of expected benefits of decentralization management because there is insufficient actual local management taking place even though many plans carry the name of community-based management (Ribot et al.,
Environmental Issues in Ethiopia

Over its history, Ethiopia’s land use and coverage has drastically changed. Thirty-five percent of Ethiopia’s land cover was once forested. Fifty-seven percent of the land located over 1,500 MSL was historically forested and a further 20% was covered with wood savannah (Mengistu, 2003). Estimates of modern forests coverage ranges from 3% (Hundera et al., 2007) to 12.5% (World Bank Group, “Forest area,” 2016). This disparity might be due to the differing definitions of forest coverage. For example, some sources might be measuring only natural forests, while others include tree plantations. In 2005, the annual rate of deforestation was estimated to be 113,000 hectares (Amente, 2005), increasing to 146,000 hectares in 2008 (USAID, 2008). Much of the once forested land was converted to agricultural and grazing land to accommodate the ever increasing population (Bielli et al., 2001). In the early 2000s, an estimated 59,000 hectares of forest was converted to farmland each year (WBISPP, 2004 as cited in Mengistu, 2003). Around 80% percent of the population live in rural areas, but a little under 85% of the population depend on farming for their livelihood (Central Intelligence Agency, 2016). The majority of the population depend on forest utilization for energy. Firewood accounts for 95% of wood demand and 78% of total energy, 81% of which is household use with no significant difference found between rural and urban use comparatively (Amente, 2005). A map of the land use is presented in Figure 4.
Land conversion in aggregation with climate change affects the livelihoods of rural Ethiopians and exacerbates the vulnerability of the majority of the population and natural resources (Bezezew et al., 2015). Recently, there has been an increase in temperature and a decrease in rainfall, with times of prolonged drought, delay of rain, and periods of uncharacteristically heavy and damaging rains (Senbeta, 2009). Because agriculture is highly dependent on the time, amount, duration, and distribution of the rainfall, recent climate trends have led to intensified environmental degradation. Erosion, loss of soil nutrients, over grazing, deforestation, and habitat fragmentation and subsequent loss of wildlife are a few of the problems facing Ethiopia (Hundera et al., 2007). Moreover, plowing difficulties and the harsh environment caused by hard, dry land from drought can lead to oxen weakness and mortality, lower seed cultivation and germination, and open more opportunities for pest and disease to
impact crops and livestock (Senbeta, 2009). Land fertility has been significantly reduced (Degeti, 2003) leading to a lower amount of arable land per capita and agricultural productivity (Senbeta, 2009). A study found that African farmers on rain-fed ground will lose $28 per hectare per year with a one-degree Celsius increase in global temperature (Senbeta, 2009). Even with all these distresses, there is still low adoption of more efficient and sustainable agriculture practices, possibly due to the failure of local farmers to understand the connection among high natural resource consumption, environmental issues, and poverty (Shiferaw et al., 2009). Forests have the potential to contribute to poverty alleviation if properly managed (Oksanen, 2003).

**Forest Management in Ethiopia**

The modern management of Ethiopian forests can be categorized into three periods. First, at the beginning of the 20th century, Menelik II established the first forest regulations. This attempt to regulate the conservation and utilization of forests included demarcating boundaries and designating crown forestlands. Additional efforts were made by the government to put the forest resources under formal management, but these ideas were never put into practice (Amente, 2005).

Second, after all land was nationalized in 1975 (Stellmacher, 2013), a comprehensive natural forest inventory was completed. Based on the inventory results, the Forestry and Wildlife Development Authority created five pilot projects for a new natural forest management program. The five forest areas chosen were Munessa Shashemene, Tiro-Becho, Menagesha Suba, Dindin, Megada State forests. Some of the activities initiated included detailed forest inventories, new road construction, adoption of improved logging techniques, and testing of various silvicultural systems. In addition, an attempt to establish exotic tree plantations was made in some semi-urban areas. Plantations were large-scale and established in densely populated areas,
where they took land away from the surrounding farmers. Continued establishment of the plantations was halted due to strong resistance from farmers (Amente, 2005).

Shortly after the pilot projects, the government designated 58 national Forest Priority Areas (FPAs), covering an estimated area of 2.3 million hectares (Kubsa & Tadesse, 2002). The national FPAs were created to establish the protection and development of the remaining natural forests. According to the Ethiopian Forest Action Plan (1994), 40% of the forest area was to be used for production forestry, while the remaining 60% was dedicated to biodiversity conservation and watershed management (Amente, 2005). However, out of the 58 designated areas, management plans were only created for eight, and due to lack of forestry skill and knowledge, only two of the formal management plans were ever implemented, and then only partially (Amente, 2005).

The third period and current management policy was created following the decentralization of forest management to the nine regional states. The national regional states and their executive governments now manage the FPAs located within their territory. In some regions, management responsibility was further decentralized to the district (woreda) level (Amente, 2005). In these areas, Peasant Associations (PAs), which are similar to a governing body for rural communities, control forest management, unless otherwise specified (Kubsa & Tadesse, 2002). In 1994, a forest development, utilization, and conservation proclamation was issued to help guide management of the FPAs (Amente, 2005). Even with the proclamation, most forests still suffer from open access use. Settlement in forest areas, land use conversion, and firewood extraction are all illegal under the 1994 proclamation, but have not been curbed with the current forest management policy. Awareness creation, boundary demarcation, resettlement of people in confined areas, law enforcement to reduce illegal activities such as confiscation of
illegal forest products, and reforestation are all conventional management and conservation methods currently used in most forests.

To further promote conservation, the government has formed 19 national parks, three wildlife sanctuaries, two wildlife reserves, 19 controlled hunting areas, and 10 open hunting area (Birhan & Gabreges, 2015). The protected areas currently cover 2.9% of Ethiopia’s land mass (Birhan & Gabreges, 2015). A map of these areas is presented in Figure 5. Outside management without local participation of forests, upon which local people heavily depend, is creating conflict between the governmental offices and rural communities. The resulting reality is a situation in which the current demand on and usage of forest resources exceeds the sustainable supply of wood in Ethiopia (Amente, 2005).
Furthermore, the lack of silvicultural knowledge and experience inhibits the implementation of appropriate forest utilization protocols. The planting and cultivating of fast-growing exotic species in plantation-style plots, similar to the 1970s plantations, is the most common method (Amente, 2005). This, coupled with the rapid rate of environmental degradation, has created an opportunity for an alternate livelihood approach and sustainable forest management. Ecotourism is one possible strategy to address the current situation.

Figure 5. Map of protected areas in Ethiopia (National Park Worldwide, 2012).
Ecotourism

Alternatives to conventional tourism throughout the world began to arise in the 1980s, focusing more on culturally and environmentally-friendly systems (Fennell, 2003). This came about at a time when sustainable development was really starting to gain momentum as a viable field (Fennell, 2003). The World Commission on the Environment and Development defined sustainable development as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (1987, as cited in Fennell, 2003). Based on the same principles, sustainable tourism ideas and goals began to be defined and established. Some widely-accepted goals of sustainable tourism include better understanding and awareness of the impacts of tourism on the economy and environment, promotion of equity and development at destinations, improvement of the quality of life for host country nationals, provision of a high quality experience for the visitor, and maintenance of the environmental quality (Fennell, 2003)

Ecotourism, as a form of sustainable tourism, is often thought to be a viable strategy for conservation and sustainable development because it is a non-consumptive, market-based means of forest utilization (Wichramasinghe, 2009). There is no widely-accepted definition of ecotourism because of the wide array of perspectives, criteria, and ideas that are applied to the discipline (Ross & Wall, 1999). Two examples of ecotourism definitions, as stated by The Ecotourism Society and The World Conservation Union’s Commission on National Parks and Protected Areas (Ross & Wall, 1999) are:

(1) Purposeful travel to natural areas to understand the culture and the natural history of the environment; taking care not to alter the integrity of the ecosystem; producing economic opportunities that make the conservation of the natural resources beneficial to the local people; and
(2) Environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate the nature (and any accompanying cultural features—both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations.

Even without a clear definition, there are several common themes that can be observed. Ecotourism looks to integrate natural resource conservation and sustainable management with economic and socio-cultural benefits to the host country (Ross & Wall, 1999). In addition, ecotourism emphasizes the participation of the local community in development and implementation to foster local empowerment, education, capacity-building, and project sustainability (Fennell, 2003; Sirakaya et al., 1999). Local participation in this sense can be defined as “the ability of individuals to influence the direction and outcome of development programs that will affect them” (Fennell, 2003). Ecotourism is one of the fastest growing tourism industries with a 25-30% yearly increase and holds great potential (Ketema, 2015), but can also be used as just a buzzword to attract tourists to certain areas and companies (Sirakaya et al., 1999) since it implies the presence of environmentally and culturally responsible principles (Boyd & Butler, 1996).

Ecotourism is most commonly established in developing countries and the success of these projects heavily depends on the quality of the natural environment and the relationship between the local population and the featured environmental activities for tourists (Boyd & Butler, 1996). If an ecotourism project is well-developed, it can provide many rewarding functions and benefits for the community and local environment. Potential results of ecotourism include increased contribution to environmental protection and dynamic resource conservation; creation of sustainable economic and socio-cultural practices that contribute to the wellbeing of locals; and enhancement of understanding, coexistence, and respect between tourists and hosts (Sirakaya et al., 1999). It provides the opportunity to create a synergistic relationship between
the “holy trinity” of sustainability aspects: economic, environmental, and socio-cultural (Liu, 2003). With a variety of stakeholders, participants, and investment groups, ecotourism can create a holistic approach to tourism and conservation.

There are no standardized methods or framework for the development, implementation, operation, or evaluation of ecotourism projects. Most importantly, all these aspects of the ecotourism project should be participatory processes. Involvement of all of the project’s stakeholders is essential for success (Ross & Wall, 1999). The investment of the community can go a long way to creating a friendly, welcoming atmosphere for tourists (Liu, 2003). The selection of the site must be suitable and meet pre-defined criteria agreed upon by the stakeholders that will allow for maximum benefits for visitors and hosts (Sirakaya et al., 1999). Site suitability may depend on access, infrastructure, and vulnerability of ecosystem to damage (Kiss, 2004). The planning and continued management of an ecotourism project should take into account the following factors: development of infrastructure and access to site; creation of activities and attractions to be offered; developing skill and knowledge for services provided and social interaction between participants; defining carrying capacity and managing visitor impact in a sustainable way; and the acceptance of a defined management regime employed throughout the projects’ life (Boyd & Butler, 1996).

This management regime would include factors such as roles and responsibilities of participants and governing group(s), activity development and decision-making process, conflict resolution steps, and facilitation of projects. It is important to decentralize decision making so that more input from a variety of sources can improve the range and level of the ideas for the project, and foster investment and empowerment throughout the community and stakeholders (Boyd & Butler, 1996).
Key factors to the success of ecotourism projects is the monitoring and evaluation of progress, and the ability to implement modifications to the project based upon the results of monitoring and evaluation efforts. Like many other features of ecotourism, there is no commonly used framework for the assessment of projects. However, some important characteristics could include clearly defined goals and objectives to be met (e.g., a reduction in illegal timber harvesting by a designated percentage), on-site study, input from stakeholders and tourists (e.g., yearly evaluation meetings and tourist feedback surveys), and high quality data (Boyd & Butler, 1996).

Ecotourism opportunities also come with many challenges and limitations in their development and assessment. First, increases in the number of tourists to environmentally degraded areas consequently increases the human impact to the ecosystem, which potentially negates an important benefit of ecotourism. Additional challenges could include difficulty in determining the carrying capacity of the project site (Liu, 2003); obtaining local buy-in to the project by community members due to lack of immediate benefits, creating equity throughout project in management and benefit sharing (Ross & Wall, 1999); incorporating intra and inter-generational needs; accounting for the changing wants and needs of the tourists and the local population (Boyd & Butler, 1996); and accounting for changes in technology that may impact access, transportation, and expectations (Liu, 2003).

In addition, limitations of an ecotourism project include completely eliminating the negative impacts born by the local population and the ability to grow with growing tourism demands. Ecotourism is usually a small-scale, low-density project to ensure sustainability and most likely will not be able to accommodate large increases in visitors (Liu, 2003). Creating interdisciplinary cooperation, crafting practically feasible policies, designing adaptation practices
that will effectively deal with changes in project management, opportunities, and struggles is difficult. It is important to create a dynamic and multi-sector project with well-structured management (Liu, 2003).

Ecotourism Case Studies

The outcome of ecotourism has been evaluated through case studies and assessments of different projects around the world (Ogutu, 2002; Grace, 2001; Wichramasinghe, 2009). Each project has been developed differently, contains unique aspects, and has shown different results. Three well-documented ecotourism projects include the Amboseli Biosphere Reserve in Kenya, Uganda’s Budongo Forest Reserve, and Ranpathwala in Sri Lanka (Ogutu, 2002; Grace, 2001; Wichramasinghe, 2009).

Amboseli Biosphere Reserve. With an area of 74,794 hectares and home to 10,000 Ilkisonko Maasai, the Eselenkei group ranch is located on the edge of the Amboseli Biosphere Reserve (Ogutu, 2002). Adverse encounters between agriculture practices and livestock of the group ranch and wildlife on the reserve has created tensions and conflict between the Maasai people and the management group of Amboseli Biosphere. Without governmental help, the Maasai people were struggling to meet the needs of their people. Low rainfall, shallow wells, and arid land with sandy soil and scarce vegetation made development and growth difficult (Ogutu, 2002). These problems were exacerbated by overgrazing and poor agricultural practices on the small amount of land dedicated to farming, which lead to increased drought and rates of disease (Ogutu, 2002).

In the Amboseli Biosphere Reserve, the need for additional and diversified livelihoods was urgent. These problems and continuing conflicts with the Reserve led to the creation of an ecotourism project in 1997.Partnering with the Porini Ecotourism Project, an area of the
Eselenkei group ranch, now known as the ecotourism conservation area, was designated for ecotourism and wildlife conservation.

The effects of this ecotourism project on the Maasai people are mixed and support for the program among the local population is still divided. Advantageous impacts of the project include increased income and livelihood diversification, empowerment and capacity-building of the community, improved infrastructure, and an increase in wildlife populations in the area. The project employs 26 salaried members and provides income for a large number of additional casual workers. Community members sell charcoal, firewood, local meat, and handicrafts to tourists and camps. Many times, this money is used to for livestock drugs or steer purchases (Ogutu, 2002). Furthermore, money is generated from gate fees, bed charges, and Kenyan Wildlife Service rent payments for sharing grazing land with wildlife (Ogutu, 2002). This economic benefit then goes to the community to improve schools and provides support to businesses and women’s groups (Ogutu, 2002).

With the creation of the ecotourism project, the community received a number of technical trainings, as well as new infrastructure. Training on topics such as fodder production and beekeeping improved the economic capacity of the ranch members and stimulated empowerment through the ability to advance livestock health and diversify income. Moreover, better market access and improved water sources were generated through the new infrastructure. Three water pans, (e.g., small pond-like water catchment structures), and two boreholes were built for the community, which enhanced crop production and livestock health (Ogutu, 2002). Finally, the wildlife population in the area neighboring the Reserve increased after the project was initiated. For example, bird species, bush-loving animals, and resident giraffes have doubled.
in the area. In addition, resident lions rose from almost zero to 14 since the beginning of the project (Ogutu, 2002).

Conversely, negative impacts include the imbalanced distribution of economic benefits, social and cultural degradation, and the only a slight improvement of natural resource management. Even though there are substantial economic benefits, only a small number of households commonly receive a majority of the ecotourism income. Community members also are not well-versed in marketing, they lack skills in microenterprise management, and they are inexperienced in negotiation. An improvement in all these areas could generate an increased range of economic benefits. Also, with growth of the project and an increase in tourists, who either don’t understand or don’t care about the Maasai cultural values, marginalization and social differentiation can be seen. This can then lead to the erosion of traditional cultural values and customs (Ogutu, 2002).

Even with the additional income-generating activities, there have been limited positive impacts on natural resource management in the area. This may also be influenced by the lack of national policies to integrate ecotourism and conservation (Ogutu, 2002). With an increase in wildlife, there has been an increase in poaching by people who not feel ownership of the ecotourism project. On the other hand, since there is an absence of guidelines on appropriate consumptive use of wildlife, number of species exceeding population limits has been observed (Ogutu, 2002). Overall, the Amboseli Biosphere Reserve ecotourism project has had mixed results and due to the lack of knowledge, investment and benefit-sharing is not yet considered a sustainable project (Ogutu, 2002).

**Budongo Forest Reserve.** Uganda’s moist equatorial forests are some of the most biologically diverse ecosystems in the tropical zones. These forests are home to over 20,000
plant species, a rich variety of birdlife, and rare mammals such as the Mountain Gorilla (Grace, 2001). The Forest Rehabilitation Programme was established in 1988, and dedicated half of the forest area to conservation and half to timber extraction in an effort to create a balanced management approach. As a result, several of Uganda’s forests were developed for non-consumptive uses such as ecotourism to support local communities and the Ugandan government (Grace, 2001). Five ecotourism projects can be found in Ugandan’s forests. The Budongo Forest Reserve Ecotourism project will be reviewed here.

The Budongo Forest Reserve covers 82,500 hectares and is the largest forest reserve in Uganda. Located in north western Uganda, the reserve was established in 1932. The biodiversity of the area is of incredible importance including the largest population of wild chimpanzees, numbered at 600-800, in Uganda (Grace, 2001). With threats of illegal wood harvesting and logging plans, an ecotourism project was developed to encourage conservation of the forest reserve. Specific objectives included improving economic status of local population, increasing local communities’ involvement in forest management, reducing illegal use of forest products, increasing economic profits of reserve to the Ugandan government, and increasing knowledge of forest conservation in local communities (Grace, 2001). The management plan created for the Budongo Forest Reserve ecotourism project included main management roles by local communities with the Forest Department only assuming an advisory role. A visitor limit was placed on the project to support the primary goal of environmental sustainability of the project. This was designed to attract tourists that will stay longer and, therefore, spend more money (Grace, 2001).

Positive impacts of ecotourism in Budongo include reduction in illegal harvesting activities, increase in local community’s standard of living with additional income, and increased
appreciation for the importance and role of ecotourism in sustainable forest management (Grace, 2001). In addition, rural employment opportunities have risen; capacity-building in local communities is common; a favorable climate for business development was created; and cooperation between local communities and the Forest Department has generated a productive partnership rarely seen in the country. By integrating forest conservation with community development in a participatory approach to sustainable forest management, the Budongo Forest Reserve ecotourism project has experienced overall success (Grace, 2001).

**Ranpathwala Ecotourism Project.** The incredible diversity, endemism, and beauty of Sri Lanka’s forests, abundant wildlife and the rich cultural heritage of the region attract a large number of tourists to the country each year. Alternate strategies for alleviation of pressing environmental issues (e.g., rapid rate of deforestation and increased forest degradation) are needed. These two conditions make Sri Lanka a prime place for ecotourism. The majority of forests are owned and managed by the government, and the current management approach, known as “command and control,” provides for very limited community involvement (Wichramasinghe, 2009). This management method is ineffective and is thought to have contributed to the 14% loss in forest coverage between 2007 and 2008 (Wichramasinghe, 2009).

In addition, the forestry sector is very dependent on outside funding for conservation activities. Development of such activities are uncommon as a result of the inconsistent sources of external funding. The Sri Lanka- Australia Natural Resource Management Project (SLANRMP) and the Sri Lanka Forest Department developed the Ranpathwala ecotourism project to help combat environmental degradation, manage the large number of tourists entering the country, and support economic growth. The community-based Ranpathwala ecotourism project is located adjacent to the Galgiriyakanda forest reserve in the Ahatuwewa Divisional Secretariat Division.
of Kurunegala district (Wichramasinghe, 2009). This area is managed by the Forest Department and has a long history of illegal logging (Wichramasinghe, 2009). The ecotourism project was initially funded by the SLANRMP. The local population was provided training and management support early in the development stages of the project. Trainings were given to community members and links to other agencies, such as the Ministry of Tourism, were established. The project is now totally owned and managed by the community (Wichramasinghe, 2009).

The Ranpathwala ecotourism project provides direct economic benefits to 21 households, while an additional 57 households benefit indirectly. Overall, 70% of the revenues derived from entrance fees stays within the community (Wichramasinghe, 2009). The community has a very positive attitude towards the ecotourism project, a good understanding of the relationship and impact on the natural environment, and the advantages of sharing benefits, knowledge, and experience (Wichramasinghe, 2009). The ecotourism project led to a better understanding of the environmental value of the forest and also allows for a positive cultural exchange between visitors and local residents (Wichramasinghe, 2009).

However, despite the training programs, the community lacks practical knowledge in marketing and dealing with tourists. The community does not trust the partnerships with government and outside organizations and lacks the means to build the additional needed ecotourism facilities. The absence of an understanding to smoothly run the project, and provide a thorough and positive experience for the tourists, is one of the project’s main challenges. Conflicts with benefit-sharing within the village is an additional difficulty that face the Ranpathwala ecotourism project. Nonetheless, with community capacity building and regulated accountability, the project has the potential to become a sustainable enterprise (Wichramasinghe, 2009).
Additional ecotourism projects around the world have experienced success and failure, producing many lessons on the development, management, and assessment of these types of projects (e.g., Ban Mae Kampong Community in Thailand and The Combsack Wildlife Sanctuary in Belize) (Laverack & Thangphet, 2007; Lindbery et al., 1996). The main factors in successful projects seem to focused on education and training, community participation, and a well-developed structure for the projects. For example, the Ban Mae Kampong Community in Thailand identifies community participation as the most important aspect of its ecotourism project. Community participation during all steps of the process has led to increased investment and a greater understanding of goals of the project. The community participation has increased local capacity, empowerment, and self-determination (Laverack & Thangphet, 2007). Self-motivation to create a well-structured project has created a community confident in its ability to overcome the problems encountered in the project (Laverack & Thangphet, 2007).

On the other hand, other ecotourism projects have experienced low success rates due to challenges as associated with external project management, unequal benefit-sharing, and a lack of tourists that undermines the economic sustainability of the projects. For example, ecotourism development in the mountains of Nepal has faced many problems with benefits-sharing and overexploitation of natural resources. With a lack of linkages between local and regional organizations, few of the economic benefits from the projects are retained within the communities. Also, because of the fragility of the local ecosystems, the large number of tourist visits has resulted in irrevocable environmental damage (Nepal, 2002).

**Ecotourism in Ethiopia**

The Ecotourism Association of Ethiopia was founded in 2003 (Birhan & Gabreges, 2015), and ecotourism in Ethiopia is still in its infancy (Eshetu, 2014). As a result, well-
developed ecotourism projects are uncommon in Ethiopia, although a few can be found in the most visited and well-managed national parks. However, there is great potential for the expansion of the ecotourism industry given Ethiopia’s rich cultural, historical, and natural setting (Ketema, 2015).

The Adaba-Dodola Bale Trekking Ecotourism Project, which is the basis of this research, is one of the most well-known ecotourism projects in Ethiopia. This project will be discussed in more detail in the following section. Other projects include the nearby Bale Mountains National Park and the popular Simien Mountains National Park in northern Ethiopia. Ecotourism in the Bale Mountain National Park is run in concert with the national park staff and a little less than one third of the local community directly participates in the project. A large portion of Bale Mountains study participants understand the conservation benefits of the ecotourism activities in this project and take part in conservation activities themselves, but less than 40% reported that they believe ecotourism is an effective approach to conservation (Asmamaw & Verma, 2013). This may be because only 50% of the community received training about the ecotourism project or it may reflect the lack of participation of the local community in project decision-making and management (Asmamaw & Verma, 2013). Similar circumstances were reported for the Simien Mountains National Park ecotourism project.

Based on the above literature review, several general conclusions can be drawn. Current forest management methods throughout SSA are ineffective and continued environmental degradation and forest loss is reported across the region. Although there is not a uniform solution for the large diversity of forest management issues, adopting a cross-sectoral, participatory approach can lead to improvements in sustainable management and conservation efforts. One possible solution to forest management challenges is the establishment of ecotourism projects.
Ecotourism can provide an integrated, participatory approach to conservation and sustainable natural resource management. This is supported by case studies of ecotourism projects in a variety of countries, including Kenya, Belize, and Sri Lanka (Ogutu, 2002; Grace, 2001; Wichramasinghe, 2009), ecotourism projects can experience several challenges. Without developing a well-structured and participatory project, expected environmental and economic benefits might not be achieved or be equally shared. In Ethiopia, ecotourism is underdeveloped, but the country holds great potential for creating projects.

**Problem Statement and Research Objectives**

A rapidly increasing population, extreme poverty, and the unsustainable use of natural resources pose serious threats to Ethiopia’s natural environment and the livelihoods of a large portion of the population. With increased environmental degradation, ecosystems, biodiversity, and environmental services will be lost (Geshaw et al., 2014). In combination with climate change, the incidence of drought, floods, and forest fires are expected to rise (Bazezew et al., 2015). In addition, climate change brings a higher risk of desertification in highland regions, and reduced river flows that can negatively impacting downstream communities and hydroelectric power outputs (Senbata, 2009).

Conservation and sustainable management of natural resources, especially forests, are not prioritized by the government or the rural populations, even though a majority of the rural population depend on the forest for their livelihoods. Growing environmental problems caused by deforestation and poor agricultural practice has led to a 17% reduction in the agricultural GDP (Degeti, 2003). Conservation projects, including reforestation efforts, have had little success around the country (Amente et al., 2006). A recent report noted that to keep up with the current demand of forest resources, 10% of the forest area must be regenerated every 10 years.
(Degeti, 2003). To address this challenge, participatory management plans developed in a spirit of collaboration and cooperation between the government and rural population could be developed to ensure progress toward more sustainable forest resource use. Ecotourism is another strategy that could help to address the joint challenges of environmental decline and ineffective forest management practices.

Based on these environmental concerns, I conducted a case study of the Adaba-Dodola Bale Trekking community-based ecotourism program to assess its effectiveness in promoting sustainable forest management and economic development within the community. In this study, I provide a description of the impacts of the ecotourism program on individual and community use and perceptions of forest products and services. I also consider the effects of ecotourism on the socio-cultural aspects of the communities, and explore the connection and relationship among the different components of the project and how that might affect progress toward the goal of sustainable forest management. Finally, I evaluate the sustainability of the program, suggest program improvements, and consider the application of my findings to similar projects around Ethiopia.

**Research Methods**

**Study Site**

I conducted my case study in the Adaba and Dodola woredas of the West Arsi Zone and Oromia region, which are located about 320 km southeast of Addis Ababa. Oromia is the largest region of Ethiopia with an area of about 376,000 km² (Amente, 2005) (Figure 6).
The Adaba and Dodola woredas are both named for their capital town and administrative center. The Adaba woreda spans 1,622 km² with a total population of 178,283. Adaba town has a population of 20,369 (Ahmed, personal communication, June 26, 2014). The Dodola woreda covers 1,612 km² with a population of 193,812, about 34,000 of which live in Dodola town (Ahmed, personal communication, June 26, 2014). Ninety-four percent of the population is ethnically Oromo, followed by Amhara with 4.5%. The religious break down of the population is 81% Muslim, 15% Orthodox Christian, and 4% other (Ahmed, personal communication, June 26, 2014). Agriculture and livestock rearing are the main sources of livelihoods (Ahmed,
personal communication, June 26, 2014). Forests cover approximately 73,000 hectares in the Adaba woreda and 37,500 hectares in the Dodola woreda (Oromia Forest and Wildlife Enterprise, 2015).

These two woredas sit on the Bale-Arsi massif, a compact group of mountains on the Ethiopian eastern highlands, and contain two prominent physiographic features. To the north lies the Wabe Shabele high river plain, which has been largely converted to agricultural land. Wheat and barley are the most common crops grown along with peas, chickpeas, cabbage, oats, linseed, and beans (Government Office Oromia Region, 2014). To the south is the eastern section of the Bale Mountains (Hundera et al. 2007). The elevation in this section of the Bale Mountains ranges from 2,000 meters to a little under 4,000 meters (Hundera et al., 2007). Within the woredas, the study site is located on the northern slope of the Bale Mountains between 2,400 meters and 3,500 meters in the Adaba and Dodola woredas, including the towns of Adaba and Dodola.

The environment is characterized by an Afroalpine ecosystem. An Afromontane forest, one of the last surviving coniferous forests in the country, dominates the area with a slightly changing forest composition along the altitudinal gradient (Hundera et al., 2007). In the lower altitudes, between 2,500 meters and 2,850 meters, the forest is mainly composed of African juniper, *Juniperus procera* (Figure 7), and East African yellowwood (*Podocarpus falcatus*), with wild olive (*Olea europea*) and rukiga (*Olinia rochetian*) as the dominant broad-leaf species. Additionally, because of the high incidence of homesteads and towns, ecosystem disturbance has led to large numbers of non-native shrubs and trees, mainly *Eucalyptus spp.* (Hundera et al., 2007).
As the altitude increases, the forest composition changes from African juniper and yellowwood to hagenia (*Hagenia abyssinica*) and hypericum (*Hypericum lanceolatum*) and finally to *Erica arborea* at altitudes above 3,250 meters (Figure 8). Ten percent of the Adaba-Dodola forest has a slope greater than 30% (Amente et al., 2006). Overall, 113 species of flora are found; 48% of which are trees and shrubs, and the remaining 52% are herbs and grasses. This high Afroalpine ecosystem creates a unique forest structure and floristic composition (Hundera et al., 2007). The soil is volcanic in origin, ranging from alkali basalt and tuffs. In the lower plains, chromic and pellicvertisols, red-brown to black, clay-containing soils are common. In the mountainous areas, dystric and humic cambisols, shallow and sandy soils, are common (Kotu et al., 2000).
Throughout the mountains, previously forested areas have been converted into farm and grazing land mixed with evergreen bushlands (Figure 9) (Hundera et al., 2007). Highland plantations, producing either *Cupressus lusitanica* (Mexican Cypress) or *Eucalyptus globulus* (Tasmanian Blue Gum), are also common (Kubsa & Tadesse, 2002). The mountains are the source of several vital perennial water sources that are used for domestic use, livestock watering, and occasionally for irrigation needs. In addition, these rivers feed the Wabe Shabele River that supplies a hydrolytic power plant located a short distance to the east of the study area (Kubsa & Tadesse, 2002).
A bimodal rainfall pattern characterizes this area; the period between July and September is the main rainy season followed by the dry season between November and February (called Bega). A short rainy season occurs between February and April. This area receives about 1,200 mm of rainfall yearly, with 85% of the annual rainfall occurring in the main Meher season and the remaining 15% falling in Belg season (Government Office Oromia Region, 2014). Temperatures fluctuate substantially throughout the year, ranging from 4° to 24°C (Bazezew et al., 2015). Over the past fifteen years, the area has experienced two prolonged droughts, in 2002-2003 and in 2007-2008. Each of these droughts was followed by a heavy rainy season that had a severe impact on crops and livestock (Senbeta, 2009).

Figure 9. Once forested land, converted to agricultural fields in the Adaba woreda, Ethiopia (Wilder, 2015).
Forest Management Background

The Adaba-Dodola forest received its forest priority area (FPA) designation in 1986, and is one of the 38 FPA’s located in Oromia. The original FPA area covered 140,000 hectares, but since the boundaries were never mapped, the FPA now covers just 53,000 hectares of land on the north slope of the Adaba-Dodola Mountains (Kubsa & Tadesse, 2002). The majority of the area is covered by natural, but degraded, forests, with 5% Mexican cypress and *Eucalyptus* spp. plantations, and the remainder being pasture and settlement land (Kubsa & Tadesse, 2002). Over 20,000 people and almost 500,000 livestock live within the Adaba-Dodola FPA and the FPA provides resources for 40,000 households (or 200,000 people) either directly or indirectly (Kubsa & Tadesse, 2002). Open and uncontrolled access to the forest and ongoing unsustainable use of the forest puts huge stresses on the environment. Annual rates of deforestation in the Adaba and Dodola woredas were 3.33% (2,681 hectares) and 3.86% (1,630 hectares), respectively, between 2009 and 2014 (Oromia Forest and Wildlife Enterprise, 2015). The yearly deforestation rate in the FPA is about 3.7%, almost four times the national average (Oromia Forest and Wildlife Enterprise, 2014). This deforestation rate translates into a little over 1,600 hectares of forest loss per year (Kubsa & Tadesse, 2002).

Because of these environmental issues and the unclear forest boundaries, a conservation strategy was developed under the Participatory Forest Management program known as the Integrated Forest Management Project (IFMP) (G. Haile, personal communication, October 27, 2015). The IFMP was established in the Adaba and Dodola woredas as a technical partnership between the Ethiopian and German governments (Kubsa & Tadesse, 2002) and the formal management of the project by these partners continued until 2006.
During the first two years of the IFMP, project activities included conservation rules preparation, promoting awareness creation, facilitating the creation of community protection committees, subsidizing tree plantings, and supporting area closures (Kubsa & Tadesse, 2002). However, the contribution of these activities to conservation was minimal. Based on the early unpromising results, a project mission statement was developed in 1998, “to develop a feasible forest conservation approach” that was referred to as the WAJIB approach (Kubsa & Tadesse, 2002). The WAJIB approach granted exclusive use rights to the Forest Dweller’s Association (WAJIB, abbreviated from Afan Oromo) that was created for this project. Each WAJIB consists of 30 members, with each member being responsible for managing 12 hectares of forest (which was deemed the carrying capacity of the area (Amente, 2006)). Thus, each WAJIB encompasses 360 hectares per forest block (Bedada, personal communication, October 19, 2015). Developing the WAJIB’s takes about 12 to 18 months (Kubsa & Tadesse, 2002). Each WAJIB has a designated leader with five additional committee members (Amente, 2006). Dodola woreda WAJIBs were established in 2000 and WAJIBs were created in 2004 in the Adaba woreda (Bedada, personal communication, October 19, 2015). Currently, 69,597 hectares and 55,699 hectares of forest are under WAJIB control in Dodola and Adaba, respectively, extending beyond the boundaries of the FPA (Genene, personal communication, October 27, 2015).

All WAJIB members sign a formal contract with the government, known as the Forest Block Allocation Contract, which defines specific rights and responsibilities of each party. The WAJIB members have exclusive rights to manage their forest block including settlement within the area and utilization of forest products for both domestic consumption and sale. However, this utilization must be within the legal extraction amounts established by the government. The limit for consumption of forest products is one cubic meter per hectare per year (Kubsa & Tadesse,
Responsibilities of the WAJIB members include maintaining tree cover, paying forest rent, regulating forest use, and restricting the number of settlements to the agreed number of homesteads. The members have to pay the forest rent based on the area not covered by forests in their block, giving them a strong incentive to reduce deforestation and increase the reforested area. In 2002, the rent amounted to about $1 USD/hectare (Kubsa & Tadesse, 2002) and 40% of the forest rent is channeled back to the community Peasant Association (PA), thereby increasing benefit sharing (Kubsa & Tadesse, 2002). In return, the Forest Administration is required to provide training resources (e.g., silviculture options, determination for sustainable yield, marketing, nursery establishment, bookkeeping, regeneration of seedlings care, thinning, and pruning; Amente, 2006) and technical support for WAJIB members (Kubsa & Tadesse, 2002). The Forest Administration has the right to access the forest blocks at any time (Kubsa & Tadesse, 2002) and additional regulations are developed by the WAJIB members and committees. Accountability for obligations and mediating conflicts are the duty of the PAs, WAJIB committees, and IFMP leaders (Kubsa & Tadesse, 2002).

The IFMP project has created local ownership of the forest, and empowerment in recognizing the communities’ capacity for forest management and fostering better attitudes and perceptions of the environment (Kubsa & Tadesse, 2002). With better understanding, shared decision making and mobilization of communities’ skills, there has been a reduced dependence on external resources. The IFMP’s also facilitate personal advocacy, ensure reaching targeted groups’ objectives and priorities, and generate learning and capacity building (Degeti, 2003). In the project’s early years, small observable benefits were being seen in the communities’ livelihood, but little improvement in sustainable forest management was documented. Because of this, the community-based Bale Trekking Ecotourism Project was developed and implemented to
diversify livelihoods and support forest conservation in the Adaba-Dodola FPA communities in coordination with the IFMP (Kubsa & Tadesse, 2002).

**Adaba-Dodola Ecotourism Background**

In 1996, the German NGO, GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit, English: German Society for International Cooperation), partnered with the Oromia Forest and Wildlife Enterprise (OFWE) office to create a community-based ecotourism project. The project was designed for mountain and horse trekking in the Adaba-Dodola Mountains. Originally five mountain huts were constructed as accommodations and a number of local service providers were chosen. Two huts are pictured in Figure 10. Three tent campsites, one shown in Figure 11, were established in the Adaba woreda to encourage additional tourism and provide a diversity of experiences for tourists. Each hut site is under the management of a hut keeper. English-speaking locals were chosen as guides, and a number of other community members were selected to work as horse providers and handlers. GIZ funded the construction of the mountain huts and provided trainings for the guides and community participants.

![Figure 10](image-url). Wahoro, left, and Angafu, right, Adaba-Dodola ecotourism hut campsites in the Dodola woreda, Ethiopia (Wilder, 2015).
Each guide received a six-month training course that covered natural resource use and ecology, cultural awareness and appropriate behavior, and community-based tourism principles. The training also included a practicum in Bale Mountain National Park, located just east of the study site. Direct service providers had multiple trainings on cultural understanding and conservation awareness. In addition, GIZ provided general training sessions for the communities located in and around the ecotourism areas.

Matching IFMP, awareness and technical trainings and monetary support were provided by GIZ until 2006, when the project was handed over to be run by the community (Bayu,
personal communication, October 20, 2015). A map of the campsites in the Adaba and Dodola woredas is shown in Figure 12.

Figure 12. Locations of the ecotourism campsites in the Dodola and Adaba woredas. Inset map shows location of Adaba and Dodola woredas in Ethiopia (Google Maps, 2016, modified by author).

Data Collection

In my study I used a case study approach to determine if the Adaba-Dodola Bale Trekking community-based ecotourism project is an effective pathway for sustainable forest management. A case study is an empirical inquiry that examines contemporary, real-life situations and generates in-depth, contextual analysis (Soy, 1997). This research method allows for specific circumstances or conditions to be investigated when existing theory seems inadequate to offer insight or create a basis for examination of the situation (Rowley, 2002).
Because the research questions focused on a specific group of people and project in one location in Ethiopia, a case study seemed the obvious choice for this project. In addition, the time restraints of the researcher and the use of qualitative data further supported the use of the case study method. Application of the ideas and general themes produced by the data analysis of this research will hopefully be useful and applicable to similar projects in the future. The University of Washington’s Human Subjects Division reviewed this research project in Exempt Determination Application #50731.

The study population consisted of men and women who live in the Adaba and Dodola woredas and who participate directly or indirectly in the Bale Trekking ecotourism project, as well as nonparticipants. It included WAJIB members and nonmembers and office workers at the OFWE. Non-random sampling techniques were used including purposive sampling, snowball sampling and sampling of convenience. Purposive sampling was used in the identification and selection of respondents with in-depth knowledge of the ecotourism project. These contacts also identified other populations necessary for the intended research. This lead to snowball sampling, where one study participant or informant points the way to another contact that could participate. In concert with this, interviews, focus groups, and questionnaire respondents were recruited from the Bale Trekking tour guides, OFWE, WAJIB groups, and by word of mouth. Because of the difficulty in organizing and acquiring definite commitments of participation, qualified people available at different times and places of data collection were also included. The only criteria needed to participate was residence in the Adaba and Dodola woredas.

Data collection techniques included semi-structured interviews, focus groups, a questionnaire, and general observation and informal meetings. Semi-structured interviews were conducted with three men, two from Adaba, one from Dodola. From Adaba, I interviewed the
head guide, Bayu Bekele, and a Participatory Forest Management Expert from the OFWE, Bedada Debeli. From Dodola, I interviewed the Oromia Wildlife and Forest Enterprise District Manager for the Adaba and Dodola woredas, Genene Haile. Interviews were conducted from September 10 to September 27, 2015. A general set of questions, closed- and open-ended, was developed for these interviews. Their responses and related follow-up questions were used to drive the direction of the discussion. These interviews were conducted in English. The interview guide can be found in Appendix A.

I conducted four focus groups in the rural areas of the Adaba and Dodola woredas and in Dodola town. Specifically, they took place in Harawa of the Adaba woreda and Angafu, Wahoro, and Dodola town of the Dodola woreda (Figure 13).

*Figure 13. Location of the ecotourism campsites in the Dodola and Adaba woredas. Inset map shows location of Adaba and Dodola woredas in Ethiopia. Locations of focus groups at Adaba-Dodola ecotourism campsites and the town of Dodola are circled in red (Google Maps, 2016, modified by author).*
Focus groups consisted of between 4 to 44 people and included nonmembers of WAJIB and the ecotourism project, WAJIB members, ecotourism service providers, and community leaders. A breakdown of participants by biological sex, WAJIB membership, and ecotourism participation is presented in Table 1.

Table 1. Number of focus group respondents by biological sex, their level of participation in ecotourism, and their membership status in a WAJIB.

<table>
<thead>
<tr>
<th>Biological sex</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecotourism</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant</td>
<td>25</td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>Nonparticipant</td>
<td>34</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>WAJIB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member</td>
<td>51</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>Nonmember</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Participation in ecotourism is defined as being a direct service provider (e.g., horse provider or handler) or employee at campsite (e.g., hut keeper or cleaner). Focus groups were conducted on November 5th and December 6, 2015 and January 8 and 9, 2016. I led each focus group with the help of a translator who was proficient in both English and the local language of Afan Oromo. A list of general questions, closed- and open-ended, was developed for the focus groups and then the responses of the participants and related follow-up questions helped to guide the direction of the discussion. A picture of the focus group conducted at Angafu is shown in Figure 14. A review of the questions and objectives of the focus group were discussed with the translator prior to the meetings to clarify the meaning of the questions and the goals of the meetings. A focus group interview guide is presented in Appendix B.
I developed a questionnaire for use with the Adaba and Dodola woreda community members with help from my local counterparts, and it focused on the perceived impacts of the ecotourism project on forest management in the area. The local counterparts included local residents who worked for various government agencies and the ecotourism projects in Adaba and Dodola. Additional questions focused on the economic and social impacts of the ecotourism projects. The final questionnaire was translated into Afan Oromo. My local counterparts who assisted in the research, read the questionnaires to respondents and recorded their answers directly. The surveys were completed between November 2015 and January 2016 at the convenience of the participant and facilitator. The local counterparts were instructed to record each respondents exact answers to the best of their abilities. Questionnaires were answered by
nonmembers of WAJIB and ecotourism project, WAJIB members, and ecotourism participants (Table 2). Responses to questionnaires were then translated into English from Afan Oromo with the help of three translators from the towns of Adaba and Dodola. The majority of questionnaires (92%) were filled out in the Adaba woreda with the rest (8%) completed in the Dodola woreda. My local counterparts and I were not able to complete questionnaires in the Dodola region during the scheduled time because of unavoidable political issues. Because of this, results derived from the questionnaires are skewed towards the experiences of the Adaba participants. A copy of the questionnaire in English and Afan Oromo is presented in Appendix C and D, respectively.

Table 2. Number of questionnaire respondents by biological sex, their level of participation in ecotourism, and their membership status in a WAJIB

<table>
<thead>
<tr>
<th>Biological sex</th>
<th>Male</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>12</td>
</tr>
<tr>
<td>Ecotourism</td>
<td>Participant</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Nonparticipant</td>
<td>14</td>
</tr>
<tr>
<td>WAJIB</td>
<td>Member</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>Nonmember</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td></td>
</tr>
</tbody>
</table>

Finally, information was also gathered informally through observation and casual meetings with community members. I worked closely with the community, not only with the ecotourism project, but in the school and local government offices. I was able to build rapport and develop trust with the community and my local counterparts through my role as a Peace Corps volunteer. While conducting my research and at a variety of social gatherings, I came to know the ecotourism project intimately. For example, during my time living and working in Adaba and working with the Bale Trekking ecotourism project, I hiked to five of the eight campsites, three of the hut locations and two of the tent locations. Through observation of the forests, campsites, interactions with locals, and informal discussions with hut keepers, I gained
insights on the status of the environment and the behaviors, actions, and attitudes of the community towards the forest and the ecotourism project. I documented anecdotal notes of these observations and discussions. All of this information contributed to my better understanding of distinctive details of the case study.

Data analysis

After the translation of all of the data collected in Afan Oromo was completed, interview, focus group, and questionnaire responses were gathered and organized prior to the start of the analysis. Coding to extract the main themes and relationships in the data was the main method used for the qualitative data. Several coding strategies were used through an inductive, iterative process. An inductive coding process was chosen because of the simple, straightforward nature of the procedure in developing codes and themes directly from the data, whereas, a deductive strategy would have developed codes before analysis began based on a previous theory or assumption (Stellmacher, 2013). The lack of restraints and open nature of the inductive coding process was preferred for this case study because of the nature of the research. A note excerpt from a focus group is shown in Figure 15 as an example of coding techniques.
Using this analysis strategy, mixed coding methods were used, including holistic, descriptive, hierarchical, and magnitude. During the coding process, I looked for common phrases and ideas throughout the interview and focus group data, and applied a word or phrase as a code to categorize the information and identify themes. Multiple coding cycles were conducted to allow for the merging and splitting of codes, as well as to allow the frequent, dominant, and significant themes and relationships to emerge. Holistic coding is described as assigning a single code to a large unit of data, giving it a ‘broad-brush stroke’ representation. I used this during the first coding cycle, when primary categorical organization of the data was the main objective.
Descriptive and magnitude coding techniques were used in the subsequent coding cycles. Magnitude coding uses number and symbols on codes to denote its magnitude, whether that is frequency, intensity, direction, or presence (Saldana, 2013). Using the developed codes, I created a hierarchical coding structure. Hierarchical coding is when general codes are broken down into more specific categories and subcategories offering a more detailed and in-depth look at the meanings throughout the data.

During the second and third coding cycles, more specific codes were created to better describe and capture the nuances of surfacing concepts and connections within the data. Codes were checked to ensure that they had a clear relationship to the research questions. The types of codes used can be categorized into three groups: descriptive or attribute, thematic, and analytic. Descriptive or attribute codes portrays ‘what’ the response is portraying. Thematic refers to codes that explain the ‘why’ aspect of the response. Finally, analytic codes represent the relationship between different aspects of the data and research questions. Using these coding techniques, I was able to classify key characteristics, identify similarities and differences, discover trends, detect of relationships, and extract themes. This provided a comprehensive analysis of the research data with the power to address and answer the research objectives. In addition, I developed numerical descriptions of the data, mainly questionnaire responses, to easily recognize the tendencies and views of the study participants.

**Results and Discussion**

*“Showing our country for visitors, makes the people fruitful.”*

Study data demonstrated that overall, the ecotourism project appears to be an effective tool for sustainable forest management and has a positive effect on forest management in the Adaba-Dodola forest, as well as, on the local communities’ economic and socio-cultural features.
The results will be discussed in terms of the benefits, costs, challenges and sustainability of the project.

**Benefits**

The positive impacts on forest management and favorable views of conservation are largely attributable to the economic impacts of the project. During the interviews and focus groups, direct and indirect economic benefits were the most prominent and recognized impacts of the Adaba-Dodola ecotourism project. Local community members are directly employed by the project as tour guides, hut keepers, horse handlers, and horse providers. Horse handling and providing roles are commonly filled by the same person. Additional people earn money through selling souvenirs, cooking traditional foods, preparing coffee ceremonies, and providing services at campsites such as cleaning, preparing hot water, or washing dishes. The number of workers employed in each job is shown in Table 3. The hut keeper is responsible for hiring workers for the additional services if they need assistance. Tourists pay the fees for all these services directly to the provider. This way, the rural population benefit immediately from ecotourism activities. In addition, because money passes directly from the visitor to the hosts, the rural communities clearly understand that the presence of tourists is the source of additional income. Of all case study participants (N=100), fourteen people reported that ecotourism is their main livelihood and six others reported that it was an important supplemental source of income.

*Table 3. Number of case study participants employed by ecotourism job type*

<table>
<thead>
<tr>
<th></th>
<th>Tour guide</th>
<th>Hut Keeper</th>
<th>Horse provider or handler</th>
<th>Campsite Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questionnaire</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus group</td>
<td>7</td>
<td>3</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>participants</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interviewees</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>4</td>
<td>13</td>
<td>7</td>
</tr>
</tbody>
</table>
The community also gained indirect economic benefits from ecotourism activities. Twenty percent of the bed rent and the forest entry fees are channeled back into the local Peasant Association and this additional revenue is supposed to be used for projects that benefit the entire community. These projects may include building schools or providing business loans. This creates a system that allows the entire community to see and experience the economic benefits of the ecotourism project. In addition, respondents in one focus group described a rotation system for horse hiring and handling that was designed to create additional employment opportunities for a greater number of people throughout the area. Even hotel and shop owners in the nearby towns of Adaba, but mainly Dodola, experience economic benefits from tourism through increased business opportunities. The direct and indirect economic benefits were mentioned in 100% of the focus groups and personal interviews. Informal conversations I had with local people and my observations throughout the study largely supported this claim. One participant expressed that, “Ecotourism means community gets large income from tourists because of a service provided [sic].”

This livelihood diversification and dependence on ecotourism for income has led to a different view of the surrounding forests and their ecosystems. Because tourism is reliant on a high level of environmental quality, the conservation and the sustainable use of forest resources has increased. The community is able to earn money through a non-consumptive use of the forest that promotes and encourages conservation. This sentiment was expressed by a questionnaire respondent when she said “…community is protecting to get work for our livelihood [sic].”

During the interviews and focus groups, the ‘instead of’ idea was used as support for the positive environmental impacts. For example, community members can hire horses to visitors
instead of engaging in illegal forest encroachment (Bedada, personal communication, October 19, 2015). This idea appeared three times in the coding of interviews and focus groups. The ability to earn money without cutting fuelwood or destroying the forest was commonly cited as a positive environmental benefit of ecotourism. One questionnaire respondent noted that, “without cutting the forest, with another system we get another business, it educates us [sic].” In addition, my observations verified that it was very beneficial that the community could see that the natural landscape of the region was directly responsible for bringing in tourists. It was not just an abstract idea that was supposed to create future benefits, which many may not experience or understand.

Results from the questionnaires (N=38) show that 82% of respondents believed that ecotourism has impacted their personal use of forest resources and 100% claimed the project has influenced the community’s use of forest resources. Only a small number of participants provided specific examples of behavior change that they attributed to the ecotourism project, including a reduction in illegal fuelwood harvesting (10.5%), protecting wild animals (39.5%), and increased seedling planting (10.5%). One questionnaire respondent reported that, “Before, we are cutting, taking everything. Now we understand good management, like sometimes we bring local plants to plant in different areas [sic].” However, the most common description for change in forest resource use was just ‘protection,’ which was reported by 57.9% of the respondents. A respondents’ biological sex, WAJIB membership, or participation in the ecotourism project did not seem to impact whether the ecotourism project influenced their personal use of forest resources, and the percentages of affirmative responses to specific questions based on these demographic characteristics are presented in Table 4.
Table 4. Questionnaire response percentages to selected questions based on breakdown of biological sex, WAJIB membership, and ecotourism participation (%).

<table>
<thead>
<tr>
<th>Replied affirmative to:</th>
<th>Biological sex</th>
<th>WAJIB Membership</th>
<th>Ecotourism participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F</td>
<td>Member</td>
</tr>
<tr>
<td>Did the ecotourism project impact your personal use of forest resources?</td>
<td>73.1</td>
<td>100</td>
<td>84.6</td>
</tr>
<tr>
<td>Did the ecotourism project impact the community’s use of forest resources?</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Did the ecotourism project change how you view the forest?</td>
<td>46.2</td>
<td>100</td>
<td>84.6</td>
</tr>
<tr>
<td>Do you think the forest has value beyond the product’s it provides?</td>
<td>65.4</td>
<td>100</td>
<td>65.4</td>
</tr>
<tr>
<td>Is there a connection between the forest and the ecotourism project?</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

During the interviews and focus group discussions, the most common environmental benefits description was again given as the vague idea of conservation. When I asked participants to describe this concept further, the most common responses included reduced cutting of the forest, decreased poaching, increased regeneration and reforestation, and the complete protection of the land on which the ecotourism campsites were built. Mr. Bedada, a Participatory Forest Management Expert in the OFWE, reported that, based on his experience, forest coverage increased by 15.6% in the community-managed areas as a result of the ecotourism project (personal communication, October 19, 2015). However, I was unable to obtain any official statistics to support this kind of change.

These types of conservation changes seemed to go hand in hand with an increased positive attitude toward the forest that can be attributed to local population’s participation in the ecotourism project. The rural community seemed to have an improved attitude towards the forest and a better understanding of its value as an intact ecosystem that draws visitors to the area.
Sixty-three percent of the survey respondents reported that the ecotourism project had changes their perceptions of the forest in a positive way and 76% confirmed the idea of the forest’s inherent value. One participant noted that: “Before we don’t know the use of nature all in all, but now the whole community, it helps us. We think like this [sic].” Again, biological sex or participation in the ecotourism did not seem influence the respondents’ perceptions of the forest. However, membership in the WAJIB did appear to influence respondent perception. A much higher percentage of WAJIB members (85%) affirmed the positive influence of ecotourism on their perception of the forest compared to just 17% of non WAJIB members (Table 3). Because WAJIB members have direct control over forest management activities, they received additional training that was unrelated to the ecotourism project about forest management responsibilities and practices. This additional connection to, and knowledge of, the forest may have contributed to the positive responses obtained to this question. The connection and influence of the IFMP project is discussed in more detail later in the Limitations section.

The connection between ecotourism and the protection of the forest was understood by the majority of the case study participants, with all of the survey respondents confirming this connection (Table 3). Evidence of this is seen in comments provided by the survey respondents, including: “forest is base of ecotourism, so important [sic],” “ecotourism follows beautiful scenery and landscape, increase the expectation to protect the forest [sic],” and “ecotourism is not here without natural resources [sic].”

A deeper understanding of forest benefits was also reported, which demonstrates the participants’ awareness of the importance of conservation to support themselves and the community in the future. These comments included “...without forest, no life. Forest is sustainability [sic],” and “there is no profit, rain, livelihood, home without the forest [sic].” In
addition, as noted in a previous statement, the contribution of a healthy forest ecosystem to weather stability (such as more consistent rainfall), was noted several times throughout the focus groups and interviews as an important environmental benefit of the ecotourism project. If more widely understood, I believe this idea could be an effective motivator for conservation and optimization of the ecotourism project because the rural communities are profoundly impacted by drought, unseasonably heavy rainfall, and increasing temperatures in all aspects of their lives.

With continued conservation efforts and sustainable forest management, more tourists will undoubtedly be attracted to the area, which will generate more economic benefits for the community. The more that the economic benefits of ecotourism are perceived by the community, the more widely-spread the benefit sharing and appreciation of the project becomes. Community motivation, investment, and cooperation may then increase and expand the beneficial impacts of the ecotourism project on the sustainable management of the forest resources. When discussing this idea and the protection of forests, one man stated that it “…makes us partners [sic].” The rural community and visiting tourists share in a partnership that helps to protect and improve the local environment and promote community economic development. Referring to this virtuous cycle, one survey participant said, “Ecotourism changed things. We are saving forest, plants, wildlife. No illegal hunting. Money from ecotourism goes back into the community and then protect forests [sic].” A visualization of this positive feedback cycle is shown in Figure 16.
The idea of a virtuous cycle (Figure 16) is supported by the reported difference in the observed and perceived impacts of ecotourism in the two participating regions. The Dodola woreda campsites receive a much higher number of tourists compared to the Adaba campsites. Accordingly, the rural population, communities, and direct service providers in the Dodola area received higher economic benefits than did people in the Adaba region. Similarly, the understanding of the project and its conservation benefit and a positive attitude toward the forest was greater in the Dodola woreda. All of questionnaire respondents from the Dodola area reported that the ecotourism project has positively impacted their personal, and the community’s, use of forest resources. In contrast, a quarter of the respondents from the Adaba woreda indicated that the ecotourism project has had no impact on their use of forest resources. Nevertheless, a large majority of the Adaba respondents indicated that they recognized the potential advantages of the Adaba-Dodola ecotourism project and the need for an alternate income that encourages
sustainable forest management. During the focus group at the Harawa campsite in the Adaba woreda this idea was supported by comments like “diversifying income is good,” and “…now is the same, but in the future minimize cattle number so regenerate forests and increase tourists [sic].”

In addition to the environmental and economic benefits of ecotourism, a number of socio-cultural benefits were also identified. The knowledge exchange and cultural sharing of ideas and traditions that inspired awareness, understanding, and respect between the local population and ecotourism visitors were the main positive impacts reported. At least one of these two factors was cited as a benefit in all focus groups and interviews. A woman from the Harawa focus group said she enjoyed visiting with people from different cultures. The community was enthusiastic about the opportunity to share cultural customs with visitors such as coffee ceremonies and traditional food. People “…get to show part of their culture…the reality of their culture [sic].”

During the course of my research, I experienced first-hand a very welcoming and friendly atmosphere when hiking and staying at the campsites, and perceived a positive attitude towards foreign visitors and the ecotourism project.

The responses during the focus groups corroborated the positive perceptions of overall impacts, including environmental, economic, and socio-cultural, that were reported in the Dodola woreda. In contrast, the results from the Adaba focus group, neither a positive nor negative response was reported for all three impacts of ecotourism. The perception that there were no overall benefits from ecotourism in the Adaba woreda was summarized during two interviews. The low number of tourists was cited as a reason for this trend on all three occasions. One survey respondent noted that: “when evaluated with its age, benefit is low, due to fluctuation of tourists [sic].”
Trend diagrams were drawn during each of the focus groups to visualize the impact of the ecotourism over time. In developing the trend lines, the survey participants gave me instruction on the direction and slope of the lines for the environmental, economic, and socio-cultural impacts of ecotourism over time. I used the drawn trend charts generated from focus groups to develop visualizations; these diagrams are presented in Figures 17 and 18 for the Harawa focus group in the Adaba woreda, and the Angafu focus group in the Dodola woreda, respectively.

![Trend Diagram](image)

**Figure 17.** A visualization of the trend diagram that was drawn during Harawa focus group in the Adaba woreda based on feedback from participants. The diagram shows the perceived positive trend from the establishment of the campsite (2004). The present (2015) was when the focus group was conducted.

Figure 19 shows that participants did not perceive any improvement from the initial small benefit from the beginning of the ecotourism at Harawa to the present time although a slight improvement in the environmental impact was noted. Respondents did, however, believe that there could be a substantial positive increase in impacts if the number of tourists visiting the area were to increase. This last observation was strongly noted as a necessary condition for the
indicated future benefit trend lines. Conversely, the trend diagram shown in Figure 20 from the Dodola region shows a consistent positive trend for all three aspects of the ecotourism project, which they expect to continue into the future. When I hiked in the Dodola woreda, it was obvious that the local people understood my role as a tourist. In contrast, fewer people seemed to comprehend the concept of a tourist when I traveled in the Adaba woreda. To put the growth of the project in perspective a graph of the number of tourists visiting the ecotourism project between 1998 and 2014 can be seen in Figure 19.

*Figure 18.* A visualization of the trend diagram that was drawn during Angafu focus group in the Dodola woreda based on feedback from participants. The diagram shows the perceived positive trend from the establishment of the ecotourism project (1998). The present (2015) was when the focus group was conducted.
The increased understanding of the ecotourism project gained from the trainings might also be a factor in the reported trends for ecotourism impacts. Trainings on the ecotourism project and its different aspects, such as employment opportunities and important factors for success were given by GIZ when the project was initially established. These trainings continued sporadically until 2006 when GIZ left the project. Additional trainings were given by tour guides and OFWE after 2006. However, these subsequent trainings did not reach a large portion of the community and were not always considered to be effective. Forty-two percent of all questionnaire respondents reported that they did not receive any training on the ecotourism project and over 90% said that they learned about the project through the community or personal experience. Overall, only 58% of the survey respondents reported that trainings or informal knowledge sharing gave them a good understanding of the project, although all of the Dodola respondents replied ‘yes’ to this question. There are several possible reasons for this disparity.
between the two locations. The most popular campsites are found in the Dodola woreda, so the surrounding communities may have received more training opportunities and direct interaction with visitors. In addition, knowledge sharing and exchange was cited as a common practice in the Dodola focus groups and given as specific examples in the Dodola questionnaires.

This flow of information and community sharing, including trainings, seems to have led to other positive benefits. I observed that greater awareness and comprehension of ecotourism benefits seemed to increase the community’s understanding of the need for conservation and sustainable use of forest resources. The organization of the project and appropriate actions in relation to conflicts, successes, and other issues was more clearly comprehended by participants in the Dodola woreda. Their trust in the system, other participants, and stakeholders was greater and more reliable than those in the Adaba region.

In addition, the benefit-sharing within the project seems to be more effective when the community is more educated about the project. There was much more concern that bed rent and forest fees were not being shared within the community during the focus group and interviews in the Adaba region. During the focus group and interviews in the Adaba region, the community raised concerns over the lack of sharing of bed rent percentages and forest fees. According to Mr. Bayu, Assistant Leader and Adaba Tour Guide at the Bale Trekking Ecotourism project, most of the hut keepers keep the money they receive from the tourists for themselves and many within the community may not even be aware that a portion of these fees are supposed to be shared with the community (personal communication, October 20, 2015). This could be due to the fact that the service providers feel that the family needs or is entitled to the entire profit, although the accountability present in the different areas may also be influence this issue.
I also completed a cross tabulation of codes created during the data analysis process that indicated different benefits and trends. A list of the most common codes found can be seen in Table 5. Looking at the majority of cross matrices completed, there is no apparent significance in the connection between different codes found throughout research. However, the relationship between the identification of community economic benefits including bed rent and the identification of a positive trend compared to a neutral trend is positive. Community economic benefits were identified multiple times when a positive trend was also coded for, but were not coded for at all in focus groups where a neutral trend was coded for. The cross matrix completed for the codes discussed above can be seen in Figure 20.

<table>
<thead>
<tr>
<th></th>
<th>Positive Trend</th>
<th>Neutral Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm Economic Benefits/Forest fee</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

*Figure 20. Cross matrix for the relationship between community economic benefit codes and trend codes. The number indicated the number of times both codes were found in one focus group.*

Overall, the ecotourism project was perceived by respondents as having a positive impact on the economic, environmental, and socio-cultural aspects of their communities. Participants reported an increased sense of ownership of the forest and the ecotourism project, creating an investment in its success and sustainable forest management that is seldom seen in other regions of Ethiopia. “*Before this, the forest has no owner. Now, by making a market on the forest, we understand the use and protect it day and night [sic].”* Creating these supportive conditions has been a key element to the success and sustainability of the ecotourism project. A summary of the perceived positive impacts of the project is presented in Figure 20.
During data analysis, I developed codes to categorize the benefits of the Adaba-Dodola ecotourism project described during interviews and focus groups. These codes were used to determine and support the findings presented above. A list of codes that portrayed benefits of the project and the frequency that they are found through the interview and focus group data is shown below in Table 5.

Table 5. The most common codes that categorize benefits described in interview and focus group data and the number of times each one was seen in the coding process.

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct service provider</td>
<td>6</td>
</tr>
<tr>
<td>Bed rent</td>
<td>2</td>
</tr>
<tr>
<td>Forest fee</td>
<td>3</td>
</tr>
<tr>
<td>Econ. for community</td>
<td>3</td>
</tr>
<tr>
<td>Instead of</td>
<td>5</td>
</tr>
<tr>
<td>Weather stability</td>
<td>3</td>
</tr>
<tr>
<td>Protection</td>
<td>3</td>
</tr>
<tr>
<td>Less forest cutting</td>
<td>3</td>
</tr>
<tr>
<td>Conservation</td>
<td>5</td>
</tr>
<tr>
<td>Reforestation</td>
<td>2</td>
</tr>
<tr>
<td>No poaching</td>
<td>2</td>
</tr>
<tr>
<td>Cultural exchange</td>
<td>5</td>
</tr>
<tr>
<td>Knowledge exchange</td>
<td>4</td>
</tr>
</tbody>
</table>
Costs

During the interviews and focus groups, respondents voiced socio-cultural and environmental costs of the project, but did not describe economic costs. GIZ provided all the initial funding for the project, allowing the community to begin obtaining profits from the first year of the project. It was noted that the occasional culturally-inappropriate dressing style of women tourists was perceived to be disrespectful and could potentially have an adverse influence on the younger generations. For example, one focus group participant articulated the socio-cultural cost as being “Tourists’ disrespectful dressing style can have negative impacts. Women in our culture are not allowed to wear pants.” Tourists may also be inclined to give pens or other trinkets to children in the rural community, which may encourage discourteous and disrespectful behavior (e.g., begging) towards tourists or foreigners in the future. Conducting informational cross-cultural sessions for tourists on these issues was suggested as a possible solution to preventing this type of culturally inappropriate behavior.

Environmentally, the negative impact most often mentioned was pollution, especially an increase in littering as a result of more tourists visiting the area. Five of the seven focus groups identified pollution as the main environmental problem associated with the ecotourism project. Furthermore, two of these five mentioned the issue of the environmental carrying capacity and the increased environmental stress caused by the higher foot traffic which could result in increased erosion and a higher demand for firewood from surrounding forests. However, the current forest management plan has been able to offset the additional environmental costs attributed the increase in visitors.

Along this line, the focus group participants noted that the need to develop and designate a carrying capacity for the ecotourism project will be vital to project sustainability. Although, a
couple of the project participants were aware of the need to calculate a carrying capacity threshold, it seems unlikely that the information needed to calculate this limit will be gathered and analyzed in the near future. It is also unlikely that project participants and stakeholders would agree to impose a limit on the number of ecotourism visitors into the region. Most community members see growth and an increasing number of tourists as being economically beneficial for the region and this was perceived as being more important than the possible negative ecological impacts. However, the identification of a carrying capacity is not only important for the health of the environment, but also for the quality of the experience that the tourists have. With only nine available campsites, the amount of space and the number of beds are fixed. The number of tourists that can be comfortably accommodated at any one time has a specific limit, especially for more popular tourism areas.

Codes that categorize the costs described during interviews and focus groups and the frequency that they are each found throughout the data is shown in Table 6. These codes were used to determine and support the findings presented above.

Table 6. The most common codes that categorize costs described in interview and focus group data and the number of times each on was seen in the coding process.

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low income</td>
<td>5</td>
</tr>
<tr>
<td>Pollution</td>
<td>5</td>
</tr>
<tr>
<td>Disrespectful</td>
<td>5</td>
</tr>
<tr>
<td>Bad influence on kids</td>
<td>3</td>
</tr>
</tbody>
</table>

**Challenges**

Some of the challenges facing the Adaba-Dodola ecotourism project include the lack of a clear project management structure, the poor upkeep of certain campsites, and continued population growth in the communities within this region of Ethiopia. I found the absence of a clearly defined management structure and the poorly defined connections between the project
stakeholders, the participants, and the community to be the foremost challenge of the Adaba-Dodola ecotourism project. For example, even after all of my time spent collecting survey data and attending informal meetings, I still do not understand the management structure of the ecotourism project. This lack of clarity impacts all areas of the project and, it has contributed to the low level of economic development in the Adaba region of the project, a poor comprehension of the specific roles and responsibilities of individuals within the project, and a sub-par level of benefit-sharing.

Most of the project’s business is conducted in Dodola town and woreda Accordingly, most participants live and work in this area. Without an overarching organization and appropriate connections between the Adaba and Dodola regions, the needs and development of the Adaba area are frequently misunderstood and not prioritized by the majority of stakeholders. The utilization of the ecotourism assets in the Adaba area, which should be encouraged by tour guides and OFWE who have determined the trekking routes and trip itineraries, are often overlooked. Consequently, the benefits from the ecotourism project are not often enjoyed in the Adaba area, and when they are received, they are not shared consistently throughout the community.

The specific roles and responsibilities of the project’s participants have been unclear for much of its history. Generally, participants of the project are only concerned for their own interests. When I asked about the structure of the project and the protocols for conflict mediation, some individuals told me that problems should be taken directly to the community leaders and WAJIB council, while others informed me that the tour guide association and OWFE are accountable for these issues. Other individuals believed that problems should be solved between or among disagreeing parties. In short, the data clearly shows that there was little agreement on
this topic. This lack of organizational clarity negatively impacts the accountability of the participants on the ground level, such as giving 20% of bed rent back to the community. Currently, there are no official repercussions from the failure to return the expected money to the community.

This lack of accountability can also be seen in the state of campsites. I was told that a portion of the money generated by each campsite is expected be invested back into the maintenance of the campsite, which includes the cleaning and repairing of the campsite equipment, structures, and the surrounding area. Yet, when visiting campsites, I observed broken tents, ruined tables and chairs, malfunctioning stoves, and grimy, uncleaned bathrooms. In some cases, entire campsites were not operational because of broken or old equipment that yet to be fixed or replaced. Moreover, with no accountability or strong connections between project sectors, the equity of benefit sharing is not guaranteed. The absence of a well-defined management structure and the consequent difficulties in meeting project goals is a primary threat to the long-term success of the ecotourism project.

A final consideration is the continuing growth of the local population, which creates an obstacle for the ecotourism project. Unless ecotourism can better satisfy livelihood needs of the growing communities, more land for farming and grazing will be required to support an increasing human population. Cleared land for settlements will also be certainly be needed. An example of this challenge was conveyed to me in the interview with Mr. Bedada (personal communication 2015). In the rural culture and Muslim religion, it is traditional and commonplace to take more than one wife and expand one’s family as a sign of abundance and good fortune. As this happens, more and more land is needed to maintain the income required to support the growing household. With increasing local population and the additional
environmental stress, the carrying capacity of the ecotourism project might be exceeded and necessitate a reduction in the number of tourists who could be accommodated. Clearly understanding and defining the carrying capacity and the appropriate number of visitors will be difficult, especially with the uncertain structural organization of the project. Table 7 presents the codes created during data analysis that categorize the challenges reported in interviews and focus groups, as well as the number of times they were found in the data. These codes were used to determine and support the findings discussed above.

Table 7. The most common codes that categorize challenges described in interview and focus group data and the number of times each on was seen in the coding process.

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure problem</td>
<td>3</td>
</tr>
<tr>
<td>No benefit-sharing</td>
<td>3</td>
</tr>
<tr>
<td>No accountability</td>
<td>4</td>
</tr>
<tr>
<td>No tourists in Adaba</td>
<td>2</td>
</tr>
<tr>
<td>Low campsite quality</td>
<td>4</td>
</tr>
</tbody>
</table>

Sustainability

The challenges identified above are vital factors that must be considered when assessing the sustainability of the ecotourism project. In particular, the project’s disorganized structure has led to an unclear understanding of roles and responsibilities, a lack of accountability, inefficient management, and a lack of future planning. These factors combined have the potential to detrimentally affect the overall sustainability of the project. Necessary improvements to safeguard sustainability include enhancing benefit-sharing among all aspects and regions of the project, defining a precise project management structure, developing an organizational configuration of roles and responsibilities, enforcing accountability, and improving communication among stakeholders. Despite these problems, the perceptions and results of the ecotourism project evaluated in this case study suggests that the overall sustainability of the
Adaba-Dodola Bale Trekking looks optimistic when evaluated according to the relevant environmental, economic, and socio-cultural facets.

Environmentally, there is a positive trend in conservation and improvement of the community’s use of forest resources in a sustainable manner. The project does not seem to have reached its carrying capacity at present, but the delineation and use of this concept is critical to the project’s long-term environmental sustainability. Economically, the community has received profits from the beginning of the project, when initial funds were donated. According to the local counterparts (and based on local rates), the economic gains outweigh the expenses for those who depend on ecotourism as their main livelihood. It is also a beneficial supplement to community members’ income and to the community’s funds in general. As long as revenue is correctly managed and invested wisely to reduce the possible future need for large sums, the project appears to be economically sustainable. Finally, socio-culturally, the project’s benefits to promoting a cultural knowledge exchange are perceived to have surpassed the disadvantages identified in this project. As suggested earlier, short informational sessions on appropriate and respectful behavior for each culture can improve the sustainability of this aspect of the project.

Despite the fact there is no quantitative evidence of sustainable behaviors, with the overwhelmingly positive attitudes towards the ecotourism project, there is a good possibility that these attitudes will continue to support sustainable forest management. I believe current project conditions suggests the Adaba-Dodola ecotourism project could increase its benefits and sustainability with community investment and cooperation between all participants. Codes developed during data analysis that indicated sustainability ideas and the frequency that they occur throughout the interview and focus group data is shown in Table 8. These codes were used to determine and support the findings discussed above.
Table 8. The most common codes that categorize the sustainability of the project described in interview and focus group data and the number of times each on was seen in the coding process.

<table>
<thead>
<tr>
<th>Code</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education/trainings</td>
<td>4</td>
</tr>
<tr>
<td>Carrying capacity</td>
<td>3</td>
</tr>
<tr>
<td>Define structure</td>
<td>4</td>
</tr>
<tr>
<td>WAJIB</td>
<td>3</td>
</tr>
</tbody>
</table>

Application of Results

The results and lessons learned from this case are not only a good resource for the Adaba-Dodola ecotourism project, but also for other areas in Ethiopia that are developing, or assessing the potential to develop, ecotourism projects. The general structure of the project and management provides a good example of a participatory approach to the development of alternative livelihoods with ecotourism. The direct and indirect economic benefits provided to the local community through a non-consumptive use of the forests can increase positive perceptions and understanding of forest ecosystems. The key ideas of this project are especially applicable to other FPAs in Ethiopia. Because the FPA has a similar status and management policies to the Adaba-Dodola FPA, direct translation of management guidelines and regulations is possible. Even if the FPA is not managed at the woreda level, the decentralization of management is possible given that knowledgeable Ethiopian workers are present in the country to provide assistance. Even though, all the know-how and motivation might be present to develop and implement a community-based ecotourism project, a source of initial funding is still necessary. With initial expenses covered, community’s will see immediate economic benefits, possibly increasing the likelihood of the ecotourism project’s success. In addition, the close connection between the ecotourism project and WAJIB program may be hard to emulate, but not necessary. Ecotourism by itself, set up through a participatory and well-conceived plan, can most likely provide similar benefits to the ones reported here.
Recommendations

Although, the Adaba-Dodola ecotourism project has many positive impacts and has created a venture that shows a certain degree of self-sustainability, there are actions that can improve the project. Suggested measures that would optimize the efficiency, beneficial impacts, and sustainability of the Bale Trekking Ecotourism project are:

- Creating a well-defined internal management structure.
- Developing a system for accountability of stakeholder and participants of the project.
- Increasing and encouraging knowledge sharing throughout the community and with visitors.
- Maximizing growth of the project by increasing employment opportunities as well as marketing and advertising, while ensuring environmental sustainability.
- Continual monitoring and evaluation of the project.

The internal structure of the project should be well-known and clearly defined for all the stakeholders. This will allow linkages to be formed between different levels and geographic areas of the project. In addition, operations and problem solving will run more smoothly with a set structure and clearly defined chain of command. Each person directly involved in the project should be held accountable for their responsibilities and duties within the project. For example, materials and buildings should be kept clean and repaired at all campsites. This can be done with the profits and community collections of money from the project. This will create a sustainable work environment that will prevent the burden of these aspects to be shifted to future generations, and provide tourists with a more pleasant stay. This can translate into improved reputation of the project. Additionally, accountability in benefit-sharing is vital to ensure
economic sustainability in all areas of the project. This will also reduce the uneven distribution of economic benefits.

Knowledge and motivation should be shared throughout the project, so that self-initiated growth can occur. Awareness and understanding of the Bale Trekking ecotourism project is essential to the investment and participation of the local communities, which can make or break a project of this nature. Furthermore, trainings for local communities on all aspects of the ecotourism project including management techniques, budgeting, and marketing would be useful in optimizing the capacity of participants.

Maximizing growth of the project, such as adding new campsites, will provide employment opportunities to more members of the community, and better distribute the economic benefits of the project. It is key that all areas of the project be given equal attention for growth and development, so as to ensure success for the entire project. In addition, marketing and advertising of the project should be increased. The website should be updated consistently to reflect current conditions and prices. Tourists and guides should be encouraged to post comments about their trips on the Facebook page, and include photos to visually advertise the project. An increase in online traffic would also lead to a broader audience that is reached.

However, growth must be contained within the carrying capacity of the surrounding ecosystem. Therefore, identification and enforcement of an environmental carrying capacity for the Bale Trekking ecotourism project is very important. This may need to be adjusted occasionally as the local population and environmental conditions change in the area. Continued monitoring and evaluation of the project will be essential to maintain the appropriate carrying capacity. Identification of visitor carrying capacities has been done at different ecotourism destinations. For example, the Galápagos National Park created carrying capacity for each
terrestrial visitor site. This visitor limit was determined by many factors including timing of visit, length of visit, erosion susceptibility, and precipitation and tidal patterns (The Nature conservancy, 2001). With a regular assessment of project’s benefits, costs, and level of sustainability, adjustments to policies and behaviors could be updated, and the efficiency and success of the project be improved and maintained. The Adaba-Dodola Bale Trekking ecotourism project can continue to be a successful endeavor when managed in a spirit of participation and cooperation.

**Conclusion**

The Adaba-Dodola Bale Trekking ecotourism project appears to be an effective tool for the sustainable forest management in the Adaba-Dodola Mountains. The project creates a positive perception of the forests and an increased understanding of the role and value of the ecosystem on the livelihoods of community members. The alternate livelihood that ecotourism provides encourages conservation and responsible use of forest resources to maintain and enhance the natural beauty of the environment. Because attitudes can influence behavior change, these positive perceptions may have already led to the practice of reporting changes in forest resource use, and could furthermore lead to additional conservation efforts in the future. Reports of change in forest resource use due to the ecotourism project include reduction in illegal firewood extraction, poaching, land conversion for grazing or agriculture, and an increase in reforestation efforts. The project, in partnership with the Integrated Forest Management Program and WAJIB, has created a participatory and sustainable forest management practice in the area.

Additional positive ecotourism impacts include economic and social benefits as well as a wonderful opportunity for tourists to see the natural beauty of the Bale Mountains and experience local Ethiopian culture. Economically, the project provides employment
opportunities, direct income, and indirect economic benefits to the Adaba and Dodola communities. Tourists and hosts are able to share knowledge and culture with each other, enriching the understanding and respect of both populations. However, improvements in structure definition, accountability, marketing, and mitigation of negative environmental impacts is needed to reduce costs of the project and optimize the effectiveness for sustainable forest management. Application of the results of this case study can be used in FPAs throughout Ethiopia, as well as in other developing countries that need an alternate and sustainable approach to forest management. Specific conditions and aspects of the project that might not be feasible or present in other areas must be taken into account when applying the lessons from this case study to different areas.

**Limitations**

Limitations of the study include the close connection of the Bale Trekking ecotourism project with the IFMP, sampling methods, translation and interpretation of data, and application of study results to a broader context. First, the Bale Trekking ecotourism project seemed directly linked to and deeply assimilated with the IFMP and WAJIB. Because of this, it would stand to reason that the sustainability and success of the ecotourism project are strongly bound to the presence, success, and sustainability of the IFMP. Many participants in the ecotourism project are also members of WAJIBs and at many times it seemed that focus group respondents had a hard time conceptualizing the ecotourism project as its own, free-standing entity. Understandably, all of the participatory forest-based projects are often thought of as one entity. Although, I attempted to keep the focus clearly on the ecotourism project in this research, it must be noted that the entirety of the impacts uncovered by this case study may not be a result of the ecotourism project by itself. The two projects seem to work together to provide the benefits
reported in this case study. This close connection and integration with other participatory forest management activities, although beneficial to the success of the ecotourism project, is a limitation of this research. This case study did focus specifically on the ecotourism project, but because respondents sometimes had difficulty separating the idea of the WAJIB and ecotourism, the results may have been blurred.

Because purposive sampling was used, a well-representative study population was not sampled. Populations that may have provided different or even corroborative views could have been left out because they did not have connections to the WAJIB, the ecotourism project, or the OFWE. Some of the Ethiopian counterparts and study participants may not have understood the importance of including all sections of the local population in the study and, consequently, may not have informed all the possible participants. In addition, certain data collection techniques were dominant in different regions of the study. For example, questionnaires were used primarily in the Adaba woreda, while three of the four focus groups took place in the Dodola woreda. Plans for additional data collection through focus groups and questionnaires were scheduled, but were limited by unavoidable political circumstances and time constraints. There is also some possibility that questionnaire respondents also participated in focus groups. Therefore, results from the focus groups and questionnaires may be skewed toward the perceptions and behaviors of one region.

There was a risk of data alteration throughout the translation and coding process, and information and nuances of answers may have been lost in translation. Biases of the translator, lack of direct translation between languages and cultural phrases, and false responses all may impact the integrity of the data. Because several translators were used throughout the study, the difference in direct translation between languages, as well as the translator’s own knowledge and
understanding of the responses, may have also altered the data during the translation process. Cultural and linguistic disconnects between English and Afan Oromo could have also added or detracted small nuances of information from study responses. Finally, intentionally or unintentionally false responses may have been given during data collection. These limitations of the data must be appreciated to avoid inference of possible incorrect results.

Additional bias might also be found during the coding process. Although objectivity was a primary focus of the data analysis and attempts to achieve this was through the use a methodical analytical process, small amounts of researcher bias are unavoidable when interpreting the meanings of responses and assigning codes. My personal interpretation of wording and translation notes may lack a degree of objectivity and be unintentionally influenced by my personal experience and ideas. However, in this instance, I believe my intimate knowledge of the community, ecotourism project, and case study allows me to bring a level of understanding and depth to the interpretation and analysis of the data.

Finally, the nature of case studies and this particular research project is itself a limitation. By definition, case studies focus on one specific topic of interest, which was the goal of the research presented here. This restricted concentration makes the application of results to a broader audience/area somewhat difficult. For example, forest management conditions in this case study could be specific to this site; thus, the results, ideas, and recommendations from this study may be only narrowly applicable. Moreover, the qualitative data used to assess the sustainability of a project does not necessarily quantify sustainable actions and behaviors. Thus, project sustainability was only assessed based on reported actions and attitudes of the study participants. Despite these limitations, I contend that my findings of this case study still have
applications and implications that are useful, and can be used to develop a set of recommendations.
References


Appendix A

Semi-structured Interview Guide

1. Background of project, development, structure, how it is run.
2. Do you think it’s had an impact on forest management? Please describe.
   Specific behavior changes?
3. Has it had an impact on the economics of the community/area? Please describe.
4. Has it had an impact on the social/cultural aspect of the community/area? Please describe.
5. What is the overall attitude towards the project?
6. Do you think the community’s view of the forest has changed? How?
7. Please describe the trend of impacts of the project since the beginning of the project.
   What factors affects this trend?
8. What are the main challenges of the project?
9. What are some improvements that could be made?
   Why haven’t these been pursued?
10. Additional comments, wrap up.
Appendix B

Focus Group Questions

1. Has the ecotourism project impacted the forest management in this area? How?
   Positive/negative impacts?
   Has your view of the forest changed? How?

2. What are the economic impacts of the project in the area?
   Positive/negative impacts?

3. What are the social/cultural impacts of the project?
   Positive/negative impacts?

4. Have you seen a change since the beginning of the project?
   What kind of trend? (Draw trend diagram)

5. What is the community’s role in the project? How are they related?
   Are you involved in decision-making? Trainings? Etc.

6. What do you think would improve/increase the positive impacts of the project?
   What do you think would allow the ecotourism project to have a greater impact on forest management? Please describe.

7. What do you think are the main challenges of the project? Why?

8. Additional comments, suggestions, wrap up.
Appendix C

Ecotourism Questionnaire in English

Sex __________

Location________________

1. Are you a member of the WAJIB? The union?

2. Do you participate in the ecotourism project?
   If yes, what service do you provide?
   Is this source of income vital for your livelihood?

3. What is your main source of income/livelihood?

4. Please explain what you know about the Bale Trekking Ecotourism project.

5. Where did this information come from?
   Were you given a training/informational session on this project?
   If yes, by who?
   Do you think it prepared you for the project?

6. Has the ecotourism project changed your personal use of forest resources? Please describe.
   Did it change your firewood use?
   Did it change the products sold at market?
   Did it change creation of pasture for livestock?

7. Has the ecotourism project changed the community’s use of forest resources? Please describe.

8. Has the ecotourism project the way you view the forest? How?
   Do you think the forest has value beyond the products it provides?

9. Is there a connection between the forest and the ecotourism project? Please describe.
Appendix D

Ecotourism Questionnaire in Afan Oromo

Saala ________

Iddoo ________________

1. Isiiin miseensa WAJIB ykn garee uumataan dhaabate kessaa jirtu?

2. Hojii Ikooturiizimii Hawaasa hirmaachisaa keessatti ni hirmaatu?

   Eyyee yoo ta’e, hirmaanaan kessaan maaliin? (hojii keessatti mall hojjatu)
   
   Hojii hojjatan kun madda galii jireenyaa kessannii?

3. Madda galii jireenyaa keessaani maali?

4. Waa’ee Hojiiin Ikooturiizimii Baalee maal beektuu? Waan beektan ibsaa?

5. Waa’ee Hojiiin Ikooturiizimii essaarraa hubattan?

   Leenjiin kennama ture waa’ee projectii Ikooturiizimii akka beektan isiini taasisaa jira?
   
   Yoo leenjiin ta’e, leenjii essaa irraa argatan?
   
   Leenjiin akka pirojektii qophetatan fi hirmaana akka gotan isiin taasise jira?

6. Hojii Ikooturiizimii itti fayyadama qabenya bosonaa keessan akka jijjiratan isiini taasisee jira? Akkamitii?

   Jechuun itti fayyadama qoraan?
   gurgurtaa bu’a bosonaa irratti?
   bosonaa mancassuu irrattii jijirama akka tidan tasasii jira?

7. Hojiiin Ikooturiizimii uumataa keessattii itti fayyadama bosonaa ykn kunuunsu irrattii jijirama fidee ibsa?

8. Hojiiin Ikooturiizimii ilaalcha qabeenya bosonaa irraa qabadan akka jijjiratan isiini taasise jira?

   Qabenyaar bosonaa qophaa isaa faayidaa busa jettanii yaaduu? Bu’a bosonaa busuu alaa?

9. Waa’ee walitti dhufeenyaa projektii Ikooturiizimii bu’a bosonaa maal jettuu?