

**ECONOMIC WELFARE ANALYSIS ON TOURISM REVENUE DISTRIBUTION
IN SERENGETI DISTRICT, TANZANIA**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE
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ABSTRACT

This study assessed and analyzed how tourism revenue generated was distributed at various community levels and its impact on household welfare. Data on sources of revenues, income generated and expenditure were collected from key informants and supplemented with secondary data. Hunting, concession, bed-night and photographic tourism were identified as the major sources of tourism revenue. Distribution of tourism revenue to community level was assessed and the items on which the received revenue was spent were investigated and amount spent were estimated. Structured interview to 120 households randomly selected from Ikona Wildlife Management Areas and non-Ikona Wildlife Management Areas were used to collect socio-economic data. More than 50% of the revenue received was spent on construction, rehabilitation and maintenance of infrastructures such as schools, dispensaries and supply of clean water. Singita Grumeti Reserves distribute about TZS 30 million annually to households by supporting small and medium household enterprises. There were positive impacts of living on IWMA with the household welfare in term of total household income, household asset value and improved social services infrastructures. A Gini coefficient result was 0.41 with tourism income and 0.33 when tourism income excluded. This shows that tourism income increases 0.08 unit of income distribution inequality to the households. Although there is inequality it does not mean there is high poverty in IWMA, this inequality is due to the income difference between the top and the middle spectrum. Ordinary Least Square was used to analyses factors influencing household welfare. The analysis found that, improvements in education level, number of livestock, household asset and existence of tourist lodge in community influence household income and thus improve household welfare. It is recommended that if tourism revenue is distributed on household income generating activities, the total household income will rise and household welfare will improve.

DECLARATION

I, Nawabu Stanley, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my original work done within the period of registration and that it has neither been submitted nor being concurrently submitted in any other institution.

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Date

The above declaration is confirmed by

Prof. J.M. Abdallah,
(Supervisor)

Date

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LIST OF ABBREVIATIONS AND ACRONYMS

AA	Authorized Association
AWF	African Wildlife Foundation
GHUMACOS	Grumeti Horticultural and Marketing Cooperative Society
CAMPFIRE	Communal Areas Management Program for Indigenous Resources
CBNRM	Community Based Natural Resource Management
CBOs	Community Based Organization
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
DED	District Executive Director
FGD	Focus Group Discussion
FZS	Frankfurt Zoological Society
GCA	Game Controlled Area
GMA	Game Management Area
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IWMA	Ikona Wildlife Management Area
LDCs	Least Developed Countries
MNRT	Ministry of Natural Resource and Tourism
NGOs	Non-Governmental Organization
OLS	Ordinary least Square
PAs	Protected Areas
PFM	Participatory Forestry Management
RDC	Rural District Council
SACCOS	Savings and Credit Co- operative Societies

SENAPA	Serengeti National Park
TWPF	Tanzania Wildlife Protection Fund
UNDP	United Nations Development Programme
UNP	Uganda National Park
URT	United Republic of Tanzania
VEO	Village Executive Officer
VICOBA	Village Community Bank
WD	Wildlife Division
WHO	World Health Organization
WMA	Wildlife Management Areas
WTO	World Tourism Organization
WWF	World Wide Fund for Nature

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

Tourism is an important source of income for many countries and is reported to have positive impact on economic growth and development (Welford *et al.*, 1999). Tourism increases employment opportunities especially to youth, leads to a positive balance of payments and stimulates the supplying sectors of tourism.

Many less developed countries (LDCs) now regard tourism as an important and integral part of the economic development strategies (Dieke, 2003), it is expected to foster economic growth through foreign exchange earnings, increase in state revenue, income distribution and balanced regional development.

Most tourism enterprises in the sub-Saharan Africa are based on natural resources-wildlife, forests, deserts, and coral reefs for creating important economic incentives for local and national investments in conserving biodiversity (Emerton, 1997; AWF, 2001). Tourism activities based on natural attractions such as wildlife in rural areas is reported to increase economic diversification as well as the welfare of the people (Ashley *et al.*, 2001; WTO, 2002). Moreover, tourism revenue supports infrastructure development, cultural manifestation and improvement of social services (Cochrane and Tapper, 2004; Davis and Morais, 2004; Nyaupane *et al.*, 2005). Different studies shows that some African countries including Tanzania, Ethiopia, South Africa, Kenya and Benin have a significant number of tourism sites which are used by the governments to promote tourism for revenue generation (Mbaiwa, 2003; Davis and Morais, 2004; Nyaupane *et al.*, 2005; Spenceley, 2008; Suich, 2008).

Government policies (URT 1998; URT, 1999; URT, 2005), conservation NGOs (AWF, 2005), entrepreneurial initiatives (Nelson, 2004) and research studies (Pearce and Moran, 1994; Hutton *et al.*, 2005) support and promote wildlife-based tourism for the purpose of increasing revenue collection for improving rural community social welfare. The objective of National Tourism Policy of 1999 is to guide tourism activities in Tanzania by promoting economy and livelihoods of the people, essentially poverty alleviation through encouraging development of sustainable tourism (Kishe, 2007). Although tourism is important in generating revenue from natural resources attractions, it is argued that the sector is associated with inequitable distribution of costs, benefits and power among different actors and at different scales that affect the effectiveness of tourism as source of income, conservation and development tool (Wells *et al.*, 1992; Goodwin, 2002; Kiss, 2004; Brockington *et al.*, 2008; Sandbrook, 2008; Sachedina *et al.*, 2010; Ahebwa *et al.*, 2012).

According to Blake *et al.* (2006) tourism may increase government revenues, but the equitable revenues distribution is uncertain. The increased revenues are likely to be absorbed into the government deficit (or surplus) in the short run by changing government savings or borrowing. In the longer term, different governments have to make flexible decisions on how to allocate this income stream; some reduce taxes, pay off foreign debts, paying councilors meeting allowances and other governments may use this revenue on poverty relief projects such as Village Community Bank (VICOBA).

Assessment of different ways in which the government spends its tourism revenues, to examine whether there are significantly different outcomes result from different patterns of spending is very crucial (Blake *et al.*, 2006). This study support the argument by Honey (2008) that, although there are many local ecotourism ventures situated on community

lands that generate tourism revenues, little is known about real returns from tourism revenue to the households. The aim of this study is to assess the distribution of tourism revenue and its effect on household welfare.

1.2 Problem Statement and Justification

Since the gazette of Ikona Wildlife Management Area (IMWA) from 1998 to 2003/2004, Serengeti District Council earned TZS 8 million annually as a share for resident hunting, this was not profitable. In 2006, Serengeti District Council and Ikona WMA agreed with the Grumet Reserves to operate photographic tourism that offer more opportunities for conservation and poverty reduction. Turnover in 2005/06 was TZS 18 million and new Toyota Land Cruiser Pick-up for conservation activities in Serengeti District. This immediately caused a sharp increase in wildlife-based income to the villages. However, tourism revenue rose from TZS 85 millions in 2007 to TZS 100 millions in 2009. In 2014, The Serengeti District Council generated about TZS 200 million, Ikona WMA TZS 300 millions and five villages around WMA earned more than TZS 200 million annually from tour operators invested on their land (Serengeti District Report, 2013). Once government, local authority and the investor takes their share of benefits, very little is actually trickling to the household level compare to costs households incurred associated with wildlife such as destruction of crops and death caused by dangerous animals (Hulme and Murphree, 2001; Adams and Infield, 2003; Synder and Sulle, 2011). So far this is where most of the critical problems such as human-wildlife conflicts and atrocity in relation to wildlife based tourism.

In most cases tourism benefits are at community/village level such as provision of social services such as schools, water or a road (Walsh, 2000) that may not please all people if their household incomes are still very low. Despite government policies emphasize

revenue to reach local people to improve their wellbeing, same government organs may restrict local opportunities and the money channeled to individuals (Sulle, 2007; Honey, 2008). This raise numerous views about how much revenue generated is actually being distributed at various community levels.

Recently, in Africa there has been an increased research on the impact of tourism revenue sharing on local livelihood, the studies include; The importance of revenue sharing in community land (Groom and Harris, 2008); Using tourism revenue sharing to promote conservation and poverty reduction through institution arrangement (Tumusiime and Vedeld, 2012), and the impact of tourism revenue on local communities livelihood (Melita and Mendlinger, 2012). Despite these studies, evidences on contribution and distribution of tourism revenue at household level are quite isolated. Part of this gap is due to the fact that no enough systematic research has been done to evaluate full range of impacts of tourism benefits at household level and distribution across different socio-economic groups adjacent to tourism destination in Tanzania. This study therefore will provide empirical knowledge based on impacts of tourism revenue and distribution to the household and across different socio-economic groups such as higher managerial, professionals, junior managerial, skilled manual workers, unskilled manual workers and casual workers.

Therefore, information knowledge for this study will be very useful to policy makers and decision makers setting up system of sharing benefits from wildlife tourism revenue at household level through direct income generating activities rather than community development projects.

1.3 Objective of Study

1.3.1 Overall objective

The overall objective is to assess tourism revenue distribution and its impact to household welfare.

1.3.2 Specific objectives

- (i) To identify and evaluate sources of tourism revenue in Serengeti district.
- (ii) To assess how tourism revenue and benefits are channeled to the community.
- (iii) To estimate impact of tourism revenue on household welfare.

1.3.3 Research questions

- (i) What are the sources of tourism revenue in Serengeti District?
- (ii) Who are the beneficiaries of tourism revenue distribution?
- (iii) How does tourism revenue distributed at various community levels such as district councils, villages and community members?
- (iv) What percentage of tourism revenue contributes to the household income?
- (v) What are the factors hindering distribution of economic benefit created by tourism?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Background

Welfare economics deals with the effects of economic phenomena of production, allocation, and distribution of material goods and services on social welfare. Wherever, economic activity directly or indirectly affects the social order that is the field of welfare economics.

Optimality theory of Pareto - The first economist to discuss how to measure community welfare is Pareto, who pointed out two important factors which are income distribution and production order (pattern). The author focused on the effect of production order on household's welfare, because he was not able to study income distribution since there was no precise information. According to Wilfredo Pareto (1848-1923) if one person's welfare improved without lowering the other's by sharing the sources in the right way, then it means the overall welfare increased. This theory is referred to Pareto-effective or Pareto optimal distribution. The optimal point at which the welfare is sustained is where there is opportunity to raise even one person's welfare. In order to maximize the community's welfare two important things are to be considered: the existence of full competitive conditions and the pricing mechanism. If these two do not exist, then a different approach is applied.

The Equal Satisfaction Capacity Theory of Pigou - in this theory, welfare is measured by money. Pigou solved the problem of welfare maximization by income distribution not by management as Pareto did. According to Pigou's observation, the same product may have the same effect for all individuals. Then he states the theorem of 'Equal Satisfaction

Capacity'. He also assumed that as bulk of product increased satisfaction level decreases. According to the author in order to maximize overall welfare, income should be absolutely equally distributed. However he objected that equal distribution would prevent capital stock and decrease the total production. The other criticism by positivity regarding this theory is that equal satisfaction capacity is subjective and does not rely on any scientific basis.

Hicks-Kaldor's Compensation Principal Theory – This theory discusses welfare theory through income distribution. Social welfare is not possible to be measured in this case. Therefore there are three situations to be considered; as productivity increases and income also increases in the economy. Firstly, all individuals' income may rise, secondly, some individuals income may rise when others income may not change and thirdly, some individuals income may raise by decreasing income of others. For the first and second, social welfare has increased while the third one welfare decreased, and here is where Hicks-Kaldor's principal take control. When individuals whose income has risen compensate the others income loss and they are still in better condition after this compensation then the overall income increases. The principles and marginal benefit of money for everyone is criticized as it does not relate income distribution to production.

This study will be guided by the equal satisfaction capacity theory of Pigou and optimality theory of Pareto because these theories aim at maximize community welfare, by equal and optimal distribution of income, that will satisfy the utility of the households in the community.

2.2 Measuring Inequality

Julie (1999) defines inequality as “means difference in income”. The author conceptualizes inequality as the dispersion of income or welfare attributes of a population.

Income inequality can be measured by using Poverty lines, Poverty index, Theil's entropy index, Theils second measure, Lorenz curve, the Gini coefficient, Gini index, Relative poverty line and Relative income criteria. These measures are used to describe contribution of different sources of income to total income inequality.

The Gini coefficient is a common means of measuring income inequalities (Lusambo, 2009; Oluwatayo, 2009; Abdallah *et al.*, 2012). Oluwatayo (2009) used Gini coefficient to explain income inequality and status of household welfare in rural Nigeria. Gini coefficient and Lorenz curve was applied in this study to measure household's income inequality in IWMA and non-IWMA. Lusambo (2009) reported that, when using monthly income data (cross sectional data), income inequality values tend to be higher by 17% to 69% than when annually collected (longitudinal data) data. According to Carter (2000), the value of the Gini coefficient usually varies around 0.25 in Scandinavian countries to a little over 0.6 in the most unequal economies in developing countries Tanzania included.

Inequalities of income have important implications for welfare. Wherever there is competition for goods, such as access to land or housing, people on lower incomes cannot pay as much as their competitors and are likely to be excluded or marginalized. Peoples command over resources is commonly understood in terms of income and wealth. Income describes the flow of resources-what comes in. Wealth is a stock-the resources that person holds. Although inequalities in wealth are much greater than inequalities of income much of the literature concentrates on income as a better indicator of welfare because income is not just money received through pay, but all the money received from employment such as wages, salaries, bonuses, investments, interest, pension and rent (Spicker, 2014).

2.3 Roles of Stakeholders in Tourism Revenue Distribution

Benefit sharing has recently become a key element in strategies for the sustainable natural resource management, aiming at equitable distribution of benefits particularly in wildlife

conservation which has an effect on local community welfare (Tumusiime and Vedeld, 2012). According to Eltringham (1994), sharing of revenues with local people will reveal the economic usefulness of protected areas (PAs) and secure local people's commitments. Such a philosophy corresponding well with both neoliberal and market-oriented approaches to economic development and environmental management 'ecological modernization' and has been well received by international financial institutions, national governments, and the private sector (Brockington *et al.*, 2008).

According to the National Wildlife Policy of Tanzania 2007 direct and indirect benefits derived from wildlife should be distributed to stakeholders around protected areas. In this respect, Government adopts the Wildlife Management Areas (WMAs) as an active approach with the objective to ensure the local communities benefit substantially from the natural resources (URT, 2007).

The Wildlife Management Area stakeholders are local communities, District councils, Wildlife Authorities, private Sectors (Investors) and NGOs/CBOs (MNRT, 1998 Section 334). As stipulated in the National Wildlife Policy (2007) and the Wildlife Conservation Act (2009), the emphasis of benefit sharing has been give high priority; the primary beneficiaries of WMAs are the local communities while the secondary beneficiaries are the Central Government and the District Councils while tour operators/private sectors supports conservation and investment in protected areas.

The National Wildlife Policy of Tanzania 2007 stipulates duties of various stakeholders including the Central Government (Ministries and executive agencies), local governments (District Councils, Wards and Village Councils) and private sector (URT, 2007). The role of the government is to regulate, facilitate and provide services; the role of private sector

is to support efforts of the government and invest in the conservation and sustainable utilization of wildlife. The role of NGOs is to support the government financially and technically at all levels, in the conservation and management of wildlife resources. The role of the public is to utilize the wildlife resources sustainably in their own lands through WMAs.

The gross revenue generated from photographic tourism are shared as follows; 20% to the Wildlife Division, 15% to the District Council and 65% to WMAs (URT, 2007). The 2010 Hunting Regulation stipulate that, 25% of income generated from hunting activities is to be remitted to WMAs with hunting blocks as their share and the remaining 75% reverts to the Central Government. This system of paying the 25% share to the WMAs has been slow and is adversely impacting WMA operations. The 2012 WMA Regulations rectified this shortcoming by setting clear benefit sharing mechanism; the government receives 25% of the block fees while WMA get 75%. The government (treasury and Tanzania Wildlife protection fund) receives 85% of the permit fees while WMA get 15% (WWF, 2014). An Authorized Associations (AA) can charge fees higher than regulated and is entitled to keep 100% of the revenue generated above the minimum that must be shared with the government (WWF, 2014).

There are several literatures on empowering communities to enable them to manage their natural resources in sub-Saharan Africa (Tumusiime and Vedels, 2012; Campbell and Shackleton 2000; Christofferson and du Toit, 1998; Murphree, 1993). In recent years, within the wildlife sector, several countries in Southern Africa have designed programmes to empower communities to manage and benefit from their wildlife (Tumusiime and Vedels, 2012).

According to Fernandez *et al.* (2010) in Zimbabwe, a portion of revenue from hunting leases in areas in which CAMPFIRE activities are underway is retained by Rural District Council (RDC) for administration and the other portion of revenue is channeled directly to community. For example, Binga Rural District Council, Zambezi Valley retains 50% of the total revenue, 15% as levy and 35% as a management fee.

In Zambia, the goal of Community Based Natural Resources Management (CBNRM) is to enhance the welfare of local communities and create incentives for the protection and conservation of natural resources (Fernandez *et al.*, 2010; Leach *et al.*, 1999), for the case of Mumbwa Game Management Area (GMA), 35% of the income is returned to community for development projects. Local leader determines how fund accrued will be spent, and development projects are clustered in chief's places. Previously, only 40% of the income from Lupambe (GMA) reached community level, but recently after restructuring percentage share of the revenue (80%) channeled directly to Village Action Groups, whilst the remaining is shared by Area Committee 4%), Chiefs (6%) and local Leaders committee 10% (Fernandez *et al.*, 2010).

In Uganda, Park Policy 1996 recognized the importance of community based approaches to national tourism revenue-sharing, and Uganda national Parks (UNP) regulated that all the parks in the country set aside 12% of their total income for revenue sharing. 20% of the park entry fee collected from wildlife protected area channeled to local governments in the area surrounding the wildlife protected area (Arachabald and Naughton-Traves, 2001). From the collections, revenue sharing was one of the means of improving community Park relations to plead support from local community around protected areas in order to ensure sustainability (Arachabald and Naughton-Traves, 2001).

In Botswana, Namibia and South Africa, there are corporate entities formed by all residents or right holder within the designated area. These conservancies or Communal Property Associations elect their own management committees and governed by legally constitutions. In Namibia and South Africa, no share of revenue channeled to government, while Botswana only 4% of revenue generated has to be paid to the district council as resource fee and residents decided on how revenue should be distributed. In case of Namibia a small share of income is retained by management committee for administration purpose and game patrol (Fernandez *et al.*, 2010).

Botswana and Namibia residents have been appreciating and support CBNRM programs, as the government does not have any of the revenue generated and the relationship between the government and the community is good while in Zambia and Zimbabwe Community members have bad feeling of the CBNRM because of crop loses and damage to property by wildlife, inadequate mechanisms for compensation and high proportion of revenue retained by the district councils (Mabugu and Mugoya, 2001).

Currently in Tanzania, revenue sharing exists in certain levies and fees to the respective stakeholders in WMA. On behalf of Central Government, Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) collects and keep all fees from game viewing within and outside potential WMA and then distribute back to WMA and village council where there is tourism investment including Lodge and Campsite in village land (Sulle, 2008).

District councils are supposed to use the allocated fund to finance wildlife management, clinics, schools and other forms of social infrastructure. This money is also meant to compensate district council for the loss of alternative use land reserved for wildlife. Many

of the districts do not been able to direct funds as required, because they place it in General fund to facilitate all development projects in the districts. Furthermore, districts are not satisfied with the amount they receive saying it is very little, they get late and sometimes they do not receive it at all (Mabugu and Mugoya, 2001; Sulle, 2008).

2.3 Tourism Benefit Sharing

According to 2012 WMA Regulations, through established Wildlife Management Areas communities have greater opportunity to benefit from their resources over long term. Benefits can be divided into communal and individual benefits. A high-dollar communal revenue source is vital to cover operating costs of WMA and provide enough revenue to make significant contribution to village governments, while smaller revenue streams to individuals for household level development and provide tangible benefits to families in WMAs (WWF, 2014).

Wildlife related income streams differ between countries in Africa (Homewood *et al.*, 2012). In most protected areas proportion of wildlife based tourism returns are channeled to community development which are directed to the improvements in health, education, transport and other community facilities (Kallonga *et al.*, 2003; Nelson, 2004; Sinclair *et al.*, 2008). Percentage of the funds that communities received is used to protect wildlife from poaching by hiring game scouts and thus provides income for some households (Fernández, 2010). These opportunities for income diversification in the non-farm sector have strong effect on household welfare (Barret *et al.*, 2001; De Janvry and Sadoulet, 2001). Although these returns provide positive results at community level sometimes dissipated through ‘elite capture’ or outright corruption when they are distributed at different community level and retain arguably invisible impacts on household income (Thomson and Homewood, 2002; Sachedina, 2008). Tourism revenue may affect many of

the aspects of well-being or livelihoods of the community as general, without directly changing the household income (Ashley and Jones, 2001; Poultney and Spenceley, 2001). Therefore, channeling of benefit to village development will not at all time satisfy the preferences and utility of the community. Therefore this study assessed to what extent benefits from tourism has trickled down to households and to what extent the benefits have influenced the welfare of households.

2.4 Constraints that Hinder the Effectiveness of Tourism Revenue Distribution

Empirical research shows many countries and regions rich in biodiversity and poor in economy have been promoting tourism revenue allocation and equitable distribution as a conservation tool around protected areas (PAs) for improving the living standard of the people (Wynberg and Hauck, 2014). However, despite implemented around several PAs in developing countries, the mechanism has yet to deliver the required intention. Evidence shows that the effectiveness of such policies is mixed because the scheme of benefit channel and distribution of most protected areas in developing countries suffer the problem of lack of transparency, poor institution arrangement and corruption from within the revenue collection and distribution (Archabald and Naughton-Treves, 2001) which limits the goal for improved welfare of the people around protected areas.

According to Honey (2008), although some revenue has been invested in socially valuable community projects there is poor distribution and allocation of this resource to the local level. The lack of attention to individual differences in communities has led to problems of inequitable access to resources and distribution of benefits, and has subsequently reduced the commitment of locals to preserve the resource base in the long run (Fernández, 2010). In Lupande GMA Zambia restriction of females to participate in decision making as well as support for boys education over girls resulted in women being further marginalized

within community, male become better educated and had greater access to opportunities (IIED,1994). This result to some groups within communities not benefit equally due to social imbalances. Also, Nelson (2003) found that tourism revenues in Sinya Kilimanjaro appear to have been misused and has led to considerable conflicts within the village. Most villagers have little idea on how much villages earns from tourism therefore leaders tend to tamper with the money (Snyder and Sulle, 2011).

However, Gillingham and Lee (1999) found that while the scheme distribution of tourism revenue may affect the community at general, benefit channel and distribution at different community level is affected by the existing of pattern of socio-economic within the communities. People who are most powerful in economics and politics can influence unequal distribution of tourism revenue at different community level. Alternatively, few people in the community may enjoy the benefit, because there is neither a legal agreement nor recognized mechanisms of the tourism revenue distribution (Makame and Mendliger, 2008). However, despite literature on tourism benefit sharing recognizes that tourism revenue is invested in social services such as education through scholarships, health, water and rural transport. This approach spreads the financial benefits among community members, which can make it more difficult to establish direct links between sustainable resource management practices required and the benefits received (Wynberg and Hauck, 2014). Sometimes, even with transparent mechanisms such as regular and open sharing of management accounts and more formal inspection by Compliance Boards (with representatives of both private sector and community partners) for managing benefits, local elites still benefit disproportionately. In some isolated cases, people in positions of power, like the village chief, have used their traditional authority to capture more benefits than others (Wynberg and Hauck, 2014).

CHAPTER THREE

3.0 METHODOLOGIES

3.1 Description of the Study Area

Serengeti District was selected for this study because it is among the districts that have high tourism attractions; it is home to part of Serengeti National Park and the giant tourist investor Singita Grumeti Reserves that contribute significantly to the national tourism revenue. The Ikona WMA was selected because it is located nearest to Serengeti National Park with vast wildlife resources, established infrastructure, accessible and are highly attractive to photographic tourism. The study area performs better in terms of tourism revenue generation.

3.1.1 Geographical location

Serengeti District is located on the Eastern part of Mara Region; It is one of the six District Councils constituting Mara Region. To the East is bordered by Ngorongoro District, Arusha Region and south east by Bariadi District, Simiyu Region, south west by Bunda District, west by Musoma District and north west by Tarime District. It is 1° 30'S 2° 40'S of Equator and 34° 15' E 35° 30'E of Greenwich Meridian. Serengeti District occupies a total area of 10,373 square kilometers of which Serengeti National Park (7000 km²), Ikorongo Game Reserve (189.68 km²), Grumeti Game Reserve (68.37 km²) and Isenye Open Area (2 456 km²). The remaining (659 km²) is the area for agriculture, livestock keeping and residence.

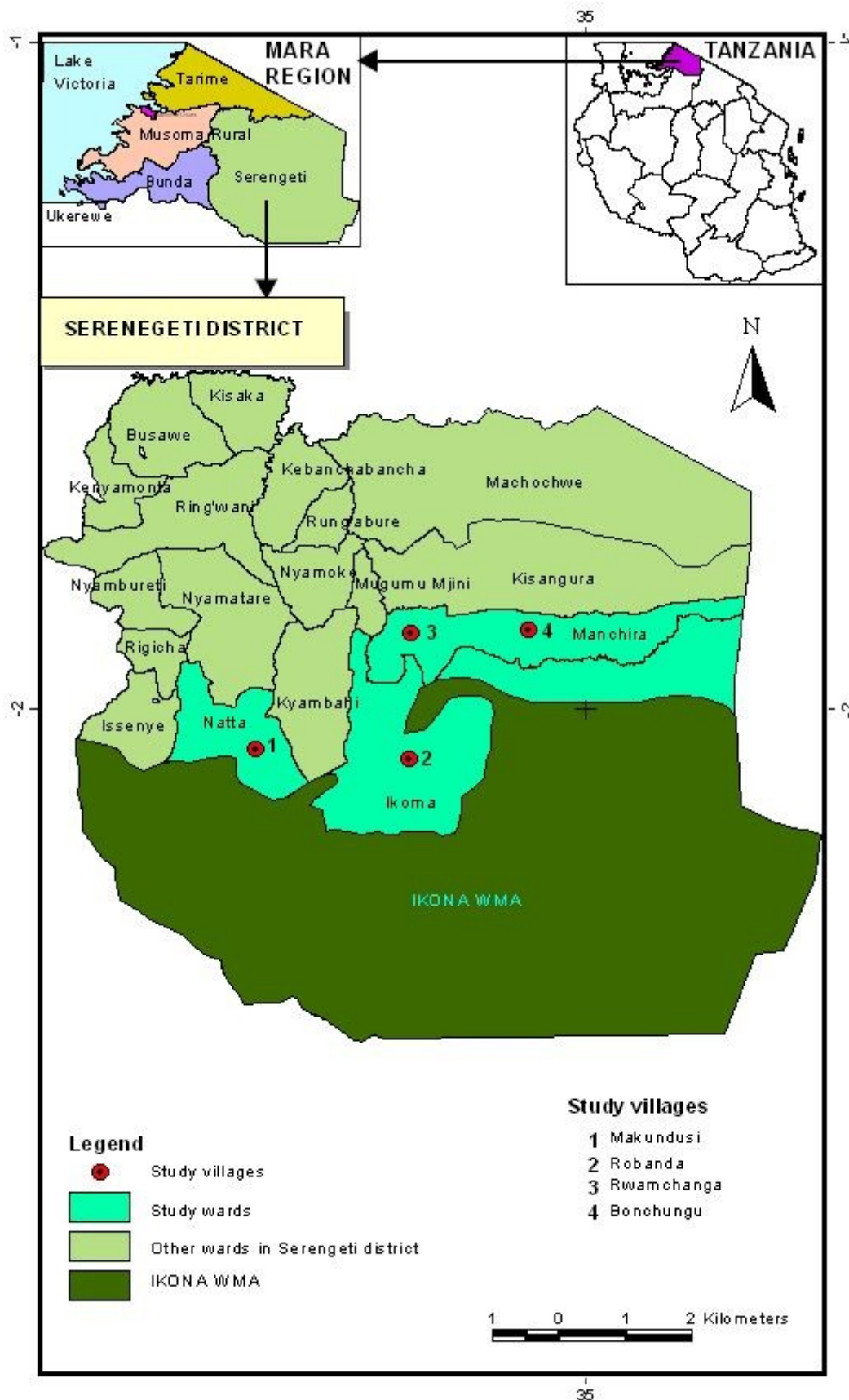


Figure 1: Map of Serengeti District showing the Study Areas

3.1.2 Administration and population

Administratively the District is divided into one Parliamentary Constituency, 4 divisions, 28 wards, 85 villages, 335 sub-villages and 37 356 households. According to the population census conducted in 2012, the population of the District has 249 420 people of whom 121 399 are men and 128 021 are women.

3.1.3 Vegetation and wildlife

A great diversity of species and high patterns diversity characterize vegetation of the Serengeti ecosystem. The major vegetation types are grasslands, woodlands and forests. There are many small rivers, lakes, and swamps throughout the area. Serengeti has the largest concentration of wildlife in the World. It supports over four million animals and birds, making it one of the largest animal's sanctuaries in the World. It is the best known for its unrivalled herd sizes of wildebeest, zebras, Thomson's gazelle, lion, cheetah and spotted hyena. Other animals include leopard, cheetah, elephants, rhinoceros, hippopotamus, giraffe (used as a symbol of the national airline), buffalo, waterbuck, bushbuck, Oryx, reedbuck. The area is also famous for its large number of species of rodents, bats, golden jackal, striped jackal, mongoose, otter, Grant's gazelle warthog and primate species. Smaller predators include bat-eared fox. Some of the birds found here include ostrich and flamingo.

3.1.4 Climate and rainfall

The Serengeti's climate is usually warm and dry. The main rainy season is from March to May, with short rains falling from October to November. The amount of rainfall increases from about 508 mm on the plains in the lee of the Ngorongoro Highlands to about 1200 mm on the shores of Lake Victoria. All is lush and green after the rains, but a gradual drying up follows which restricts plant growth and encourages the animals to migrate in

search of permanent waters. With altitudes ranging from 920 to 1850 meters above sea level, mean temperatures vary from 15 °C to 25 °C. It is coldest from June to October, particularly in the evenings.

3.2 Data Collection

3.2.1 Research design

Cross section research design was used as research design for this study; the selected design was relevant to determine economic benefit and distribution of tourism revenue at household level. Nature of the required data justifies the use of this research design.

Prior to the main survey, preliminary survey was conducted to pre-test the questionnaire before final administration to ascertain validity of the question and adjustment was done accordingly. The questionnaire was administered by the researcher.

3.2.2 Sampling procedure and Sample Size

Two villages (Robanda and Makundusi) around Ikona Wildlife Management Area were selected. The other two selected villages, Rwamchanga and Bonchugu are located in Non-IWMA were used as control. Focus group discussions (FGD) in each village were used to determine gender groups. The female and male groups were the strata. In each stratum 60 households were randomly sampled to make a total of 120 samples of households.

The sample size for the study comprised of 131 respondents in which, a total of 120 households were selected for questionnaire survey, 11 key informants purposely selected from tour operators (Mapito tented campsite, Moivaro campsite and Grumet Fund), Serengeti District Council (wildlife and tourism officer), and Village Executive Officers

(VEO) of Robanda, Makundusi, Bonchugu and Rwamchanga. Composition of sample size is presented in Table 1:

Table 1: Composition of the sample size

No. Respondents by categories	Male	Female	Sample size
1. Villagers	60	60	120
2. Village Executive Officer	2	2	4
3. Wildlife and Tourism Officers	2	-	2
4. Tour Operators	3	2	5
Total	67	64	131

3.2.4 Data collection technique

Both primary and secondary data were collected during the study. Primary data were obtained mainly through questionnaires, interviews, and FGD. Interviews were held with Tourism, Wildlife officers, IWMA's-secretary, tour operators and VEO. Interview with VEO was done because they are ones who receive the collected revenues and plan expenditures at village level. There were also focus group discussions with women, men, and youth. Furthermore, questionnaire was administered to the selected respondents to get information on revenue received at village level and how it was spent. The items on which the received revenue was spent were investigated and amount of money spent were estimated. Secondary data were obtained from existing literatures, organization/institution documentations, books, researches, journals and other written documents. Section 3.2.5 to 3.2.7 provides details of data collection and analysis by specific objective.

3.2.5 Identification and evaluation of sources of tourism revenue in Serengeti District

Interview Guide for the key informants VEO, District tourism and wildlife officers and IWMA's-secretary (Appendix 1a) and for Focus Group Discussion (Appendix 2) was used to collect revenue generated over three years (2012-14) from concession fees,

photographic tourism, hunting activities, bed-night fee and other sources. However, socio-demographic data were collected at household level guided by questionnaire (Appendix 3).

The SPSS software was used to analyze data using descriptive statistic (mean maximum, minimum, frequencies and percentage) to describe socioeconomic characteristics of the respondents. A statistical test (independent t- test) was conducted to reveal any significant difference across the gender groups and villages within IWMA and in Non-IWMA.

3.2.6 Assessment of benefit and distribution in the community

Interview Guide for the key informants (Appendix 1a-1d) was used to collect data on benefit that were directly channeled to individual (such as, employment, education bursaries and household income generating projects), community development (money directed to construction of classrooms, dispensary and roads) and to conservation activities.

Interview Guide for Focus Group Discussion (Appendix 2) was used to collect data on who gets what? Who is benefiting most and why, how distribution is done, level of transparency, to what extent the distribution follow the guidelines, who is not benefiting and why. Other data were the extent to which tourism has influenced household welfare. Data from Interview Guide were then summarized and analyzed using Microsoft excel into descriptive statistics such as means, tables, frequencies and percentage to describe the beneficiaries of tourism revenue distribution.

3.2.7 Assessment of impact of tourism revenue on household welfare

Semi structured questionnaire survey (Appendix 3) was used to collect data from the sample of households. Data collected were household income, per capita income,

household size, age, sex, maximum education, cropped areas (hectares), value of durable assets, value of production assets, type of existing infrastructure, household lives in WMA, tourist lodges in the community area, household lives outside WMA, location, characteristics and distance to the nearest all weather road.

Household variables collected using questionnaires were coded, processed and summarized by SPSS and Microsoft excel, Descriptive Statistics was run to generate mean and frequencies.

3.2.7.1 Lorenz curve and Gini coefficient Analysis

This curve is used to show expenditure or income inequality. The main features of Lorenz curve include the line of perfect inequality. Horizontal axis shows the proportion of the population while the vertical axis shows the proportion of income. Lorenz curve and Gini coefficient were estimated to measure economic welfare in terms of income inequality.

Gini coefficient was selected to estimate income because it is used to show degree of income inequality, between different households in a population. The Gini coefficient is a precise way of measuring the position of Lorenz curve. It has value between 0 and 1 and it is worked out by measuring the ratio of the area between the 45⁰ lines to the whole area below the 45⁰ line. If the Lorenz curve is the 45⁰ line, then the value of the Gini coefficient would be zero. In general, the closer the Lorenz curve is to the line of the perfect equality, the less the inequality and the smaller the Gini coefficient. The Gini coefficient is computed as:

$$I_{\text{gini}}(Y) = \frac{2}{n^2 \mu} \sum_{i=1}^n i \left(-\frac{n+1}{2} \right) Y_i$$

Where n = Number of observation

μ = Mean of distribution

Y_i = income of the household

I_{gini} = Income Gini

This Gini coefficient formula adapted from Oluwatayo, (2009) where it was used to measure household income distribution and welfare status of the households in rural Nigeria.

3.2.7.2 Assessment of the factors influencing household welfare

Model specification

The implicit function is given as:

$$Y_i = f(X_1, \dots, X_n, \mu) \dots \dots \dots \text{Equation (1)}$$

Where Y_i = household total income

$X_1 \dots \dots \dots X_n$ = Explanatory variables

μ = Error term

This model assumes that

- i. The e_i 's are normally distributed.
- ii. $E(e_i) = 0$.
- iii. $E(e_i e_j) = 0$ ($i \neq j$) (errors are not correlated).
- iv. X 's are non-stochastic with values fixed in repeated samples.
- v. The number of observations is greater than the number of coefficients estimated.
- vi. No exact linear relationship exists between any of the explanatory variables.

The model is specified by this equation:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \mu_t \dots \dots \dots \text{Equation (2)}$$

Where; Y_i - dependent variable total income

Independent variables

X_1 Age of head of household (continuous)

X_2 Gender of head of household (1 if male, 0 otherwise) binary

X_3 Education levels of household head (1 none, 2 primary school, 3 secondary, 4 college, 5 university)

X_4 Number of people in the household (continuous)

X_5 Acre of arable land owned (continuous)

X_6 Number of livestock owned (continuous)

X_7 Value of productive assets (continuous)

X_8 Tourist lodge in community (1 if available, 0 otherwise)

This model was selected for this data because it provides the best explanation/prediction of the data and this method minimize errors/residual errors. Therefore it suitable for the this study data.

Dependent variable: The dependent variable in the model is the natural logarithm of total household income which is the linear measurement of household's income.

Independent variables: A number of variables were used to determine the household's income. These include the education level of the head of household, age of the respondent, sex, household size, arable land (acres), number of livestock owned, value of household productive assets and existence of tourist lodge in community.

The basic concepts of these variables and their relationships to the welfare are briefly explained below:

- ***Education level*** is the investment in human capital. Education is believed to yield positive effect to household income. Education also expands the stock of knowledge, increases workers' productivity (Klasen, 2002), and provides know-how to do more beneficial job or access to higher-paid labour market (Baum and Payea, 2005).
- ***Household size***, it is expected to have positive results if the household have large number of man power that contributed to household income. Households with many children and old people will allocate working time to take care of the dependents, and then it loses the opportunity to gain income. If the dependency ratio increases it expected that household income decreases. Thus the sign of its coefficient can be negative.
- ***Land cultivated*** (ha), the variable determines household's welfare. Given the better farm implements, fertilizers and agricultural skills, households which possess larger agricultural land are expected to have large income.
- ***Number of livestock*** owned by respondents has positive effect on household income, for instance the livestock can be sold live or as meat and milk can also increase household income especially to the local people located in tourist areas.
- ***Value of productive assets***, when local community hold assets like land, rent houses, tractor can increase income by renting it, however owning motorbike can increase household income through transport provision especially in rural areas where transport are limited.

- *Tourist lodge/campsite in the community*, the existence of tourist lodge in the community is expected to increase household income because people can supply different products such as food, water, vegetables, milk and others thus increases household income. On the other hand employment opportunity to local people and thus raise their income through wage employment.

3.3 Study Limitations

The goal of this research was to assess tourism revenue distribution and its impact on household welfare in Robanda, Makundusi, Bonchugu and Rwamchanga in Serengeti District Council. However not all required data were obtained because of unavailability of the data. For example most of the data on resident and non-residents employees, salaries of the employed people in most campsites and other tourist company were kept confidential except for Moivaro Campsite. However, data of revenue accrued over past five years were not available because of leadership change and poor record keeping. Therefore the study used only the available three years revenue data from Serengeti District Council, village councils and Ikoma WMA office.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Socio- economic Characteristics of the Sample Households

This study finding in Table 2 show that majority of the respondents aged are 36-60. At this age most of the respondents are mature enough to understand the impact of tourism revenue distribution/sharing in their village. Both male and female respondents were included in the study, women were considered to be disadvantaged to accessing society's economic resources compared to men. FAO (2007) reported that, although women contribute substantially to households/society's economy their roles are not fully recognized and are unequally benefit when compared to men. As a result, working conditions are likely to be poor. Women social and economic status in Tanzania is not equivalent to their economic contribution. For example, in Robanda village, the issue of witchcraft has bad reflection to women; some women were beaten by local security (*Sungusungu*) because of the villager's attitude that they were suspected witches. The women were suspected because of being wealthier, they own guest houses, bar, rent houses and cows. One of the women who were beaten because of having a lot of asset had this to say:

“There is a notion that women are always poor, they cannot own land, property and money. They want us to be dependent on everything which is not fair at all when we accumulate income because of hard work they label us as witches”

Generally, about 82.5% of the respondents had primary school education level, 9.2% secondary education level, 5.0% college (diploma and certificate) level, 0.8% higher education level and 2.5% had no formal education, this low education level reduce the access to higher paid labor market since education level may increase workers

productivity (Klasen, 2002), and provides know how to do more beneficial jobs or access to higher-paid labour market (Baum and Payea, 2005).

In most villages in the study area they have only one ward secondary school which is located about 6-10 km from each village. According to Smith (2007), human capital and demographic factors are the main determinants of household income. The well-educated, middle-aged and self-employed people have relatively comfortable income. Lack and low education level among community members can lead to increased poverty level due to the fact that people will have insufficient knowledge to compete with other people on employment and use of available opportunity to improve their living standards. Moreover, lack of education has high risks of *elite capture* and few individuals dominate decision making on personal/society benefits.

Table 2: Socio-economic characteristics of the households

Household characteristics	n	%
Age		
18-35	50	41.7
36-60	68	56.7
Above 60	2	1.7
Sex		
Male	68	56.7
Female	52	43.3
Marital status		
Single	6	5
Married/monogamous	75	62.5
Married/polygamous	37	30.8
Widowed	1	0.8
Education level of house head		
Illiterate	3	2.5
Primary school	99	82.5
Secondary school	11	9.2
College education (Diploma)	6	5.0
University education (Degree)	1	0.8
Main occupation of household head		
Employee	26	21.7
Self /business employee	16	13.3
Farmers	38	31.7
Agro-pastoralist	10	8.3
Tourism (own campsite, and lodges,	6	5.0
Forest product (firewood/charcoal vending and honey seller)	10	8.3
Other (carpenter, casual labor, sell thatch grasses, burnt bricks)	14	11.7
Dwelling status		
Concrete/cement bricks/iron sheets	5	4.2
Concrete/burnt bricks/iron sheets	30	25
Un burnt bricks/iron sheets	28	23.3
Mud bricks/iron sheets	22	18.3
Mud bricks/thatches	35	29.2
Ownership of the dwelling		
Own	109	90.8
Renting	11	9.2

4.2 Income Level of the Respondents

Distribution of respondents income level is shown in the Table 3 and figure 2; it is clear that over 65 percent of the respondents earn less than TZS 200 000 as income. Those who earn between TZS 200 000 and TZS 400 000 constitute about 25 percent while about 15 percent earn more than TZS 410 000. The distribution generally indicates that income level of the respondents is low considering the household size of 7. Thus, income per capital (as measured by the level of well being) is also very low about one USD per day as the minimum subsistence for households in developing countries (Oluwatayo, 2009).

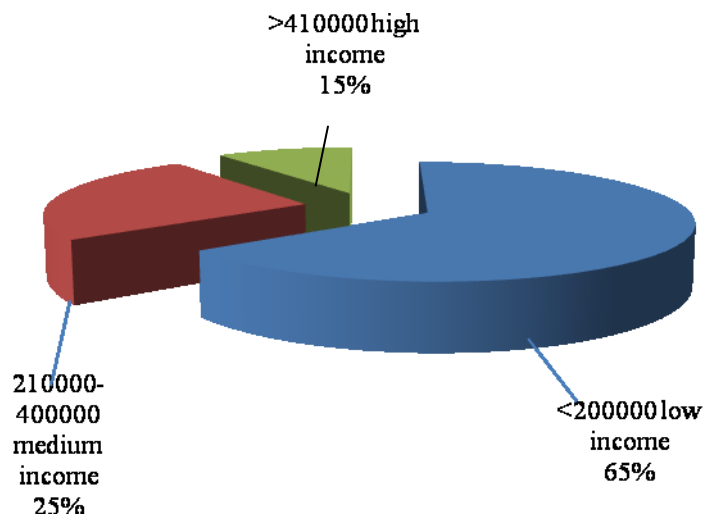


Figure 2: Respondents Income level (TZS) in the study area

According to Sen and Palmer-Jones (2006), being rich or poor was strongly related to where a person lives, which means living in remote areas, is more affecting person income. Despite the efforts made by Tanzania Government on poverty reduction, rural incomes have not significantly improved (Aikael, 2010). It is clear that the causes of low income and poverty in rural areas are complex and diverse: many rural areas in LDCs are characterized by location disadvantages as well as low level of basic social and economic infrastructures.

Table 3: Monthly income level of the household (TZS)

Income per month (Per household)	Robanda n	Makundusi n	Bonchugu n	Rwamchanga n
<100 000	9	13	16	21
100 000-200 000	8	5	7	3
210 000- 300 000	2	5	3	2
310 000-400 000	4	3	2	2
410 000-500 000	4	2	1	1
>500 000	3	2	1	1

Household assets were used as alternative measure for household wealth. Both productive, consumable assets (land, motor cars, plough, motorbikes, bicycles, oxcart, hand hoes, radio, television, sewing machines, and milling machines) and animals (cattle, goats, sheep, chicken and ducks) were recorded for each respondent household and converted into monetary value to reflect the wealth status of the particular household. Table 4 shows the type and number of assets owned by household in study area. Cattle, plough and hand hoes are most assets owned by the respondents in the study area. This result implies that most of the respondents are moderate wealth status.

Table 4: Number of assets owned by the Sample Households

Type of asset	Robanda	Makundusi	Bonchugu	Rwamchanga
Animals				
cattle	26	20	16	14
goats	18	16	8	4
sheep	10	5	4	3
chicken	4	2	1	1
ducks	0	0	2	2
Consumable/ Productive assets				
Hand hoes	28	29	30	29
Plough	17	18	17	15
Bicycle	12	23	6	8
Television	12	10	2	5
Radio	26	26	16	20
Car	2	1	0	1
Sewing machine	10	12	4	7
Milling machine	0	1	0	1
Land	28	27	28	26
Motorcycle	9	11	5	4

4.3 Comparison of the Households Economic Activities Between IWMA and Non-IWMA

Data from the villages surveyed show agriculture stands out as the main source of income in both IWMA and non-IWMA areas as shown on (Table 2). Majority of households engage in crop production, but share of the agriculture over the household total income is low, about 3.2 percent in IWMA and 7.4 percent in non-IWMA this is due to proximity to the protected area where crop destruction by wild animal is high.

Results in Table 5 show that tourism is the main sources of income within IWMA and agriculture is the main source of income in non-IWMA. This finding reflects the existence of additional off-farm opportunities in IWMA as a result of CBNRM programs. Tourism

increases income particularly in areas where agricultural, natural, and cultural resource exists (Sanli and Tanrivermis, 2007; Emmanuel, 2013). This findings concurs with the findings of Ashley (1995) and Emmanuel (2013) who reported that households that engaged on tourism activities generates higher income compared to the households that do not engage in tourism activities.

Table 5: Comparison of the household's economic activities between IWMA and Non-IWMA areas

Economic activities	IWMA			Non-IWMA		
	HH engaged	Mean earning	Income share of all HH	HH engaged	Mean earning	Income share of all HH
Tourism	25%	7 380 000	34.9%	5%	1 880 000	14.2%
Self employment**	10%	2 920 000	13.8%	10%	1 630 000	12.3%
Livestock	11%	1 740 000	8.2%	5%	1 600 000	12.1%
Agriculture	23%	669 000	3.2%	45%	974 000	7.4%
Forest products*	6%	490 000	2.3%	11%	789 000	5.9%
Casual labour*	20%	1 710 000	8.1%	15%	996 000	7.5%

Significance based on variance t-test between mean: **5% and *10% significance level

Generally the welfare of the female headed households is slightly higher. The female - headed households they have more economic opportunities such as lodge, tour operators drivers buying food from village café (Mama Lishe), buying water, soft drinks, vegetables, eggs and some cultural decoration from curio shops (Emannuel, 2013).For instance, women respondents who are self employed including owning lodge, café, guest houses, shop and rent houses in Robanda they have high annual household total income. Female households in IWMA are better off relative to female household in non-IWMA because of the community characteristics of IWMA such as availability of tour operators investing on lodges and hotels, availability of tourist who buys different products.

Never the less, findings of this study show that male-headed households are large in size because of polygamous marriages and thus are associated with lower welfare levels. According to Smith (2007), the higher the household size the poorer the household. It is expected that households with many wives have many children and thus increased dependency ratio to the household. Although man power increases with the increased household sizes, my comments based on my study, most of the respondents in study area in polygamous family they have large number of children below 15 year who are dependants and thus have little manpower.

4.3.1 Access to social services

Households in the non-IWMA had little number of social services (water, dispensaries, availability of transportation and roads) as compared to those in IWMA (Table 6). This study also found that people within IWMA are more likely to participate in income generated activities as they are accessible to social services such as clean and safe water save time for fetching water (especially for women), health services and education services.

Infrastructures in IWMA are in good condition, health staffs are available and social services are accessible less than one kilometer. Although IWMA have several social services facilities, they are not enough, for example in Makundusi Village there are eight classrooms, but has shortage of teachers. The available 6 teachers teach about 1000 pupils (1:166) compared with the required ratio of 1 teacher for 45 pupils according to Tanzania Education Policy, 2014 (URT, 2014).

In non-IWMA, most of the social service facilities (school, wells and dispensaries) were through villager's monetary contributions and labour. These infrastructures are in bad condition, requiring rehabilitation, few teachers and nurses; One respondent said:

“There is poor health infrastructure, poor working conditions (poor housing or lack of accommodation). Although villagers contribute health insurance per year (TZS 10 000), there are no medicines, people have to travel more than 20 km to the District hospital for health services.”

Water source is not a problem in IWMA as realized in non-IWMA. In IWMA, villagers use constructed water wells in which each sub-village has at least two water wells while majority of the respondents in non- IWMA depend on natural wells and only one village has a bore hole. Water problems increase with distance from the village centre and water scarcity increases during the dry seasons. One of the respondents said:

“Water is very a big problem in our village, especially to most villagers located close to the National park border, they depend more on water sources located in the park. Women spend a lot of time in searching for water instead of doing other economic activities such as farming and carrying out business”

Water fetching increased workload to women and children; they wake up early in the morning to search for water. This increases risk of encountering wild animals. According to Madulu (2003), the major cause of mortality in rural areas results from poor access to clean water and water-borne diseases.

Table 6: Household’s distances to social services (Km)

Social services	Distance from social services in (Km)													
	IWMA (km)							Non-IWMA (km)						
	<1	1	1.5	2	2.5	>3	Own well	<1	1	1.5	2	2.5	>3	Own well
Water	30	10	8	10	0	0	2	20	7	6	12	8	6	1
Dispensaries	20	19	13	8	7	-	-	16	7	13	8	16	-	-
Road	21	13	7	7	6	1	-	12	19	12	15	4	3	-

4.3.2 Households cooking energy

Majority of respondents in both IWMA (40%) and non-IWMA (70%) were using firewood as source of cooking energy as shown on (Table 7). Women were responsible for domestic firewood and taking care of children, they are the one who suffer a lot to find firewood and water. A study by United Nations Development Programme and World health Organization (UNDP-WHO, 2009), reported that 17% of the people in sub-Saharan Africa have low access to modern fuel for cooking and 69% of the population rely on firewood as their primary cooking fuel. Although it is assumed that in rural areas there is abundant firewood, in the study area there is scarcity of firewood, people depend on few collected and buying firewood and charcoal. The findings show that, before part of the Ikona open area was taken by Singita Grumeti Reserves, firewood was collected in there, nowadays the authority is very strict, there are full time security guard who patrol all over the place. People do not go there anymore.

In addition to strong conservation measures, there is population increase and poor land use planning by villagers. People are destroying environment through overgrazing, deforestation and cultivate along water sources. Awareness was created to local community on environment conservation, planting tree, management of the village forest, provision of alternative source of energy and wood serving stoves to local communities bordering Ikorongo and Grumeti Game Reserves. This was reported by community outreach officer of Singita Grumeti Reserves;

“We are creating awareness to local community to conserve village forest through village environment committee so that by law are implemented. Restrict illegal tree cutting, Provide permits for livestock grazing and allow only women to collect dried wood in village forests, this generates village income and reduce scarcity for firewood and building materials.”

Although these initiatives were made by tour operators on natural resources management, there are challenges on implementing by laws and other environment conservations regulations. The community outreach officer was quoted as saying:

“Political issues hinder conservation activities, they influence people not adhere to regulations and by- laws.”

In study area firewood has become scarce and add stress to households not only for women and children, but also for men (household heads) as firewood and charcoal have added financial burden.

Table 7: Household cooking energy

Energy source	IWMA		Non-IWMA	
	n	%	n	%
Firewood	24	40	42	70
Firewood and charcoal	18	30	12	20
Charcoal	12	20	5	8.3
Gas and charcoal	6	10	1	1.7
Gas	0	0	0	0
Electricity	0	0	0	0
Total	60	100	60	100

4.4 Tourism Revenue

According to Sachedina (2008), Tourism revenue in large generated by wildlife viewing and hunting. It has assumed an increasingly important role in the Tanzania economy since structural adjustment policies in the mid 1980s. It ranks among the top employment sectors, accounting nearly 25 percent of GDP and export earnings. Revenue generation increased from USD 259 million in 1995 to USD 731 million in 2003 (Jones, 2003) and USD 746 million in 2005 (East African, 2006).

This study reveals that, Serengeti District Council and IWMA generate tourism income from four major sources: concession fees, hunting block fees, photographic tourism and bed-night fees, as presented in (Table 8). This finding is similar to that of Sulle (2008), who observed that Burunge WMA generate more than TZS 290 million per year from concession, photographic and bed-night fees. Tourist facilities in IWMA hunting block zone, photographic zones and Robanda and Makundusi village land, generate substantial income. There are 20 permanent and temporary campsite/lodges in and outside IWMA, each of these lodge and campsite provide concession fees to the government equivalent to 10% of bed-night fees with an occupancy rate rising to 87.8% (IWMA) area and (12.1 %) Robanda village land in peak tourism season (Sosovele, 2005).

Although tourism revenue is considerable there is a challenge of poor records keeping of tourism revenue generated in IWMA's and Village Councils, some of the revenues collected were not recorded, resulting to some missing information on tourism revenue. VEO of Makundusi said, missing of some records is due to the fact that there is changing of the leadership which to me was not a genuine reason because village government amenities they are not privately owned. This finding is similar to that of Sulle (2008) who reported that there were no transparency on revenue generated, poor record and no value for money at community projects.

Currently, the main collector of tourism revenue within IWMA's and outside is WD through CITES. Village Councils and IWMA's are not happy with the collection and disbursement system done by the Central Government, as they do not disburse tourism revenue on time and they disburse little amount of money compared to the number of visitors in IWMA's and Robanda village. On the other hand local communities do not understand why CITES collects tourism revenue while District Council and IWMA's have

professionals who can collect tourism revenue. During FGD respondents from Robanda and Makundusi argued that:

“Currently Wildlife Division (WD) through CITES collects revenue. What is their basis for them to collect tourism revenue in IWMA and in village land? Which law or regulation do they use? It is better if the Central Government could convene a meeting with local people in WMAs and discuss with us. They only sit there and decide without involving local community who bear the cost of living with wildlife”

In the past, IWMAs and Serengeti District Council were not doing any follow up on number of tourists visiting their area, they were no any information on the number of tourists entering IWMAs and Robanda village land, and they were receiving little share of revenue from the Central Government (Wildlife Division).

In 2014, IWMAs decided to record every visitor entering IWMAs (hunting block zone) and in Robanda village (photographic zone), and found that the total number of tourist visitors were 7 777 where 5 155 (66.26%) visited photographic zone of IWMA, a number of 2 036 (26.18%) visited hunting block zone. Other 586 (7.54%) visitors entered the Robanda village land in different camps and the remaining 132 (4.45%) visitors visited the area by flying over using balloon and drive night game drives in the area. These records help to raise tourism revenue twice, about TZS 475 million were generated which was higher than 106 millions that were generated in the preceding years from photographic tourism.

Although hunting provides a major source of income to government (Emerton and Mfunda 1999) and hunting returns per client generally outweigh those from photographic tourism (Lewis and Alpert 1997), though not always (Murphree 2001), to-date there is no tourist or local hunting activities taking place in Ikona, apart from photographic tourism and

Concessionaire (Singita Grumeti Reserves). A core argument reproduced by proponents of hunting is its utility for conservation (Adams 2004; Baldus and Cauldwel 2005; Lindsey *et al.*, 2007; Murphree, 2001). However, I shall argue, close for hunting activities in study area has bad repercussion to villagers and results to illegal hunting/poaching, because villagers were used to wild meat and they have no substitute of wild meat for protein.

The concession fee is paid directly to IWMA (300 million TZS), Serengeti District Council (200 million TZS) and (70 million TZS) to Makundusi village per year. Although these institutions receive that amount of money, local communities are not happy with the current expenditure of revenue collection especially in IWMA, village council and at district level.

Table 8: Income generated from major tourism sources from 2012-14

Income	Robanda village	Makundusi village	District council	Ikona WMAs
Tourist hunting	-	11 100 000	89 340 865	1 324 104 893
Concessions fees	122 938 820	377 000 000	600 000 000	732 520 000
Photographic tourism	5 830 227	398 000 000	356 118 210	581754 787
Bed-night fees	360 221 505	201 636 534	-	148 305 734
Total	488 990 552	987 736 534	1 045 459 075	2 786 685 414

According to Sulle (2008), District councils that generate tourism revenues are supposed to use that fund to finance wildlife management activities and other development projects such as building clinics, schools and other form of social infrastructure. Serengeti District Council generate more than TZS 300 million from tourism but there are complaints from natural resources department that, the revenue is used for unrelated wildlife and tourism activities which affects their daily basis activities as conservationist. The findings of this study reveal that, IWMA and village councils receive about one billion TZS as tourism

revenue per year but the impact to household level is very low (they receive about 3% of the revenue to households). With all this money they could do more to the household's income generating activities than just invest on community projects as other investors such as SENAPA and Grumet Reserves do. They have do not have good plan, project development does not reflect the value for money and a lot of money is wasted.

During FGD, respondents said that tourism revenue decreased because Central Government takes large share of the revenue accrued, than at the time they were collected by village council. One respondent was quoted saying:

“We are getting little amount of money that does not benefit us at all, a lot of money is taken by the Central Government. Currently we are getting little amount of money compared to the investment on our land, its better if the Central Government could return our land to the village, we are not benefiting from this IWMA, our economic situation is worse now, we want back our land”

The issue of ‘single entry fee’ to the park and reserves was raised by key informants as well respondents during FGD. ‘Visitor’s single entry fee’ is the park/game reserves entrance fee introduced by Wildlife Division to generate more tourism revenue from parks and reserves. In the past, the entry fees were paid when entering the parks/reserve and valid for 24 hours. But through single entry system entry fee is valid only at the time the visitor stays in the park /reserve. When the visitor leaves the park/reserve to the village lands and WMAs, the entry pass is not valid: he/she has to pay again for park/reserve visits.

According to the respondents in IWMA, single entry fee reduces tourism revenue because visitor’s itinerary will be only in the park/reserve and not in the village/WMA. Tour operators are not ready to make double payment for park/reserve visits.

The opinion from Serengeti National Park administration on this IWMA's complaint was that, the single entry is good as it increases tourism revenue as well as reduces the cheating habits of most tour operators who were using that entry pass for more than one group of visitors, single entry fee has nothing to do with the itinerary of the visitors and it does not restrict visitors to visit other areas outside the protected areas. This is just a snag of the tour operators who, want to benefit more than what they pay.

This study found that there were ambiguities on the issue of single entry to IWMA and to village leaders that affect tourism revenue collection in IWMA and villages surrounding protected areas. Therefore there is a need to create awareness on this issue to eliminate confusion and interest conflicts.

4.5 Revenue Distribution/Sharing in the Community

Direct contribution of tourism revenue distribution to the welfare of IWMA's residents is far from insignificant. Village revenue mainly contributes to social infrastructures, water, dispensaries/clinics and schools. Some tour operators provide financial and material support at household level such as small and medium enterprises projects, humanitarian assistances and skills development. The overall magnitude of these benefits is 0.3% as they contribute to the overall household welfare.

The basis of revenue distribution/sharing is that the shared revenues will contribute to poverty reduction and act as incentive for community to support conservation (Tumusiime and Velded, 2012). Since the scheme of benefit sharing started in 2007 about TZS 1 billion was disbursed by 2014 to 5 villages within IWMA as a 50% share of Authorized Association (AA). This amounts to an average village disbursement of about TZS 329

million per year. Most of these funds were spent at community level projects as shown on (Fig. 3).

It has been emphasized in Tanzania and many other African countries that returns to community from tourism revenue sharing are used on communal projects (Mabugu and Mugoya, 2001; Murphree, 2001).

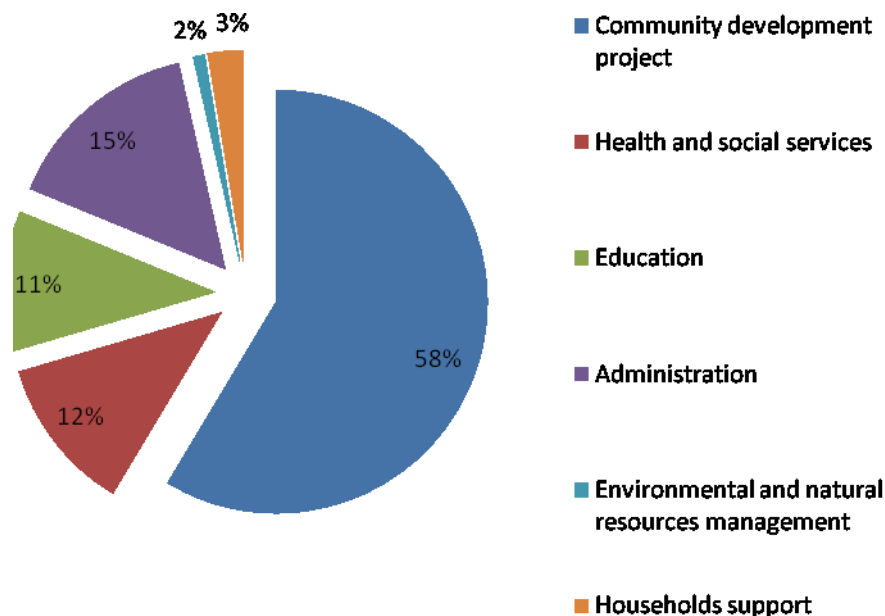


Figure 3: Tourism revenue distribution at community level

Majority of the households (80%) within IWMA are aware of the distribution of revenue and they benefit from increased range of services (schools, clinics/dispensaries, boreholes and improved roads). These findings are consistent with those of Humle and Murphree (2001) and Tumusiime and Vedeld (2012) who conducted studies in Uganda and Tanzania that, tourism revenue distribution/sharing were spent on building schools, clinics and roads as community level projects. The evaluation of these projects varied between respondents, but most local people express little appreciation from community projects. Majority of the

respondents 90% in Robanda were grateful with tourism expenditure on community development projects while 10% of the respondents they did not see the value for money on development projects and they said:

“Village council builds classrooms, teacher’s houses and other projects in our village but the value for money is not seen. It is claimed that those houses costs a lot of money which in reality is not the case. Actually the houses cost less than what is being claimed’.

Robanda village spent TZS 428.9 million which is 61.0% of the total revenue spent to construct dispensary ward, water tanks, rehabilitate teacher’s houses, classrooms, and purchase desks at Robanda primary and secondary schools. Plate 1 shows some development projects. (Table 8), illustrate expenditure on development projects in Robanda.

Makundusi village spent TZS 750.1 million which is 64.3% of the total revenue which was used to construct modern water wells and rehabilitate all village water wells, construct and rehabilitate school buildings dispensary and toilets, purchase desks, books and chalks for all primary schools (Nyakitono, Makundusi and Kewambogo), purchase a 2000 litres water tank, transformer and electric poles as illustrated in (Table 10) and Plate 2 show the rehabilitated school toilets. Also, village has contributed TZS 5.5 million for health insurance (*tele kwa tele*), on behalf of the community and therefore help the individual households on contribution that would be otherwise levied.



Plate 1: Water tank and teacher's house Robanda Primary school



Plate 2: Rehabilitation of school toilets (Makundusi Village)

Table 9: Expenditure of tourism revenue on development projects for the year 2012-2014 (Robanda)

Year	Description of project	Costs (TZS)
2012	Build 3 Teachers houses at Robanda primary school	38 319 722
	Complete 1 teachers house at Robanda primary school	19 000 000
	Build one Dispensary Ward	69 345 200
	Rehabilitate 3 classrooms at Robanda primary school	3 650 000
	Completing Village Office	6 000 000
	Purchase 20 desks	1 600 000
	Purchase furniture	12 300 100
	Build 1 headmasters house at Robanda secondary school	11 425 100
	Sub total	190 060 122
2013	Rehabilitate 1 teachers house at Robanda secondary school	15 255 500
	Purchase 40 desks at RPS	6 000 000
	Construct Administrative block at Robanda secondary school	35 724 000
	Construct of WT 53,00 liters at Robanda primary school	17 292 800
	Construct 3 classrooms at Robanda secondary school RSS	39 750 000
	Purchase building materials	11 292 800
	Construct of Laboratory at Robanda secondary school	38 450 265
	Sub total	164 037 725
2014	Completing administrative building Robanda secondary school	34 235 500
	Completing headmasters house Robanda secondary school	12 912 500
	Completing 3 classrooms at Robanda secondary school	6 034 880
	Clean and enlarge village water dam	16 487 109
	Rehabilitate 2 classrooms at Robanda primary school	5 200 110
	Sub total	74 870 099
	Overall total	428 967 946

Table 10: Expenditure of tourism revenue on development projects 2012-2014
(Makundusi)

Year	Description of project	Costs (TZS)
2012	Build 1 teachers house at Makundusi	40 000 000
	Complete 1 clinic at Makundusi	2 150 000
	Build 1 Dispensary Ward	69 345 200
	Complete 1 teachers house Makundusi	5 960 000
	Rehabilitate 5 class room and toilet Makundusi	5 764 000
	Rehabilitate 7 teacher house Makundusi and Nyakitono	8 223 000
	Purchase 65 desks Kewambongo and makundusi	6 000 000
	Purchase books Makundusi, Nyakitono and kewambogo	4 800 000
	Construct 2 class rooms Kewambogo	36 566 800
	Rehabilitate 7 class rooms Nyakitono	26 000 000
	Construct 1 teacher house Kewambogo	72 008 000
	Rehabilitate doctors house and purchase medicine Nyakitono	6 782 000
	Construct livestock kibanio	9 200 000
	Pupils food Nyakitono, Kewambogo and makundusi	1 516 000
	Construct 3 wells, rehabilitate all wells and purchase water tank	57 300 000
	Sub Total	351 615 000
2013/14	Build School kitchen Makundusi, Nyakitono and Kewambogo	2 910 500
	Construct 3 teachers toilets systems, 1 toilet Makundusi	4 143 500
	Construct 1 class rooms Makundusi P/school	18 283 400
	Purchase books, chalks and students cards	3 089 000
	Purchase 300 desks at Makundusi, kewambogo and Nyakitono	27 810 000
	Rehabilitate teachers houses and crass rooms Kewambogo	29 245 000
	Construct 2 teachers house Kewambogo and Makundusi	81 852 500
	Construct 1 teachers house and Purchase office furniture	21 733 400
	Construct 4 toilets	10 000 000
	Construct 2 clinics Nyarugusu and Nyakitono	80 000 000
	Sign boards setting	1 120 000
	Rehabilitate doctors house and purchase medicines	7 382 000
	Set wiring at clinic Makundusi	1 157 000
	Construct Kivuko cha mnada and rehabilite AT Nyakitono	8 510 000
	Construct EAGT church	36 550 000
	Purchase electricity poles, wires and transformer	50 772 010
	Purchase building materials	11 292 800
	Sub total	398 553 110
	Grand total	

This study found that, although revenue distributed benefited community in general, community level projects do not benefit all members equally, for example, Makundusi village in 2013-14, spent TZS 36.5 million to build the church; this is poor distribution of the tourism revenue as constructing church is does not benefit all community. This finding concur with Tumusiime and Vedeld (2012) who reported that not all community members are satisfied with the distribution of tourism benefits or revenue on community, as some of the villagers do not use facilities developed in the villages, and see some elite benefit most.

4.5.1 Tourism revenue directly channeled on individual

Education bursaries

Probably the immediate benefit to households has been payment of school fees by village councils on behalf of the villagers. Village council support school fees and other expenses for the poor household in high levels studies (Form V & VI), Tourism College, VETA, Pasiansi and University, for the all years spent in school. In 2012-14, Makundusi and Robanda villages spent TZS 51 million for school fees to all Ordinary level (o-level), Advance level (A-level) and college students.

VEO Robanda said, most direct benefit to individual in our society is education, because most of the villagers in this area have primary education level and thus they cannot compete with other people outside for employment and other opportunities, we want to educate our young generation at secondary and college level. When society is educated, ignorance is reduced, poverty is reduced villagers increase their income.

Singita Grumeti Reserves has been providing some of their revenue to support education to poor households in 26 villages surrounding them. For the years 2009-12, (86), 2013 (42), and 2014 (88) students in O-level, A-level, VETA, Pasiansi and University students

were sponsored. Findings in Table 11 show that, in 2014, USD 17 969.18 (TZS 298 million) at the exchange rate of TZS 1 660 were spent for school fees and other expenses. Moreover, the approved budget for year 2015 was USD 78 933 (TZS 131 million) for on-going students and new students. The statement by the community outreach officer Singita Grumeti Reserves was;

“Education is our first priority, and is one of the projects that has been given large budget than others, is the long term investment, most people in Serengeti they do not value education and they complain of employment opportunities, therefore we want to educate the society for the better future.”

Singita Grumeti Reserves provides pupils/student facilities in primary and secondary schools such as computers, printers, books, mobile laboratory and library facilities. In 2014, 12 million TZS were spent on 494 books (Kewambo), 154 (Hunyari) and 1 printer at Natta Secondary school.

**Table 11: Singita Grumeti Reserves Spent TZS 429 million on students scholarship
2014-15**

No	Item description (fees, meals accommodation & other expenses)	Annual Qty required	Amount spent	(exchange rate
			(USD)	1660)
			2014	2015
1.	Ongoing 4 primary school pupils	1	2246.14	2477
2	Ongoing 31 secondary school fees	1	2246.14	6510
3	New 16 students secondary school fees (Ordinary 10 and A level 6)	1	-	3360
4	Ongoing VETA 12	1	2246.14	7224
5	10 new students (VETA)	1	-	6020
6	8 new hospitality		-	14 622
7	Ongoing 3 Pasiansi students	1	2246.14	2346
8	New 5 Pasiansi students	1	-	9035
9	8 ongoing university student	1	2246.14	19 227
	Annual Total	12	17969.18	78 933

4.5.2 Employment

Another area in which tourism contributes to household's well-being is on employment in facilities such as lodges, camps and hotels (Emanuel, 2013). Findings of this study shows that, there are employment opportunities in IWMA's due to the existence of tourist lodge and campsites. Few people are employed permanently but most are casual labour depending on the availability of work. Most of the local communities employed are given small salaries depends on the nature of work they are doing (casual labour, housekeeping and security) while at management and decision level position employed people are from Arusha, Moshi and Foreigners. Casual labour (*kibarua*) is the form of wage labour in most rural economy of Tanzania. Average wages are very low (equivalent to USD 0.85-1.70 per day) and are only paid in TZS or on piecemeal basis (Mueller, 2012). Tour operators, casual labour activities include garden digging/hoeing, weeding and slashing. Permanent works are security guard and housekeeping (washing dishes and room cleaning).

“According to the Mapito general manager, most investors they do not employ many local people at management position, because they have little knowledge and are lazy especially men, therefore they tend to employ most people from Arusha and other areas outside Robanda as they are competent, educated, work hard and committed to their job”.

Although there are more than 20 permanent campsites and some temporary campsites in IWMA's, tour operators tend to employ very few people and some campsite are not ready to disclose how many villagers are employed and in which positions. Among campsites visited, two campsites located in village land (Robanda), managers were revealed number of people employed but they were not ready to say the salary scales. They were not ready to provide that information because the managing directors are based in Arusha. Village residents are employed mostly in the kitchen and security guard positions. For example, Moivaro Campsite Robanda has 40 staff among them 24 were employed from Robanda

working in security and housekeeping, they either consider gender equality, at least half of the staff are women, and one disabled woman. Mapito tented campsite in Robanda has also 13 staff, 11 local people, 4 women and 7 men who are permanently employed, others work as casual laborers. During FGD one respondent said:

“Employment opportunity at tourist campsite/lodges is limited, even washing dishes, slashing and other casual labor employ people from outside IWM: Does this work need professional? Maasai and people from outside are employed and benefit most from these lodges and campsites, Ikoma people have little chance of being employed”

According to the Singita Grumeti Reserves Human Resource Officer, they have more than 800 staff employed in different carriers (administration, tourism, education, environment, accountant, security guard etc) from different part of Tanzania, including IWMA residents. Employment by gender was considered; many women are employed in tourism due to the nature of the work, though no data was given out on the number of men and women employed, salary scales, position and where they came from. On the other hand there were contradiction between what Singita Grumeti Reserves say and what local people say. Majority (85%) of the respondents complain that most people who are employed are come from outside Serengeti District. One respondent quoted saying:

“About 90% of the employees come from outside Serengeti District (e.g Mwanza, Arusha, Moshi and other region) only 10% are from Serengeti. They keep us apart, we were forest/wildlife resources dependant for our daily activities and wild animals were safe, now our areas are invaded by investors and no job opportunity. Village government sponsored capable youth to be trained in tourism and wildlife management, but when they came back there was no job.”

Human resources officer Singita Grumeti Reserves make it clear that, 80% of the employment chances (permanent and casual labour) were given to local community

surrounding Ikorongo and Grumet Game Reserves. Most of casual labours are from the local community from Makundusi and Natta, so employment to local community is offered. She said:

“Makundusi is not the only village surrounding us, yes we are located in their land but we have more than 26 villages surrounding us in Bunda and Serengeti”.

4.5.3 Directly income to households

There were very little direct incomes disbursed to the household level from village tourism revenue. Local people want direct households income benefits. During FGD in Robanda and Makundusi villages, a respondent said:

“For several years we have been using tourism revenue share for development activities, what does the government do with the share they are taking? We do not see any development done by government? Our land was taken to IWMA's but we as the owners of land are not benefiting, we want benefit at household level. Only Central Government, district council and IWMA's leaders benefit most, may be this is the ‘SACCOS’ for some people in the government”

To reinforce their argument Robanda respondents went further providing amount of revenues that were received before CITES started collecting all tourism revenues. The added statement quoted;

“Previously we were collecting large amount of money about TZS 500 million annually, from campsites located in our land, village council was able to support household directly by providing food/ wild meat and free health services, but now the rate of supporting households directly is very low, only for special cases like critical diseases and supporters very poor (old) households support.”

Singita Grumeti Reserves have the system of disbursing tourism revenue at household level through small and medium enterprises: they have been spending about TZS 32 million annually to initiate income generating projects to the households. Income

generating projects at household level include poultry, animal husbandry, fish farming, horticulture, cultural tourism (*Maboma*) and beekeeping in 8 villages in study area. Households were provided with all requirements/facilities like feeds, calf, beehives and chicks. They were given as source of income and alternative to protein to conserve environment and stop hunting activities. Fish farming was supported in 3 villages (Bonchugu, Robanda and Iharara), poultry 3 people in Makundusi village, suckers, sunflower mill, and cultural tourism group in Bugerera village and 600 beehives were given to seven villages and Isenye secondary school.

Technical support and capacity building is given to every household with the project. The main customer for the produced products like eggs, beef, vegetables, fruits and milk is Singita Grumeti Reserves, and they are paid 95% of the income generated and 5% remain in cooperative society GHUMACOS to run the society. About 40 million TZS is obtained monthly, and 48 people who sell their product are paid their money monthly. Through these income generating projects most household improved their well being and increase their income. Also, there are some household that do not use properly project provided by Singita Grumet Reserves. For example, one person from Makundusi was given chicken, food and house (banda), but he abandoned the project and used that house for another activity. He failed to produce any profit from that project. This kind of habit reduces incentive to support household level by tour operators, because some people are not serious with the project given.

4.5.4 Revenue channeled to conservation activities

This study has found that village councils do not value conservation activities, and have left to other stakeholders such as Singita Grumeti Reserves, SENAPA and Frankfurt Zoological Society (FZS). Conservation activities were given least share (1.3 mil TZS)

from tourism revenue for tree planting and natural resources patrol in Robanda and Makundusi villages.

During 2013-14 Singita Grumeti Reserves spent TZS 125 million for conservation activities, Participatory Forest Management (PFM), provision of alternative source of energy (wood serving stove, biogas and gas cooker) and creates awareness to pupils and students in 24 villages surrounding them. By creating awareness among pupils and students, we are sure to reach almost all community, because as children become aware of environment conservation activities obviously their parents will also do the same.

About 82 million TZS were spent on alternative source of energy such as gas cookers (312) and gas tanks (624) were given to most of the civil servants by sharing cost, workers were paying 100 000 TZS and Singita Grumeti Reserves paid 200 000 TZS per each household. Also there is on-going project (wood saving stove) 4 youth were trained on creating energy saving stove, which cost less than 20 000 TZS. This project is expected to help 500 households in 24 villages on energy saving stoves and use little firewood as most local people in Serengeti depend on firewood for cooking energy.

Nyinchoka village benefited from conservation projects through formulation of environment committee, management plan creation and by-law formulation for village forest reserve (provision of entrance permit to generate income for firewood collectors, livestock keepers for grazing and charcoal burning) and management of water sources.

4.5.5 Revenue channeled to social services

About TZS 21.1 million were spent on supporting old people, funeral services, health treatment to poor household in Makundusi village, and Robanda village spent TZS 98.8

million for humanitarian services, and teachers motivation, water pump machine service, rehabilitate water pipe systems, car services and purchase of diesel for water pumping.

4.6 Impact of Tourism Revenue on Household Welfare

4.6.1 Lorenz curve and Gini coefficient analysis

This analysis was meant to show the income distribution and inequality among households in the study area. The Lorenz curve of income distribution (Fig. 4, Fig. 5 and Fig. 6) shows a deviation from the line of perfect equality. Therefore, this shows that income is unequally distributed in the study area. This further confirmed by Gini coefficient ratio of 0.43 (Table 12) in Non-IWMA and 0.41 (Table 13) in IWMA. This indicates that majority of the respondents are in low income level and very few have high income.

According to ILO (2010) income inequality is categorized into four inequality groups; 0.2 low inequalities; 0.25 moderate inequalities; 0.35 high inequalities and 0.50 extreme inequalities. The result reveals that there is high inequality on income in the study area, therefore not all benefit from the existing income generating activities. Some people get more income than the others. When tourism income was excluded, Gini coefficient ratio of IWMA decreased from 0.41 to 0.33 (Table 14),

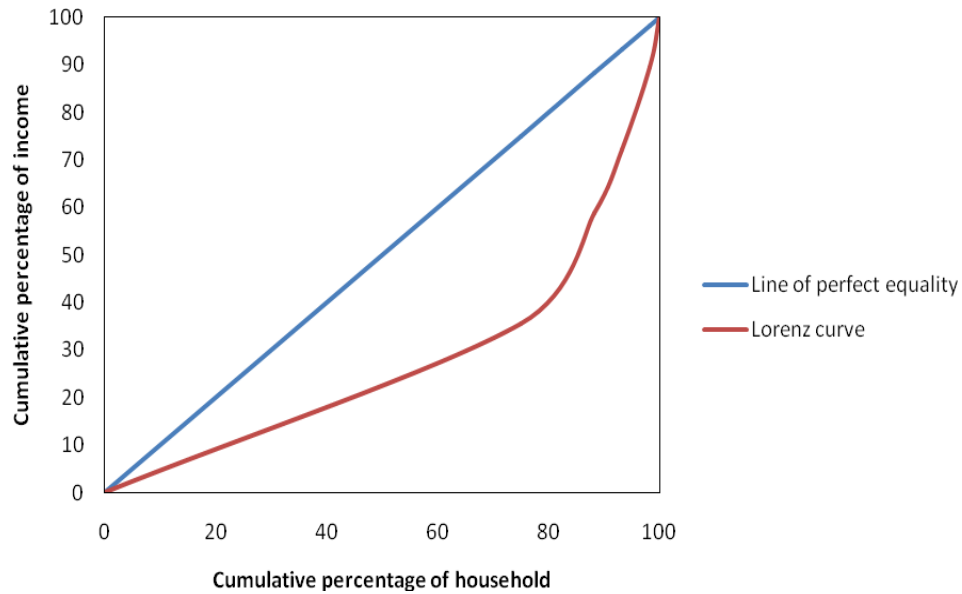


Figure 4: Lorenz curve for Non-IWMA

Table 12: Calculated Gini coefficient (Non-IWMA)

Area A + Area B	100 X 100/2	5,000
Area 1	$75 \times 35.5/2$	1331.25
Area 2	$13.3 \times (35.5 + 58.7)/2$	626.43
Area 3	$5 \times (58.7 + 72.3)/2$	327.5
Area 4	$5 \times (72.3 + 89.4)/2$	404.25
Area 5	$1.7 \times (89.4 + 100)/2$	160.99
	Total Area B	2850.42
	Area A 5000 - 2850.42	2149.58
	Gini coefficient	$2149.58/5000$ 0.4299 Or 43%

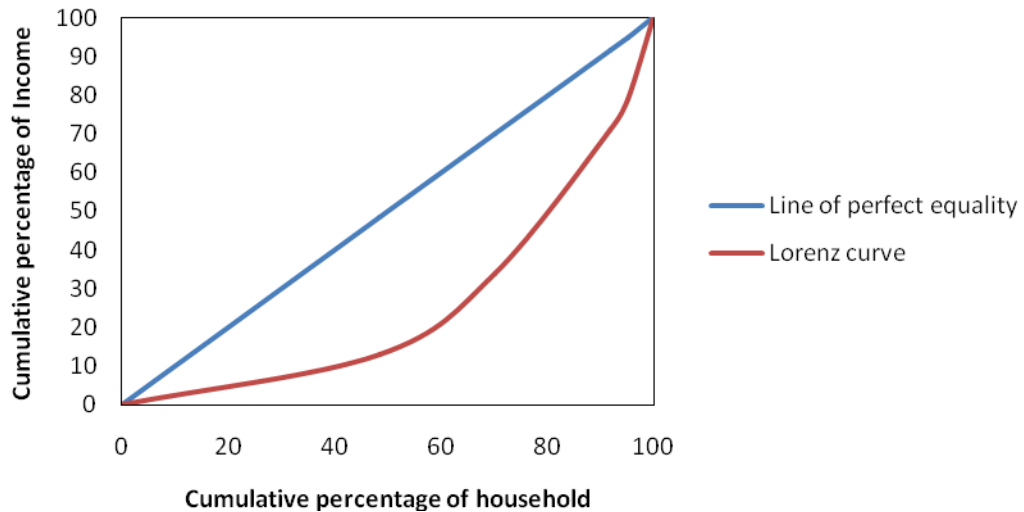
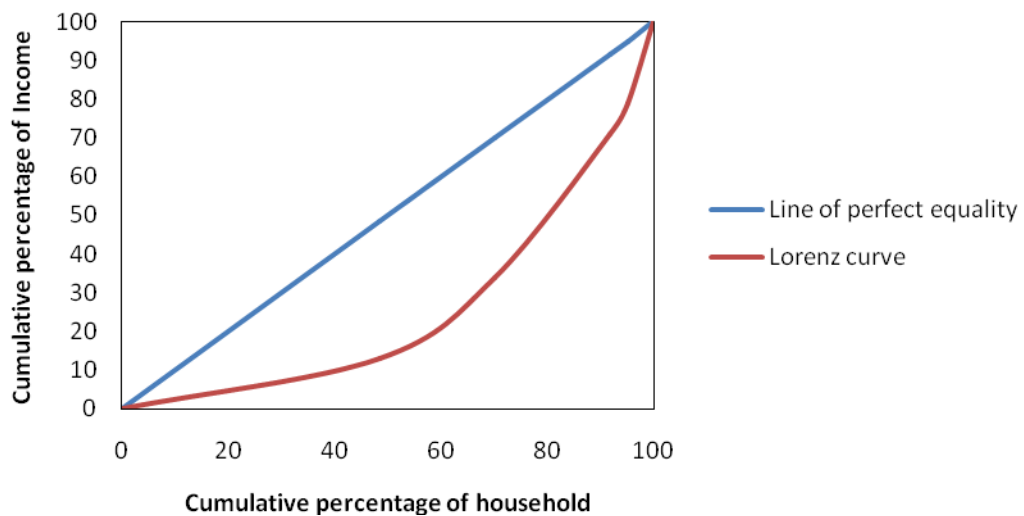


Figure 5: Lorenz curve of IWMA

Table 13: Calculating Gini coefficient for IWMA

Area A + Area B	100 X 100/2	5000
Area 1	48.3 x 13	627.9
Area 2	21.7 x (13 + 34)/2	509.95
Area 3	21.7 x (34 + 71)/2	1139.25
Area 4	3.3 x (71 + 79)/2	247.5
Area 5	5 x (79 + 100)/2	447.5
	Total Area B	2972.1
	5000- 2972.1	2027.9
	Gini coefficient	2027.9/5000 = 0.405 or 41%

**Figure 6: Lorenz curve of IWMA tourism income excluded****Table 14: Calculated Gini coefficient IWMA tourism income excluded**

Area A + Area B	100 X 100/2	5000
Area 1	50 x 15.9	795
Area 2	21.4 x (15.9 + 44.4)/2	645.21
Area 3	23.2 X (44.4 + 79.9)/2	1441.88
Area 4	1.8 X (79.9 + 84.3)/2	147.78
Area 5	3.6 x (84.3 + 100)/2	331.74
	Total Area B	3361
	5000- 3361	1639
	Gini coefficient	1639 /5000 0.33 or 33%

4.6.2 Factors influencing household welfare

As earlier suggested earlier, household welfare measured by total household income (as a proxy of welfare) is influenced by variety of household and community factors. The results in Table 15 show that the coefficients from OLS estimation for the most part are significant at 1% and 5% and have positive sign. The results of OLS model employed to ascertain the determinants of household welfare diversification show that, education of the head household, number of livestock owned, households asset value and tourist lodge availability in the community were positive. These results are similar with that of Fernandez *et al.*, (2010) who reported that number of livestock owned educated households, household assets value and number of tourist lodge available in the community influencing household income and thus improve household welfare. This indicates that any increase in the value of the coefficient of these variables have higher possibility of influencing the estimated welfare.

Further, the coefficient of sex, household size and age of the household head were negative. Thus, an increase in the value of any variables will negatively influence the estimated welfare of the diversification index. In general educated households with number of valuable assets have more opportunity to generate income compared to uneducated headed households, with small household size and old head of household.

Table 15: Ordinary Least Square results

Variable	Coef. Estimate	Std Error	t ratio	Prob> t
(Constant)	-31 470 000	14 260 000	-2.207	.030
Sex head of household	-183 504.484	376 385.358	-.488	.627
Age head of household	-11 074.833	20 657.322	-.536	.593
Education household head***	22 210 000	366 770.907	6.055	.000
Size Household	-62 707.698	64 747.354	-.968	.335
Acre of arable land owned	35 691.954	46 838.694	.762	.448
Number of livestock owned**	25 930.867	10 182.623	2.547	.013
Household productive asset value***	.336	.082	4.103	.000
Tourist lodge in community***	1.049E6	374 849.480	2.799	.006

Key: n= 97; R squared = 0.595; R square adj=0.559; DF88; F=16.18; P< 0.05

Significant level at **0.05%, ***0.001%,

CHAPTER FIVE

5.0 CONCLUSION AND RECOMENDATIONS

5.1 Conclusion

From findings of this study, there are several sources of revenue which are tourist hunting revenue, Photographic tourism, bed-night fees and land concession fees collected from lodge and campsite within IWMA. Never the less, there is no transparency on photographic tourism revenue collected by WD and the disbursement to community level is insufficient and untimely.

More than 50% of the village tourism revenue accrued were spent on community development projects (building, repair and rehabilitation of schools, dispensaries and wells), and reduce monetary contribution to local community although 3% of the revenue is streamlined to the household through village humanitarian support. Singita Grumeti Reserves contributes TZS 32 million annually to the household through income generating projects such as poultry, fishing, and horticulture that improved that generate household income and thus improved household welfare of the people residing adjacent Grumet Reserves.

Employment challenges were observed in study area from tour operators, few residents were employed as dish washers, security guards and housekeepers. Most camp managers and professional workers were employed from Arusha and Mwanza, this reduces appreciation of local communities to tour operators.

Gini coefficient ratio of IWMA was 0.41 with tourism income, and decreased to 0.33 when tourism income is excluded. This shows that tourism income increases household

income inequality by 0.08 units. The welfare of the household in IWMA changed through tourism income. Without tourism income households' income is moderate because, tourism increases opportunity to local community to engage in different income generating activities and thus increase their household's income.

Although there is high inequality it does not mean that there is high poverty in the IWMA, this difference is due to large difference between the top and the middle of the income spectrum.

The results of OLS suggests that, high education level of the head of households, number of livestock owned, household assets and availability of tourist lodge in community have positive impact on household income and thus improve household welfare.

5.2 Recommendations

The following are recommendations based on the findings and discussion as presented in chapter four.

- i) Central Government should streamline and clarify the regulation of revenue collection and sharing/distribution formula so that at least 75% of direct revenue from WMAs is kept at the community level.
- ii) All stakeholders must meet regularly to discuss and agree on revenue from tourism and how the revenue should be distributed so that local communities who are primary beneficiaries can capture a greater proportion of tourism revenue because these local communities already live with cost of wildlife on their land.
- iii) There should be sufficient and timely disbursement of tourism revenue to District council, IWMA's and to villages.

- iv) Central Government should establish a participatory system in which District council, village/WMA and Central Government collect tourism revenue together this will enhance trust.
- v) Ministry of Natural Resources through Wildlife Division should create awareness to WMA, tour operators and communities residing near protected areas on benefits and challenges of single entry fee.
- vi) IWMA should convene quarterly/ semi-annual meetings with all villages within WMA to discuss IWMA supported project planning and expenditures. Revenue accrued by IWMA should be posted on notice board in all villages.
- vii) Serengeti District Council should adhere to Wildlife Conservation Act No. 5 of 2009 and National Wildlife Policy of 2007 on distribution of revenue
- viii) Village councils must establish programs that generate household income from tourism revenue accrued.
- ix) Tour operators must review the agreements met with Village councils and increase job opportunity for local community and support household income generating projects.

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APPENDICES

Appendix 1 (a): Interview Guide for District Tourism/ Wildlife officer

Respondent's name

Department

Title/position

Date of interview.....

1. What are the sources of tourism revenue in your district?
2. At what extent tourism revenue sharing are put in practice?
3. Which projects funds are distributed across community level?
4. How resource management practiced in the community?
5. Who are the beneficiaries of tourism revenue sharing?
6. What are the criteria used to determine the beneficiaries?
7. What are the impacts of tourism revenue sharing to the household income?

Appendix 1b: Interview Guide for IKONA WMA Secretary/Chairman

Name of the respondent

Title/Position

Date of interview.....

1. What are the sources of tourism revenue?
2. Who is the main collector of tourism revenue in Ikona WMAs?
3. How tourism revenue accrued does distribute to the Authorised Associations (AA)?
4. Who are beneficiaries of tourism revenue distributed in villages?
5. Which projects are funded by tourism revenue accrued in villages?
6. How does tourism revenue help to improve the life standards of the local people?

7. What are the challenges facing distribution of tourism revenue at village level?
8. What should be done to improve the wellbeing of the local people through tourism revenue distribution?

Appendix 1c: Interview Guide for Village leader

Name of the respondent

Title/Position

Date of interview.....

Division Ward..... Village.....

1. What are sources of revenue in your village?
2. Which tourism activities generating revenue in your village?
3. What is the trend of tourism revenue generated?
4. Are the local people aware of tourism revenue accrued? Yes (), No ()
5. If yes, how are they informed?
6. How does tourism revenue distributed?
7. Which project funded by tourism revenue get large share and why?
8. Which project funded by tourism revenue get small share and why?
9. Are the villagers consulted on selection of projects to be funded?
10. Are the villagers gain controls and maintain access to the revenue distributed?
11. How are the local people benefits from tourism revenue sharing?

Appendix 1d: Interview Guide for Tour operator

Name of the respondent

Title/Position

Company's name

Date of interview.....

1. Does your company stream any share of revenue to local community?
2. If yes how?
3. Which tourism benefits distributed at community level?
.....
.....
.....
4. Do you involve local community in selection of benefits to be distributed?
5. If yes how?.....
6. Which community project given first priority and why?
7. Which community project given last priority and why?
8. Do you distribute any of tourism revenue at household level? Yes (), No ()
9. If yes, how do you distribute tourism revenue at household level?
.....
.....
.....
10. What are the challenges facing the distribution of tourism benefits at household level? Mention if any.....

Appendix 2: Interview Guide Focus group discussion (Robanda and Makundusi)

1. What are the sources of tourism revenue in your village? Mention
2. . Who is the collector of tourism revenue?
3. Does tourism revenue accrued distributed?
4. If yes, how does the tourism revenue distributed??
5. Who are the beneficiaries of tourism revenue share? And how are they selected?
6. Does tourism revenue sharing follow guidelines? a) Yes b) No
7. If No, why?.....
8. How does local community involved in tourism revenue distribution?
9. Who is benefiting most from tourism revenue distributed and why?
10. Who is not benefiting and why?
11. Does tourism revenue distributed intended on community development, benefiting local people? a) Yes a) No
12. If yes how do you benefit from tourism revenue distribution? Specify
13. Does tourism distributed changed your lives? a) yes b) No
14. To what extent tourism revenue sharing has changed your lives?.....
- a) Highly changed b) Moderate changed c) not changed
15. Is there any tourism revenue channeled to gender groups? a)Yes b) No
16. If yes, which projects funded to empower women?
17. What are the constraints hinder the effectiveness of tourism revenue distribution?
18. What should be done to improve tourism revenue distribution system?

Appendix 3: Serengeti households Survey Questionnaires

a) Basic information

1. Respondent's name.....
2. Respondent's main Occupation
3. Date of interview.....
4. Division..... Ward..... Village.....
5. Sex of respondent a) Male ☐ b) Female ☐
6. Age of the respondent.....
7. Marital status: a) Single b) Married monogamous c) married polygamous (d divorced e) widowed
8. Level of education: tick appropriate
a) No school b) Primary c) Secondary c) College d)University
8. Household size, tick appropriate a) 1-3 b) 4-6 c) 6-8 d) 9-10 e) above 10

b) Sources of income

10. What is your main source of income? Mention
11. Do you have other source of income?
Yes ☐ No ☐
12. If yes, specify
13. What is the net income from main source of income?
14. What is the net income from other sources of income?

c) Household assets

15. What are the household assets do you own? tick the appropriate and provide the value

Type of asset	Yes	No	Number of assets	Value of the asset
a) Building				
b) Land holding/cropping area(acres)				
c) motorcycles				
d) car				
e) bicycles				
f) ploughs				
g) tractors,				
h) refrigerators				
i) sewing machines				
j) radio				
k) television				
l) hoes				
m) Financial saving				
n) Others (specify)				
o) cattle				
livestock				
p) goats				
q) sheep				
r) chicken				
s) ducks				

Appendix 4: Household amenities

16. Dwelling a) own b)renting c) live without payment
17. Status of the household house
 - a) iron sheet/block wall/concrete/cement
 - b) iron sheet/burnt bricks wall/cement/concrete
 - c) iron sheet/ mud wall/mud
 - d) thatches/mud wall
18. Household of cooking energy a) firewood b)firewood and charcoal c) charcoal d) gas and charcoal e) gas f) other
19. Distance to nearest water services a) <1km b)1km c)1.5km d)2km e)2.5km f) >3km
20. Distance to nearest primary school a) <1km b)1km c)1.5km d)2km e)2.5km f) >3km
21. Distance to nearest dispensary a) <1km b)1km c)1.5km d)2km e)2.5km f) >3km
22. Distance to all weather road a) <1km b)1km c)1.5km d)2km e)2.5km f) >3km
23. Distance to market a) <1km b)1km c)1.5km d)2km e)2.5km f) >3km

.....The end.....

Thank you for your cooperation be blessed

Appendix 5 (a): Serengeti District revenue (own source) report (2012-14)

Kasma	Description of own source	Revenue generated			Total
		2011-12	2012-13	2013-14	
	Produce Cess				
050 452	Cotton	165 275 330	73 550 910	93 608 020	332 434 260
050 453	Tobacco	192 343 977	421 164 427	628 768 662	1 242 277 066
	Levy				
050 750	Hotel and guest houses	22 630 496	33 700 000	800 000	57 130 496
051 250	Water service	7 433 302	12 104 049	195 636 890	215 174 241
	Licences				
050 851	Local alcohol	2 952 000	2 080 000	3 919 000	8951 000
050 855	Other alcohol	561 200	880 000	618 500	2 059 700
051 053	Local hunting licence	200 000 000	200 000 000	200 000 000	600 000 000
	25% tourist hunting	-	50 979 347	38 361 518	89 340 865
	Photographic tourism	83 013 573	181 885 498	91 219 139	356 118 210
050 801	Other business licence	12 000	-	25 008 600	25 020 600
	Fees, Penalties & charges				
090 157	Alcohol licence fee	424 000	800 000	988 000	2 212 000
090 150	Markert cess	23 365 540	31 542 000	31 101 700	86 009 240
090 283	Minada	64 161 060	82 997 600	92 952 500	240 111 160
090 280	Slaughters	3 000 000	5320000	5 650 000	13 970 000
090 157	Tender fee	1 590 364	96 875 000	10 554 000	109 019 364
140 400	Tuition fees	254 893 782	92 086 308	161 676 063	508 656 153
	Other sources	56 517 901	23 690 685	75 257 452	155 466 038
	TOTAL	1 089 694 162	1 222 527 825	1 657 046 444	4 043 950 393

Appendix 5 (b): Own source revenue generated in Robanda village (2012-14)

No	Investor Company/organization/institution	Revenue/levy type					Total
		Concession fee	Bed-night fee	Water	Photographic tourism	others	
1	Tanzania 2000 Adventure (Mapito tented camp)	12 371 000	97 933 400	7 980 000	-	2 000 000	1 2 028 4 400
2	Ngome safari camp	7 520 000	12 432 846	5 980 000	-	2 000 000	27 932 846
3	Thomson safari		26 100 725	6 640 760	-	-	32 741 485
4	Rough truck	55 000 000	-			-	55 000 000
5	Ikona -WMA		201 636 534		-		201 636 534
6	Acacia EA(Robanda camp)	7 520 000	22 118 000	4 240 000	-	-	33 878 000
7	Vodacom Tanzania Ltd.	40 527 820					40 527 820
8	Kenzan wildlife			1 000 000			1 000 000
9	CITES (Wildlife division)				5 830 227		5 830 227
10	DED Serengeti					4 414 567	4 414 567
	Total	122 938 820	360 221 505	25 840 760	5 830 227	8 414 567	120 284 400

Appendix 5 (c): Revenue generated from own source Makundusi Village (2012-14)

No.	Investor Company/organization/institution	Revenue type					Total
		Land levy/concession fee	Bed-night fee	Photographic tourism	Hunting revenue	others	
1	Grumet reserve ltd	212 000 000					212 000 000
2	Makundusi holdings	117 000 000					117 000 000
3	Yabikwabe holdings	48 000 000					48 000 000
4	Ikorongo-grumet reserve				2 100 000		2 100 000
5	Ikona -WMA		201 636 534				201 636 534
6	CITES (Wildlife division)			398 000 000			398 000 000
7	DED Serengeti				9 000 000		9 000 000
8	Animal trough (dipping fee)					3 680 000	368 000
9	Fines/land survey fees					2 000 000	200 000
	Total	377 000 000	201 636 534	398 000 000	11 100 000	5 680 000	98 830 4534

Appendix 5 (d): Tourism revenue generated in IKona WMAs (2012-14)

No.	Investors name (own source)	Revenue generated per year			Total
		2012	2013	2014	
1	Grumet reserve Farufaru	395 948 000	168 286 000	487 020 954	732 520 000
2	Zara Tanzania Adventure	8 000 000	8 105 000	9 072 134	25 177 134
3	Mt. kirimanjaro safari	-	26 250 000	7 530 000	33780000
4	Hunting (CITES)	265 679 000	485 047 900	413 403 658	1315032759
5	Thomson safaris	7 500 000	24 465 000	7 851 900	39816900
6	Rough tracks	-	25976000	23 555 700	49531700
7	Mawalla Trust Fund	-	-	293 323 400	293323400
8	Photographic tourism	-	106754784	475 000 000	581754787
9	Tourist hunting	-	-	9 072 134	9072134
	Total	677 127 000	844 884 684	1 725 829 880	3 080 008 814