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**LAND USES AND LIVELIHOOD OPTIONS FOR SHOROBE AND
SANKUYO COMMUNITIES, BOTSWANA**

BY

GREYSON ZABRON NYAMOGA

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ABSTRACT

Sustainable utilization of natural resources in particular wildlife and forestry is a challenge not only for Botswana but for many other developing and developed countries. The formulation and implementation of policies that encourage sustainable utilization of these resources is also not easy especially when it has to deliver both developments to people as well as conservation objectives. Community Based Natural Resources Management (CBNRM) approach were established to involve local communities in managing and monitoring natural resources to ensure sustainability of the resources being monitored. This study aimed at comparing the livelihood options for Sankuyo and Shorobe communities, the former being a tourism/wildlife under CBNRM approach community while the later is an agricultural based community. Data were using questionnaires, focus group discussions, field visits and observations, key informants and stakeholders/situation analysis. Data were analyzed using excel program and results were summarized in table, figures and charts. Results show that, although these two communities are homogeneous in terms of ethnic group's composition but they have different livelihood options and strategies. Sankuyo community relies heavily on tourism activities and most of the household members are employed in tourism related activities. Shorobe on the other hand derive their income from cattle and farming. Many of the interviewed household (66%) in Sankuyo are headed by female while in Shorobe (58%) are headed by males. These female headed households live with their grandchildren while their daughters and sons are working elsewhere. Sankuyo community seems to be more educated than Shorobe. In Shorobe 63% of the respondents reported to have no formal education while in Sankuyo no one reported to have no education. While in Sankuyo 28% had secondary education only 10% had secondary education in Shorobe. Results also show that hunting and other tourism activities in Sankuyo contributes about 67% of the total income in the community while other activities contribute only 33% while in Shorobe many household are accrued by selling cattle and some other crops. Other economic activities that contribute to the household income for Shorobe were selling local beer (Mochewa), fishing and petty businesses. It is concluded that the changes in policies for wildlife management have a great impact to the livelihood of people. It is therefore recommended that local communities should be involved in the decision making process to avoid the negative impacts that may be associated with the policy changes. Involving the local community will not only increase the sense of ownership but also build capacity to the members of these communities.

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LIST OF ABBREVIATIONS

CBO	Community Based Organizations
VDC	Village Development Committee
STMT	Sankuyo Tshwaragano Management Trust
CBPP	Contagious Bovine Pleuro Pneumonia
NGOs	Non – Governmental Organizations
USD	United States Dollar
GDP	Gross Domestic Product
NPV	Net Present Value
HH	Households
NG	Ngami land
CBNRM	Community Based Natural Resources Management
KM ²	Square Kilometers
TGLP	Tribal Grazing Land Policy
IUCN	International Union for Conservation of Nature

1. 0 INTRODUCTION

1.1 Background Information

Like in other developing countries, Botswana has adopted policies that encourage sustainable utilization of available natural resources, including wildlife and forestry (Government of Botswana, 1990). Wildlife species such as *Loxodonta Africana* (elephants), buffalos, giraffes and warthogs, just to mention a few, occupies land which could have been used for other traditional economic activities like livestock and crop production (Barnes, 1996). Studies done by Craig (1990) and Republic of Botswana (1992) indicate that the country has a large and healthy population of elephants, one of the largest in Africa. Study show that in Botswana the population of elephants increased from 54,700 in 1989 to 60935 in 1992 (ibid). The free movement of elephants between Botswana, Zambia, Namibia and Zimbabwe indicates that the population of elephants may exceed the estimated number because of the free migration to and from these neighboring countries. The increase in the population of elephants has its implications on the sound national and international strategy for conservation activities. Initially, wildlife in many African countries including Botswana was managed under the central government but later in the 1990s, communities living adjacent to wildlife areas started being involved and empowered with rights to manage and directly benefit from wildlife and other resources.

Human population increase causes pressure to the scarce available land. In Botswana the problem is excavated by the increase of the human population as well as wild animal population. The increase in wild animals increases tension to farmers due to problem animals. Therefore the allocations of land into different economic activities need to be well addressed to ensure efficiency and sustainable use of these scarce resources. However, lack of land and land use policies constraints these communities in carrying out these activities. In Botswana, Tourism is one of the economic activities that is well promoted and utilized in many places including the Okavango Delta where Sankuyo and Shorobe communities are located. The investment in tourism activities is expected to significantly contribute to the economic development and growth of other sectors. It is anticipated to have direct socio-economic impacts to local communities by eliminating or reducing poverty, solving the unemployment problem, reducing

inequality and promoting self-reliance among the local communities. Generation of revenue and creation of employment in the wildlife and tourism industries are given more emphasize instead of focusing on the socio-economic, cultural and environmental impacts caused by tourism activities (Mbaiwa, 2002, p.1). According to Wall (1997), for tourism to provide sustainable development it must be economically viable, ecologically sensitive, and culturally appropriate and it should ensure that the needs and participation of local communities are enhanced.

Table 1: Total Area, Types of Land Regimes and Land Uses in Ngamiland District

Type of Land Use	Area Covered (Km²)	% of the total District Area
Communal	86 430	79.2
• Communal Areas	53 975	49.5
• TGLP Ranches	6 950	6.4
• Game Reserves	4 610	4.2
• Wildlife Management Areas	20 895	19.1
State land	22 700	20.8
• Wildlife Management Areas	16 606	15.2
• Leasehold	2 444	2.2
• National Parks and Game Reserves	3 650	3.3
Total	109 130	100.0

Source: North West District Council (1997) in Mbaiwa (2002, p.7).

Barnes (1996, p.216) reported that “the population of elephants in Botswana disperses over a wet season in a wide range of about 7.3 million hectares made up of land gazetted as national park (14%), game reserve (7%), forest reserve (6%), wildlife management area (59%), communal grazing land (13%) and cultivated crop land (1%). On the other hand during the dry season the population becomes concentrated around permanent water and occupies about 4.3 million hectares, consisting of national park (24%), game reserve (12%), forest reserve (7%), wildlife management area (44%) and communal grazing land (13%)”. Wildlife resources have both consumptive and non-consumptive values. The study by Barnes (1996, p.216) demonstrated that in Botswana since 1983 to late 1990s, non-consumptive wildlife-viewing tourism was the only way considered sustainable for wildlife utilization. Although consumptive uses such as safari hunting where elephant, buffalo and other animals are included on a quota for trophy hunting by tourists was also a possibility for utilizing wildlife but it was not allowed by the government until

in the late 1990s (ibid). Community Based Natural Resources Management (CBNRM) programs were established to help local communities manage the resources more sustainably. During this time, hunting was allowed to allow local communities and the government to earn some money hence benefit from wildlife conservation. Recently, the government of Botswana has banned hunting with the aim of increasing wildlife population especially elephants which may have some negative ecological and economic impacts on the environment and the communities that rely solely on tourism and hunting activities.

Subsistence farming, livestock keeping and tourism are among economic activities carried out by communities in Sankuyo and Shorobe as well as other communities in Ngamiland District. Diversification of income generating activities has been a strategy for many households in Ngamiland District for reducing risks during unstable environment (Bendsen, 1987, p.1). Bendsen mentioned that the main economic activities in the district were rain fed, flood recession cultivation, livestock, fishing, hunting, gathering of veldt products, small scale commercial enterprises including production and sale of crafts and local food and beverages, wage labour in the tourism industry and formal employment in both the government and private sector. However, the importance of individual economic activities varies from household to household, community to community, season to season as well as year to year in response to variations in rainfall and flooding, access to resources, labor and capital, cultural and other factors influencing preferences (IUCN, 1992). Different school of thoughts can be used to explain resilience of households to threats and shocks. While some emphasize on specialization, others think that diversification is the best way to increase resilience.

Clarke *et al.* (1996) revealed that, “woodlands are central to the lives of over 50 million people in Africa, providing a host of goods and services, ranging from everyday items needed to sustain life, to cultural and spiritual values and to ecological services”. According to Campbell (2000), agricultural productivity is often limited, and people rely on woodlands as part of their livelihood portfolio due to the widespread poor nutrients in the soil and fluctuating rainfall in many of the woodland ecosystems. On the other hand, woodlands disappearance or degradation will cause a substantial amount of cost to local communities. Furthermore, deforestation of the woodlands will have a negative impact on tourism and ecotourism because this type of vegetation form a

favorable habitats for wildlife on which much of ecotourism and tourism activities depends. The tourism sector has become the most rapidly growing sector of the economy in Botswana and surrounding countries like Namibia, Zambia, Zimbabwe and South Africa (Campbell *et al.*, 1995). Therefore, miombo woodlands may provide a wide range of options for the land uses including agriculture (both single and mixed crops in small scale), subsistence and commercial livestock ranching, consumptive and non-consumptive tourism, safari hunting and timber production.

Sankuyo and Shorobe communities are homogeneous in terms of ethnic group composition. People of Sankuyo are mainly Bayei who migrated to the South from the Caprivi region in the late 18th Century, in response to the expansion of tsetse flies in the area. These communities settled in these areas occupying large fields with enough surplus production to trade with people from further south, and considerable use of wild foods through hunting and gathering. For Sankuyo the formal settlements started in 1981 in which the community was persuaded somewhat reluctantly to settle in one place along the track from Maun to Kasane. Originally the only service provided was a clinic built of natural materials and staffed with a family welfare officer paid by the government. Later on other important facilities were built: a modern clinic (1981), a Kgotla (1981), water services (1981/82), community development houses (1984), tribal administration office (2000) and stand pipes for each household.

Sankuyo and Shorobe villages was one village but they were then separated later after building the buffalo fence, which left Sankuyo as wildlife areas and Shorobe for farming and cattle keeping. The buffalo fence was constructed by the government of Botswana as means of stopping the spread of the foot and mouth disease in the area. This followed after undergoing harsh conditions in some years like the cattle deaths due to foot and mouth diseases and hunger episodes in 2005 to 2006. These transformation processes in many cases forced people to change their ways and strategies of living. Other factors such as restrictions on hunting and use of wild products, land reformations and translocations leaving people with smaller fields near their houses also changed people's perception on certain economic activities. The massive deaths of cattle due to diseases and drought in some years disturbed the livelihood of community members and some farmers lost all their livestock. To adapt to these calamities, households in Shorobe

used different strategies like translocating into other places. During floods for instance, people moved from Nxanxana to Pelotshmeu after the former had flooded despite of the former area being more fertile than the latter. The cattle or buffalo fence south of Sankuyo was constructed in approximately 1985 but in 1995 another massive deaths of cattle occurred in Ngamiland District as a results of lung disease.

1.2 Problem Statement and Justification

Tourism, subsistence farming (Agriculture) and livestock keeping are the main economic activities for rural communities in Botswana. Both wildlife and agricultural related activities can play a significant role in development. Rural communities face many challenges in balancing utilization and conservation of natural resources. Local communities in Shorobe and Sankuyo depend on land and wildlife as their main natural resources for earning their livelihoods. Wildlife hunting is a huge and complicated business with a global network. Banning hunting in Sankuyo may be an influence of the global policy in the name of conservation and development but the local communities adjacent to these areas are the ones who are suffering. The main challenge facing these communities is on how to allocate the land into efficient economic activities. While Sankuyo allocated most of their land for tourism, Shorobe mainly pursue farming and cattle keeping activities.

Land use plan is still necessary for reducing conflicts that emerges or may emerge between different stakeholders in these communities. Experience in other places like Tanzania suggests that conflicts among stakeholders arise as a result of poor planning as well as different ecological and economic processes on land uses. This project therefore aimed at understanding the main livelihood options, challenges and opportunities that communities in Sankuyo and Shorobe face in their daily lives. This will help local communities to utilize the available potential livelihood options and make a proper allocation of land uses for the communities.

1.3 Objectives

1.3.1 General Objective

The overarching objective of this research was to identify the major livelihoods and land use options being pursued in Sankuyo and Shorobe communities and the different policies and acts influencing land use and planning and strategies followed by these communities for ensuring sustainable development.

1.3.2 Specific Objectives

This research also aimed to answer the following specific objectives:

- Understand different livelihood options in Sankuyo and Shorobe and how these vary by household composition, gender, household assets and expenditure on food
- Assess the potential impact of changing wildlife policy on rural livelihoods in Sankuyo
- Compare the differences and similarities in livelihood options between Sankuyo and Shorobe Communities.
- Make recommendations for improving rural livelihoods

2.0 LITERATURE REVIEW

2.1 General Overview

Land uses and land use planning is a major challenge not only in Botswana but also in many developing countries. In Botswana livestock keeping and subsistence farming are the main economic activities undertaken by many rural households. Opportunity costs for undertaking each of these activities also vary. There are also costs associated with planning, mapping and allocating land to these different uses and activities. In Botswana, the Land Board is authorized to map all the villages' lands and allocate to legal and eligible members of the community's with the ownership titles. The Land boards which was created under the Tribal Land Act of 1968 (Cap.32: 02) were given all the powers to allocate and administer customary land from chiefs, sub-chiefs and headmen (Kalabamu, 2000). Therefore, the land boards survey all the villages each year depending on the needs and allocate the plots to all the applicants. The land board also is responsible for allocating concessions on wildlife areas in the country. According to the land policy of Botswana, the land is categorized into freehold land, state and customary land.

On the other hand, hunting which is the main contributor to the income and economy of Sankuyo community has been prohibited. This affects all the households in Sankuyo because they directly rely on income coming from this source. One of the reasons given to justify banning hunting is said to increase the population of wildlife species especially elephants. This contradicted with what the local communities were observing because according to them the number of elephants is increasing so this justification was not true for them. In other words the policy is not supported by enough quantified information. This therefore puts the local communities as to whether the resources are benefiting them or the government and also they still question the role they play in decision making.

2.2 Wildlife Management and Policies in Botswana

In recent years in many African countries, community based natural resources management and communal conservancy programs have induced rural communities to combine wildlife-based activities with existing livelihood strategies to diversify their livelihood hence reduce risk. Some scholars including Ashley *et al.* (1994), Ashley and Lafranchi, (1997) and others revealed that the conservancy lands have been zoned exclusively for wildlife and tourism production purposes,

which in turn reduce the livelihood diversification strategies. Diggle, (2003) and WILD Project (2003) found that in Namibia, wildlife and tourism enterprises have substantial potentials to complement and bolster the livelihoods of many rural communities.

Assessing the Goddwana Canon Nature Reserve in Namibia, Barnes and Humavindu (2003) found that wildlife production and related tourism enterprises do not only generate greater revenues per hectare and higher levels of employment than agriculture on neighboring farms, but they are also significantly more ecologically friendly and sustainably manageable. They further positively influence the wildlife and tourism enterprises on Namibia's arid and semi-annual ecosystems. Tsing *et al.* (1999) argued that community-based natural resource management programs are based on the premise that local populations have a greater interest in the sustainable use of natural resources around them than centralized or distant governments or private management institutions.

Success stories on the implementation of CBNRM programs have been well documented in many countries in Africa, although more studies are needed for comparison purposes. The driving forces for CBNRM concepts development should be the beneficiaries, who in many cases are rural community members acquiring financial, social, and economic benefits such as income, employment, remittances and in some cases dividends. This will ensure that wildlife sector as whole contributes significantly in their economic growth and development and is included into their livelihood planning and management practices. Both direct and indirect benefits accrued by local communities from wildlife and other natural resources are anticipated to motivate them to engage more in conservation activities.

The introduction and expansion of national parks and wildlife areas reduces the land for farming, cattle keeping and other alternative economic activities practiced by the communities. The reduction in land areas and the loss of traditional hunter/gatherer skills in the emerging generation are forcing youths to adapt to the modern ways and styles of living. Although agriculture and cattle keeping can employ a number of people in rural areas in Botswana, its returns may be not competitive enough to those obtained from wildlife and tourism related activities. Berger *et al.* (2003) found that efforts to introduce traditional hunter/gatherer to

sedentary agricultural activities such as livestock and crop production, have had limited success and such activities are further constrained by the conflicts these activities face with local predators and the increasing elephant populations.

Therefore, emphasize on certain type of economic activity should also consider the potentiality and costs of such an activity in that community. In communities like Shorobe where wildlife population is very sparse, farming and cattle keeping might be more profitable for the community than tourism activities. On the other hand, communities like Sankuyo they can be assisted on how to implement some strategies to increase wildlife populations to a number that can contribute significantly in their economy through income generated from trophy hunting, tourism, sustainable game meat harvesting, and potentially, game farming of high-value species such as roan antelope and buffalo.

2.3 Land uses and planning

The land policy in Botswana categorizes land into customary land, state land and free land. Population and economic growth exerts enormous pressure on land, causing land shortage in many places. Different policies are being developed to ensure a more equitable distribution of land among people and different uses in rural and urban areas. Although the land Board in Botswana allocate land based on the needs but they also consider its suitability on the economic activity in question. Mathuba (1992) indicates that land ownership under the customary tenure system in Botswana almost doubled from 47% during independence to about 71% of the total land area. During the same period the state land was reported to have decreased by more than half from 48% to 23% while the freehold land increased from 5 to 6%.

According to Maipose (2000), among the total land area of 582 000 km², about 72% was under customary land, 23% under state land and freehold land amounting to 5%. These land categorization were inherited from the British rules and regulations except that they were then called native land, crown land and freehold land respectively. The customary land is administered under customary law by the Chiefs of the respective areas and this land is allocated free where each family is entitled to land for residential, agricultural activities (arable farming to be more precise) and livestock grazing. On customary land, individuals or households are given

exclusive rights to residential and arable land and these rights are secure, inheritable and transferable to third parties. On customary land, the rights to own is permanent and sometimes the grazing land is used communally especially for livestock as well as for other activities like cutting grass, collection of wood, wild fruits and other wild foods.

Studies by Cheshire and Sheppard (2002) revealed that there are many challenges in determining an appropriate allocation of land between alternative and competing end uses. Land problems can be solved by determining the optimal land use and allocating it to the use in which the aggregate total net present benefits (social returns) over time are maximized. In the past few decades, increasing tropical deforestation has called attention to the problem of optimal allocation of forest land in developing countries (ibid). In some places, tropical forested areas are being converted from forest land to other alternative uses, mainly agriculture as means of maximizing its uses. Converting forested land into agricultural land may be caused by market failure as results of lack of information about the best or optimal use of land.

In many cases the conversion of wildlife areas or forests into alternative land uses like agriculture, is not always the most economically and efficient land use option. Land use planning can benefit people in different ways including the control of spatial structure of residential development hence reducing the cost of providing some local public goods, and helps to avoid some land uses that are likely to generate costly external effects. Multiple land use is perceived to be a positive option for rural communities, because it diversifies economic activities and reduce risks and vulnerabilities (Figure 1). For many rural communities like Sankuyo, reducing risks is a key factor for survival and the decision as to which economic activity to undertake should be based on the economic benefits accrued.

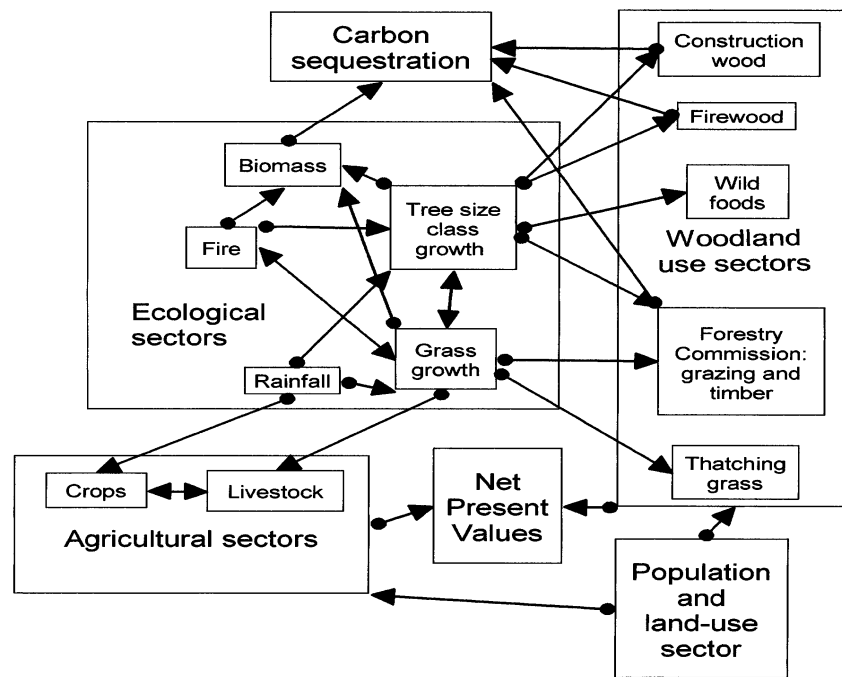


Figure 1: Different sectors of the integrated ecological -economic model

(Source: Campbell et al., 2000)

Different scholars have developed various ways to analyze problems associated with land allocations. Ehui *et al* (1990) constructed a two-sector dynamic model for agriculture and forestry in a developing country, which was also used by Ehui and Hertel (1989) to estimate the optimal steady-state forest stock in Cote d'Ivoire. Lopez and Nick (1991) used a model of the role of natural biomass (vegetation cover) in tropical agricultural production, including the influence of property rights. On the other hand, Southgate (1990) used a cost-benefit framework to examine factors like land security which affect the decision farmers make by abandoning their existing pieces of land and clearing new plots in the forest. Despite of the costs associated with land planning, we cannot disperse its importance and relevance to the communities. Sankuyo and Shorobe in particular, need a land use plan to avoid some of the conflicts related to multiple and unplanned land uses. It will also help to control the residential development hence reduce the cost of providing some local public goods and services to people and help in regulating building rules, and property taxation.

2.4 Opportunity Costs

Land allocated for agricultural purposes means that land is no longer available for cattle keeping or wildlife and other related economic activities. Therefore all the benefits that could be accompanied with the best next alternative use are also forgone. Opportunity cost is defined as a difference of value of the best next alternative use. This is because different land uses will have different economic returns depending on how efficient the resource is being used. For every land use option community members choose, they will have to forego some other next best alternatives and all the benefits on that investment. For instance on tropical forest land there may be two competing land use options, one of them being a sustainable forest management or wildlife management for timber production and flow of environmental benefits or tourism activities respectively and the second option being the conversion of forest or miombo wood land into agriculture for crop production. Which land use option is profitable to the community will depend on how efficiently these communities allocate their land to ensure maximum earning of their livelihoods. While in some areas tourism related activities will be more viable and profitable, in other places agriculture or other economic activities may be of great potential. Efficient allocation of natural resources including land should also consider the issue of sustainability in these communities.

Both Sankuyo and Shorobe communities will have opportunity costs in any land use option chosen. The assumption is that among the many land use options, the benefits will vary and one of them will have a higher net benefits compared to the other. On the other hand, the social opportunity cost of converting the forest or wildlife land to agriculture should reflect both its value for marketed production and the non-marketed environmental net benefits. However, in order to determine whether agricultural land use is more preferred than wildlife farming, there should be a way of comparing the net benefits of the two competing options. The opportunity cost of undertaking wildlife activities means foregoing the returns and benefits that could be obtained from agriculture or cattle keeping projects. In other words, communities opting for wildlife management in their land should have a difference between the net benefits greater than zero. This means that difference between the net benefits of wildlife farming and the net benefit of converting the land into agriculture should exceed zero.

2.5 Livelihood options for Rural Communities

Land is the main source of livelihoods for majority of rural population in many African countries. This is because their livelihoods are derived mainly from agricultural activities particularly arable and pastoral farming. Botswana is among those countries that rural communities rely heavily on natural resources including land for earning their livelihood. Their main economic activities are agriculture, gathering, cattle keeping and some few people engaged in small businesses. Luckert *et al.* (2000) found that many households in Zimbabwe depend on the natural resource base despite of fluctuating rainfall, changing economic conditions, and increasing populations. . The households also tend to diversify their activities so as to maintain and improve their livelihoods in response to risks and returns.

Botswana has been regarded as a model for most African countries in terms of economic growth and implementation of good policies in various sectors despite of its poor condition such poor infrastructure and public services during independence. Soon after independence, the government of Botswana depended on foreign aid for financing many of its development projects and providing the desperately needed social services such as water, health, education and other support services. During this time agricultural sector was the major contributor to the Gross Domestic Product (GDP) but its dominance in the economy has diminished significantly overtime. Later, other sectors such as mining emerged and kept in increasing especially after the discovery of the diamonds in the early 1970s. By 1999, agriculture's share in the economy of Botswana had fallen from 42.7% in 1966 to 2.6%, with the mining sector, mainly diamond industry, contributing over 33% of the total GDP (Mathuba, 2003 p.4). The per capita income rose from P70 to P17 000 (US\$3 000) during the same period. Lange (2004, p.268) reported that agriculture contributes about 3% to the GDP and that the value of agricultural land is very low under current uses during that particular year.

There are many factors that contribute for communities choosing certain livelihood options. These factors includes but not limited to soil fertility, rainfall availability, drought susceptibility of the sandy soils in the area and the risks that these factors pose for both crop production and pastoralism. Kgathi *et al* (2007) reported that in Sehitwa community, people changed their strategies by switching from molapo farming to dryland farming as results of soils suitability for

those activities but in Shorobe the soils were generally infertile and only 11% of the households switched to dryland farming and the remaining maintained former system.

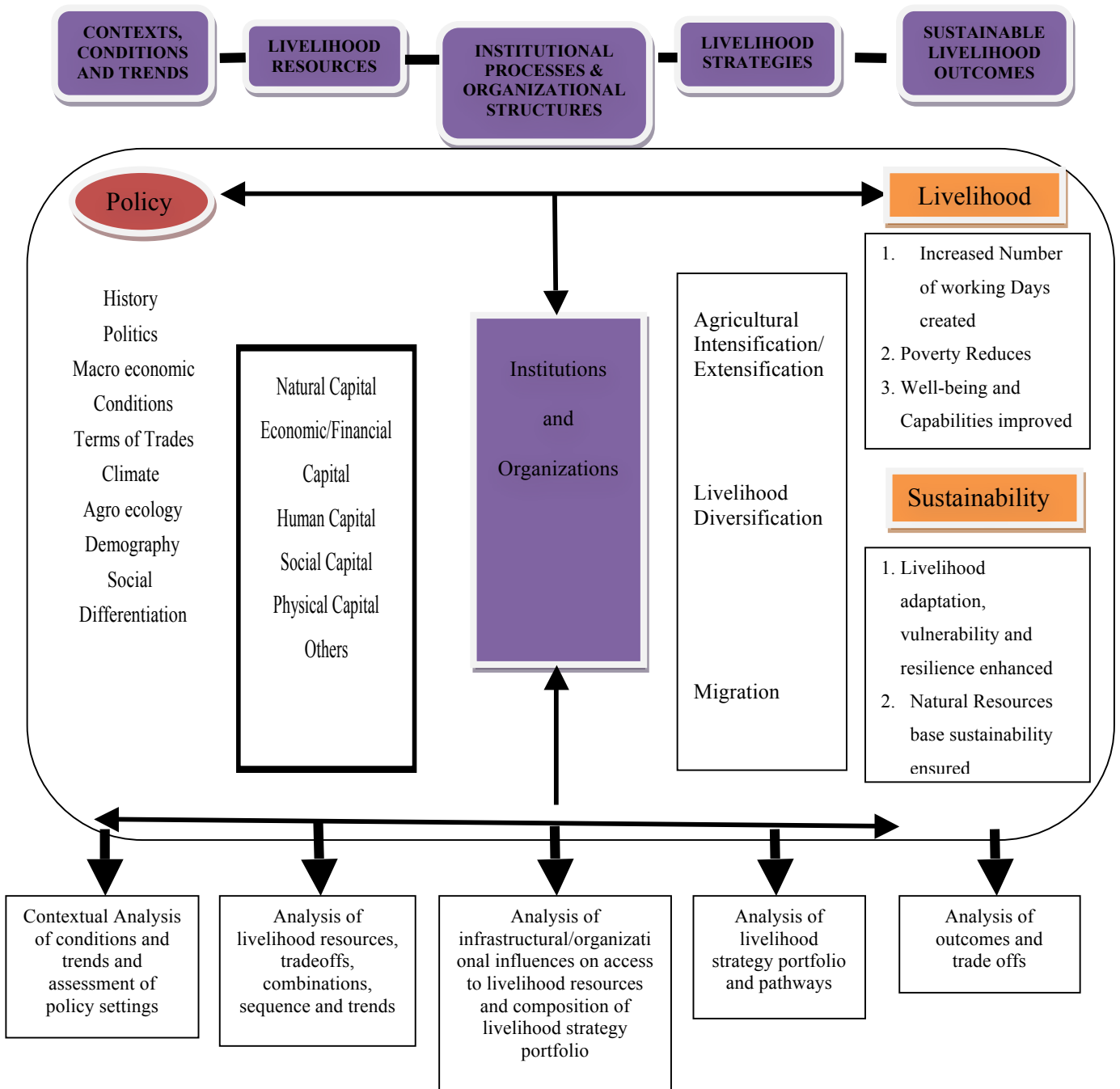


Figure 2: Framework Analysis for Sustainable Rural Livelihoods

(Source: Modified from Scoones, 1998)

For both Sankuyo and Shorobe, most youth have dual residence (in the village and urban). The reasons for them spending sometimes in village as well as in town are because of the formal employment options in the latter. The majority gets jobs in tour companies and safari operators during the peak seasons and then returns to their villages in the low season. The youth therefore uses the diversification principle as a strategy for maintaining their income by spreading and sharing the risks within their households and the rural area as whole.

The youth working in Town will normally send remittances to their family and also increase their social networking in general. Therefore, livelihood diversification not only in crop production but also in terms of employment and other livelihood issues is very important. Scoones (1998) elaborates that livelihood diversification helps an individual, household or the community to build resilience because they will have an ability to accumulate all types of capitals hence reducing their chances of being vulnerable to shocks and natural calamities (Figure 2). Different strategies including agricultural intensification/extensification, livelihood diversification as well as migration can be adopted as a means to reduce risks. Kgathi *et al* (2007) found that in Shorobe village about 59% of the respondents were forced to move into other places because Gomoti River which they used for their cattle and irrigation sometimes dried. Most of the household moved into localities close to Shorobe in which the government supplied them with water resources and some moved to other villages such as Matsaudi and Matlapaneng.

Despite the limited potential for crop production and the high risks this activity carries, the majority of households in Ngamiland are involved in crop production (Bendsen, 2002, p.4). In Sankuyo community, although elephants and other problem animals destroy their crops, some households will still plant some crops and fence their fields with a wooden fence. It has also been reported that, after 1996 when all the cattle in the district were culled due to cattle lung disease outbreak known as Contagious Bovine Pleuro Pneumonia (CBPP), arable agriculture became one of the major alternative sources of livelihood for the population in Ngamiland (Fidzani *et al.*, 1999). On the other hand, although the population in Botswana has increased rapidly between 1968 and 2002, the cultivated size of land has remained almost the same (*ibid*) or rather declined. Kgathi *et al* (2007) show that the population of Shorobe almost double in 20 years increasing

from 539 in 1981 to about 955 in 2001. Despite the fact that the area farmed per household in this period declined, it is observed that arable agriculture remains an important source of livelihood for communities in Ngamiland (Scott and Wilson, 2001) where most farmers cultivate small areas for subsistence purposes. Ndozi *et al.* (1999) found that only 10% of the farmers reach full subsistence level and live mainly from their own production. Data show that, not more than 10,668 ha were cultivated in Ngamiland in 1997 and that at the long-term average 2.1 ha are ploughed annually per household (Agricultural Statistics Unit, 2002).

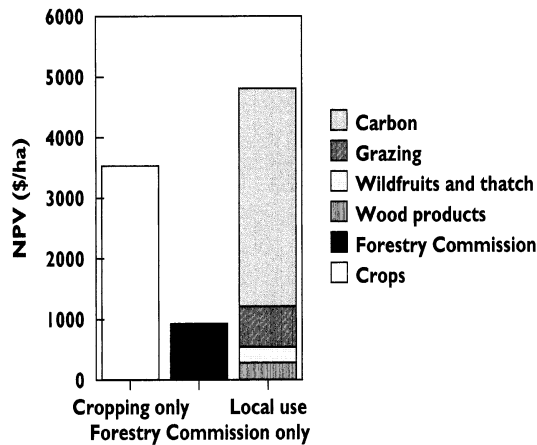


Figure 3: NPVs/ha for Various Land Uses, Calculated for 60-years period at 6% Discount Rates.

(Source: Campbell et al., 2000)

Literature indicates that it is difficult to combine both wildlife and farming in the same area due to problem animals. Despite of the poor harvest local communities get from their fields in some places, they keep farming because they are used to those activities and they have no other options. Therefore, both Sankuyo and Shorobe can focus on wildlife or tourism activities and farming respectively to ensure efficient utilization of the resources. This therefore necessitates the proper land use planning for these communities. Land use planning will also help to avoid the unnecessary conflicts among different land uses or users. Although diversification is perceived to be good for reducing risks but specialization seems to be more appropriate for these two communities. Specializing in one economic activity will help these communities to trade with each other and capitalize and use their potential resources more efficiently. Banning hunting will have both negative and positive effects depending on the time horizon considered. In a short run it may cause increase in wildlife population but in a long run communities may experience unavoidable detrimental impacts. The negative impacts may include destruction of other species habitat by the elephants hence lowering species diversification. The reduced biodiversities may results into a loss of income from tourism activities by local communities.

3.0 RESEARCH METHODOLOGY

3.1 Description of the study area

3.1.1 Location

This study was carried out in Sankuyo and Shorobe communities located in Ngamiland district in Maun, Botswana. Sankuyo and Shorobe villages were selected because of their homogeneity in terms of ethnic group's composition (Figure 4). Sankuyo which is inside the fence became more wildlife oriented under the Community Based Natural Resources Management (CBNRM) while Shorobe being outside the fence became non CBNRM. These two villages are became separated by a buffalo fence built in the 1980's which initially did not exist.



Figure 4: Buffalo fence separating Sankuyo and Shorobe Communities

Although the two villages are both close to Maun and easily accessible but they generally perform different economic activities. While Sankuyo relies mainly on tourism activities, people in Shorobe are mainly farmers and cattle keepers. Shorobe land is fertile and conducive for farming and cattle keeping and the population of wild animals is lower compared to Sankuyo. Farming in Sankuyo is challenged by the large population of wild animals especially problem animals like elephants and buffalos which can and do destroy large quantities of crops. Although

the vegetation type of both villages can support wild animals, the presence of the buffalo fence separating the two prohibits animal movement from Sankuyo to Shorobe area.



Figure 5: The Map of Botswana Showing Districts and other Important Features
Source: <http://www.lonelyplanet.com/maps/africa/botswana/>

Shorobe is a sizeable village located about 26km north of Maun, and 53km south of South Gate of Moremi game reserve (http://www.botswana-travel-guide.com/bradt_guide.asp). They have one Primary School located on the south side of the village, a few small local shops which sell soft drinks and very basic supplies (e.g. sugar, salts, detergents, toothbrush and toothpastes, sweets etc). The village also has a basket shop owned by the Babomoso Basketry Co-operation, an income-generating project for the local people supported by Conservation International. The membership to this cooperation is open to all the village members and the shop sells a wide range of baskets. Sankuyo village is located about 56km from Maun, The village has a trust called Sankuyo Tshwaragano Management Trust (STMT) which help the village to run several campsites and traditional village that are split between the roads to Moremi and Chobe. The village also own concession areas NG33 and NG34. Sankuyo Tshwaragano Management Trust was established and legally registered as a Trust in 1995 with the user rights over the concession areas NG 33 and NG 34 with the total areas of about 6,000 hectares and 87,000 hectares respectively.

Sankuyo community has been earning money from the concessions areas through hunting and photographic activities. Apparently, the government introduced a new wildlife policy in which hunting in all community concessions areas will not be allowed for about 15 years from 2012. One of the reasons for establishing the trust was to help Sankuyo community in signing legal contracts with individuals and safari operators interested in running various businesses such as Kaziikini Campsite, Shandereka Cultural Village, hunting, photographs and Santawani Lodge. The benefits associated with tourism that local communities, particularly youths enjoy are: employment (temporal and permanent) like cleaners, drivers, community escort guides and camp staff, community projects water taps at households levels, toilets, houses for destitute individuals and families especially old people, football club, funeral grants and scholarships for further studies.

3.1.2 Population size and ethnic groups

According to the World Bank report (2009), the total population of Botswana was about 2,006,945 with the urbanization rate of about 2.3% per year and an urban population of about 61%. The main ethnic groups include the Tswana (or Batswana) which constitutes about 79%, the Kalanga constituting 11% and the Basarwa with about 3% and others including Kgalagadi, and white total to about 7% (<http://www.indexmundi.com/botswana/>). The Okavango research center of the University of Botswana (2007) reported that the population of Ngamiland District in which Sankuyo and Shorobe villages are located had a mixed ethnicity and it increased from 53,870 in 1971 to about 124,712 in 2001. The main ethnic groups in Ngamiland District include the Bayei, Batawana, Basubiya, Bambukushu, Baherero, Basarwa and Bakgalagadi who live in villages surrounding the Delta. Sankuyo and Shorobe however, are dominated by Bayei, Basubiya and Baherero ethnic groups.

3.1.3 Economic activities

Sankuyo community owns a concession area from which most of the individuals as well as the households earn their livelihoods through either directly or indirectly employment. Traditionally, Sankuyo community practiced farming on secondary floodplains, hunting and also collecting wild products for earning their livelihoods. During the dry season they used to relocate to the upper Mogogelo river located in Khwai. The national villagization programme of 1980 lead to a current village leading to the provision of infrastructure and services including

schooling and health care. Following the introduction of the sustainable use approach to wildlife conservation through the Wildlife Policy of 1986, and the Natural Resource Management Program (1989-997), wildlife and tourism has become a critical component of the livelihoods of Sankuyo providing about 82% of the community's livelihoods. Shorobe on the other hand does not depend on wildlife and tourism activities. They earn their livelihoods mainly through cattle keeping and farming. They benefit from tourism sector by selling locally made items such as baskets in their small souvenir shop. As explained in section 3.1.1 above they also have small local shops for selling basic items like soft drinks sugar, salts, detergents, toothbrush and toothpastes, sweets just to mention a few.

3.2 Data Collection

This research employed different data collection methods to acquire livelihood information from the two communities. In Shorobe the respondents were sampled basing on their economic activities such as farmers, cattle keepers, fisherman and business owners. We first talked to the village development officer to get an overview on the different economic activities that are being practiced in the village. Then we talked to a small group of people who helped in identifying households, their locations and the main economic activities they depend on. From the list we then sampled the households basing on what they do so as to include everyone during data collection. Therefore, convenient sampling was used to get a sample of forty households in Shorobe. The decision for sampling forty household in Shorobe was based on the information given by the focus group discussion regarding the total number of household in the village. The information were then verified in the Village Development Committee (VDC) and Chief's office. The reason for this was to ensure that we have balanced information from all the village members in Shorobe. We then used different data collection tools including questionnaires, focused group discussions and field observation. These tools helped us to obtain both quantitative and qualitative information from the community.

3.2.1 Questionnaires/Surveys

A structured questionnaire with open and close ended questions was designed to capture socio-economic data, assets owned by the households, livelihood options and the perceptions of the local community on community-based natural resources management approaches and wildlife

management in the communities. The questionnaire captured expenditures for each household, agricultural yields production, assets owned and total number of cattle owned. The surveys were conducted in 2010 for Sankuyo and those conducted in 2011 for Shorobe focusing mainly on household's livelihood options and potential economic activities. Although some questions changed but we adopted similar questionnaires used in 2010 for livelihood survey in Sankuyo. Some of the questions in the survey were edited so as to fit the Shorobe context.

3.2.2 Focus group Discussion

In both communities our team met with key stakeholders and informants to determine their role in the wildlife and community development sectors and assess the relationships between different stakeholders. These key informants and stakeholders helped to assess the perceptions of local communities on various issues related to farming, wildlife management and other economic activities in their communities. They also helped to inform the researchers on key issues about their communities. For Shorobe, the focus group also helped the research team in identifying the household and in the sampling process of those households.

3.2.3 Field Observations

Researchers spent times in Shorobe and Sankuyo villages to observe and understand the community's environments and the potential opportunities available in these communities. This helped the researchers to understand what is going on in the community. Field observation also helped in complementing and triangulating some information collected using other methods especially information on economic activities, assets accumulates and the type of capital available in these communities. The research team was able to grasp and became aware of the general picture of the whole community which helped them in the analysis of the collected information.

3.2.4 Situation Analysis and Stakeholder Analysis

Development is a process and it takes more than one stakeholder to happen. To understand more about these communities we performed a stakeholder's analysis so as to know who the key stakeholders are working in the area. We met with all the stakeholders to understand the roles they play in these communities. The situation analysis was conducted to understand the general perception and thinking of different stakeholders and the general situation in each community.

The key stakeholders included safari operators, villagers, village executive officers, the chiefs, local communities and the NGOs. These processes were carried out to understand the communities and key stakeholders and the role that each plays in the community development process. The process also helped to understand the relationships, linkages and synergies between these stakeholders and how they work together in solving different problems in the community.

3.2.5 Key Informants

These included meetings with different people from the community, research camps, government officials and Safari operators. Specific questions were asked to grasp different perceptions on wildlife and natural resources management in general. This also included meeting with the general communities to get their perceptions on wildlife, development and other important issues. The meetings with key informants also helped the research team to understand how these communities work in terms of communicating different ideas among different social groups such as youths, old generation, men, women, community members and the village executives.

3.3 Secondary data collection

Secondary data were obtained from the Sankuyo Trust Office, The Chief Offices in Sankuyo and Shorobe, Hunting Companies and Safari Operators and the NGOs working in the area. Some of the secondary data were obtained from different publications, quarterly/annual reports, consultancies, journals, books and the previous management plans for Sankuyo. The Chiefs from Sankuyo and Shorobe and the Sankuyo Trust Offices were helpful in providing all the secondary information that the research team needed. Secondary data were also obtained from the livelihood surveys conducted by the University of Florida team of 2010.

3.4 Data Analysis

Information collected through questionnaires were coded and analysed both quantitatively and qualitatively by using descriptive statistics. The excel program were used to analyze the data. Descriptive statistics such as percentages and frequencies were determined and used to summarize the information into tables, figures, diagrams and charts. Important pieces of qualitative data were also summarized together with other information and included in the analysis.

4.0 RESULTS AND DISCUSSION

4.1 Demographics

The surveys conducted in Shorobe indicate that the majority (63%) of the respondents (heads of households) were aged between 46-75 years (**Figure 6**). Only 4 households (10%) were headed by individuals aged more than 75 years while in 3 households (8%) the household heads were aged 36-45 years. Furthermore, among the total 40 interviewed households, 13 households (33%) are headed by individuals aged 61-75 years.

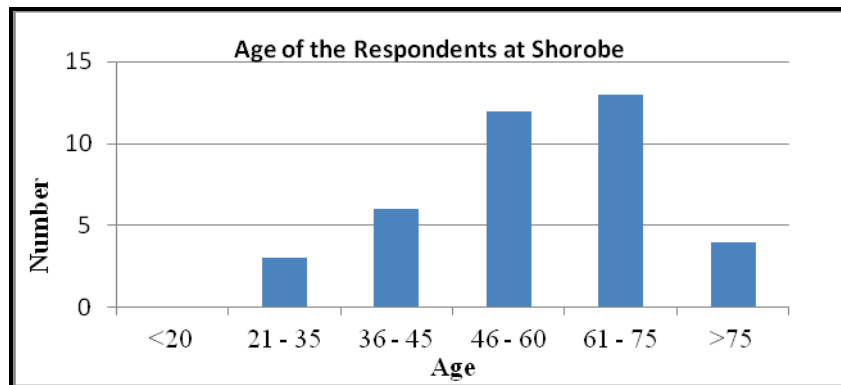


Figure 6: Age of the Respondents in Shorobe

Data also show that, the majority of the households are receiving pension from the government as results of the government policy for assisting retired individuals and those older than 60 years. About 20 households (50%) of the respondents were single while 16 households (40%) were married. Very few household heads were either widowed (5%) or did not provide information (5%) on their marital status.

About (66%) of the interviewed households in Sankuyo were headed by females and the remaining 34% were headed by males (**Figure 7**). The number of dependents per households averaged to six people while the range was from two to thirteen dependents. Most households are headed by old women. During the focus group discussion it was observed that these old women live with their grandchildren while their daughters and sons are working elsewhere. In both Sankuyo and Shorobe many young people are working in other places including campsites, safari operators and in urban-Maun and in the capital city Gaborone.

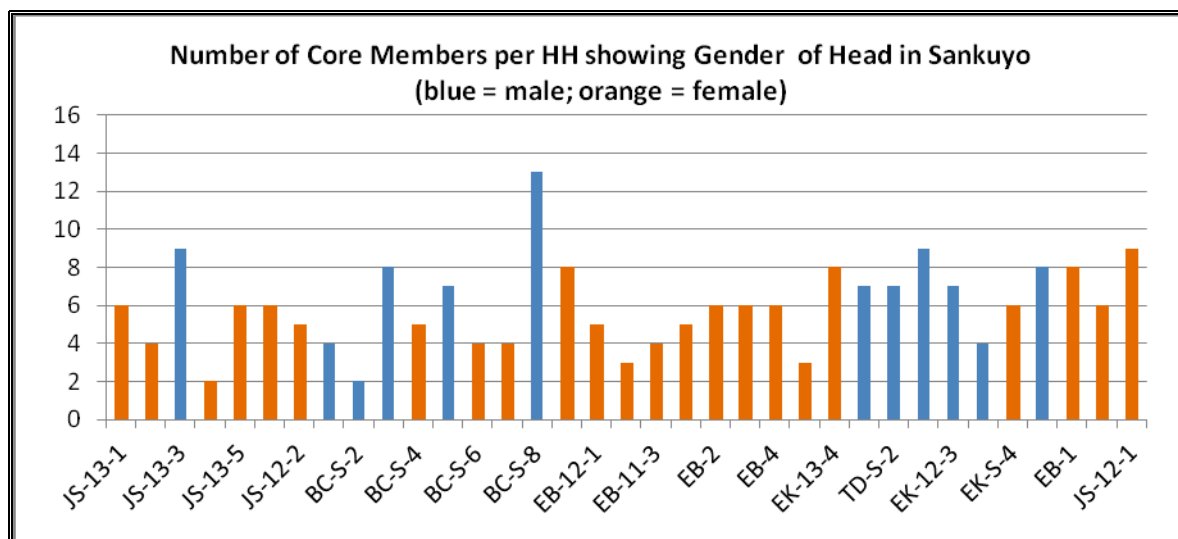


Figure 7: Heads and Number of Household members in Sankuyo

In terms of the number of household members, Sankuyo had a highest number of household members (13 members) while in Shorobe the highest was 10 members but the average number of household members were about five to seven.

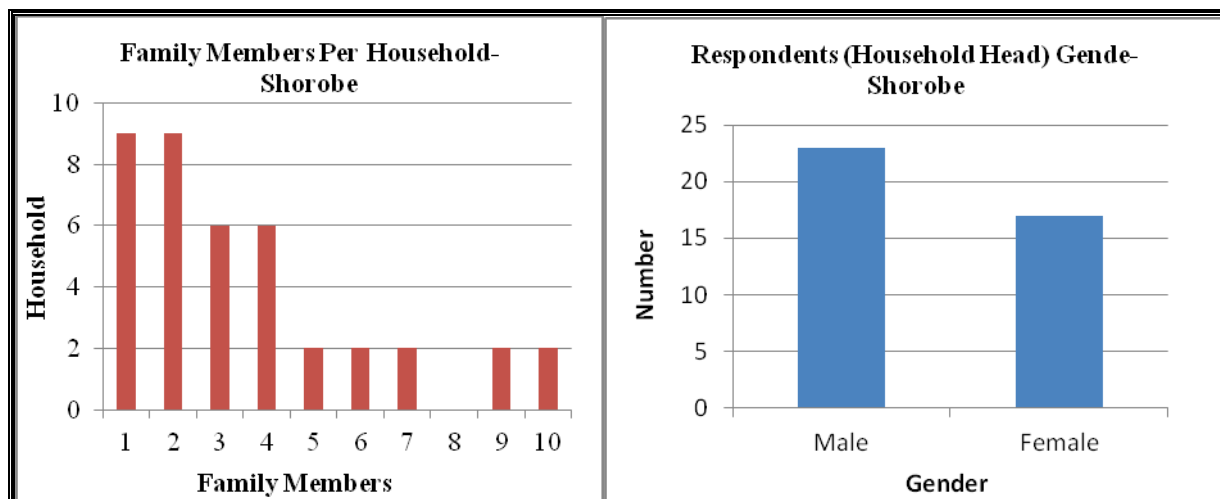


Figure 8: Heads and Family members per household for Shorobe

During interview and focus group discussion, it was reported that some members of the households spend most of their time outside Sankuyo and Shorobe. These were referred to as non-core members and were defined as those household members who spend less than six

months in the community. In both Sankuyo and Shorobe, members of households living outside their villages do send remittances to their families. In terms of livelihood security, households receiving remittances from their distant relatives are believed to be more secure because they will always have other income sources. During the feedback meeting in Shorobe, community members said that in some household's remittances contribute significantly in their livelihoods.

The education levels of the respondents also varied in these two communities. In Sankuyo, 26% of the respondents had tertiary (post secondary) education while in Shorobe no one among the interviewed people had tertiary education (**Figure 9**). The majority of the respondents (63%) in Shorobe had no education while 28% had primary education. This information should be interpreted with great care because it doesn't mean that Sankuyo community is more educated than Shorobe. It might be caused by the sampling procedure we used. In Sankuyo, anyone who was available at home during the survey were interviewed while in Shorobe only heads of households were interviewed. This might also be caused by the reason that elite were not interviewed because they were in Town-Maun working and some have migrated into other places for jobs. The majority of the respondents in Shorobe were old aged and some people from Shorobe are commuting to work in Maun, so the chance of interviewing them were so minimal because they are always in Maun and they spend only weekends in Shorobe.

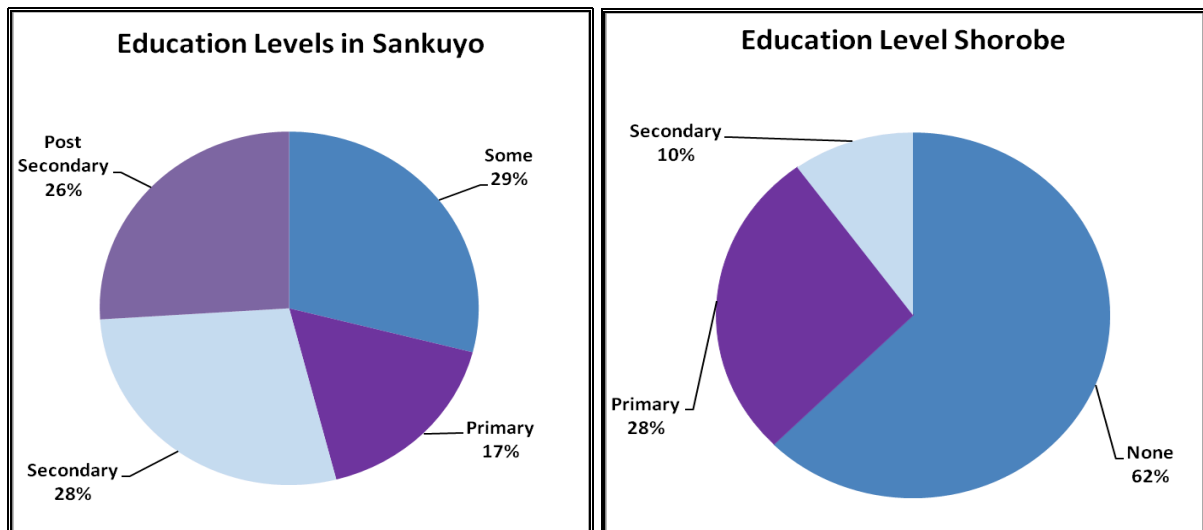


Figure 9: Education Levels of Respondents in Sankuyo and Shorobe

Lack of employment was mentioned as a main concern for young people in both villages. During focus group discussion and feedback meetings, people from Shorobe said that formal employment is the major problem for them and that some young people who have completed secondary education are not employed (**Figure 10**). However, they mentioned that there are a lot of potentials for people to employ themselves in a private sector in tourism activities that are taking place in Maun and other nearby areas. In Sankuyo, most of the young people are employed in the Trust, Safari Companies and Campsites. One of the cattle keepers in Shorobe revealed that, it is possible to earn more than 90,000 pula per year from cattle by selling milk which is equivalent to 15,000 USD. Most of the respondents in Shorobe reported to have multiple activities, such as weaving, tuck shop, driving, basket making, cleaner, cattle keeping, farming, selling mochema and fishing as their secondary activities. They reported that having multiple activities help them to reduce the risk of hunger in their families.

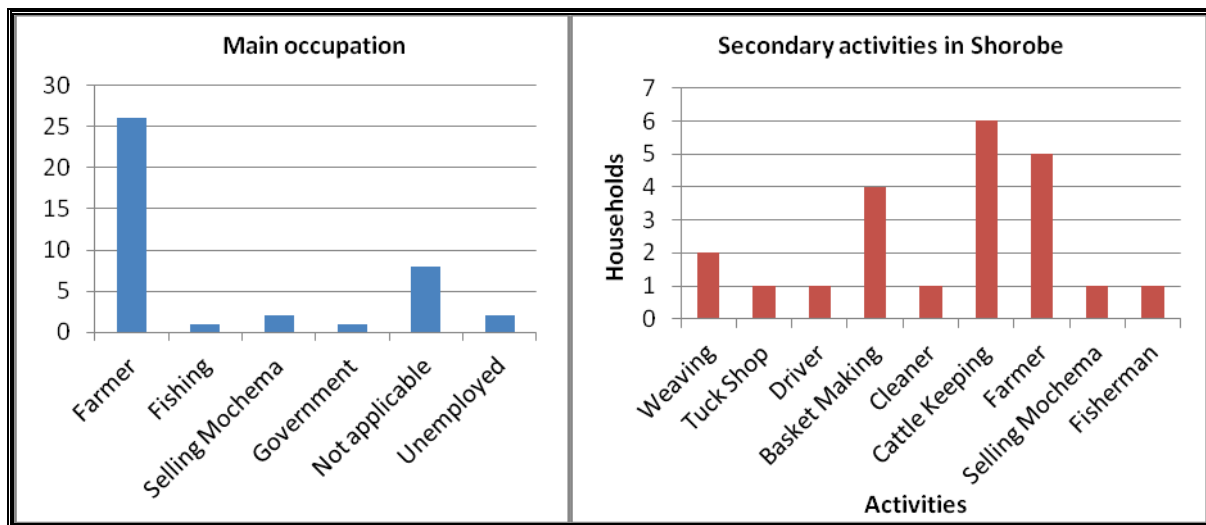


Figure 10: Main Occupations of respondents in Shorobe

4.2. Livelihood Options

The presence of the concession areas (NG 33 and NG 34) at Sankuyo community limits them to undertake agricultural activities because of the problem animals. Those who practice agriculture in Sankuyo do so in small fields for home consumptions as opposed to Shorobe in which some farmers are commercial. During focus group discussion, the community members revealed that problem animals are the main threats to them hence they do not expect much from their fields.

They are using poles to fence their farms which they said is expensive and also not reliable. While the electric fence may be an option and a viable project it needs much more coordination and capital which for the time being is not their priority because of the high initial costs and unguaranteed returns from the project. The presence of the fenced fields indicates that people are still practicing farming though is not a viable activity for them because of the high rate of problem animals in that community. Investing in electric fence will reduce the losses caused by problem animals in both Sankuyo and Shorobe hence promoting diversification of economic activities. But specialization may also be beneficial for both communities because they will be able to trade between each other. Sankuyo can specialize in Tourism and use their income for trading with food produces from Shorobe.

Livelihood Strategy	History
Arable agriculture on secondary floodplain	<ul style="list-style-type: none"> • Size of fields reduced by movement to present location (1970s) • Rapid increase in elephant destruction of crops (1960-)
Gathering	Access to fish, reeds, grass, veldt products steadily restricted by legislation and expansion of tourism (1980s-)
Livestock	Initially precluded by tsetse fly and then by zonation and buffalo fence (constructed in 19**)
Hunting	Historical livelihood strategy Originally controlled by the Chief Then by special game licenses With CBNRM, switch from special game licenses to safari hunting: <ul style="list-style-type: none"> • Reduces access to wildlife by local communities • But rapid increase in income and jobs through JVP • Likely to cease in 2012 (what is the legal basis of this?)
Tourism	Develops slowly through JVPs Serious questions over whether tourism as a single livelihood strategy can compensate for forgone multiple use livelihoods

Figure 11: Livelihood Options for Sankuyo Community (Source: Child and UF team, 2010)

Sankuyo community has historically been changing livelihood options and strategies depending on the policy and political situation and power. Initially they used to practice arable agriculture, gathering, livestock keeping, hunting and tourism but with time all these options have been fluctuating and apparently the tourism is the only viable economic activity for them (Figure 11). The current situation indicates that the only remaining economic activity is tourism and the community member’s benefits in this sector in different ways. Some community members benefit through direct employment in the sector but others benefits indirectly by the spillovers into other sectors such as hotels, Campsites and Safari hunting Companies. As a result of

expansion of the concession areas, farming, gathering and livestock keeping are restricted in Sankuyo. Livestock keeping were also restricted due to tsetse fly problem that erupted in the early 1980s.

Changes in wildlife policy that have been occurring in Botswana have caused negative impacts to the livelihoods of people in Sankuyo despite of the positive intention for such implemented changes. Sankuyo community depends highly on tourism activities; therefore banning hunting will have significant threats to the total income of most households as shown in **figure 12**. Hunting in Sankuyo contributes about 67% of the total income in the community while other activities contribute only 33%. This indicates that banning hunting will affect more than half of the households in Sankuyo. The government of Botswana implemented this policy anticipating that in a long run photographic and other non consumptive tourism activities will compensate the income lost from hunting. While it is possible in a long run, it is difficult for them to cover the income gap in a short run while trying to promote non consumptive tourism. It is this time that these households will also be subjected to hunger and other risks because of the decrease of their total income. The hunting ban will also result into loss of jobs for some members of the households and also reducing the trust income which benefited each individual as well as households in Sankuyo. The Safari operators also earn most of their income from hunting so they will have to reshuffle their workers to sustain their reduced income in their companies.

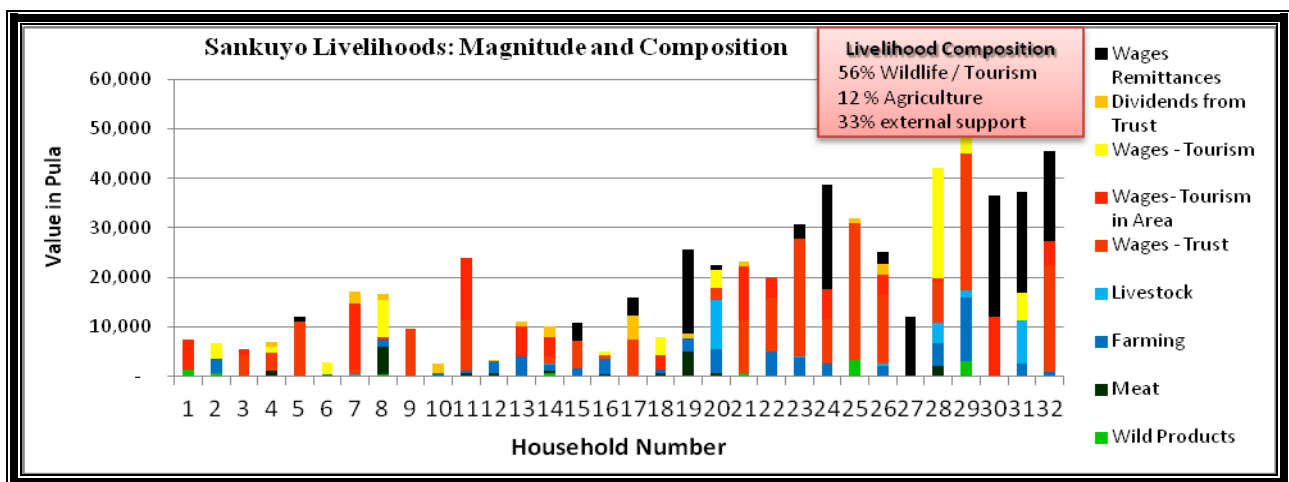


Figure 12: Magnitude and Composition of Livelihood Options in Sankuyo.

(Source: Child and the UF team, 2010 livelihood Survey Data)

Although the hunting ban aimed at protecting wildlife and ensuring that the population of the important species of wild animals increases in the area, ecologically it might cause detrimental impact to the environment as well as negative attitudes towards conservation by most of the people in Sankuyo and Botswana in general. This centralized and top down decision- making process which failed before the implementation of CBNRM program in the 1990s may give people the perception that they are being disregarded in the decision making process. Disregarding local communities in decision making may make them perceive that they don't own the concession areas which they manage. One of the reasons for the establishment of CBNRM program was to ensure participation of local communities in decision making and managing natural resources adjacent to their area. Scholars like Walpole and Goodwin (2001), Sekhar (2003) and Weladji *et al.* (2003) argue that to reverse resident community's negative attitudes towards wildlife there should be a link between rural economic development and conservation from which the local communities will have direct and indirect benefits from wildlife. If this link does not exist then people will tend to neglect conservation which will have negative impacts to wildlife and other important species.

Sekhar (2003) also argued that the link should include the involvement of local communities in the decision-making process of natural resource use and in the provision of economic benefits to local communities to offset the opportunity costs of protecting these resources. According to Bolaane (2004), the negative attitudes towards wildlife started during the centralization of wildlife resources and the establishment of protected areas which resulted into the displacement of local communities from their homelands and denial of access to resource use in parks. Non consumptive tourism is practiced by rich people, the poor need tangible benefits such as money and food from the parks. Therefore, banning hunting in Sankuyo means denying access to these resources by the local community members unless revenues accrued from the non consumptive uses replace the income they used to get from hunting. Thakadu (2005), Mbaiwa (2004), Boggs (2000) argued that, the process of decentralization of natural resources is perceived as a remedy for the chronic wildlife decline resulting from the central government's failure in resource management. This contradicts with the decision made by the government to ban hunting in Botswana which did not take into account ideas emanating from the local community members.

Although Shorobe does not own any concession area, they have one advantage that their village is located on a high way which goes to Chobe National Parks, NG 33 & NG 34 and Moremi Game Reserves. They therefore have a potential of taking advantage of their location and use it for selling weaved baskets and other souvenirs, which will contribute to their total income and diversifying their source of income. It was observed that many tourists stop and buy these souvenirs on their way to these national parks and when coming back from the parks as well. As reported earlier, Shorobe have a basket weaving group which has a free membership to all community members and they have a shop for selling these items.

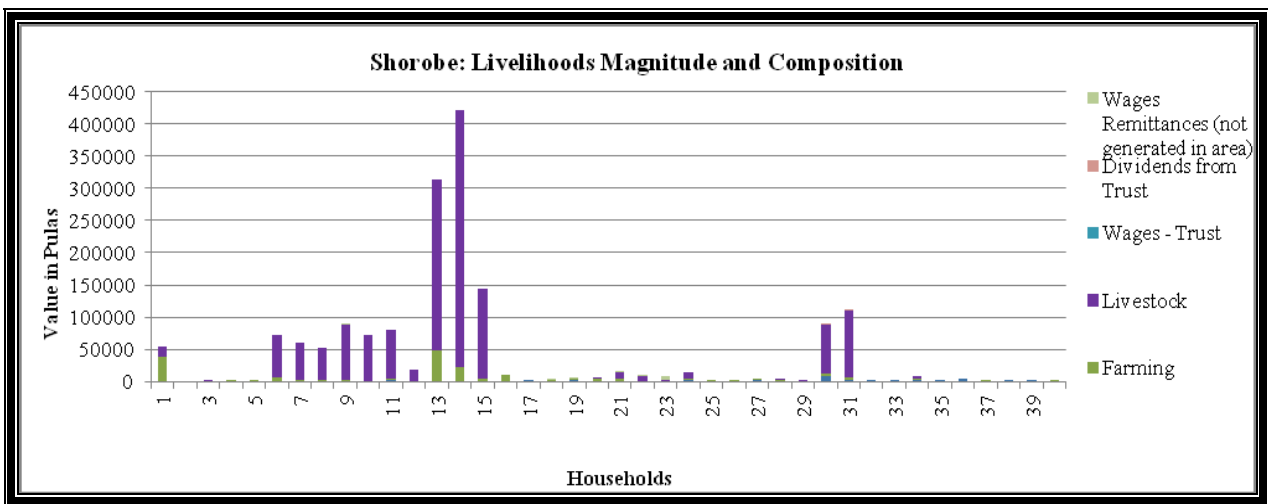


Figure 13: Shorobe Livelihood Options, Magnitude and Composition

From **figure 13**, it shows that people in Shorobe depends mostly on livestock keeping as their main economic activity with farming and wild product collection as their second and third contributor to their total income respectively. Other economic activities that emerged during focus group discussion included selling local beer (Mochema), fishing and petty businesses. All these activities contribute significantly to the village income. During the feedback meeting to the community, fishing and local brewing were among the top four economic activities. Despite having other sources of income, almost every household in Shorobe own cows although the number varies in each family (**Figure 14**). Some household reported that wild animals are threats to cattle in Shorobe but the incidences are rare compared to Sankuyo. Shorobe community has a

land use plan in which they have land specific for cattle keeping (cattle post), farming and settlement.

Most farmers graze their cows at the cattle post, this helps reducing conflicts between cattle keepers and those owning crop fields in the village. However, it was observed that the government of Botswana through the Department of Wildlife normally compensate the farmers in case their cows are eaten by wild animals especially lion, chita and hyena. The revenues collected from wildlife and cattle keeping or farming makes people in Sankuyo and Shorobe place different values to these resources. Field observation indicated that the numbers of cattle owned by the household were linked to the wealth and economic capability of that household. It was observed that households in Shorobe valued cows most than anything else because to them cows were their main source of income and wealth. Therefore, changes in wildlife policy will have indirect effect to Shorobe community but will have a direct impact to Sankuyo community.



Figure 14 (a): Community members displaying livelihood options in a participatory exercise in Shorobe
14b. Cattle as a Livelihood Option in Shorobe

Results show that there were no correlation between the age of the heads of the households and the number of cattle owned (**Figure 13 and 14**). Therefore we cannot infer that those households headed by old people keep more cattle than the young headed households. Using this information it is difficult to make an inference between the source of income and ages of the respondents. These two variables did not show any trend or pattern. As noted in figure 13 above, household number thirteen and fourteen accrue most of their income by selling cattle but their ages (figure 15) are quite different. This shows that there is no correlation between age and the major source

of income in Shorobe. In Sankuyo however, age was a determinant for their income because of the formal employment in the tourism sector where majority of the young people are employed.

As observed in **figure 13** above, the livelihood of Shorobe people depends mainly on cattle keeping, fishing, business and farming. For this community efficient agricultural policies are important and any changes in the policy will have a significant impact into their lives, and the policy should emphasize and focus on enhancing the potential economic activities that are relevant to communities like Shorobe. The changes should be directed towards helping local communities specializing in livelihood options viable and sustainable in Shorobe community's context. In other words we cannot have a generalized policy that can cater for every community but rather there should be some context specificity.

Although diversification may be perceived as a good strategy to reduce risks and vulnerability to hunger and other economic issues at community level, specialization has been argued to increase productivity and efficiency. As a means of promoting specialization, Sankuyo community which relies heavily on tourism activities should focus their investment in conserving the wildlife species such as elephant, giraffe, zebra, buffalo and warthog for photographic, tourism and hunting. Furthermore, efforts and strategies should be directed towards encouraging and supporting species recovery, ensuring conducive habitat and wildlife monitoring system. In economic terms, Shorobe has comparative advantages for cattle production because of the available free land but in the same token Sankuyo will benefit more if they invest in wildlife management due to the concession area close to them and the existing market networks they have established with safari operators and other clients.

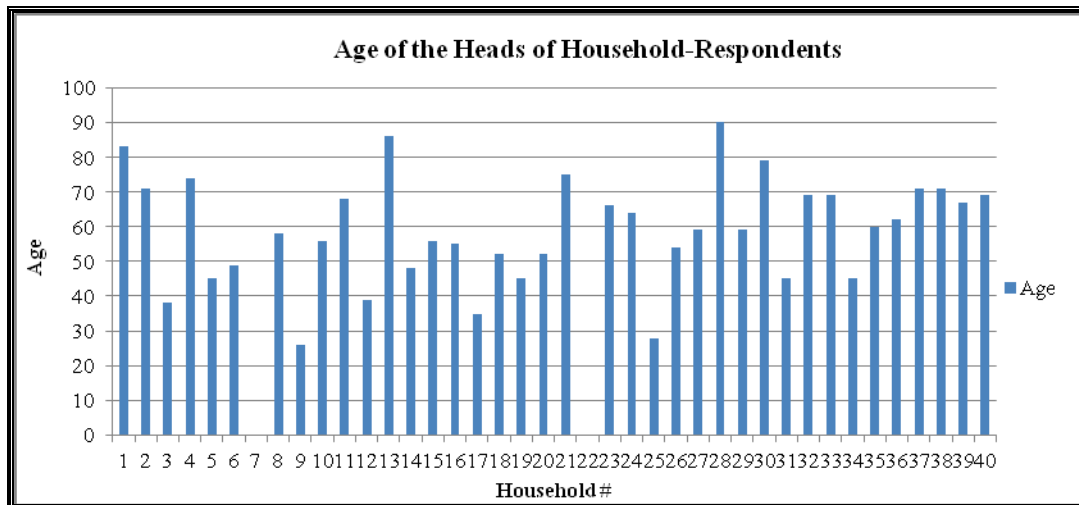


Figure 15: Showing Age of the Head of the Households

Results in **figure 16** shows that there were no correlation between total annual household income and their expenditures on food. Those households with high annual income reported the lowest expenditure on food. Although is not clear why this was the trend but it may be caused by exaggerating the income and under reporting household expenditure on food. Some households reported to have higher expenditure on food than their total income. Figure 14 also show that about eight households (# 17,19,29,30,31,35,36 and 37) had higher expenditure on food than what they earn as their annual income. One could argue that these are households headed by old persons but from figure 14 it indicates that they are headed by middle aged people. This might be caused by several reasons including the provision of food by the government to the destitute and orphans. It may also be due to borrowing, remittances from other family members, and other forms of assistance emanating from outside the household. Furthermore, it may also be due to some difficulties in memorizing their expenditure on food due to lack of proper record keeping on food expenditure. A robust methodology on how to capture this information may be required so as to include all the necessary details for the household. Another reason for the reported higher expenditure on food than the total household income may be due to the fact that these households are receiving food from the government for either old people or orphans who are in those households. The received foods therefore will exaggerate the expenditure on food.

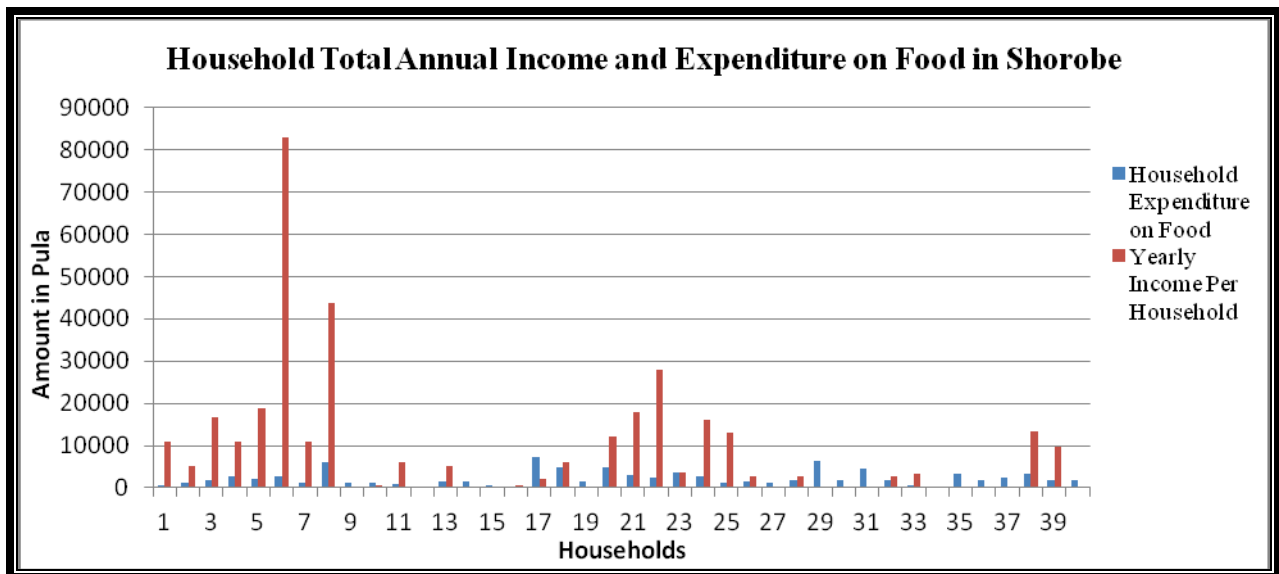


Figure 16: Showing Household Annual Income and Expenditure

In comparing the total household annual expenditure and their respective total expenditure on food, results show that there were no significant relationships (**Figure 17**). Data show that in most of the households, food expenditure is a small percentage of their total expenditure. I therefore recommend undertaking other studies to understand more about the total household expenditure in these communities. This will assist the village government officials especially the social and health workers in planning for different intervention in the community. High expenditure on food may indicate that many households use much of their income for buying food. For some household however, food expenditure is more than two third of the total expenditure. This was observed more often in those households with low income among the interviewed respondents. The low expenditure on food as a proportion of the total income can be a sign that these households are producing and consuming food on their own fields/farms. However, if the foods they spend at household level are valued in monetary terms it might increase their expenditure on food going close to their total income as reported by other households.

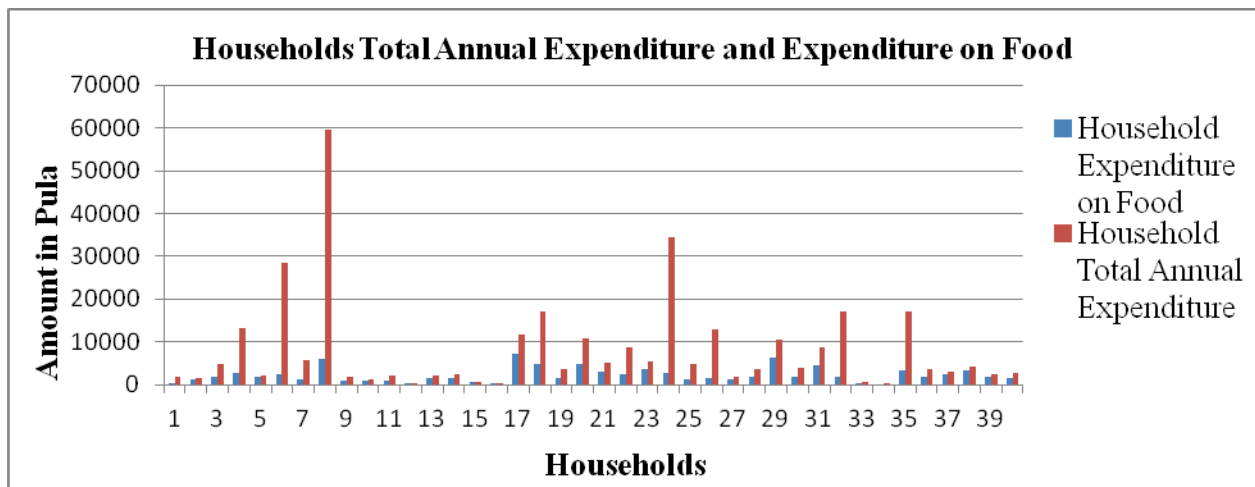


Figure 17: Showing Total Expenditure and Expenditure on Food.

4.3 Wildlife policy Changes and its Impacts to Livelihoods

Results from Sankuyo show that wildlife policy changes such as banning hunting will have a negative impact to rural community in Botswana (**Figure 18**) because many households in Sankuyo will fall below the hunger poverty line. As reported earlier, majority of households in Sankuyo depends directly or indirectly on tourism activities. Banning hunting in Sankuyo is therefore critical and is expected to reduce income of the trust and the safari hunting companies which in turn will have to adapt and mitigate the impact by reducing the number of employees who mainly come from Sankuyo community. These will results into an increased rate of unemployment in the community. Since tourism sector is among the potential economic activities for rural livelihoods not only in Sankuyo but Botswana in general, policy makers should be aware that any policy changes for wildlife sector will affects significantly tourism activities hence rural livelihoods. This will therefore be regarded as a shock because it will affects the livelihoods of every individual or household in rural communities.

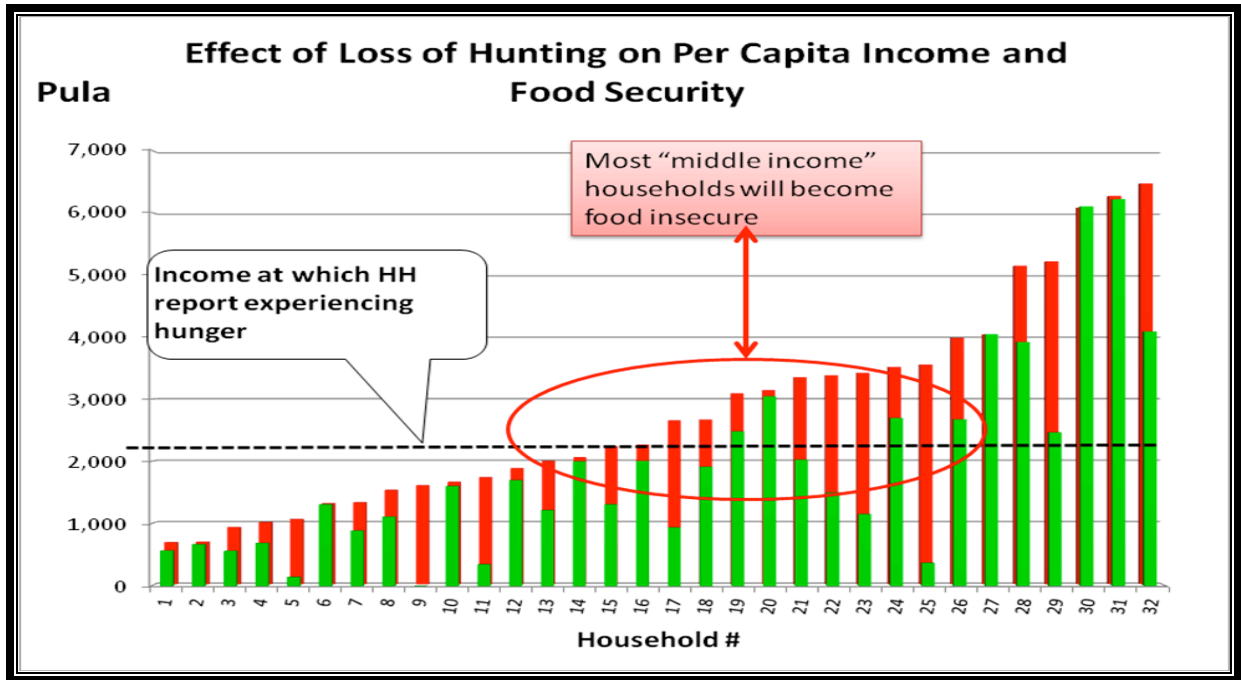


Figure 18: Effect of banning hunting in Sankuyo Community

(Source: Child and UF Team, 2010: Livelihood Data for Sankuyo)

Worski *et al* (2006) revealed that many households in the Okavango Delta are prone to risk as they depend on natural resources particularly wildlife which also depend highly on erratic rainfall and the variable water flow of the Okavango River. The policy changes will impact the livelihoods of rural community in addition to the existing shocks and risks. Ellis (2000), argued that households can adapt or cope with the shocks facing them. The coping strategies are short-term responses to an unplanned crisis and are a form of ex-post diversification while adaptive strategies are the long-term responses to shocks and they aim at improving livelihood security and poverty. Shorobe community on the other hand will be affected less by the wildlife policy changes because their economy depends largely on agriculture. Few households who rely on tourism activities they also keep cattle and also practice farming so they have different alternatives for earning their livelihoods. This therefore reveals that diversification may have advantage because household will have a backup income sources in case of failure of one economic activity.

Failures to deliver benefits to local communities are among the reasons why communities have negative attitudes towards biodiversity conservation (Mbaiwa, 2011). Bolaane (2004) reported that the “centralization of wildlife resources and the establishment of protected areas resulted in the displacement of local communities from their homelands and denial of access to resource use in parks hence negative attitudes”. In Sankuyo, banning hunting is among the main causes of negative attitudes towards wildlife because local communities are denied access to wildlife hence reducing their income and other benefits from wildlife. Banning hunting for communities like Sankuyo which their livelihood rely heavily on tourism with no or little alternative economic activities will impact them severely and it might influence the change in their attitude towards wildlife because they have been investing in conserving these resources.

Therefore, involving and consulting them in the decision making process regarding their wildlife resources will foster the sense of ownership and satisfaction hence positive attitude which is good for conservation. Both Sekhar (2003) and Weladji *et al* (2003) pointed out that tourism sector and its associated activities can have a potential of generating substantial revenues for local communities like Sankuyo. In this case it will be linked to both development and conservation in rural areas and enhancing direct and indirect benefits that will influence positive attitudes towards conservation by the community members. If local communities do not derive economic benefits from natural resources, it will be difficult to change their negative attitudes towards conservation. Costs associated with biodiversity conservation such as loss of life, crop and domestic animals damage by wildlife influences communities negative effects so to reverse this situation local community should be involved in deciding how to manage and benefit from those conserved resources especially wildlife.

There has been a different critique towards the centralized natural resource management system that is why community based natural resources were established. The decentralized system have been supported by many scholars including Thakadu (2005), Mbaiwa (2004) and Boggs (2000) who found that the approach was perceived as a best alternative from the former centralized government approach which resulted into a huge wildlife decline. The community based approach also have been positively supported by Tsing *et al* (1999), Twyman (2000) and Taylor (2000) who found that Community Based Natural Resources Management (CBNRM) was

basically based on the fact that the local communities in its totality will have a greater interest in using natural resources sustainably as opposed to the centralized, distant government or private management institutions.

The banning hunting scenario is a good case which shows that although the management of these resources is decentralized to the local communities, still some decisions are still centralized and controlled by the central government. This is common in many places where natural resources are being managed under the name of community based approach but when it comes to the direct benefits and decision on the resources, the local communities are in the disadvantaged side. In the case of Botswana, the Government through the Ministry of Tourism made the decisions and told the community what to do instead of involving the community members themselves in the decision process. This also contributes to the increased negative attitudes on wildlife conservation and it also increases mistrust between the community members and government. Sharing employment and other economic benefits from wildlife among households will help to increase the social capital and networking hence sustainable tourism activities and development. Institutions like the community trust and the CBOs should help communities like Sankuyo to mediate their community participation in tourism activities as well as the development.

Although the decision to ban hunting is top down, it can still be reframed and implemented in manner that will encourage positive attitudes towards wildlife by local communities. Changing people's perception is very important in enhancing sustainable conservation and increasing wildlife population because the community members will be willing to protect and conserve the available species. Consideration of the impacts on people's livelihood in any wildlife policy changes is a key and is expected to have impact on both local communities livelihood as well as wildlife population. I would argue that banning hunting may have positive impact to wildlife population in a short run but it may result into unavoidable detrimental impacts in the future. For instance, ecologically the population of one species may increase (e.g. elephants) but may cause decline to other species (plants) and the condition may reverse. This is because, elephants destroy and consume the whole tree so by doing so they destroy habitat for other animal species. Economically, poor local communities may lose their income due to the reduced species

diversity caused by habitat destructions by elephants and they will develop negative attitudes which will affect the conservation activities in future.

4.4 The Comparative advantages

Considering their economic activities as well as their social settings and demographic issues Sankuyo and Shorobe communities are quite different, despite of the some similarity in terms of ethnic group's composition. Economically it is argued is better for households and communities to diversify economic activities so as to reduce or redistribute risks associated with those activities to be in a good position to cope with any changes that may occur. Technological improvements can increase yields and efficiency in rural production but can also lead to specialization into one production system such as agriculture production in the hands of capitalist entrepreneurs.

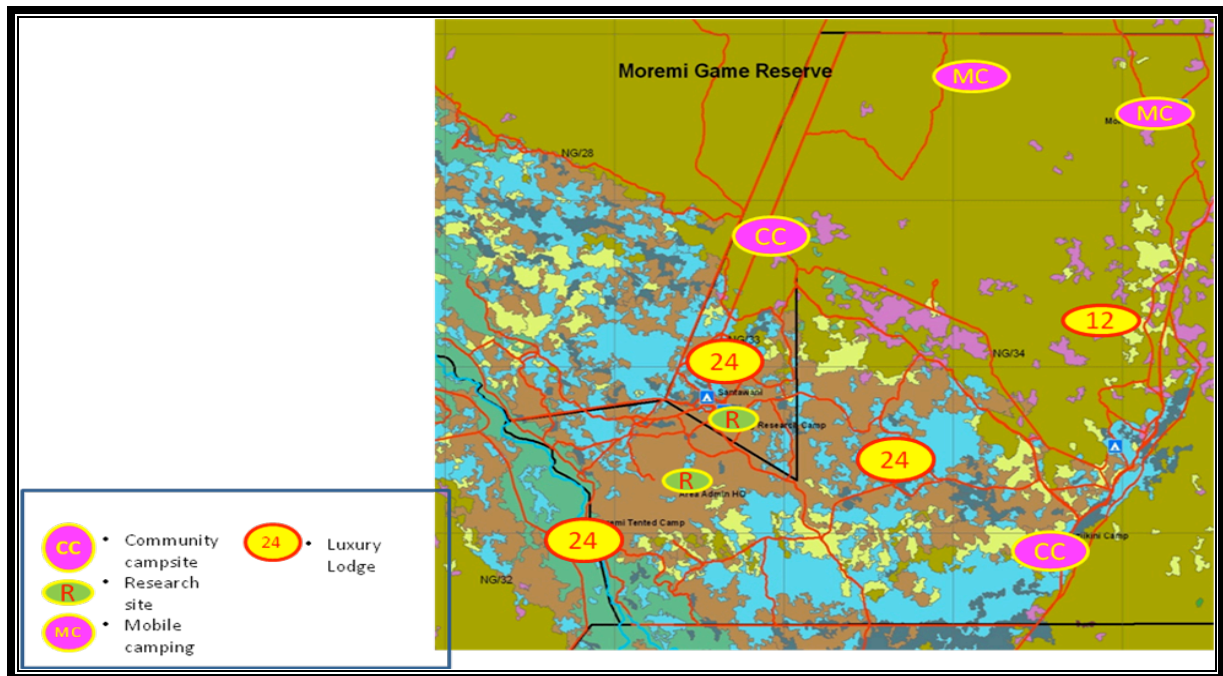


Figure 19: Potential Tourism Options for Sankuyo

Specialization may have a financial implication in terms of capital requirements for initial investments (**Figure 19**). This may be not feasible for small scale farmers, and as a result they may become agricultural laborers to the larger farmers or migrants to other places as a strategy for survival. Sankuyo community has the advantages of utilizing all the options shown in figure

19 which will lead into an increased income for the households and individuals within households. These options are not viable for Shorobe because the wildlife population in this community is scarce and unreliable.

Sankuyo is in a rural setting area but Shorobe is peri urban, one of the strategies to reduce or stop the migration of people to other places especially urban areas is the creation of rural employment in this case improving tourism sector and agriculture practices in Sankuyo and Shorobe respectively. Basing on comparative advantages, each community should focus on one potential economic activity which is more cost effective to them for trading with the other communities. Mixing agriculture and wildlife conservation in Sankuyo is more costly than specializing in one economic activity. Electric fencing for the crops field is more expensive and those involved in farming do not seem to have any potential in contributing to the economy of community because they mainly practice subsistence farming. It is therefore better allocating that land for wildlife conservation which is observed to give them more income and reducing land use conflicts with the problem animals.

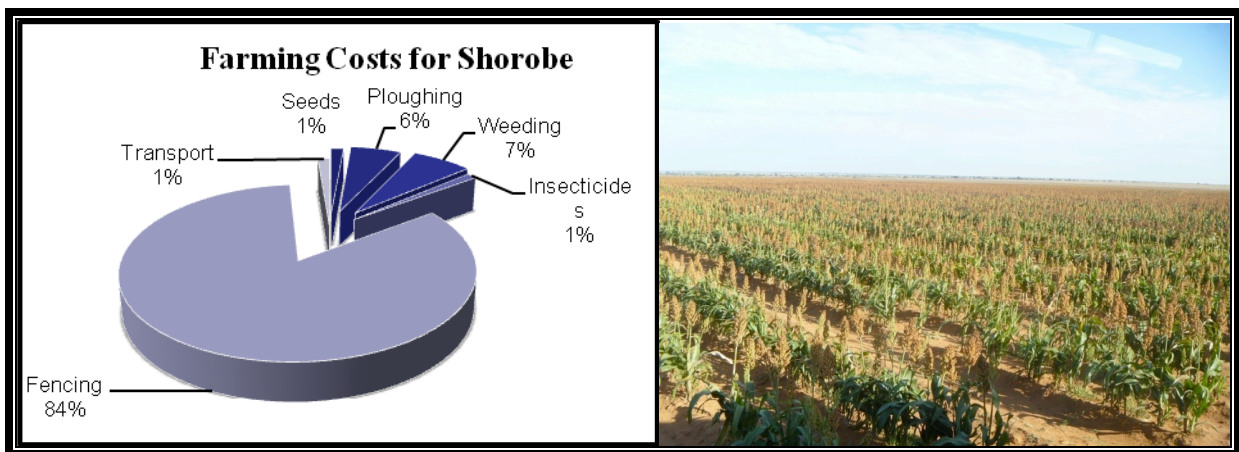


Figure 20(a): Farming Costs for Shorobe. **20(b)** Viable Economic Activities for Shorobe

Farming, cattle keeping and other agricultural activities are comparatively viable in Shorobe because they have fertile land and the river which they use for irrigation. Although they have cases of problem animals for their crops but the reported cases are fewer compared to Sankuyo. As noted in figure 20 above, fencing costs for fields are extremely high ($\approx 68\%$ and 84% respectively) for both Sankuyo and Shorobe. For Sankuyo, despite incurring those costs they still

lose their crops by being destroyed by elephants. For Shorobe however, they can reduce these costs through land planning and cost sharing hence reducing the threats to agricultural crops by wildlife and domestic animals such as cattle, donkey and goats (**Figure 20**). Although diversification is perceived to be economically profitable and reliable, specialization on the other hand is more efficient and it allow the producer to specialize and focus on one efficient production system which also increases efficiency in terms of resources allocation and trading with other communities.



Figure 21 (a): Feedback meeting on livelihood options in Shorobe. **21(b):** Livelihood Options Viable in Sankuyo

For Sankuyo community specializing in tourism activities will put Sankuyo community in a better position for developing a better wildlife management plan for conserving sustainably the wild animals in their concession areas. Through wildlife management, Sankuyo community can develop a strong tourism business which can employ people from their community and reduce the unemployment problems facing community members in the village. It is anticipated that by providing employment to rural youths it will help reduce the rural poverty and the problem of rural-urban migration.

5. 0 CONCLUSSION AND RECOMMENDATION

5. 1 Conclusion

Wildlife through tourism related activities and agriculture sectors have a potential of providing better livelihoods to rural communities not only in Sankuyo and Shorobe but other rural areas in Botswana. Results show that livelihood options in Shorobe and Sankuyo are quite different. Shorobe is a peri urban community but they rely mostly on farming, cattle keeping and to a less extent tourism businesses. Sankuyo on the other hand depends heavily on tourism activities because of the concession areas (NG 33 and NG 34) they own. This therefore requires different policies regarding resources and land uses in these two communities. Farming will be and is expensive in Sankuyo community because of the problem animals which force local communities to have a substantial amount of investment on fences and other animal scaring technologies.

In Shorobe the fencing costs may be avoided and or reduced by having a proper land use plan for different activities and having farms in one area and sharing the fencing costs hence making it easier for controlling domestic and wild animals in their fields. Furthermore, local community's participation and engagement in development activities tend to empower and build their capacities which then foster sustainability in the development process. Communities should therefore capitalize the existing and new livelihood options to cope with the fast changing technology. They should explore the comparative advantages and strategies to make use of their best knowledge, existing natural resources and viable livelihood options.

Although Community Based Natural Resources Management (CBNRM) has its own challenges but still has a lot of potentials for ensuring wildlife conservation in many places. Using adaptive management which allows learning from mistakes can help local community understand their comparative advantages and therefore enhance sustainable development. In terms of livelihood options, the two communities are different and have different potential strategies for earning their livelihoods. They should therefore apply the principle of comparative advantage to ensure efficient utilization of the scarce resources and production. In this way these communities will focus on their efficient means of production which will then result into a significant efficient production and hence contributing to poverty alleviation. Banning hunting does not only put local communities' income into risk but it also increase the chance of developing negative attitudes towards wildlife which endanger future wildlife conservation efforts. The communities may hesitate and resist to cooperate because they will have no motives for engaging themselves in conservation. However, Sankuyo and Shorobe can each specialize on one economic activity

and still trade with each other because they both have a comparative advantage over different resources. Effective communication between the government, local communities, private sector and other stakeholders is therefore needed in order to have consensus on conservation objectives. These stakeholders should therefore work hand in hand in ensuring that every stakeholder especially local communities are benefiting from the resources and that the resources are being conserved more objectively.

5.2 Recommendation

Basing on the findings and the discussions above, it is therefore recommended that:

- There is need for more research works on Community Based Natural Resources Management to find out what is working and what is not working and how to make things work better depending on the context which will help local communities manage, monitor and conserve their resources more sustainably.
- Each community should seek means of improving their livelihoods by specializing in the efficient means of production available to them such as farming for Shorobe and tourism for Sankuyo. Using this technique will assist in reducing the effect of enclave tourism because farmers from Shorobe will be supplying food and other products to the market hence employing more people and increasing the multiplier effect.
- Local communities should be given power and capacity to make decision on their own on how to manage their resources. In other words the decentralization policy should be implemented in its fullest and the government should also involve local communities in the decision making process especially for those decisions that affects the livelihoods of the community as whole. This will tend to increase the sense of ownership of the wildlife resources to local community members.
- Local communities should also be ready to trade between each other as a means of enhancing efficiency use of natural resources management.
- It is also recommended that proper agricultural and wildlife policies which also promote rural employment should be encouraged so as to allow rural communities to benefits from their natural resources which will make them value these resources.
- Sankuyo community can increase their income by utilizing the potential areas they have by building more lodges, hotel and campsites just to mention a few which will also provide employments for individuals from the low income households.

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