

WILDLIFE BASED LAND REFORM AND ITS IMPACT ON HOUSEHOLD FOOD SECURITY-A CASE FROM ZIMBABWE

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ABSTRACT

The study was conducted to evaluate the Wildlife Based Land Reform Programme and its impact on household food security in Matetsi Intensive Conservation Area A1 resettlement villages. Twenty questionnaires were distributed to households in Woodlands village to gather quantitative data to assess the level of household food security in the study area. In addition, a focus group discussion was done with three village heads, the ward councillor and three members of the Village Development Committee to examine the challenges faced by the resettled farmers in the wildlife venture and assess the level of stakeholder support. Key informant interviews were done with representatives of some selected government departments to examine their roles and responsibilities in the programme. The results of the study revealed that the programme had a significant contribution towards household food security. Access to more productive land resulted in significant improvements in cereal production. The additional income from hunting dividends helped beneficiaries to purchase agricultural inputs and more non-staple foods resulting in families living on a diversified diet. The study concludes that the Wildlife Based Land Reform Programme achieved its main goal of improving household food security. The study recommends that the few challenges faced by the farmers such as lack of wildlife management knowledge and resource constraints should be priority interventions to ensure the sustainability of the livelihoods in the study area.

Background of the Study

Zimbabwe is a landlocked country in Southern Africa, and is divided into ten provinces; amongst them is Matabeleland North where Matetsi Intensive Conservation Area lies. Zimbabwe has a population of 11631657 people according to the 2002 national census (Central Statistics Office) of

whom 52 per cent are women. Over 70 per cent of the country's population live in rural areas [United Nations Department of Development (UNDP), 2007] where agriculture is the main economic activity [Food and Agriculture Organisation, (FAO) 1995]. Most people in the rural areas rely on land to earn a living as they practise subsistence farming, where

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production is a mixed system of livestock farming and cropping (Pillai and Shanon, 1995). Inadequate land for agricultural use contributed greatly to food insecurity in the rural areas. Most communal areas are characterised by over-population, congestion and are located in marginal areas that have low potential for agricultural use characterised by infertile soil and low and erratic rainfall potential.

The white commercial farmers acquired the highly productive land during the colonial era and the native blacks were relocated to open way for large-scale commercial farming. As at 1980, the large-scale commercial farmers owned 15.5 million hectares while 8,500 small-scale commercial farmers, who were indigenous Zimbabweans, owned 1.4 million hectares or five per cent of the agricultural land. Furthermore, majority of the indigenous population subsisted on 16.4 million hectares of leased and congested communal lands that represent less than 50 per cent of the total agricultural land (*People First-Zimbabwe's Land Reform Programme*, 2001).

After Independence in 1980, the government of Zimbabwe embarked on a land redistribution exercise to resolve the massive land disparities between the minority whites and the majority blacks. The first programme, characterised as the Land Reform and Resettlement Programme Phase 1, was implemented in the period 1980 to 1997. Phase II of the programme began in 1997/1998, with an inception phase during 1998/1999. This was overtaken by the Fast Track Land Reform (FTLR) programme, which started in June 2000 (UNDP, 2002). The FTLR also took advantage of the economic and ecological attributes of wildlife production in some parts of the country such as Hwange district that are prone to drought and have fragile soils that cannot sustain crop

production without massive investment in irrigation.

Of the country's agro-ecological regions, Wildlife Based Land Reforms were implemented in agro-ecological region VI and V whose crop production potential is generally poor such as in the Matetsi Intensive Conservation Area that has a great diversity of wildlife resources. In this model, the land use plan also took care of the wildlife with the creation of wildlife corridors, livestock corridors, and cropping area demarcated to harmonise the enterprises and achieve maximum utilisation of the land and minimise conflict.

The resettled households are the proprietors of the wildlife and were granted the right to benefit from the sound conservation and use of wildlife resources. This was done in accordance with the 1975 Parks and Wildlife Act (amended in 1982) which decentralised state authority, and conferred privileges on owners or occupiers of alienated land as custodians of wildlife, fish and plants (Government of Zimbabwe, 1975). Since 2004, the Department of National Parks and Wildlife Management (DNPWM) allocate the beneficiary farmers hunting quotas every year. This assumes an approach similar to the popular Community Based Natural Resources Management Programme practised in Africa such as Communal Area Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe.

The revenue from the hunts belongs to the beneficiary households, who are empowered to decide on how to utilise the revenue. This may be used for the provision of social services in the area and to complement other farm enterprises such as rain-fed subsistence crop production and extensive livestock production. Household income contributes significantly towards

household food security as it improves access to food by improving the household purchasing power. Thus, this study will evaluate the impact of the Wildlife Based Land Reform programme on household food security in the Matetsi Intensive Conservation Area (Woodlands village) A1 resettlement schemes.

Statement of the Problem

The government of Zimbabwe implemented the Wildlife Based Land Reform programme since year 2004 in areas with low crop production potential and naturally endowed with a wide diversity of wildlife. The overall goal was to help eradicate household food insecurity and alleviate rural poverty, through the provision of agriculturally productive land to the landless rural people with wildlife ranching as an additional enterprise. However, there has been insignificant work done to evaluate how income from wildlife ranching contributed towards household food security in the Hwange district A1 resettlement schemes.

AIM: The study sought to evaluate how the Wildlife Based Land Reform programme contributed towards household food security and hence alleviating poverty.

Objectives:

1. To evaluate how income from wildlife ranching contributed towards household food security in the study area.
2. To assess the challenges faced by resettled farmers in the wildlife ranching venture.
3. To examine the level of stakeholders support towards the Wildlife Based Land Reform programme in the study area.

Justification of the Study: The study generates information on how wildlife ranching can avert rural poverty in agro-ecological region VI and V whose crop production potential is generally poor. Thus the study assesses whether the Wildlife Based Land Reform programme contributed towards improving household food security or not. The study findings shall inform the government and other stakeholders of strategies that might be used to improve the complementary relationship of wildlife ranching, cropping and livestock production. The benefit being diversified livelihood sources for the farmers which in-turn results in improved household food security.

Study Area Description: Woodlands village is the largest A1 resettlement village in Matetsi Intensive Conservation Area occupying approximately 12,600 hectares constituting 18 per cent of Matetsi. There are about 118 households (average household size of 7) in Woodlands village. Woodlands village is located about 16 km southeast of the resort town of Victoria falls and shares a boundary with Hwange National Park. It falls largely under Natural Farming Region V with small patches of Natural Farming Region IV. The annual rainfall ranges between 450 mm-500 mm, with mean temperatures of about 32°C to 36°C for summer and about 13°C to 18.7°C for winter. The vegetation type is mixed with a domination of the Mopane woodlands. It is characterised by a domination of dark heavy soil. The grass is limited on vlei areas (mostly dominated by thatching grass) and along waterways. There is limited grazing potential and hence not suitable for extensive cattle ranching since cattle are heavy grazers while a significant number of wildlife species are light grazers.

Literature Review

Food Security/ Insecurity in Zimbabwe:

Food security exists when all people, at all times, have physical and economic access to sufficient food to meet their dietary needs for an active and healthy life (FAO World Food Summit, 1996). In other words, food security means the ready availability of nutritionally adequate and safe food, and an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies) (USDA, 2008). However, it is prudent to note that it is a complex development challenge to achieve food security, as it is highly dependent to individual country situations that vary widely.

In Zimbabwe, an estimated 9.6 per cent of the population was deemed food insecure in the period October through December 2011 by the Zimbabwe Vulnerability Assessment Committee (ZimVAC) (USAID, 2011). In the rural areas, some significant improvement in the food security situation was noted from 2009-2011. The average rural household income increased by 32 per cent, resulting in improved household food entitlements and hence reducing the proportion of food insecure households (USAID, 2011). The ZimVAC rural livelihood assessments also estimated that about 8 per cent of rural households would be food insecure between October and December 2011.

Land and Food Security Nexus: Agriculture is the major livelihood opportunity in rural areas of Zimbabwe, and furthermore, very highly dependent on the availability and accessibility of arable land. Access to arable land and natural resources contributes significantly towards the improvement of household food security *ceteris-paribus* and the reverse is true. Tagwireyi et al (1993) state

that poor farmers have difficulties in getting out of the vicious cycle of poverty as they tend to have poorer land, and less access to credit. This was inherited from the colonial rule from 1890 to 1979, which was characterised, by racial land dispossession and political and economic discrimination (Moyana, 2002).

During the colonial era, statutory laws were promulgated that alienated local people from land, grazing, forest, and wildlife resources. Rural people lost access to wildlife as protected areas were established and lost legal access to wildlife on their own land. The appropriation by the state of natural resources generally led to the emergence of elements of an "open access" system, with individual entrepreneurship invading the commons as a collective sense of proprietorship was lost (Murphree and Cumming, 1990).

The white commercial farmers acquired the highly productive land and the native blacks were relocated to open way for large scale commercial farming. As at 1980, the large-scale commercial farmers owned 15.5 million hectares while 8,500 small-scale commercial farmers, who were indigenous Zimbabweans, owned 1.4 million hectares or five per cent of the agricultural land. Furthermore, the majority of the indigenous population subsisted on 16.4 million hectares of leased and congested communal lands that represent less than 50 per cent of the total agricultural land (People First-Zimbabwe's Land Reform Programme, 2001).

Land Reform in Zimbabwe: The inherent land disparities among the native blacks and whites prompted the GoZ to embark on land redistributive strategies to reduce racial inequality and poverty, and promote broadly based economic growth, focused on the domestic needs, particularly for the poor (GoZ, 1982). The GoZ launched the Land

Reform and Resettlement Programme (LRRP) in 1980. The main objectives of the LRRP in Zimbabwe were:

- to create political stability and an acceptable property rights regime;
- to promote economic growth through wider equity and efficiency gains from land redistribution, and
- to promote national food security, self-sufficiency, and agricultural development through labour intensive small farm production, optimal land productivity, and returns to invested capital (Lebert, 2003).

The Land Reform and Resettlement Programme in Zimbabwe comprises two phases: the first from 1980 to 1996; and the second, commencing with a public listing of 1,471 farms for compulsory acquisition, in 1997 (Lebert, 2003). As part of the second phase of compulsory land acquisition, the GoZ officially launched the Fast Track Land Resettlement Programme in July 2000 (Masiwa, 2004). It was termed Fast Track, as it was an accelerated phase of the Agrarian Reform meant to speed up the pace of land acquisition and resettlement. This was in response to the violent invasions of white commercial farms by frustrated war veterans and landless villagers and hence, the government had to legitimise the invasions as it was under pressure (GoZ, 2001).

The main thrust of Fast Track were: speeding up the identification for compulsory acquisition of not less than 5 million hectares of land for resettlement and accelerating the planning and demarcation of acquired land and settler emplacement of this land. Also for the provision of limited basic infrastructure (such as boreholes, dip tanks and access roads) and farmer support services (such as tillage and agricultural inputs), and of secondary infrastructure such

as schools, clinics and rural service centres as soon as resources became available. In addition, simultaneous resettlement was done in all provinces to ensure that the reform programme was comprehensive and evenly implemented (GoZ, 2001).

The Fast Track Land Reform Programme was designed in two models, Model A1 and A2. Model A1 is the decongestion model for the majority of the landless people. It has a villagised and a self-contained variant (Matsa, 2011). Model A2 was aimed at creating a cadre of black commercial farmers and formed Small, Medium and Large Scale Commercial Settlement Scheme. The villagised model A1 variant is a translocation type of resettlement with the villagised type of resettlement. Settlers are allocated a minimum of three hectares as arable land with the remainder set aside for grazing (GoZ, 2001; Sukume, Moyo and Matondi, 2004). The principal target group for this model was the landless peasants in the communal areas who formed the majority among the land hungry. Twenty per cent of all resettlement stands under this model were however, reserved for war veterans. This resulted in over 7 million hectares of land being transferred to both A1 and A2 farmers.

Under the A1 resettlement schemes, CAMPFIRE settlements/villages with title for land and rights over wildlife resources were formed, commonly referred to as Wildlife Based Land Resettlement scheme. In this scheme, the beneficiaries were entitled to a minimum of three hectares of cropping land, access to communal grazing and utilisation of wildlife as a common pool resource. This option was adopted in areas where the existing land use was largely wildlife based, mainly in agro-ecological region IV and V such as Matetsi ICA and Gwayi ICA in Matabeleland North and Save Valley Conservancy in Masvingo. This incorporated

the principles of CAMPFIRE, which was one of the successful Community Based Natural Resources Management (CBNRM) in Africa.

Why CAMPFIRE Principles Incorporated in the Wildlife Based Land Resettlement Schemes?:

Because of the Fast Track Land Reform in 2000, some rural poor occupied some wildlife conservancies, especially in agro ecological region IV and V. This led to the transformation of some forest areas into agrarian areas due to extensive clearing of land for cropping and shelter construction. High levels of human and wildlife conflict resulted as the wild animals, especially elephants, destroyed the agricultural crops and some carnivores depredated livestock. On the other hand, there were mushrooming acts of illegal hunting coupled with frequent uncontrolled veld fires, which posed a negative impact to the survival of wildlife due to habitat shrinking and destruction.

Hence, in the quest to harmonise activities in the Wildlife Based Land Resettlement schemes, CAMPFIRE principles had to be adopted. This was in line with the Parks and Wildlife Act of 1975 (amended in 1982), which decentralised state authority, and conferred privileges on owners or occupiers of alienated land as custodians of wildlife, fish and plants (GoZ, 1975). As a result, beneficiaries of the WBLR scheme assumed the Appropriate Authority status in 2004.

CAMPFIRE is a common resource management programme for sustained development by communal lands of people who are empowered to decide how their resources are utilised (Peterson, 1991). The beneficiaries maintain rights over wildlife in their area, and reap benefits through eco-tourism and other consumptive and non-consumptive commercial activities. CAMPFIRE promotes natural resource utilisation as an economic and sustainable

land use option in the interests of both the conservation of environmental resources and the relief of human poverty.

CAMPFIRE builds on the belief that there should be no significant conflict between the economic survival of agricultural communities and foraging needs of wildlife, rather they should complement each other (Hulme and Muphree 2001). Muphree (1991) states that this follows the underlying principles that effective management of wildlife is best achieved by giving it focused value for those who live with it. There must also be a positive correlation between quality of management and the magnitude of benefit, taking into consideration that differential inputs may result in differential outputs. The unit of proprietorship should be the unit of production, management, and benefit, and should be as small as practicable, within ecological and socio-political constraints.

Impact of Wildlife on Household Food Security:

Wildlife is more ecologically resilient and stable, more sustainable and permits greater diversity; and this is true under both private and communal ownership of land and wildlife resources (Cumming 1988). Wildlife utilisation may benefit rural communities, in the form of cash, employment, and in-kind benefits such as meat from game or harvested trophies. The income may be utilised to fund other income generating projects and infrastructure development, which may help improve the quality of life of the poor. The income may be divided among the beneficiary households and used to purchase food, agricultural inputs and farming implements which may help improve food security at household level.

However, the potential for conflict between human populations and wildlife is very high. Human wildlife conflicts may

undermine human welfare, health and safety, and have economic and social costs. Exposure to zoonotic diseases, physical injury or even death caused by large predators' attacks have high financial costs for individuals and society in the form of medical treatments to cure and prevent infections transmitted from animals through human contact (Ministry of Water, Land and Air Protection, British Columbia, 2003). This has a negative impact on household food security due to the high potential loss resulting from human and wildlife interaction.

On the other hand, the potential income from wildlife utilisation may contribute towards improving household food security. This assumes that the returns from wildlife utilisation can also provide an index of food availability by converting the returns to maize equivalent income (Anon, 1998). This takes into consideration the food security threshold of 250 kg of cereal per person per year. However, the income from wildlife may be high but with growth of the human population, the chances of the potential revenue decreasing are high. Bond (1999) states that once human population densities exceed about 15 people per km², wildlife populations, and particularly higher valued species such as elephant and buffalo, decline or disappear.

Methodology

The research used both quantitative and qualitative research methods that included household interviews, a focus group discussion (FGD) and key informant interviews targeting stakeholders involved in the programme. Questionnaires were used to collect quantitative data from households whilst the FGD and key informant interviews were used to collect qualitative data. A total of 20 households were randomly sampled from Woodlands village. Random sampling

was preferred to minimise bias as it gave every household an equal chance to be sampled. The senior village head mobilised seven village development committee members to participate in a focus group discussion. These comprised three village heads, the ward councillor and three other committee members. The researchers facilitated the discussion whilst taking down some notes to capture key discussion points. Representatives of some Government departments or ministries that work with the resettled farmers were interviewed face to face to examine their level of support towards the Wildlife Based Land Reform Programme in Woodlands. The Statistical Package for Social Sciences (SPSS) was used for data entry and analysis.

RESULTS AND DISCUSSIONS

The Wildlife Based Land Reform was evaluated looking at its impact on household food security basing on the livelihoods of the households before they were resettled and after benefiting from the programme. The differences between size of arable land owned, crop yields, and income sources was used to measure the impact of the Wildlife Based Land Reform programme on household food security.

Socio-Demographic Data of Beneficiary Households

Mode of Selection of the Beneficiaries: The resettlement in Woodlands A1 village was entirely voluntary. Ninety five per cent of the people volunteered to resettle and the five per cent happen to be the relatives who followed.

Marital Status: Female-headed households constituted 30 per cent while the remaining 70 per cent were male-headed. According to the survey results, most of the beneficiary households were married (80 per cent), 10

per cent were divorced or separated, 5 per cent were single with the remaining 5 per cent being widowed. The average household size was 7 individuals per household.

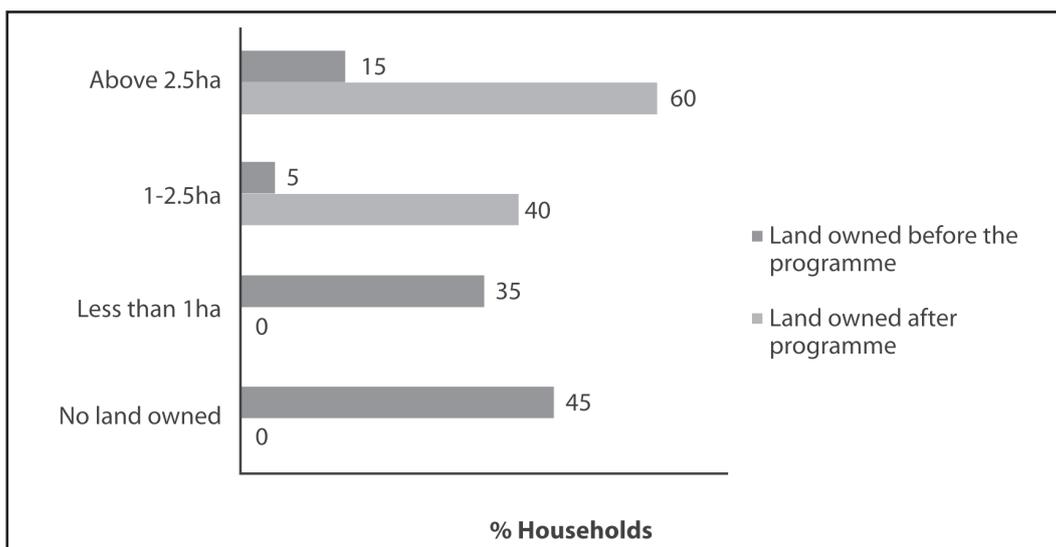
Educational Status: All the heads of the households were educated but most of them had education only up to primary level (60 per cent). About 30 per cent went up to secondary level and only 10 per cent of the beneficiary households attended tertiary education. This confirms that the levels of literacy among the beneficiaries is low as most of the beneficiaries went as far as primary level which is the lowest level of education in the country.

Household Livelihoods: The beneficiary households were asked about their livelihood details before they were resettled and the current livelihood details. Access to arable land, the quantity of cereal produced, livestock ownership and source of income were the key indicators used for comparison.

Access to Arable Land: Land is a resource such as labour and capital and hence it is of

significant value in terms of production. Access to arable land is an important aspect to consider when assessing household food security because it is directly linked to food access among rural communities where agriculture is the major livelihood activity. The results of the research indicated that most of the beneficiaries (45 per cent) did not own land before the programme, with only 15 per cent owning above 2.5 hectares before the programme as shown in Figure 1. It also shows that there is a varying difference in the size of arable land owned by the beneficiaries. Most households (60 per cent) own more than 2.5 ha, with the remaining 40 per cent owning between 1 and 2.5 hectares. However, each household was entitled to three hectares of arable land at resettlement planning stage in May 2001. The number of beneficiary households increased from 89 in 2001 to 118 households in 2012, hence contributing to the differences in the size of land owned. The increase in the number of households was meant to make full use of underutilised tracts of land in the area.

Figure 1: Arable Land Owned by Households Before and After the Programme

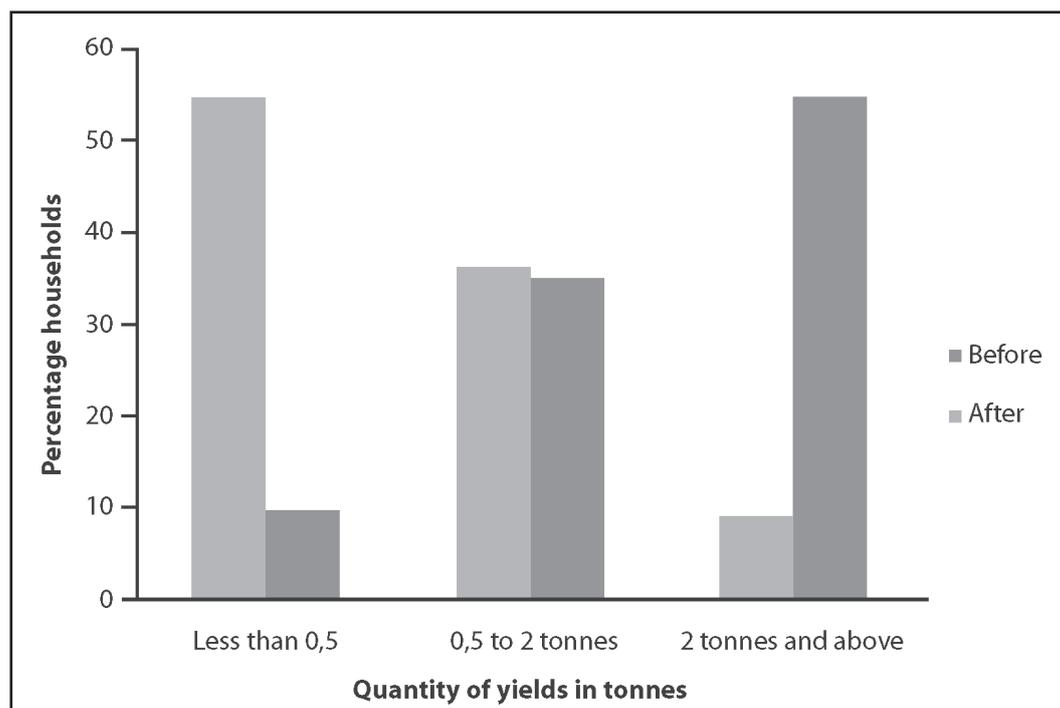


Cereal Production

There was a significant improvement in cereal production as most households (55 per cent) produced two tonnes and above in 2011 as shown in Figure 2. However, a few more households (10 per cent) produced less than 0.5 tonnes with the other 35 per cent producing between 0.5 and 2 tonnes. Maize is the major cereal grown in Woodlands with 100 per cent of the farmers growing it. The significant high yields meant that there was more food available for the households and

hence improving household food security. Considering the food security threshold of 250 kg of cereal per person per year, most households in Woodlands were food secure since two tonnes will give a threshold of above 250 kg of cereal per person per year when the average household size is 7. Households were asked whether there was any month from April 2011 to April 2012 in which they had insufficient food. All the respondents (100 per cent) confirmed that they had enough food for their households from April 2011 to April 2012.

Figure 2: Crop Production Levels Before the Programme and in the 2010/2011 Cropping Season



Livestock Ownership

The results also show that there was a direct negative shift in livestock ownership, shown by the negative mean change in most livestock types owned. Except in the case of

pigs which showed a positive increase in the mean of ownership by 0.2, in all other types of livestock ownership, the mean of ownership had declined. It also shows that cattle recorded the highest negative change (3.2) followed by

goats (-0.85), sheep (-0.5) and lastly donkeys (-0.35). The decline in livestock numbers is highly linked to the high cases of depredation of livestock in the study area. The other causes may be the prevalence of diseases such as Foot and Mouth Disease (FMD) due to buffalo and cattle interactions in the area. Buffaloes carry the FMD virus as they are tolerant to it, whilst cattle are very susceptible to FMD infection. This has a negative impact towards household food security as livestock is one of the major livelihoods among rural communities acting as a source of protein and income.

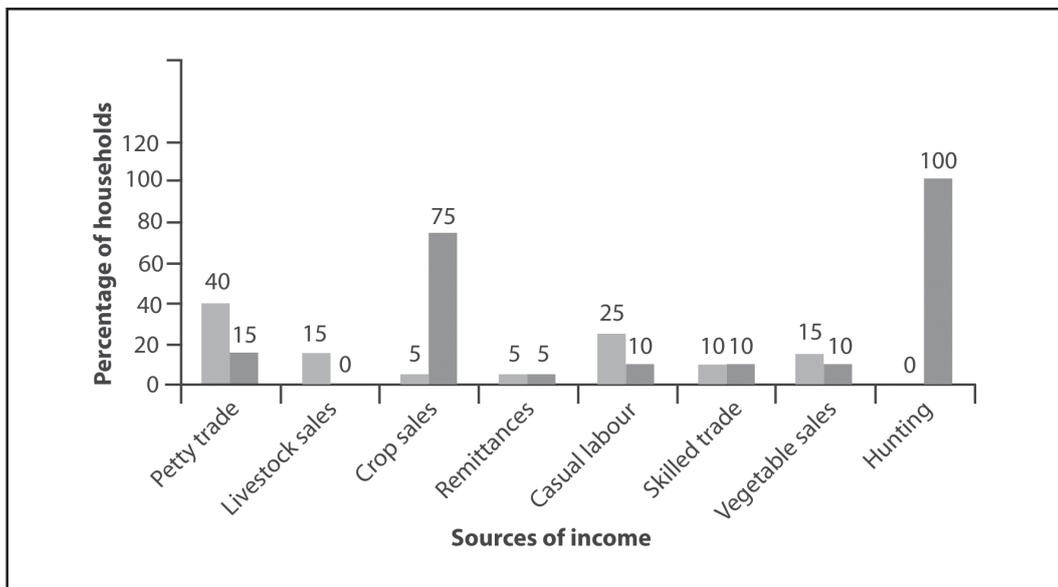
Livestock, especially cattle and donkeys are also used for draft power provision which contributes significantly towards improving crop production. It is of importance to note that relying on draft power as an option for ploughing may have a negative impact on crop production in Woodlands. From the field observations, it was noted that the village had purchased a tractor and a disc plough to

promote mechanised agriculture and take care of the shortage of draft power.

Household Income Sources

Household income contributes significantly towards household food security as it improves the food purchasing power of the households resulting in more access to food. Households were asked to list their three main sources of income before and after the programme to determine the range of household income sources. Figure 3 shows that the main sources of income changed among beneficiaries with 100 per cent of the households obtaining income from hunting dividends. Income from crop sales also improved with 75 per cent of the households getting income from crop sales. Before the resettlement programme, most households (40 per cent) used to rely on petty trade as their main source of income followed by casual labour (25 per cent) while livestock sales and vegetable sales contributed 15 per cent each.

Figure 3: Household Sources of Income Before and After the Programme

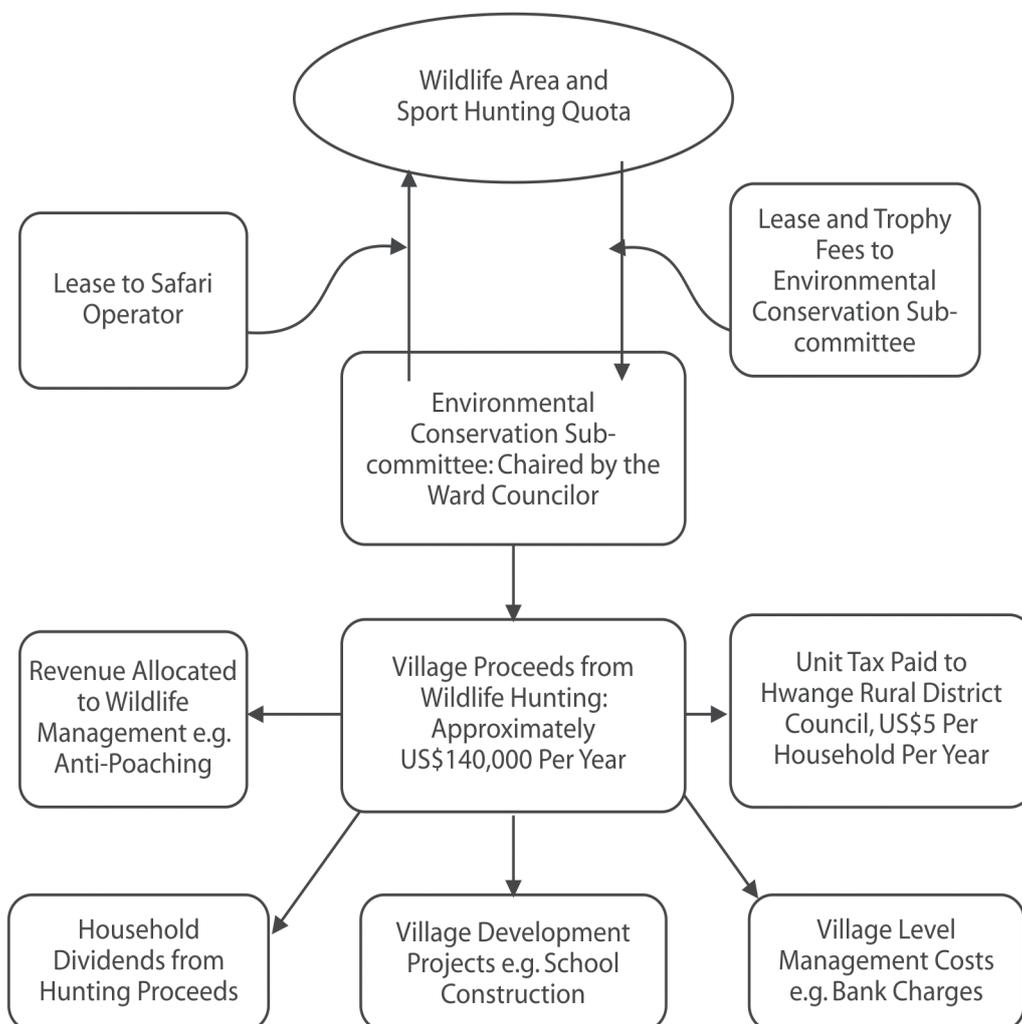


How the Income from Hunting is Generated and Allocated in Woodlands

Sport hunting is the main economic activity in the wildlife venture at Woodlands. Sport hunting is the killing of animals, mainly wildlife, for recreational purposes, the usual goal being the trophy. The wildlife zone occupies approximately 9,000 hectares and

acts as a habitat to a diversity of game such as lions, elephants, buffaloes and baboons. The village also boast of a standard hunting camp and 4x4 vehicles to support the wildlife enterprise. Figure 4 gives an outline on how the income is generated and highlights the major players and activities in the wildlife venture at Woodlands.

Figure 4 : Financial Model for Wildlife Income Generation and Allocation in Woodlands



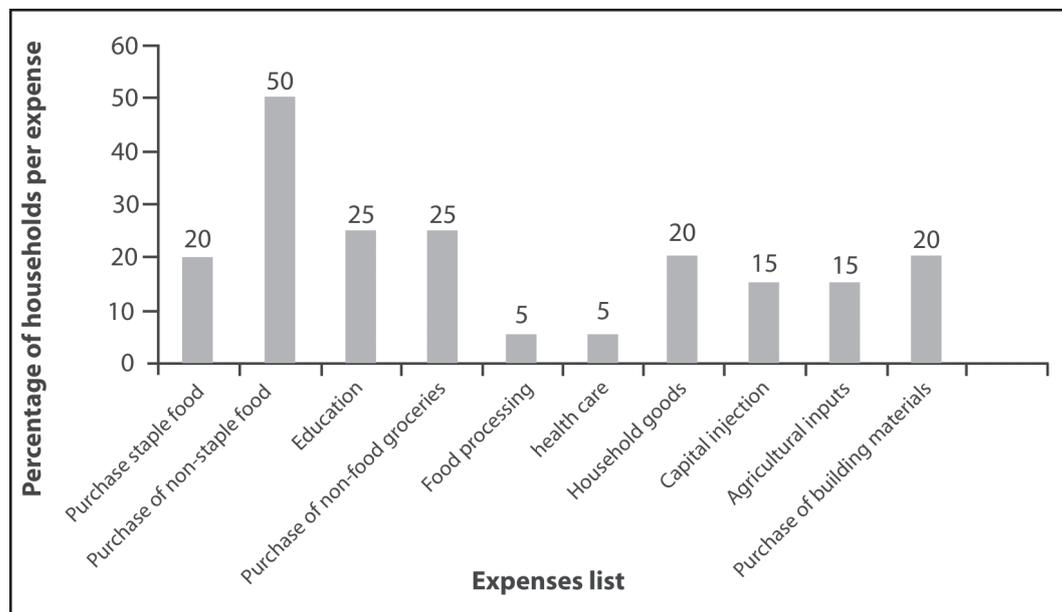
Hunting Income Use at Village Level from 2004 to 2012

As outlined above in Figure 4, part of the total income from wildlife is allocated for the development of the village as a whole whilst the other part is used to pay for management costs and the remainder shared among the households at the end of every year. On an average, the wildlife venture in Woodlands returns a gross of approximately US\$140,000 per year. Since 2004, the village through the guidance of the Environmental Conservation Sub-committee and the village hunting committee managed to purchase the following; 1 tractor, 1 toll grader, 1 disc plough, and 4 vehicles (2 Toyota land cruisers, 1 Defender and 1 Jeep). They managed to build a primary school with two blocks (four classrooms) and provision of tap water at the school and homesteads.

Uses of Hunting Income at Household Level

From the results of the research, each household received US\$358.50 on average from hunting revenue dividends in 2011. The households were also asked on how they used the income they got from hunting. The households were given a choice of ten different items of expenditure. The results are shown in Figure 5 highlighting multiple uses of the hunting income with 50 per cent of the respondents having purchased non-staple foods. 20 per cent of the households purchased staple food while 15 per cent of the households purchased agricultural inputs. As many as 25 per cent of households also spent the earnings on children's education. Some 15 per cent used the money to boost their other projects such as poultry production. The results signified the existing complimentary relationship within the diverse livelihood activities which enhances household food security within Woodlands village.

Figure 5: Hunting Income Use at Household Level in 2011



Impact of the Programme on Household Food Security

The general response among the beneficiary households about the Wildlife Based Land Reform was that it positively changed their quality of life as they are now food secure. Cereals are now more available (100 per cent). The households now eat more meals per day and eat a variety of food, resulting in healthy families. Figure 6 shows the range of positive benefits attained from the programme by the beneficiary

households. The only negative impacts of the programme were the problem of wildlife (50 per cent) and general land insecurity (15 per cent). As illustrated in Figure 7, 35 per cent of the respondents felt that the programme had no negative impact to their households. While 50 per cent experienced problems with wildlife and about 15 per cent still felt insecurity on land ownership. From field observations, it was clear that life in Woodlands was far much better than that in other communal areas in Hwange, in general, in terms of livelihood opportunities.

Figure 6 : Positive Impacts of the Programme at Household Level

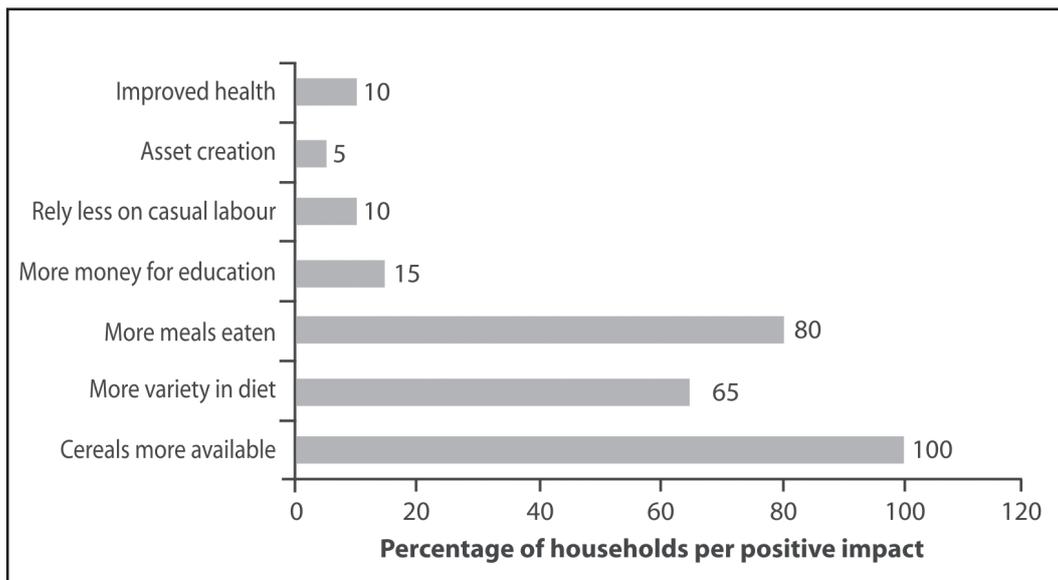
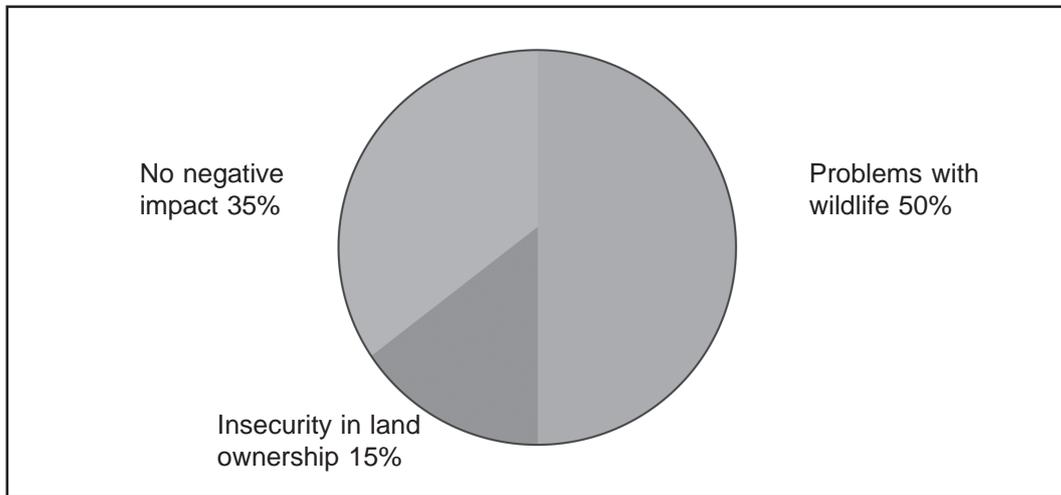


Figure 7: Negative Impacts of the Programme at Household Level**Table 1: Challenges Faced by the Resettled Farmers in the Wildlife Ranching Venture**

Challenges faced	Possible solutions
Crop field raids by elephants, buffaloes and baboons	<ul style="list-style-type: none"> ● Improve wildlife management through provision of wildlife needs such as adequate supply of water in the wildlife area ● Increase hunting quota allocation so as to get more revenue that will be used to compensate affected farmers
Depredation of livestock by wildlife such as lions and hyenas	<ul style="list-style-type: none"> ● Increase hunting quota allocation so as to get more revenue that will be used to compensate affected farmers
Differences in opinions among the beneficiaries hence, it is difficult to invest in bigger livelihood projects that require high capital investments.	<ul style="list-style-type: none"> ● Capacity building of the beneficiaries through community development training ● Active participation by all beneficiaries in identifying priority community development projects that need to be funded using the wildlife venture revenue

(Contd...)

Table 1: (Contd...)

Challenges faced	Possible solutions
Limited resources for conducting anti-poaching exercises	<ul style="list-style-type: none"> ● Engaging more stakeholders such as National Parks and Wildlife Authority to spearhead anti-poaching activities ● Have more awareness campaigns on the importance of wildlife conservation ● Create loan facilities for the beneficiary communities ● Use hunting revenue to procure the required resources
Lack of knowledge and skill on wildlife management	<ul style="list-style-type: none"> ● Training on Wildlife conservation ● More environmental conservation campaigns, such as fire awareness campaigns

Table 2: Level of Stakeholders' Support Towards the Wildlife Based Land Reform Programme

Name of Stakeholder	Support Offered	Frequency	Challenges faced by stakeholders
Hwange Rural District Council	<ul style="list-style-type: none"> ● Overall administration of the village ● Spearhead rural development activities 	Regular	<ul style="list-style-type: none"> ● Financial constraints ● Lack of resources to support intended development initiatives
Environmental Management Agency	<ul style="list-style-type: none"> ● Training beneficiaries on natural resource conservation ● Train fire fighters 	Three to four times a year	<ul style="list-style-type: none"> ● Lack of adequate funding to facilitate conservation of natural resources ● High frequency of uncontrolled veld fires due to negligence and illiteracy among the beneficiaries

(Contd...)

Table 2: (Contd...)

Name of Stakeholder	Support Offered	Frequency	Challenges faced by stakeholders
Forestry	<ul style="list-style-type: none"> ● Hold fire awareness campaigns ● Train fire fighters ● Hold fire awareness campaigns ● Conduct fire fighting drills ● Monitor the Wildlife conservation awareness campaigns 	Two or three times a year	<ul style="list-style-type: none"> ● Lack of adequate funding to facilitate conservation of natural resources ● High frequency of uncontrolled veld fires due to negligence and illiteracy among the beneficiaries
National Parks and Wildlife Authority	<ul style="list-style-type: none"> ● Train game scouts ● Conduct overall anti-poaching operations ● Problem animal control ● Wildlife population assessment and hunting quota allocation 	Regular	<ul style="list-style-type: none"> ● Lack of knowledge on basic wildlife management among the beneficiaries ● High levels of human and wildlife conflict due to the introduction of human populations in the wildlife zones ● Lack of appreciation on the high economic value of wildlife resulting in high cases of poaching for meat ● Decrease in the quality of trophies due to poor wildlife management ● Lack of adequate funding to facilitate conservation of natural resources ● Frequent outbreaks of uncontrolled veld fires due to negligence and illiteracy among the beneficiaries

(Contd...)

Table 2: (Contd...)

Name of Stakeholder	Support Offered	Frequency	Challenges faced by stakeholders
AGRITEX	<ul style="list-style-type: none"> ● Advice farmers on crop varieties and farming methods to use ● Conduct extension service ● Conduct crop assessments ● Assess food availability 	Regular	<ul style="list-style-type: none"> ● Late input delivery ● Lack of capital to facilitate farm mechanisation ● Low levels of literacy among beneficiaries
Department of Veterinary Services	<ul style="list-style-type: none"> ● Animal health inspection ● Animal disease control ● Monitor disease outbreaks ● Train farmers on basic animal health control and treatment 	Regular	<ul style="list-style-type: none"> ● Insufficient drugs ● Low levels of literacy ● High disease prevalence due to livestock and wildlife interaction
Ministry of Land and Resettlement	<ul style="list-style-type: none"> ● Resettlement planning ● Land allocation ● Carry out land audits 	Regular	<ul style="list-style-type: none"> ● Lack of resources to facilitate major operations such as land evaluation and natural resources surveys

Conclusions

The Wildlife Based Land Reform programme had positive impact on household food security in Woodlands village. The beneficiaries have access to food from their productive crop fields and have a diversity of livelihood opportunities in the area. Hunting income dividends were used to compliment other livelihood options such as crop production as it was used to buy agricultural inputs as well as purchasing staple and non-staple food groceries such as sugar and cooking oil. This resulted in more food access and availability at household level. Therefore, the income from hunting contributes significantly towards improving household food security in Woodlands. There is high level of stakeholder involvement which has had an ultimate contribution to the success of the programme. However, there are some few challenges that are faced by the beneficiaries and the stakeholders involved which have to be addressed to ensure the sustainability of the programme. The beneficiaries face resource constraints for carrying out crucial operations such as anti-poaching and establishment of fire

guards for the protection of the wildlife habitat. Different stakeholders face a range of challenges with inadequate financial support being the main challenge. The study recommends that the government should promote a holistic approach to natural resource conservation with more emphasis put on capacity building of communities to fully participate in natural resource conservation. More funding should be directed towards major wildlife conservation operations such as training of natural resource monitors and anti-poaching activities so as to protect wildlife from poachers and harvest good trophies in future with greater retains. The Parks and Wildlife Authority should engage other stakeholders to participate in the programme through organising workshops in which they share the progress of the programme, lessons learnt and challenges faced and map a way forward. By so doing, other stakeholders may come on board by identifying gaps that they may fill for the betterment of the programme. The local institutions in the area should be strengthened through training in natural resource management.

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