ECONOMIC EFFICIENCY OF SELECTED INCOME GENERATING ACTIVITIES IN BURUNGE WILDLIFE MANAGEMENT AREA IN MANYARA, TANZANIA

RUTH CHARLES PHILEMON

A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS OF SOKOINE UNIVERSITY OF AGRICULTURE.

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Wildlife Management Areas have been proposed as the institutional mechanism for devolving management to the community level and creating local incentives for conservation. This study assesses the economic efficiency of selected income generated activities (IGAs) in Burunge Wildlife Management Area. Specifically, it was intended to describe the involvement of communities in selected IGAs, analyze costs and benefits associated with selected IGAs (Handcraft and Dress making), and assess the perception of the communities towards Burunge WMA. One hundred and ten households from Vilimavitatu, Mwada and Olaisiti were selected through simple random sampling and surveyed using a questionnaire composed of both open and closed ended questions. Secondary data from various sources were used to supplement the primary data. Information acquired was triangulated through key informants’ interviews, field observations and focused group discussions. Study findings show that 44 (40%) of the respondents were involved in IGAs such as dressmaking, wall mats, basket making.

Results reveal that handcraft is more profitable compared to dress making with a high NPV of 1582650.5/= means it makes a net positive economic contribution to society. The findings also revealed that attitudes of communities towards the B-WMA were quite negative because most of them are not happy with the management authorities. This is due to the fact that they do not receive benefits and yet they bear the costs of living with wildlife. In conclusion, community engaged more in handcraft than dress making because they enjoy, costs and benefits associated with different income generating activities vary and others are the same depending on the type of activities. Recommendations were made, such as sharing of income, compensation for the crop loss, conflict resolution and effective participation in management.
DECLARATION

I, Ruth Charles Philemon, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my own original work done within the period of registration and that it has neither been submitted nor concurrently submitted in any other Institution.

.............................................................. ..............................................................
Ruth Charles Philemon .................................. Date
(MSc. Student)

The above declaration is confirmed by

.............................................................. ..............................................................
Prof. JohnKessy .......................................... Date
(Supervisor)
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DEDICATION

This work is dedicated to my beloved parents whose love, financial and moral support, inspiration and devotion made my life worth living throughout the period of my study.
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<td>African Wildlife Foundation</td>
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<tr>
<td>B/C</td>
<td>Benefit Cost Ratio</td>
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<td>BWMA</td>
<td>Burunge Wildlife Management Area</td>
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<td>CBA</td>
<td>Cost Benefit Analysis</td>
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<td>Travel Cost Method</td>
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<td>TLCT</td>
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<tr>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Conservation of wildlife resources in Protected Areas (PAs) is a major concern of wildlife managers in order to maintain or increase targeted population size for present and future generation (Sungusia, 2010). In early 1980s conservation excluded the involvement of community which resulted into conflicts between PAs management and adjacent communities (Masuruli, 2001; Kidegesho, 2003). Categories of PAs are arranged by International Union for Conservation of Nature (IUCN) whereby each suit to particular conservation needs and capable of contributing to regional national or international goals of biodiversity conservation (IUCN, 1994).

The wildlife policy of Tanzania promoting new category of PA that is Wildlife Management Areas (WMAs). WMAs initiative as the institutional instrument so as to enable communities to benefit from utilization of wildlife resources and creating local incentives for conservation (Nelson, 2007).

Wildlife Management Area (WMA) is one of Community-Based Natural Resources Management (CBNRM) approach that takes into account the participation of local communities adjacent to PAs (Kidegesho, 2003). WMA is an area of communal land set aside exclusively as habitat for wildlife by members of villages (WWF, 2014). The main goal of WMAs is to involve local communities in managing natural resources for sustainable conservation and give economic benefits, at the same time to enhance positive attitude towards conservation initiatives (Wilfred, 2010). Areas bordering PAs are surrounded by local communities where most of them rely heavily on natural resources for
their survival (Wilfred, 2010). Wildlife is one of the main assets available to poor people for livelihood diversification, security and improvement of their lives. For majority of these communities, livelihood opportunities are limited when a significant proportion of their food is hunted or collected from the wild by tourists.

Conservation of wildlife in WMAs is facing different challenges which lead to economic costs. Some of these challenges can immediately be linked to human influences, for example, loss of wildlife habitat and wildlife poaching (Wilfred, 2010).

Economic efficiency as a concept embodies technical and allocative efficiencies (Kehinde et al., 2009). Technical efficiency means that the maximum amount of goods is being produced from the inputs being used to produce (Mann, 2008). Tourism activities are among of activities for the development of the local villages (WWF, 2014). Also other activities such as livestock’s production, agriculture, foraging and the forest products are the main ways in which most of the local people meet their subsistence and cash needs (IRAP, 1998). Other income generating activities (IGAs) determines the quality of living of a households or individuals.

Income generating activities (IGAs) is used as effort to reduce poverty, as envisioned in the millennium development goals, opened new debates on how to use the combination of indigenous knowledge and natural resources including modern technologies to fight poverty. These activities include, among others beading, pottery, sewing, weaving and knitting which are collectively known as handicrafts. Worldwide the economic contribution of handicraft has been reported extensively (Schwarz and Yair, 2010; Knudsen, Florida, Gates and Stolarick, 2007). Although handicraft was mainly done by older women in the past, the involvement of the younger generation has been reported by Boitumelo 2010 in Zwane et al., (2011:777).
Cost Benefit Analysis (CBA) is a systematic method of identifying and measuring the economic benefits and costs of a project accrued over time and in different sectors from the viewpoint of society (Mechler, 2005). It is the main economic project appraisal technique and commonly used by governments and public authorities for public investments. It is more correct to refer generically to “impacts”, and to define costs as negative impacts, and benefits as positive ones (Renda, et al., 2013). CBA appears more rigorous, transparent and formal (Damart and Roy, 2002), providing a rational framework for assessing projects and clear results that are easy to be communicated and, thus, shared and engaged (Damart and Roy, 2002).

Burunge WMA is among the first WMAs established in Tanzania that is located in Babati district, in a wildlife migratory corridor between Tarangire National Park and Lake Manyara National Park.

1.2 Problem Statement and Justification of the Study

1.2.1 Problem Statement of the study

The new category of PA (WMAs) intended to empower local communities and allow them to have greater involvement and authority in the management of natural resources, (WWF, 2014). Despite government promises to communities to utilize wildlife resources available in the WMAs sustainably for livelihoods and economic improvements, benefits are low and are not perceived to be adequate at the household level (USAID, 2013).

Burunge WMA is among the successful WMAs that generating benefits to communities including revenue generation. The management failed to realize that benefits sharing system is not fair, still there are problems such as sincere involvement, increased crop raids and livestock attacks from wildlife (WWF, 2014; Kaswamila, 2012; Sulle et al., 2011).
USAID (2013) reported the achievement of BurungeWMA and the challenges that existed. However literature does not provide detailed information on the economic efficiency of Income Generating Activities (IGAs) initiated by community in order to meet their daily needs. There is need to identify the costs and benefits from selected activities in B-WMA. This has caused a knowledge gap in B-WMA research. Therefore, there was need of conducting a study on how the local communities could improve their livelihood through selected income generating activities.

1.2.2 Justification of the study

This study provides additional information to fill the gap and create awareness on how efficient selected income generating activities will support communities. Such information is instrumental in formulating appropriate policies that seek to serve the best interests of the people in improving economic value of wildlife, and the need to maintain it for the benefit of present and future generations, also for decision makers in development programmes which will support communities. Understanding community’s perceptions towards conservation is the key to improve wildlife management and people relationship to enable WMA to achieve their goals.

It is also hoped that these findings provide better understanding of household’s economy in relation to IGAs. Hence, estimation of costs and benefits is vital to provide information to management as well as communities.

1.3 Objectives

1.3.1 Main Objective

The main objective of this study was to assess the economic efficiency of selected income generating activities in Burunge Wildlife Management Area.
1.3.2 Specific Objectives

Specifically the study intended:

i. To assess local community’s participation in selected IGAs.

ii. To analyze costs and benefits of selected IGAs (handcraft and dress making) and,

iii. To assess the perception of the communities towards BurungeWMA.

1.4 Research Questions

1. Do communities participate in any selected IGAs?

2. Are there any benefits community acquired from selected IGAs (handcraft ad dress making)?

3. Are there any costs community incurred from selected IGAs (handcraft and dress making)?

4. How do individuals perceive B-WMA in general?

1.5 Conceptual Framework

The conceptual framework which guided this study is based on the assumption that the Income Generating Activities are influenced by costs and benefits, also perception towards management of BurungeWMA is influenced by demographic characteristics. These factors combined together influence economic efficiency.

The performance of BurungeWMA determines the involvement and perception of an individual. Household characteristics (age, education, and marital status) are independent variables influence perception of an individual towards management of Burunge WMA, and costs and benefits (raw materials, transportation, labor and selling of products) are variables influence economic efficiency.
Figure 1: Conceptual framework for the study

WILDLIFE MANAGEMENT AREA

SELECTED INCOME GENERATING ACTIVITIES
- Handcraft
- Dress making

FACTORS AFFECTING PERCEPTION
- Age
- Education
- Sex
- Marital status

COSTS AND BENEFITS
- Tools and materials
- Labour
- Transportation
  - Selling of products
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Wildlife Management Areas in Tanzania

Tanzanian Wildlife Management Areas (WMAs) are approaches of Community based Natural Resource Management (CNRM). The aim of CNRM is to involve local communities by giving them authority of managing the natural resources and to have a sense of ownership (WWF, 2014). WMA are areas set aside by village Governments to enable local communities to benefit from wildlife resources and at the same time conserve these areas which are crucial as wildlife migratory routes and/or dispersal areas (Kaswamila, 2012). WMAs are established with the support from development partners such as United States Agency for International Development (USAID) and the Tanzania government. In year 2002, WMA regulations were developed and released. The regulations include requirement and basic framework which are part of the wildlife sector reform process. Formal implementation began in 2003 with sixteen (16) pilot WMAs. Four (4) of the 16 pilots which were first registered as WMAs in 2006 (WWF, 2014) are Burunge, Enduimet, Makame and Idodi-pawaga. WMAs started as one of the tools in managing natural resources located within communities land for their economic development because they have rights for wildlife conservation (Songorwa, 1999). In the end the WMA creativity is about the transfer of managerial authority over benefits and capture of valuable wildlife resources to communities.

2.1.1 Function of wildlife management areas

Burunge WMA aimed at devolving management responsibilities of wildlife resources to the local people and enabling local people to benefit from wildlife through various business ventures such as consumptive and non-consumptive wildlife utilization while
guaranteeing sustainable wildlife conservation. WMA intend to change attitude of local communities towards conservation, lower the cost of law enforcement and provide useful intelligence information regarding illegal activities (Nahonyo, 2005; Kideghesho, 2006). WMA responsible in increased accountability and transparency in decision making towards management of wildlife. Also is to ensure effective management of the wildlife and more benefits to the local communities through tourism activities (Mfunda and Roskaft, 2011).

2.1.2 Challenges facing WMA

Burunge WMA have faced many challenges, for example, villages do not know how WMA functioning, there is lack of community involvement, costs outweighing benefits received such as crop damage, livestock and human attacks from wildlife, unfair distribution of benefits (WWF, 2014; Sulle et al., 2011). In addition the way benefits are shared, few actual employment opportunities per village, lack of response or compensation for wildlife related deaths and inability to improve problems with the WMA (Benjaminsen et al., 2013). All these contribute to underlying resentment, rejection of and resistance to WMAs.

In terms of management in existing WMAs there has been reports of lack of transparency, corruption, elite capture and rent-seeking (Igoe and Croucher, 2007; Benjaminsen et al., 2013). Also community does not know who is responsible for the WMA; is it a Community Based Organisation (CBO), does it belong to village governments under the village councils, or the Wildlife Division under the MNRT. This makes the line of accountability beunclear (Nelson, 2007) to most of the WMAs.
2.2 Income Generating Activities

Income Generating Activities (IGAs), the income that the rural poor are expected to generate from off-farm activities, through these activities they produce income where supports and promote vulnerable populations covers their basic needs and food supplies in a sustainable manner. According to NDA, (2013) IGAs focuses on the need to create opportunities for poor communities that can productively use locally available resources to develop less state and aid dependent, more self-reliant households and communities who are able to care for themselves. Income generating activities contribute to poverty reduction, increase levels of income for the family; improving the wellbeing of the communities as well as empowerment, self-reliance and community development (Juana, 2005).

Poor rural and urban communities often experience various challenges in their own unique settings including lack of income generation opportunities; high levels of poverty, unemployment and inequality; low education levels; limited access to socio-economic services, etc. (Juana, 2005). These challenges often require households to find alternative sources of income. Income generating activities can help vulnerable communities generate income to address their basic needs in a sustainable manner.

2.3 Cost Benefit Analysis

2.3.1 The concept of CBA

CBA is most useful when you are analyzing a single program or policy to determine whether the program’s total benefits to society exceed the costs or when you are comparing alternative programs to see which one achieves the greatest benefit to society (Cellini et al., 2010). CBA is used as a simple way of weighing up project costs and
benefits, to determine whether to go ahead with a project. CBA can be applied any time before, after, or during a program implementation, and can greatly assist decision makers in assessing programs efficiency (Crown, 2014). Some important items one is supposed to know in CBA include the following; discount rate, identification of benefits and costs to be included and variation of benefits and costs. Advantage of this analysis is that it helps to convert benefits and costs of the project into monetary unity so they may be compared in a common yard stick (Shwiffet al., 2013). For disadvantage it is difficult to quantify some of the resources, not all of them can be estimated as market value but can be overcome by making specific assumptions and determined by other methods of valuation such as Travel cost method (TCM) and Contingent valuation method (CVM) (Cellini et al., 2010).

2.3.2 The approach of CBA
Bojoet al., (1988) and Cellini et al.,(2010) provide several procedures which must be included in the analysis: step one; definition of project, include the allocation of the project and the listing of all the parties affected. Step two; Identification of the project impact, done after the project being identified is used to identify consequences of impact from its implementation. Step three; which impacts are economically relevant? Identify actual/potential impacts which are economically relevant to the project. Step four; physical quantification of relevant impacts, involves measuring of physical amounts of cost and benefits flow for a project. Step five monetary valuations of relevant effects; once the physical effects are established, a monetary value must be attached to them. Step six; discounting of costs and benefits where by it is used to calculate the present value of future costs and benefits. Step seven is sensitivity analysis, done for the parameters that can change due to different factors.
There are implications used for calculating costs and benefits, the first is all costs and benefits are taken into account including externalities (costs and benefits that are attributable to the project but are enjoyed by third parties) not involved in the project (Cellini et al., 2010). Also, in calculating prices, it is not the market price of a cost or benefit that is used but the real price or its value to society.

2.3.3 Decision criteria

CBA has three criteria commonly used for evaluation. All of the criteria utilize the discounted costs and benefits of the project over time; these include the Net Present Value (NPV), the Internal Rate of Return (IRR), and the Benefit Cost Ratio (B/C) (Hufschmidt et al., 1986). According to these criterion, profits of a project is only when NPV is greater than Zero from the fact that when NPV = 0, the project is at Break-even point where costs and benefits are equal (Costs = Benefits). Projects worthiness can be assessed by one or a combination of these criteria. CBA can be used to ascertain whether the capacity of existing projects should be extended and if so by how much.

2.3.4 Sensitivity analysis

There are several sources of uncertainty associated with analysis of costs and benefits of a particular project. Thus, it is important for the program evaluator to test the sensitivity of the analysis to particular assumptions for small changes in key variables (Cellini et al., 2010). One key factor is the discount rate; a higher discount rate implies that the present value of future benefits and costs decreases. Due to the fact that the choice of discount rate is arbitrary to some extent, it is important to evaluate how sensitive the result is to changes in the discount rate (Hanes and Lundberg, 2008). In addition other factors to consider in sensitivity analysis are changes in prices of inputs and outputs which may change the decision criteria.
2.3.5 Discount rate

The discount rate should be consistent with the dollar flows that are measured. If costs and benefits are measured in nominal (or current) dollars, they should be discounted with a nominal discount rate. Costs and benefits measured in real terms (that is, adjusted for inflation), should be discounted with a real discount rate. Both methods should result in the same net present value (Harrison, 2010).

Low discount rates are often used in environmental applications, especially when benefits accrue in the distant future and also it is better for testing a range of discount rates for analysis of very long-lived projects or policy choices (Harrison, 2010).

2.4 People Wildlife Intersection

Kideghesho (2003), point out that despite the communities giving up their land for conservation and formulation of WMAs, they still bear the cost for the sake of conservation of wildlife and incur economic costs such as properties damage. Example is communities from Endowment WMA are facing the challenge of animal attack and crop damage which lead to conflict between two sides (human and wildlife, communities and management) (Sulle et al., 2011). The interaction of communities and wild animals lead to wildlife resources being under extinction due to different activities engaged by local communities such as destruction of habitats for agricultural purposes (Woodroffe and Ginsberg, 1998) and poaching / illegal hunting which is the is cost incurred by conservation.
CHAPTER THREE

3.0 METHODOLOGY

This chapter describes the research methodology that was used for this study. Specifically, the chapter provides description of the study area, outlines the study of wildlife and tourism, socio-economic activities, climate, sampling procedure including sampling design and sample size, data collection procedure and data analysis procedure.

3.1 Description of the Study Area

3.1.1 Location

Burunge WMA is located in Tanzania’s Wildlife-rich northern tourism circuit in Babati District in Manyara Region, gazetted as a WMA and received user right from the Wildlife Division in 2006, covering an area of 280 km² (WWF, 2014). The B-WMA is very close to both Tarangire and Manyara National Parks. Ten villages are included in WMA, each with several people (KKaswamila, 2012). This study was conducted within three villages; which are Vilimavitatu, Mwada and Olasiti.

The study area was purposely selected simply because it is among the first pilot WMAs established in Tanzania. Also Burunge is situated in a conservation-dense area, settled in land as migratory corridor between Tarangire, Lake Manyara National Park, and the adjacent Manyara Ranch now known as the Tanzania Lands Conservation Trust (TLCT) under AWF management (KKaswamila, 2012). Burunge WMA has a high increase in number of wildlife which has impact to the community i.e. increase in crop damage and livestock predation (USAID, 2013).
3.1.2 Wildlife and Tourism

Different wildlife species are found in the area such as; zebra (*Equus burchelli*), wildebeest (*Connochaetes taurinus*), elephants (*Loxodonta africana*),
monkeys (*Macacmulatta*), baboons (*Papiocynocephalusanubis*), warthogs (*Phacochoerusaficanus*), giraffes (*Giraffacamelopardalis*), impalas (*Aepycteromelampus*), dikdik (*Madoquakirkii*), elands (*Taurotragusderbianus*) and large buffalo (*Bubalusarnee*) population that moves in and out of the WMA (Kaswamila, 2006). The presence of Lake Burunge in the WMA attracts the migration of water birds such as greater and lesser flamingoes and a range of ducks and shore birds (WWF, 2014).

Burunge WMA has the greatest commercial potential for tourism of any existing WMAs in Tanzania (Sulle et al., 2011). It is exceptionally well endowed with many types of natural resources. Tourism is also at an advanced stage of development and has become popular. B-WMA has a total of four lodges or permanent tented camps, which generate considerable earnings (Sulle et al., 2011). Tourist are attracted in the lake Burunge which is an important area for water birds such as greater and lesser flamingo and a range of ducks and shorebirds, lake Burunge also hosts a large buffalo population that moves in and out of the Tarangire National Park (Madulu et al., 2007). Other activities which attracts tourist include fishing, tourism related businesses (souvenirs, mat weavings), photographic tourism and hunting whereby it has abundance of animals to hunt which is a direct benefit of conserving wildlife resources. The more wild animals the WMA manages and conserves the more revenue it can generate (WWF, 2014).

### 3.1.3 Socio-Economic Activities

Most of the people in the surrounding communities are from the ethnic groups of Wambugwe, Wabarbaig, Wairaqw, Wamasai. Agriculture and livestock keeping are the main land uses in the study area and is practiced by most of the people (Kaswamila, 2006). Other activities include fishing, tourism related businesses (souvenirs, mat weavings) and other small business also creates employments to the people surrounding. Crops grown in the area are mainly sorghum, maize, cotton, simsim and groundnuts
3.1.4 Climate

The area is in a semi-arid with average annual precipitation of 750 mm/annum (Kaswamila, 2006). The rainfall pattern is bimodal, with short rains between May and June and long rains between November and January. The months of June through October are normally dry months.

3.2 Research Design

Cross-sectional design was employed for this study whereby data were collected at a single point in time using semi-structured questionnaires, focus group discussion and direct observation.

3.3 Sampling Procedures

Three villages out of ten villages were purposively selected. The villages are Olaisiti, Mwada and VilimaVitatu. Selection of the study villages was done according to fact that they are having a lot of wildlife resources, different attractions to tourist such as Lake Burunge and several historical sites such as NsangayaIwe and mwawewaNnda, Maweyanyani (rock outcrops used by baboons), mbuyuwaTembo and green stones (Kaswamila, 2012). Sampling unit of this study was a household. Household is a small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food (UN, 1993). Simple random sampling was used to select sample unit. 40 households were selected from two study villages and 30 households from one village, which was a minimum size of sampled unit for a population according to Akitanda (1994), according to Boyd et al., (1981) at least 5% (5%) of the total village household’s population is appropriate unit.
Sampling procedure were used to select 3 key informants, ‘including wildlife officers from B-WMA, District Development Coordinating Committee members and private tour operators’. The interviews were guided by a list of questions. Most of the questions were open-ended, giving the respondents the opportunity to go into depth on some of the issues that are interesting to them.

3.4 Data Collection

3.4.1 Participation of communities in selected IGAs

Primary data were collected by using semi-structured questionnaire, direct observation and focus group discussion. Questionnaires were designed based on specific objectives. A semi-structured questionnaire which contained open-ended and closed questions was administered in selection of households and management based on the level of communities to participate in different IGAs. Direct observation which was used in assessing activities operated by both sex, where applicable, and in observing the general environment for example, the socio-economic situation of the household and the well-being, through this more information were obtained. The reason of using this method was that, it is often the case that some activities do not get reported in the Focus Group Discussion (FGDs) or the interviews, and can only be noted by observation. Secondary data were collected from different sources, including publications from Sokoine University National Agriculture Library, Burunge WMA itself, project documents and internet which were relevant to my study.

3.4.2 Costs and benefits of selected IGAs

The data on costs that were collected included; the cost for purchasing raw materials, labour and transportation while for the benefits were for selling cultural clothes, basket, mat and carving.
Primary data on the cost and benefits of the selected IGAs were collected by using semi-structured questionnaires that were administered in person, direct observation and focus group discussion. The focus group discussion was used to provide more clarification on issue of different income generated activities in B-WMA. Direct observation enables the researcher to obtained more information by observing what are those challenges incurred and benefits accrued from selected activities.

Secondary data were used from all relevant documents such as Sokoine University National Agriculture Library, Non-Government Organizations (NGOs), Burunge WMA itself and internet.

3.4.3 The Perception of communities towards management of B-WMA

The actual data collection involved administering of a structured questionnaire to households that were selected randomly from each of the villages. Focus group discussion involved 7 people (a maximum number of people per group were found convenient for logistic purposes to participate in the discussion) with selected individuals from the communities in the study area such as village leaders, elders, and teachers. Focus group discussion and questionnaire were applied to give an impression of the opinions that local people hold towards management of Burunge WMA. FGDs provide access to large body of knowledge of general community (Mikkelsen, 1995) and yet are cheaper and quicker to conduct than individual interviews with the same number of respondents questions revolved around perception of individual are involvement of communities in the management of Burunge WMA, about the conflict between human and wildlife, benefit accrued, level of support received from management and about compensation communities received after damage caused by wildlife.

The secondary data from reports, published and unpublished papers including Sokoine University National Agriculture Library and websites.
3.5 Data Analysis

3.5.1 Participation of communities in selected IGAs

The first objective was the participation of communities in IGAs in B-WMA. Collected data from household questionnaire surveys were coded and fed into Statistical Package for Social Sciences (SPSS) software for analysis. Descriptive statistical analysis was used to summarize information through the use of frequencies, percentages, and mean to summarize general information on wildlife population trend.

3.5.2 Costs and benefits of selected IGAs

This objective was to considering economic valuation analysis (cost benefit analysis) as its main tool of analyses of the cost and benefits of the selected IGAs. CBA approach in this study considered all costs and benefits over the lifetime of the activities. CBA was evaluated by using Net Present Value (NPV). These economic criteria were computed using Microsoft excel computer programs. The NPV of the selected IGAs were calculated by the following formula:

1) Net Present Value (NPV)

This is the difference in value today of all present and future benefits and the value today of all present and future costs. This measure discounts the costs and benefits stream over the lifetime of the activities.

\[
\text{NPV} = \sum_{t=0}^{T} B_t (1+i)^{-t} - \sum_{t=0}^{T} C_t (1+i)^{-t}
\]

Where \(B_t\) and \(C_t\) are benefits and costs in year \(t\), \(i\) is the discount rate, and \(T\) is the time horizon. The criterion for project acceptance is: accept if \(NPV > 0\). If both income generating activities have positive NPVs that it means they are both economically profitability but the one with high NPV is more economic profit to the local community.
**Discount rate and time horizon**

The major assumptions introduced in this study were the time horizon and the discount rates. Since costs and benefits of tree production occur over a long period of time, it is essential to convert the future costs and benefits into present value by discounting. For the purpose of this study the proposed discount rate is 12% according to Tanzania Bank (18/07/2016) which is considered as the opportunity cost of capital in Tanzania, and indeed for developing countries projects. This rate was used in this study and time horizon used in this study was 5 years.

**3.5.3 Perception of communities towards the management of B-WMA**

In this objective, Likert scale was used, whereby responses were given a statement in perception on the management of B-WMA, such as perception towards income distribution 1= Always important, 2= Important, 3= Not important.
CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Social Characteristics of the Respondents

Respondents’ characteristics have important economical implication to the income generating activities. The characteristics have influence on decision making on various issues like to participating in selected IGAs and individual attitudes towards management of BurungeWMA. Therefore, this section describes the characteristics of sampled individuals focusing mainly on gender, level of education, marital status and age of the respondents.

4.1.1 Sex of respondents

Results in Table 1 indicate the sex of household head which was also considered as an important factor in perception of individuals towards management of B-WMA. Results revealed that most of the respondents were males 63.6% while female were 36.4%.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Olaisiti</th>
<th>Vilimavitu</th>
<th>Mwada</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>21</td>
<td>27</td>
<td>22</td>
<td>70(63.6)%</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>13</td>
<td>8</td>
<td>40(36.4)%</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)

Sex of respondents influences local people’s participation in Natural Resources (NRs) management as well as in selected IGAs. Most of individual perform in making mat were female, they use natural resources materials for making different products. This is due to gender-based utilization of NRs products, for example females are usually more
knowledgeable of tree species used for firewood and grasses for mat making (Gachira, 1998; Griffith et al., 1999). This is because they are the principal collectors, consumers and marketers of certain NRs products; usually they are those connected with household livelihoods e.g. firewood, craft materials, wild foods, and some medicinal plants.

According to Sunderland et al., (2004) women often spend much of their time on livelihood and health related issues including woodfuel gathering, cooking and family caring at households. Also the large number of male respondents was due to the fact that people are more of the patriarchy system and engaged in different economic activities which were owned by male. This leads to poor participation of women in conservation, but during the group discussions especially in Vilimavitatu the number of males and females were equally represented. This reiterates findings from other studies which show that women in Africa operate a low return enterprise, which is also less risky, often located at, or near, their homes (Gachira, 1998; Griffith et al., 1999).

4.1.2 Marital Status of Respondents

In this study, marital status was categorized as married, singles and widowed. Results show that about 80.9% of the respondents were married with Olaisiti and Vilimavitatu villages having the highest rate, followed by Mwada. Other marital status (i.e. singles and widowed) were generally low (Table 2). Most of the women reported that late marriage is not desirable and, to gain prestige in the society, most women had to marry.
Table 2: Distribution of respondents by marital status

<table>
<thead>
<tr>
<th>Villages</th>
<th>Olaisiti</th>
<th>Vilimavitu</th>
<th>Mwada</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>34 (85%)</td>
<td>34(85%)</td>
<td>21 (70%)</td>
<td>89(80.9%)</td>
</tr>
<tr>
<td>Single</td>
<td>3 (7.5%)</td>
<td>4 (10%)</td>
<td>6 (20%)</td>
<td>13(11.8%)</td>
</tr>
<tr>
<td>Widowed</td>
<td>3(7.5%)</td>
<td>2 (5%)</td>
<td>3(10%)</td>
<td>8(7.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>40</td>
<td>30</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)

From the results, married women 48% were the majority participants in income generating activities, noted that 80.9% includes both sex. This could be attributed to the fact that this category of women maybe is in need of more income in order to support their families. Marriage patterns play an important role in educating their family and friends, as they are associated with many aspects such as socio-economic. According to Wawire (1999) pointed out that married women participate in various economic activities mainly to supplement their husband’s income. Sattar and Huq (1992) reported that the most important social status that a woman achieves is that of a wife and mother.

4.1.3 Education level

The results indicated about 79.1% of respondents had attained primary school education, while 14.5% had no formal education and 5.5% had attended secondary education (Form IV) and only one person had college level of education.

Table 3: Distribution of respondents by education level

<table>
<thead>
<tr>
<th>Villages</th>
<th>Olaisiti</th>
<th>Vilimavitu</th>
<th>Mwada</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal education</td>
<td>4</td>
<td>8</td>
<td>5</td>
<td>17(14.5%)</td>
</tr>
<tr>
<td>Primary</td>
<td>34</td>
<td>29</td>
<td>23</td>
<td>86(79.1%)</td>
</tr>
<tr>
<td>Secondary</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>6 (5.5%)</td>
</tr>
<tr>
<td>College</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1 (0.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>40</td>
<td>30</td>
<td>110</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)
The findings show that different people with different levels of education participate in selected income generating activities. Level of education does not affect individuals’ participation in income generating activities. According to Mbugua et al. (2013) that tailoring and dressmaking is yet to be regarded by many as a formal business that required managerial skills like any other business.

In conservation of natural resources education is very important because knowledge has influence on the management of wildlife. Individual need to have knowledge on what is around so that s/he will be able to give out the support to others as well as to her/himself. Through group discussion from Mwada village with the key informants revealed their intention and concerns raised by villagers that, they need to know how much management of B-WMA gain in a year and how much they contributed to all villages. This will only happen when communities have knowledge.

People with no formal education and even standard seven leavers have fewer chances to secure employment and are likely to engage in casual labor than those with secondary and tertiary education. It is thought that communities with lower levels of education needed more time to assimilate, adopt and/or adapt to new policies and business ethics (Zimba, 2006). In that respect, people with no formal education or with primary education are more susceptible to economic vulnerability than those with higher education. As noted by REPOA (2010) household heads with relatively higher education are likely to have skills and opportunities to successfully diversify into other, more lucrative income generating activities.

4.1.4 Socio-economic activities
Results revealed that most of the households engaged in business 40% accounting around, of the households followed by farming activities accounting for around 34.5%, followed by employed accounting around 11.8% and livestock keeping accounted for 13.6%. The
livestock owned by people in the area are goats, cattle, donkeys and chickens. Predominant crops here are maize, beans, sorghum, and cotton (Kaswamila, 2012). They used to cultivate maize as the main crops because it’s not expensive, also they use it for food and sale to get cash and support their livelihood. For business, individuals were selling culture stuff and engaged in “mama ntilie”.

<table>
<thead>
<tr>
<th>Village name</th>
<th>Olasiti</th>
<th>Vilimavitatu</th>
<th>Mwada</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farming</td>
<td>15</td>
<td>14</td>
<td>9</td>
<td>38(34.5)%</td>
</tr>
<tr>
<td>L.keeping</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>15(13.6)%</td>
</tr>
<tr>
<td>Business</td>
<td>17</td>
<td>15</td>
<td>12</td>
<td>44(40.0)%</td>
</tr>
<tr>
<td>Employed</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>13(11.8)%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>40</strong></td>
<td><strong>30</strong></td>
<td><strong>110</strong></td>
</tr>
</tbody>
</table>

Source: Field survey (2015)

In this study the socio-economic activities is vital terms in order to know other individual who are engaged in other activities rather than dress making & tailoring and handcraft. The results revealed farming 34.5% as second activities, it helped to supplement income of local communities as others engaged in selected IGAs.

Results from the study area seem to be much different to what Kaswamila (2012) reported where about 94% of the population practicing agriculture and livestock keeping as their primary economic activities. Number of individuals practicing agriculture has declined due to different reasons such as crop damage by wildlife which was observed to be a serious problem to the community and causes conflicts between human and wildlife. Farmers are not fully compensated for the experienced loss due to wildlife while at the same time revenue is generated from that wildlife in the area. Elephant’s crop raids were
reported to be most problematic just before harvesting, with maize preferred more than other crops. Drought is another problem facing community in agriculture. During data collection the area was very dry and individual claim it has been like that for a long time.

Business for generating daily income includes small shops, selling of local beer, village restaurants (migahawa) making pancake (chapati) or burns (maandazi) and those who were engaged in sewing (tailoring) and hand craft (craving). The restaurants are mainly for people on travel and a few residents.

4.2 Participation of Communities in Selected IGAs

The first objective of this study was community involvement in selected IGAs in the B-WMA management. Respondents were asked questions concerning: 1) how were they involved themselves in those activities, 2) the views/opinion expressed by local communities regarding the contribution of IGAs in the direction of poverty alleviation.

4.2.1 Community participating in IGAs

The majority of respondents 74% indicated that they participate in selected IGAs especially handcraft because they like it, while 26% indicated that they do not like handcraft and dress making activities but they are forced by circumstances. Among those individuals reveal that they liked handcraft making for earning income to support their families while other reported that handicrafts is part of their heritage. Faridet al., (2009) also concludes that women in Bangladesh also conduct several small businesses like small shop keeping, trading video cassettes, operate small grocery shops close to their homes, sometimes moving from place to place for selling cloths and other household items.
Table 5: Participating in IGAs

<table>
<thead>
<tr>
<th>Reason</th>
<th>Frequency N= 110</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>They like it</td>
<td>79</td>
<td>71.8%</td>
</tr>
<tr>
<td>Forced by circumstances</td>
<td>31</td>
<td>28.2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>110</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Own field data 2015

4.2.2 Views of communities on participation in selected IGAs

Community participation is a planned process whereby local groups are clarifying and expressing their own needs and objectives and taking collective action to meet them. In 1981, UN defined participation as ‘the creation of opportunities to enable all members of a community and the larger society to actively contribute to and influence the development process and to share equitably in the fruits of development’.

The views of communities on participation in selected IGAs fluctuated between positive and negative experiences related to tourism as well as persistent poor management of tour drivers. It has been claimed that most tour drivers are biased as to which curio shop to go. They have their own people favorites who give them money (tips) when they send tourist to them. Other people who don’t have money to give to tour drivers they don’t get tourists. Ahmed et al., 2011 found that rural women employed themselves in different income generating activities (IGAs) for earning money. By means of small loans as microcredit from different loan providers these women are able to improve their economic condition (Sultana and Hasan, 2010).

Many respondents requested a more active involvement in different activities concerning management especially where tourism is concerned. They wanted to be informed or at
times being consulted before a decision is taken in management. This view reflects both participation by consultation/or induced participation as described in Pretty’s typology since at times local communities lacked both the necessary information and skills.

4.3 Costs and Benefits of Income Generating Activities

In this study, NPV was used to enable the researcher to recommend for activities which are more profitable. Handcraft had high NPV of 1582650.5/= while dress making had 1524595.7/=which means that handcraft makes a net positive economic contribution to society. In this light, to ascertain the economic efficiency of selected IGAs, the mean total monetary costs and total monetary revenue of each selected activities were compared and found to differ from other. The computation results of the NPV in the selected IGAs in B-WMA are shown on Table 6and7.

The study findings show that it was more costly to purchase raw materials for dress making in each year compared to handcraft especially in year 5 was (463200/=) and for handcraft in year 5 was (244500/=). This is because of those materials are many in number, expensive and need transportation most of the time so that they can be transferred from one area to another and it is assumed that most handcraft raw materials are derived from NRs because of the presences of WMA. For instance, a respondent spent Tsh 150 000/= to buy calabash with beads and earned a net revenue of Tsh 200000/=, while, handcraft spent Tsh 35500/= and earned net income of Tsh 105000/=in year 5. From this calculation an individual who engaged in dress making is using a lot of money but gained not as much profit as one engaged in handcraft that used small amount of money for purchases and earned a lot in returns. These study findings, implied that Economic Efficiency of a IGAs is the function of resources utilization.
Also the NPV of dress making is low than of handcraft because the discount rate selected is lower which results in high initial costs and for benefits in the future will be high as well. It is recommended to continue with handcraft because it is more economically profitable. However, these costs can be minimized by management if they are there to give out full support to community.

Table 6: Identified Costs and Benefits for Dress Making

<table>
<thead>
<tr>
<th>Costs</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases Raw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>37100</td>
<td>46200</td>
<td>82450</td>
<td>104400</td>
<td>107700</td>
</tr>
<tr>
<td>Labor</td>
<td>270000</td>
<td>284000</td>
<td>304000</td>
<td>405000</td>
<td>340000</td>
</tr>
<tr>
<td>Other costs</td>
<td>8000</td>
<td>9000</td>
<td>11000</td>
<td>13000</td>
<td>15000</td>
</tr>
<tr>
<td><strong>Total costs</strong></td>
<td><strong>315100</strong></td>
<td><strong>339200</strong></td>
<td><strong>397450</strong></td>
<td><strong>522400</strong></td>
<td><strong>463200</strong></td>
</tr>
</tbody>
</table>

**Benefits**

| Selling mgolori        | 288000  | 297000  | 310000  | 324000  | 300000  |
| Selling culture clothes| 150000  | 90000   | 60000   |         |         |
| Selling calabashes     | 561000  | 532000  | 495000  | 432000  | 200000  |
| **Total Benefits**     | **849000** | **829000** | **955000** | **846000** | **560000** |
| Net Benefits           | 533900  | 489800  | 557550  | 323600  | 96800   |

NPV = 1524595.7

Source: Field survey (2015)
Table 7: Identified Costs and Benefits for Handcraft

<table>
<thead>
<tr>
<th>Costs</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases Raw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>200</td>
<td>200</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Labour</td>
<td>277000</td>
<td>267500</td>
<td>264500</td>
<td>241000</td>
<td>165000</td>
</tr>
<tr>
<td>Other costs</td>
<td>50000</td>
<td>65000</td>
<td>72000</td>
<td>77000</td>
<td>79000</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td>327200</td>
<td>332700</td>
<td>337000</td>
<td>318500</td>
<td>244500</td>
</tr>
<tr>
<td>Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selling local basket</td>
<td>81000</td>
<td>112000</td>
<td>135000</td>
<td>110000</td>
<td>100000</td>
</tr>
<tr>
<td>Selling mat</td>
<td>176000</td>
<td>156000</td>
<td>154000</td>
<td>130500</td>
<td>105000</td>
</tr>
<tr>
<td>Selling carving</td>
<td>627000</td>
<td>656000</td>
<td>540000</td>
<td>350000</td>
<td>200000</td>
</tr>
<tr>
<td><strong>Total Benefits</strong></td>
<td>884000</td>
<td>924000</td>
<td>829000</td>
<td>590500</td>
<td>405000</td>
</tr>
<tr>
<td><strong>Net Benefits</strong></td>
<td>556800</td>
<td>591300</td>
<td>492000</td>
<td>272000</td>
<td>405000</td>
</tr>
</tbody>
</table>

NPV= 1582650.5

Source: Field survey (2015)

These activities has a number of challenges, the challenges mentioned by respondents corroborated those which were given by the key informants. The reasons given were access to raw materials as a major challenge. Also most of the tailoring and dressmaking entrepreneur were in disengagement stage either not growing or having a slight growth. Inadequacy of availability of finances, poor business management skills, poor marketing. Among the principal challenges identified includes difficulty in accessing startup capital.

Sensitivity analysis

All the results above are calculated with a 12% discount rate and 5 year time horizon. Table 8 below shows the effect on the mid-range overall value of reducing and adding the discount rate and using a range of (10%, 12%, 21%) of discount rates. As is commonly the case, decreasing the discount rate tends to favor the case for conservation, but the global
value is actually rather robust to changes in these key parameters (Hockley and Razafindralambo2006).

The prices can fluctuate considerably over long time period. This will lead to a decline in the planned NPV. To deal with these uncertainties, the present study computed sensitivity analysis by different discount rate.

Table 8: Sensitivity dress making NPV to choice of discount rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Costs</th>
<th>Benefits</th>
<th>NetBenefits</th>
<th>r=10%</th>
<th>r=12%</th>
<th>r=21%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>315100</td>
<td>849000</td>
<td>533900</td>
<td>485363.6</td>
<td>476696.4</td>
<td>441239.7</td>
</tr>
<tr>
<td>2</td>
<td>339200</td>
<td>829000</td>
<td>489800</td>
<td>404793.4</td>
<td>390465.6</td>
<td>334539.9</td>
</tr>
<tr>
<td>3</td>
<td>397450</td>
<td>955000</td>
<td>557550</td>
<td>418895.6</td>
<td>396853.1</td>
<td>314722.4</td>
</tr>
<tr>
<td>4</td>
<td>522400</td>
<td>846000</td>
<td>323600</td>
<td>221023.2</td>
<td>205653.7</td>
<td>150961.8</td>
</tr>
<tr>
<td>5</td>
<td>463200</td>
<td>560000</td>
<td>96800</td>
<td>60105.2</td>
<td>54926.9</td>
<td>37320.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>1590181</td>
<td>1524596</td>
<td>1278784</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)

Table 9: Sensitivity for handcraft

<table>
<thead>
<tr>
<th>Year</th>
<th>Costs</th>
<th>Benefits</th>
<th>Net Benefits</th>
<th>r=10%</th>
<th>r=12%</th>
<th>r=21%</th>
</tr>
</thead>
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<td>471380.7</td>
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<td>160500</td>
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<td>61879.7</td>
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<td></td>
<td></td>
<td>1649944</td>
<td>1582651</td>
<td>1330522</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)
Results in Table 8 and 9 indicate that even when the discount rate is as high as 21% the activity is still economically efficient because NPV is greater than zero. Results shows as NPV decreases it increase with discount rate from 10% to 21%. Dress making and tailoring still remain low at discount rates of 12%. This means Handcraft is more profitable at all discount rates (12% and 21%). Overall then, the conclusion is that benefits and local costs are extremely strong to discount rates.

Table 10: The Dress Making NPV at r=12% with reduction in Benefits

<table>
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<tr>
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<tr>
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<tr>
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</tbody>
</table>

Source: Field survey (2015)

Table 11: The handcraft NPV at r=12% with reduction in Benefits

<table>
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<td></td>
<td></td>
<td>222132.41</td>
<td></td>
<td></td>
<td>458127</td>
</tr>
</tbody>
</table>

Source: Field survey (2015)

Also the study computed sensitivity analysis by using switching values for reduction in benefits as a result of decline in output prices and increase in costs as a result of changes in real prices of inputs. Switching value is the value an element of project would have to reach as a result of a change in an unfavorable direction before the project no longer meets the minimum level as indicated by NPV (when NPV drops to zero) (Senkondo, 1992).
Switching value approach is the variation in NPV when benefits are assumed to be reduced by different magnitudes without varying the discount rate is presented. Results in Table 9 and 10 indicate that the business would be economically viable at a discount rate of 12% even when the benefits were reduced by 50%. When the reduction in benefits was in 75% the business would make loss to an individual. Benefits have to fall by an average of 50% before the systems become economically unviable.

4.4 Perception of Local Communities

4.4.1 Involvement of communities

The first component in perception of individual towards management is involvement of communities in conservation of wildlife. Most respondents 90% replied that they are not involved in conservation, only 10% agreed to be involved in conservation. Various explanations for not involved in conservation of wildlife is that they do not receive benefits and yet they bear the costs of living with wildlife.

According to Vodouhê et al., (2010) the involvement and treatment that local people get from the management assist in determining their attitudes towards biodiversity conservation and its employees. It is important for B-WMA management to maintain a good relationship with communities so the management can reach their goals and carry out community conservation objectives. Current nature conservation ideology recognizes that local people play a significant role in securing natural resources for the future and their involvement in conservation programmes is critical for their success (Robinson and Sasu, 2013).

This could be one of the main reasons why the B-WMA is failing to create a good relationship with local people and delivering in rural development. In order to build a
better relationship with local people and reduce poverty in their communities, their involvement in the management is therefore important.

4.4.2 Human wildlife conflict

Results revealed that local residents 81% generally held negative attitudes towards interaction between wildlife and human. Reasons given for this interaction is due to damaged done by wild animal to human and their properties. It is estimated that animals caused 5 deaths, 11 injuries and roughly 679 attacks were recorded since 2011. It is suggested that the total economic loss from wildlife-related damages is approximately Tsh 3476000 per year. One of the largest components of these damages is drought. Also the extension of human presence into wildlife habitats results from human population growth and land use transformation, driving species’ habitat loss, degradation and fragmentation (Sillero-Zubiri et al., 2007). A good example of livestock’s attack happened in December 2014, and this led to local communities killing carnivores to protect themselves and their livestock.

Respondents were asked to give their perception on the status of human wildlife conflicts in their areas and answers were limited to increasing, decreasing or same. Overall, 45.5% of the respondents had the views that conflicts have increased (Fig. 5) particularly in crop destruction and livestock depredation.

![Figure 3: Perception on the status of human wildlife conflicts](image-url)
Sources: Own field data 2015

The reasons for the increasing of conflicts is closeness to the WMA and Tarangire National Park boundary and therefore easy for the wild animals to roam around the village searching for food and at the same time presence of large number of livestock in the village compared to other villages.

Communities mentioned lions as the most common species that are living in the area around their village and leads to the damage of properties and human injury. Other wild animals mentioned as problematic are hyenas, zebra and elephants.

![Figure 4: Perception on the problem animals at the village](image)

Sources: Own field data 2015

4.4.3 Income Generated by B-WMA

Some of the respondents perceive management as it is there to save the animals that would go to extinction or to secure animals, species and habitats for future generations but not to
involve them in the management. Communities claimed that the revenue generated is used in socio-economic development at village level not at individual level which was a better solution. If the benefits were distributed straight to individuals’ level, the living standard would be much better than now. In addition, this would contribute to improving the economic situation of the household through increased purchasing power (ACF, 2009). In addition, income generating activities provide additional benefits that include: contributing to reduction of poverty; improving the wellbeing of the communities (Mehra, 1997) as well as empowerment, self-reliance and community development. Furthermore, income generating activities require that the households and or individuals that take part in the activities be able to work and meet a minimum level of participation (ACF, 2009).

Revenue generated were used for provision of social services (construction of classrooms, dispensary and village government offices), payment for allowances to WMA staff during meetings and seminars, bursary to students, and in supplementing village government revenues. A study by Kaswamila (2012) at Minjingu and Mwada villages, on the Analysis of the Contribution of Community Wildlife Management Areas on Livelihood, revealed that income has been used for conventional social service infrastructure priorities, notably construction of the primary school dormitory and maintenance of water supply machinery.
Figure 5: Number of respondents indicated to be satisfied

Sources: Own field data 2015

In general accrued benefits from Burunge WMA include social services, education and economic benefit such as employment from investment companies, business developments and supporting students for school fees (Kaswamila, 2012). Communities also accrued benefits from tourism activities (photographic) which improved their income and provision of health insurance for village members to improve access to medical services (WWF, 2014). The incurred costs by communities includes, loss of their land which were used for other activities such as agriculture and livestock grazing. Diseases infection (trypanosomiasis) to livestock, crop damage and predation on livestock (Kaswamila, 2012).

4.4.4 Compensation to local people

Respondents’ views on the status of compensation of their properties and if somebody died due to wildlife attacks, the answers were limited to normal and not
good. Approximately 81% of the respondents indicated that compensation is not good because they are not receiving anything from management even from TANAPA when there is damage of properties done by wildlife, followed by 19% which is normal but most often receive little compensation. Communities want to be compensated because it is one way of reducing hardships to them after suffering the destruction. Compensation schemes are meant to reduce the economic hardships of local people who are suffering after destruction done by wild animals such as loss of their livestock (Naughton-Treves et al., 2003). In general compensation schemes for the damaged farms are not applied in the study area this is according to communities testimonies.

4.4.5 Prevention of crop damage

Majority of respondent reported that when there is an occurrence animal invasion, the rangers from Tarangire National Park and employees from B-WMA are informed in order to act and chase the animals away, even though they always come late. Also in the B-WMA, some of respondents guarded their crops by spending nights out in the field which was the most popular form of protecting crops, especially from wild pigs. People guarding their crops used torches and drums, using smoke from hot chili plus dirty oil to scare elephants. Presence of barriers such as vegetation fences, thorny wire fences, homemade wire fences, rope fences were popular method used to reduce crop loss to wild animals (Wang et al., 2006). Farmers also performed rituals to scare wild animals away.
CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study identified selected income generating activities in the sampled villages. In Olaisiti, Vilimavitatu and Mwada villages the activities was mainly handcraft and dress making, where the main activities were handcraft. In all villages, handcraft was more common to most of the individuals compared to dress making, most of the individual participate in IGAs because they like it and for few individuals do not like it but they are forced by circumstances. Also findings from the study show that households are engaging in diverse selections of income generating activities based on the presence of natural resources around them especially B-WMA.

The study also observed other income generating activities found were businesses such as village shops, mgahawa (local small restaurants), tailoring, art craft, local beer brewing and formal employment like teaching. Participation of the respondents in different IGAs expedites their income such that they have positive opinion that income from IGAs is good alleviators of poverty.

Costs and benefits associated with different income generating activities vary and others are the same depending on the type of activities. For instance, the costs which are the same for all activities incurred by local communities included transportation, tools and material, and training. Cost under tailoring, includes needles, beads, piece of cloth, thread and calabash. The benefits received by local community from adoption of B-WMA include empowerment, self-reliance, improving the well-being of the communities. Contribution to reduction of poverty is also some of the reported benefits accrued by local communities from the income generating activities.
Based on the Cost Benefit Analysis, the handcraft activity was found to be economically efficient at 10%, 12% and 21% discount rates, with NPVs of about 1.6, 1.5 and 1.3 million Tshs respectively. To conclude for individual who wants to make decision between handcraft and dress making, it is better for that person to choice handcraft because is more profitable than the other.

The results show that a large number of respondents have a negative attitude towards managements of Burunge WMA because most of the communities did not consider conservation as beneficial, this is due to the reason that they do not receive benefits from it and yet they bear the costs of living with wildlife through crop damage and livestock predation as well as denying access from natural resources. As a result, the communities develop a negative attitude towards B-WMA. However, despite the costs they are accruing through wildlife, still some of the communities have a positive attitude towards B-WMA.

5.2 Recommendations

There is a need for government and non-government to encourage communities engaged in different activities so as to earn income for supporting their livelihoods.

It is recommended that government, other business support organizations and stakeholders needs to conduct frequent workshops to help communities improve their management skills in handcraft making and dress making. Workshops would also help communities to develop ways of managing their income.

For good management in B-WMA, active involvement of local communities is needed. Communities need to know what is happening inside the management so that they can share their skills and knowledge to support the conservation. Different scheme needs to be changed such as benefit sharing after the revenue generated, Compensation after the damage etc.
Effective wildlife conservation can be successful if there is full participation of local community in the management; therefore there is a need to develop effective mechanisms for joint management, which will effectively involve local communities. I encourage B-WMA staff to carry out conservation education door to door, because most the women are not aware of the B-WMA. They need to seek ways to meet the needs of communities at individual levels so that attitudes towards conservation might change for the good and they can appreciate the presence of natural resources.
REFERENCES


APPENDICIES

Appendix 1: Household Questionnaire

GENERAL HOUSEHOLD QUESTIONNAIRE

The following has to be filled out before the interview:

Serial No _______ Date _________ Interviewer ____________________
District _______________ Village ______________
Beginning time: __________ End time ____________

A. Personal Information

1. a). Gender: Male Female   b). Age .........

2. Marital status
   a. Married
   b. Single
   c. Divorced
   d. Widowed

3. Who is the head of the household?
   a. Husband
   b. wife
   c. Sister/Brother
   d. Other (specify) ___________________

4. What is the occupation of the head of household?
   a. Farming
   b. Salaried/Employed
   c. Businessman /self employed
   d. Others (specify) ___________________

5. What is the highest level of education of the head of household?
   a. Primary
   b. Secondary
   c. College
   d. Others (specify) ___________________
B. Participation of communities in IGAs
1. Do you participate in any Income Generating Activities (IGAs)?
2. If yes what is your main IGAs?
   a. Tailoring
   b. Dress making
   c. Sewing
   d. Small grocery shops
   e. Handcraft making
3. What are your views on the above selected IGAs?
4. Which factors influence the participation in different activities?

C. Costs and Benefits
1. What are the benefits from the IGAs?
2. What are the costs of the IGAs?
3. How do you value costs and benefits?
4. Which factors influence the income gained from different activities?

D. Management of the WMA
1. Is there any wildlife around your village?
2. If yes, who manage them?
3. When did the management of the wildlife started?
4. What was the condition / status of wildlife before established of WMA?
5. How do you participate in management activities?
6. Are you happy with the management?
   a. Very happy, no need for improvement
   b. Somehow happy, need some more improvement
   c. Not happy at all, need major improvement
7. Are there any benefits accrued from the WMA?
   a. Yes     b. No     c. I have no idea
8. If yes, please mention these benefits at village level

E. Perception on the WMA
1. How do you perceive B-WMA?
   a. Always important
   b. Important
   c. Not important
2. Is the WMA working according to your expectation?
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

3. Does WMA distribute income generated?
   a. Yes           b. No

4. Are there some changes in income distribution since established?
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

5. Does WMA support communities?
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

6. What would you do with the wildlife benefits if you were in charge of them, for the community?

7. Please rank in order of where you would like to see economic revenues from wildlife spent? (Water supply, individual loans, farming equipment, roads, education, health care, forestry)

6. Do you think WMA have changed people’s life economically? Yes / No
   a. If yes how………………………………
   b. If no why ………………………………..

7. Who are the main beneficiaries of the benefits accrued from WMA?
Appendix 2. Checklist for Focus Group Discussion

1. Communities Participation in IGAs

2. How important is IGAs to you compared to other facets of your life?

3. How does IGAs contribute to the economic development in your village?

4. What are the costs of the IGAs?

5. What are the benefits from the IGAs?

6. Which factors influence the income gained from different activities?

7. What are the natural resources found in WMA?

8. Do you have access to the above Natural resources? 1. Yes 2. No

9. If Yes 1. What are the resources? 1.______________________2. _______________

10. If no why?

11. Problem Animals

12. Compensation for crop damage, loss of property or life

13. What benefit do you accrued from B-WMA?

14. How the benefits accrued from B-WMA are distributed to villagers?

15. How do you perceive the income distributed?

16. Do you think the presence of B-WMA has changed people’s life?

17. Does the WMA have changed your livelihood?

18. What are the challenges does the WMA have on the livelihoods of the local people?