THE IMPACT OF GREEN SCHEMES ON THE LIVELIHOOD OF COMMUNITIES IN THE KAVANGO REGION, NAMIBIA

SOPHIA MAPAZE ISALA

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DECLARATION

Candidate

This thesis is my original work and has not been presented for the award of any degree in any other University

Signature..... Date.....

Sophia Mapaze Isala

Supervisors

We confirm that this dissertation has been submitted with our approval and that the candidate carried out this work under our supervision

Signature..... Date.....

David Mburu, PhD

Jomo Kenyatta University of Agriculture and Technology, Kenya

Signature..... Date.....

Kletus Likuwa, PhD

University of Namibia-Multidisciplinary Research Centre (UNAM-MRC)

DEDICATION

I dedicate this work to my parents, son, siblings and their children for their persistent love and support.

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ABSTRACT

This study sought to investigate the impacts of the Green Scheme on the livelihood of communities through a comparative study of households that surrounds the Green Scheme (village with GRN intervention) to a village with no GRN intervention. In particular it sought to ask the following: are there economic benefits to people living around the Green Schemes; is there a change in the diversification of food stuff by people surrounding the Green Schemes; and what challenges do the people around the Green Schemes experience?

A survey was conducted on 30 households in each village setting. Purposive and random sampling techniques were used to select Green scheme and households respectively. Personal interviews were undertaken using structured and unstructured questionnaires. Descriptive statistics, frequencies and cross tabulations were used to outline respondents according to the impacts of the Green Scheme.

The study revealed that there was no significant association between economic activities of the two village settings ($p>0.05$). Most variables were the same before and after the scheme for both village settings. Changes in food diversification for people were assessed and results indicated that food items for consumption reduced for Sikondo and increased in Siyandeya. The study further highlights community's assertion that Green Schemes are not adding significant improvements or changes to community livelihoods as no significant developments in the surrounding villages have been attributed to the Green Schemes. While there are benefits from the Green Schemes to the communities, these are minimal and are not worth their losses and expectations for improved livelihood.

Study shows communities surrounding the Schemes continue to face challenges such as water, sanitation, jobs and energy. Significantly this study highlights the need to inculcate a change in attitude so as to encourage collaborative efforts between communities and the Green Scheme management which will impact on the livelihood of people positively.

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ACRONYMS AND DEFINITION OF TERMS

AGRIBUSDEV-Agricultural Business Development Agency

Communal Land- is an area governed by the Communal Land Reform Act, Act No. 5 of 2002 (Ministry of Agriculture Water and Forestry, 2008).

Government /GRN - means Government of the Republic of Namibia

Green Scheme- is the Government program aimed at increasing food production through irrigation production (Ministry of Agriculture Water and Forestry, 2008).

Leasehold Agreement- refers to the agreement between the relevant institution and an irrigation farmer for a specific farming unit, which includes the rules and guidelines for the irrigation project determined by the Government through the Implementation Unit (Ministry of Agriculture Water and Forestry, 2008).

MAWF- Ministry of Agriculture, Water and Forestry

MSF (**Medium Scale Farmers**) refers to the irrigation farmer utilizing a farming unit within the state agro project but provides own surety and funding of production activities. It also refers to a farmer who entered in an agreement with a commercial farmer for service or independent enterprise or individual engaged in horticulture or crop production under irrigation (Ministry of Agriculture Water and Forestry, 2008).

NDP4- National Development Plan 4

SSF (**Small Scale Irrigation Farmer)** refers to the irrigation farmer utilising a farming unit within the state agro project. It also refers to a farmer who entered in an agreement

with a commercial farmer for service or independent enterprise or individual engaged in horticulture or crop production under irrigation (Ministry of Agriculture Water and Forestry, 2008).

CHAPTER 1

INTRODUCTION

1.1 Background

Namibia is a semi-arid country in which 70% of its two million inhabitants depend on subsistence agriculture (Fiebiger et al., 2010). Traditionally, forms of agriculture in the Northern parts of Namibia are subsistence-oriented and comprise livestock keeping combined with rain-fed staple crop production (Fiebiger et al., 2010). After independence of Namibia in 1990, the northern parts of Namibia where half of the population lives continued to depend on less productive subsistence farming with minimal or no use of technology in food production. This lead to the creation of irrigated agricultural program called the Green Schemes. Green Schemes has a total land allocation of 9,429 hectares (ha) of which 3,435 ha are under production in the //Kharas, Kavango East, Kavango West, Zambezi and Omusati regions. Twelve Green Schemes have been established in Namibia namely: Etunda, Hardap, Kalimbeza, Mashare, Musese, Ndonga-Linena, Orange River, Shadikongoro, Shitemo, Sikondo, Tantjieskoppe, and Uhvungu Vhungu Irrigation Schemes. The Green Scheme Program makes provision for Small Scale Farmers (SSF), occupying a total of 825 ha" (Iica, 2012). Fiebiger *et al*., (2010) informs that developments in irrigation farming take place on a private level, where farmers take up mainly vegetable production on various scales. Farming ranges from bucket-irrigated micro-plots in river plains to mechanized drip irrigation production on plots sized up to 13ha.

This study explored the impact of Green Schemes on the livelihood of surrounding communities of Sikondo Green Scheme in the Kavango area of Namibia. Green Schemes are mainly Namibian government funded irrigation program aimed at reducing poverty by increasing agricultural production and job creation and export markets as foreseen in National Development Plan 4 (NDP 4) and Vision 2030 (MAWF, 2008). The irrigation scheme may be fully funded by government or in partnership with other organizations. "The Green Scheme is designed to achieve its objectives to: increase agriculture production and sector contribution to GDP; promote investment in food production and agro industry; mobilize private and public capital for investment in agriculture; promote food security at national and household level; diversify agricultural production and products for the domestic and export market; promote research and adaptation of technology to increase productivity; promote value addition and job creation; and promote skills development and transfer of technology." (Kandjeke, 2013).

For the farm to be a Green Scheme, it has to be approved by the Ministry of Agriculture Water and Forestry (MAWF) after it undergoes qualification process including the size of the farm and the agricultural practices (Ministry of Agriculture Water and Forestry, 2008).

The Green Schemes are distributed in the whole country, yet their impact is not documented. There is a need for investigating the extent to which community members benefit from the scheme and a need for possible improvements. The goal of the study was to present knowledge on Green Schemes which would be used in policy formulations and practice so as to improve the livelihood of people surrounding the schemes. The study therefore investigated the socioeconomic impact of the Green Schemes on the livelihood of the surrounding communities.

1.2 The problem statement

There have been many talks, praises and criticism and reports on the newly established Green Schemes (one of them being Sikondo irrigation project) after Namibia's independence on 21 March 1990. The green scheme programme was initiated to contribute to poverty alleviation, reduce unemployment and improve food security in Namibia. However, there is no documented evidence on the socioeconomic impact of the Green Schemes on the livelihood of the surrounding communities. Such information would be useful for improving the program and extension to the areas without government funded program. Since some small-scale farmers near water source are engaged in irrigation, understanding their limitations may accelerate government intervention at a reduced cost. Moreover, Green Schemes contribute to community's economic activities and availability of nutritious food at rural area. The hypothesis is that government green scheme is contributing to the socioeconomic on the household level of the surrounding communities. The problem is, there is no evidence documented on how the situation is on ground.

1.3 Objectives

1.3.1 General objectives

The main objective was to investigate the socioeconomic impacts of Green Schemes on the livelihood of communities surrounding the Green Schemes

1.3.2 Specific objectives

The specific objectives were to:

1. Determine the economic benefits of people around Green Schemes.

2. Study changes in food diversification for people surrounding the schemes
3. Study challenges faced by people around the Green Schemes.

1.4 Research questions

The research sought to address the following questions related to the problem:

1. Are there economic activities for people living around the Green Schemes?

2. Is there a change in the diversification of food stuff by people surrounding the Green Schemes?

3. What challenges do the people around the Green Schemes experience?

1.5 Study justification

Agriculture is the backbone of Namibian economy. On the other hand, the country is food insufficient and relies on import to meet the local demand. Rain-fed agriculture is unreliable and crop failure is common. Therefore, irrigated agriculture is the only hopeful practice that may solve the shortage of food and create employment for many rural people. Green scheme program is one of the key government interventions to accelerate benefits to the rural community. Therefore, it is essential to do research on the current progress for improvement of the program and benefit the surrounding community.

1.6 Scope

The focus of the study was in the North-eastern part of Namibia - Kavango West region of the fourteen regions. Sikondo and Siyandeya are villages from Kavango West. The target population included the households in the village where a Green Scheme exists and another with no Green Scheme.

1.7 Limitations

Challenges faced in the study included delay in data collection. Making an appointment to meet the community leaders was done early, but the actual meeting took long due to waiting for the day that the leaders were to come for a meeting. The opportunity was however well utilized and the information concerning the study was fast spread among the community members. There was delay in disbursement of research funds that made data collection difficult. The numbers of households in the selected villages were counted manually moving from one house to the next and taking the Global coordinates by (GPS) of each household. The data was taken by transect walks of more than ten kilometers per day. Though it took long to cover all villages involved, with households widely spread, the global positions taken were of help in directing to the respondents' homesteads.

Some respondents had high expectation for monetary compensation for their time. It seemed that not all were able to listen to the announcements about the study and not all were in the village while the information was exchanged. However, upon explaining that this research study was for academic purposes only, respondents were able to give the information that was asked of them to

the best of their knowledge and experiences. On the same note, other community members were reluctant in giving some information especially pertaining to the assets that they own as they believed that there will be some sort of asset distribution to the residents that did not own anything. Explaining the objective of the study shed more light on what the study intended to cover and the reasons thereof.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter seeks to unfold a detailed review of related literature to the impacts of the Green Schemes on the livelihood of the communities in which they are based. The chapter highlights the state of agriculture in Namibia, Green Scheme policy; state of the Green Schemes and finally challenges facing the Green Schemes.

2.2 State of Agriculture in Namibia

"Less than 1% of Namibia is arable. About 47% of the active population depends on agriculture for their living. Agriculture consists of two sectors: a commercial sector with some 50,000 workers (producing 80% of annual yields), and a subsistence sector situated largely in communal areas. Colonialism left Namibia with a three-tier agricultural production system: 4,000 commercial ranches; 20,000 stock-raising households; and 120,000 mixed-farming operations. The ranches displaced local farmers on 66% of the viable farmland and left only 5% of the land to the 120,000 mixed-farming operations." (“Agriculture - Namibia - area, annual, farming, system, sector,” 2010).

In addition, corn is grown primarily in the area known as the Grootfontein–Otavi–Tsumeb triangle, where farms are much smaller than in other parts of the country. Corn production in 1999 amounted only to 18,000 tons (down from 50,000 tons in 1991) (“Agriculture - Namibia - area, annual, farming, system, sector,” 2010). Recent droughts have created a dependency on

grain imports. Namibia is dependent on South Africa for corn, sugar, fruit, and vegetables. In 2001, Namibia's agricultural trade deficit was $17.8 million (“Agriculture - Namibia - area, annual, farming, system, sector,” 2010).

Zambezi and the two Kavango regions in the northeast have potential for extensive crop development. Communal farms there are estimated to produce 60% of their staple food, such as mahangu commonly known in Africa as millet (which is also used to brew beer). Cotton, groundnut, rice, sorghum, and vegetable production have begun on an experimental basis in Kavango. An irrigation project at Hardap Dam near Mariental produces corn, alfalfa, feed corn, and grapes (“Agriculture - Namibia - area, annual, farming, system, sector,” 2010).

"Namibia’s potential for agriculture is severely limited due to climatic and soil factors. The main food crops grown in Namibia are millet and maize. Other food crops include ground nuts, wheat and sunflowers. During the past five years agricultural output has been seriously constrained by recurring drought, floods, locusts, insects and worm invasions" (WHO, 2014)

The main agricultural output in Namibia is livestock (mainly beef cattle, sheep and goats) which is produced on commercial and communal farms. (Burke, n.d.).

The consumption of diverse foods may be higher in urban areas where shops sell an extended range of fresh and industrial food products. The small local shops in rural areas mainly sell basic commodities and little or no fresh produce. Majority of people residing in informal settlements lives in poor hygienic conditions and lack basic amenities such as potable water and sanitation facilities (WHO, 2014).

Detailed data on common food intake patterns in Namibia is sparse and information is mainly based on popular knowledge. It is believed that meals mostly consist of maize meal or mahangu (millet) which is prepared as porridge or thick paste. This is usually accompanied by fish or meat and few people consume legumes. Vegetables such as green leaves, squash or tomatoes are sometimes added to the meat or fish but not every day. Fruits are apparently rarely consumed. Food patterns are believed to differ between urban and rural areas as well as different cultural groups. For example, some traditional diets are limited to meat and dairy products, and are an expression of deeply-rooted cultural values (WHO, 2014). In addition, local foods which are usually grown or naturally available in rural areas are not available to households in towns and cities due to lack of space and water. Programs must therefore emphasize the nutritional value of locally grown foods, with strategies for developing home gardens in urban areas as well as rural locations (WHO, 2014). 12% of Namibia's exports are food exports, mainly meat and fish. Industrial development is still at an early stage and food processing for both the domestic and the export market is the main activity. One third of all manufacturing is engaged in the fish and meat-processing, brewing and soft drinks, dairy and other food products.

Namibia is heavily reliant on food imports, especially of fruit and vegetables, mainly from South Africa. Between 50% and 80% of Namibia's grain requirement is imported every year. 0.2% of cereal imports are in the form of food aid. 5.6% of Namibia's imports are food imports (WHO, 2014). The state of Agriculture in Namibia need initiatives to be put in place to ensure production of food items that can replace most of the imports. For instance, the production of fruits and vegetables at a large scale will ensure that the imports are reduced. Although vegetables are produced by the Green Schemes the quantity still needs to be increased in order to supply to most of the supermarkets country wide (WHO, 2014).

The Ministry of Agriculture, Water and Forestry (MAWF) is implementing initiatives geared to improving food production, including the diversification of crop production to bring about improved nutritional status in the country. These initiatives include projects such as National Horticulture Development Initiative, Dry-land Crop Production and Green Schemes for grain producers and Strategic Food Reserve Facilities (silos) ("CAADP Nutrition Capacity Development Workshop for the Southern Africa Region. Nutrition Country Paper- Namibia," 2013).

2.3 Green Scheme Policy

"The Green Scheme is an initiative conceptualized and introduced by the Government of the Republic of Namibia with the aim to encourage the development of irrigation-based agronomic production in Namibia, in order to increase food production thereby contributing to the Gross

Domestic product, National agenda for food self-sufficiency and food security as well as job creation"(Kandjeke , 2013). The policy is an initiative to encourage the development of irrigation based agronomic production in Namibia in order to increase the contribution of agriculture to the country's Gross Domestic Product. The aim is also to simultaneously achieve the social development and to uplift communities located within suitable irrigation areas and to also promote the human resources and skill development within the irrigation sub-sector. In this context, commercial farming enterprises are tied to a settlement of small-scale farming units in a joint enterprise (Bank, 2004).

In 2013, the Auditor General informed that the Green Scheme policy as revised and adopted in December 2008, provides guidance and a legal framework on the implementation of Green Scheme initiatives. "The Ministry of Agriculture, Water and Forestry (MAWF) within its mandate of promoting and managing the sustainable utilization and development of agricultural, water and forestry resources have been charged with the responsibility of implementing the Green Scheme Policy. In an effort to fulfil its mandate the Ministry created an Agro-Production Unit within the Ministry to spearhead the implementation process" (Kandjeke, 2013).

"Namibia developed the Green Scheme program with the aim of developing 27 000 hectares of irrigation land in 15 years along the five perennial rivers of the country, namely the Zambezi, Orange, Kwando, Kavango and Kunene. Some 9 000 hectares are under irrigation in the various projects at present but in the next five years, according to the ministry's strategic plan, 27 000

hectares should be under irrigation. The program, according to the Ministry of Agriculture, is the country's blueprint to achieve food self-sufficiency as outlined in the country's development road map of Vision 2030 " (New Era, 2010).

The Green Scheme projects are owned by Government through the Ministry of Agriculture, Water and Forestry (MWAF). The Green Scheme projects were operated by various service providers on either lease or profit-sharing agreement and there were projects under the direct management of the MAWF (Kandjeke, 2013). Although Service Providers are still visible on few Green Schemes, now the Government is taking over through AGRIBUSDEV (Agricultural Business Development Agency. The Government set to achieve the targeted 27 000 hectares of land under irrigation by 2015 through increasing irrigated agricultural areas to full potential and by identifying potential areas for agricultural irrigation but also through the development of storage facilities and marketing infrastructure, capacity building, research and development, and diversification of agricultural crops and export promotion.

As part of the development of agricultural supportive infrastructure, the Ministry of Land Reform plans to develop agro technology centres in Ongwediva and Rundu where technology can be adapted for farming ventures to succeed. In addition, the ministry will train interested Namibians in agricultural skills at Mashare, Tsumis and Kalkrand.

It is envisaged that when all the strategies have been implemented, Namibia will be self-sufficient in cereal. Namibia consumes about 180 000 tons of cereal in a year with the Angola

market especially in provinces that border Namibia which depend on it, the demand could reach around 200 000 tons.

In addition to food supply, Namibia could easily create additional 20 000 jobs both permanent and seasonal from farming activities, food processing, distribution and logistics. Export earnings, he said would also increase with the full implementation of the Green Scheme program ("Food, Agriculture and Natural Resources Policy Analysis Network - FANRPAN," n.d.).

2.3.1 Target group(s)

According to The Auditor General, (2013), the target groups of the Green Schemes are as follows:

Investors and irrigation expertise

With the aim to attract private and irrigation expertise to assist the Government in achieving its objectives of increased food production and skills transfer to emerging irrigation farmers.

Emerging commercial irrigation farmers

Whilst the purpose of the Green Scheme is to increase food production in Namibia, the main beneficiaries will be rural farming communities that are willing to venture into new agricultural activities. This demands deliberate State intervention and support.

Rural communities

As far as employment and job creation are concerned, preference will be given to rural communities residing near the projects. The aim is to stimulate the rural economy and subsequently increase its attractiveness to investors and employees alike.

Individuals with legal entitlement to land

The aim of the Green Scheme policy 2008 is to encourage existing farmland owners with access to irrigation water to assist Government in its drive to develop irrigation agriculture for enhanced food security and the diversification of agricultural production.

2.4 The state of Green Schemes

Seven(7) Green Scheme Projects out of eleven (11) were visited for a performance audit namely Shadikongoro Irrigation Project, Ndonga-Linena, Mashare, Uvhungu-Vungu, Orange River, Etunda and Hardap Irrigation Projects.(Kandjeke, 2013). The results of the audit showed that there was a mismanagement of the Green Scheme Projects; lack of monitoring and evaluation of the projects; lack of funding from both public and private sectors; no suitable land for irrigation which made it difficult for the expansion of existing projects; lack of farmers' empowerment; no further development of new projects; and the development was very slow in Zambezi region which has the highest potential for the Green Scheme activities due to poor planning among the communities.

The financial state of the Green Schemes showed that two of the five projects under the audit, consecutively incurred losses and that one project (Mashare) incurred loss only once during the three years under review but made profits for years 2009 and 2011. However, Shadikongoro project made profits for all the years under review.(Hansen & Kathora, 2013). This is one of the indicators of the performance of the Green Schemes. The lack of a uniform progress and financial reporting structure leads to poor management and evaluation of Green Scheme Projects. A week before President Hage Geingob was expected to unveil details of his ambitious Harambee Prosperity Plan; producers in the agronomic sector were urged to make constructive contributions to ensure greater prosperity and a life of dignity for all Namibians. The request came from Minister of Agriculture, Water and Forestry who reminded members of the Namibian Agronomic Board (NAB) about their important role in the fight against poverty eradication (Schlechter, 2016). He said the NAB should contribute towards economic growth and employment creation. Namibia is expected to import some 150 000 tons of maize to supplement the expected 44 650 tons from local producers. CEO of NAB Christoff Brock assured consumers that maize will be readily available on shelves in shops countrywide, despite the patchy and erratic rainy season. An indication that the green schemes are not meeting the productivity that was earlier anticipated is the import of the quantity of the crop to add to the local produce and feed the Namibian nation. The rest of the agronomic produce is however at sufficient levels.

2.5 Challenges facing the Green Schemes

Lack of regulation to protect local fresh produce from competition against cheap imports and a small absorption capacity has been identified to hamper Namibia's fledging Green Scheme.

Furthermore, regulation against competition from cheap mass produced fruit and vegetables from South Africa would help ensure that locally produced crops have a market, thereby bolstering domestic consumption (Xoagub, 2014).

Furthermore, a need existed to set up proper production planning systems and value chain addition as well as improve marketing of locally produced fresh products. Comments followed a Nampa report that indicated that tons of vegetable produced at the Uvhungu-Vhungu Green Scheme project had gone to waste because of lack of storage facilities and a limited market.

Uugwanga blamed what appeared to be over-production or lack of planning because agricultural products from countries like South Africa continued to flood the Namibian market. He proposed a regulation to stop foreign fresh produce flooding the market as a means to compel businesses to buy from local producers rather than to import from other countries. The Uvhungu-Vhungu fiasco showed a lesson that even the fresh produce business hubs established and are operational at Ongwediva and Rundu do not have the capacity to absorb the small quantities of goods produced locally. Manager of the project Magret Matengu said that the Uvhungu-Vhungu Green Scheme had struggled to find markets for its produce. She attributed the problem to the fact that the market for butternuts and pumpkins had become flooded because other Green Scheme projects like Sikondo and Ndonga Linena projects situated in the same area produced the same products (Xoagub, 2014).

A new national plan, the Harambee Prosperity Plan, which is aimed at improving accountability in governance; secure improved financial management and effective cost controls; "social progression, aims to eliminate hunger and poverty and make Namibia the most competitive economy in southern Africa by 2020. The creation of the mooted food banks is part of that intervention, as is harnessing social safety nets for vulnerable citizens. The final pillar deals with infrastructure development and would address water infrastructure in the country (Schlechter, 2016).

The Agronomic Amendment Bill is already listed on the parliamentary calendar. It is expected to be passed in July, which will approve the newly established Agro Trade and Marketing Agency (AMTA) and the Agricultural Business Development Board (Agribusdev). AMTA is responsible for the practical implementation of marketing, processing, handling and trade of all agronomic products, while AGRIBUSDEV is responsible for ensuring actual production of agronomic crops at government's Green Scheme Projects throughout Namibia (Schlechter, 2016). In conclusion the literature indicates that with good enforced regulation and protection of local produce, Namibia will be at a level that will ensure food security and strengthening of the Schemes to reduce the challenges that exist.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The purpose of this study was to a questionnaire to find the socioeconomic characteristics of two communities. The methodology used in the research is covered in detail in this chapter. This research relied mostly on primary data collected in the field during field work. A detailed screenshot of the communities are depicted below. The chapter also makes an analysis of the research design adopted by the researcher, target population, the strategy used, the sampling method; data collection methods and analytical methods.

3.2 Research design

A survey research design was used in this study. The research was intended to extract facts on how the Green schemes impact the livelihood of members of the homesteads in the surrounding villages in each selected region of study. Qualitative method of data collection was used in which respondent's experiences were examined through in-depth interviews and observations (Hennink, Hutter, & Bailey, 2011). The study plan involved the gathering of information on socioeconomic characteristics from households living in two different communities or village settings whereby one is with a Green Scheme and the other without a Green scheme. The study comprised two groups where one was considered as the treatment (households in a village having a Green

Scheme intervention) and the control (households in the immediate village without a Green Scheme intervention).

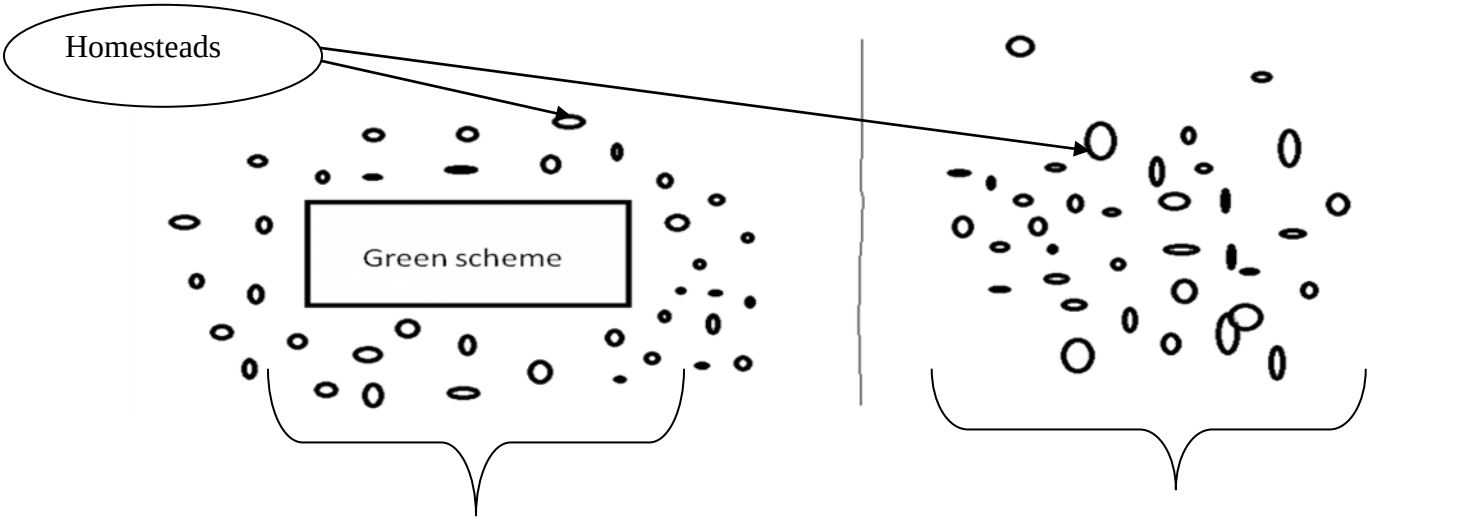


Figure 3.1 Households in a village with a green scheme intervention (treatment)

Figure 3.2 Households in an immediate village with no interventions (control)

Personal communication were also conducted with Green schemes manager to build knowledge on the activities, projects and the services offered to the people in the Green scheme's surrounding area. Confirmations of the Green scheme objectives as outlined in the Green scheme policy were incorporated.

3.3 Target Population

This study was intended to target the population of people in two regions Kavango East (capital Rundu; 136,823 inhabitants in 2011) and Kavango West (capital Nkurenkuru; 86,529 inhabitants in 2011) (“Namibia: Regions, Cities & Urban Localities - Population Statistics in Maps and

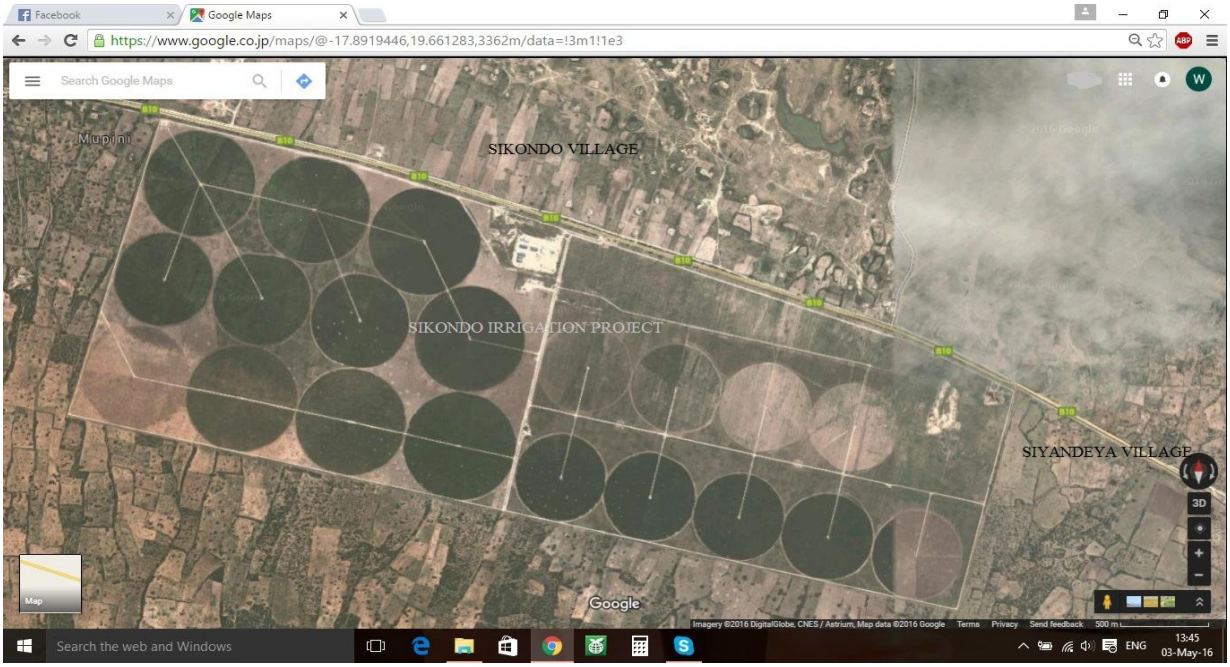
Charts," 2015). However, due to the vast diversity of this population in terms of socioeconomic status and other related variables it could not be possible. The target population was scaled down to households residing within two settings of the Kavango West region where every household had an equal chance of being selected. One setting had households in which the Green Scheme is based (Sikondo with about 356 households) and the other setting had households in a village without a Green Scheme intervention (Siyandeya with about 329 households). Choosing these two settings provided for a sample of households within a confined geographic area thereby facilitating the collection of data. Every household head selected was subjected to questioning.

3.4 Description of study area

The Sikondo irrigation project is situated in Kavango West region, at Sikondo village, on the outskirts of Rundu on the road to Nkurenkuru. Sikondo village hosts about 356 households. The scheme is a modern inspiration that spans 1000ha. It covers a total of 850 hectares of which 580 hectares are used for commercial farming, and 270 hectares are used for medium-scale farming. Nine (9) medium-scale farmers (MSF) occupy 30 hectares each. The project is directly through contract agreement with the Ministry of Agriculture, Water and Forestry (MAWF)(AGRIBUSDEV, 2011). Even to the untrained eye, the regimented fields of rain fed maize and mahangu (millet), the pivot sprayers leaning over irrigated crops, the silos and storage sheds, the well maintained farming equipment and the process and order imposed on the farming operation speaks to the intent of maximizing yield with careful consideration and utilization of the available resources. Of the 800ha production area, 600ha is under irrigation: 480ha is under

20 centre pivots; 70ha under draglines and 54ha under micro irrigation. Between 50 and 60 ha of the produce at Sikondo project is cultivated under rain fed conditions.

Sikondo Irrigation Project falls under the Ministry of Agriculture, Water and Forestry's Green Scheme Project strategy "to attract and enable large scale commercial farming enterprises to establish commercially viable entities in remote undeveloped rural areas to act as service providers for the successful and sustainable settlement of small scale farmers". Sikondo has only been producing for three years and is made up of two farms where MSF work the eastern side of the land and commercial scale producers work the western side. The new Master Agronomist spoke about the increasing pressures of the input costs of running a successful operation ("Sikondo Reaps NAB Maize Award | New Era Newspaper Namibia," 2015). The scheme is situated in the Sikondo village neighboured by Nakazaza/Siyandeya and Mafugu/Mupini villages.



Map 1. Screenshot from Google Earth 1 showing Sikondo irrigation project (in Sikondo village) and the adjacent village Siyandeya.

3.5 Sampling frame

A sampling frame is a defined population from which a sample is drawn (Surveys & Guidelines, 2010). The interest of the study was a survey of households who are in the community where the Green Scheme is found and those in a community with no Green Scheme. In particular, households in Sikondo and Siyandeya.

Households in the villages do not have a specified setting in exception of constructing or setting a household in a public area such as a park or very close to the road as well as in dangerous places for instance under a transformer. There is therefore no order in which households or houses should be constructed. The household are randomly built in the sense that some are close

to their neighbors, others widely separated from their neighbors while others are literary sharing a doorstep.

Purposive and random sampling techniques were used to select Green schemes and households respectively. For the purposive sampling also known as judgmental sampling, the schemes were picked that could deliver the best information in order to satisfy the research objectives in question or with a purpose in mind (Ofori, 2011). In this case, selection of Green schemes that has the same or similar characteristics in terms of size produce and time of establishment. Random sampling technique as one which allows for every unit of a population to have an equal chance of being selected was used for the households' selection in each village.

3.6 Sample and sampling technique

A random sample was drawn from the population for both settings. The study used purposive sampling to select Green Schemes from each study region. The schemes selected formed the strata of the study region. The households were selected using simple random sampling method and sample size calculator to obtain the sample size from each stratum as indicated below using Daniel (1999) 's formulae. A Global Positioning System (GPS) was used during allocation of numbers to households. Using a table of random numbers, the households were selected from each setting until a minimum of the estimated sample number (30 households per village) in each setting was obtained.

3.6.1 Formulae used in the calculator

Formula with infinite population correction:

N= $\frac{Z^2 P(1-p)}{d^2}$ …… **Equation 1**

where,

n =Sample size

Z = Z statistic for a level of confidence

P= Expected prevalence/proportion, expressed as a decimal

d= Precision (if the precision is 5%, then d=0.05)

Formula with finite population correction:

Sample Size for Finite Population (where the population is less than 50,00)

n ' $= \frac{NZ^2 P(1-p)}{d^2(N-1)+Z^2 P(1-P)}$ ……**Equation 2**

Where:

n ' = Sample Size with finite population correction

N = Population size

Z = Z statistic for a level of confidence (e.g. 1.96 for a 95 percent confidence level)

P= Expected proportion, expressed as a decimal (if prevalence is 20%, P=0.2), and

d= Precision (if the precision is 5%, then d=0.05)

A Z-value (Cumulative Normal Probability Table) represents the probability that a sample will fall within a certain distribution. The Z-values for confidence levels are: 1.645 = 90 percent confidence level; 1.96 = 95 percent confidence level; and 2.576 = 99 percent confidence level.

This study used equation 2 to calculate the sample size of the households in communities to which the questionnaire was administered.

3.7 Instruments

A questionnaire was developed comprising open-ended and structured question(s). Personal communications were used to get information from the key informants. Other instruments used for the accomplishment of the study included a GPS, digital camera, pen(s), a pencil and note pad. A voice recorder was used to record data during the meeting with the community leaders and interview.

3.8 Data collection procedure

3.8.1 Questionnaire

A questionnaire and a simple instruction sheet were provided to guide the enumerators through the interview in each setting. A questionnaire comprised structured and unstructured questions. Qualitative and quantitative data were collected. A voice recorder was used to ensure that information missed by a note taking may still be recovered through a recording and it helped a researcher to rewind their discussions for better understanding of the discussion afterwards. Prior

to data collection, the headmen of villages to be sampled were consulted for permission and awareness of what the study is all about. An introduction to the research was given to the respondents. The introduction described the research and its importance and the support of the enumerators. Each enumerator involved was trained on how to read, listen and record each response in an unbiased manner. The questionnaires were self-administered to the respondents within three months. While the closed-ended questions allow for easier analysis of the data due to standardized questions, their main limitation is that they allow collection of data to determine only what the respondents are doing and not how or why they are doing it (Ofori, 2011).

3.8.2 Interviews

Face to face interviews were held with the key informants such as the Green scheme manager of Sikondo to gather critical information regarding the Green Scheme projects and impacts on the surrounding villages. An Interview guide was used for the key informant interview sessions.

3.9 Pilot study

The enumerator training included a pilot study to test the questionnaire. The questionnaire had open-ended questions that sought to encourage respondents to share as much information as possible in an unconstrained manner. Closed-ended questions, on the other hand, involved choices that the respondents had to choose from and they were still given an opportunity to add other experiences related to them. A pilot study was done at one of the 12 Green Schemes at Shadikongoro in Kavango East region of Namibia where the first pilot test for the questionnaire

was carried out. Shadikongoro, like Shitemo irrigation project, was established before independence (21 March 1990). The pilot testing outcome showed that the questionnaire had too many open ended questions that did not contribute to the study and that a lot of areas of interest were not incorporated in the questionnaire. Another aspect that was observed is the fact that the questionnaire did not cover all aspects that were meant to be included in order to meet the objectives of the study. In addition, the scheme was established before the people moved to that village and thus questions on how the scheme changed their lives before and after the establishment did not apply to them. This therefore sought a need to revisit the questionnaire and this resulted in undertaking another pilot study at Shitemo. The questionnaire collected data that contributed to the objectives of the study and hence seemed fit to be used for the overall data collection from the target group.

3.10 Analytical methods

The Statistical Package for Social Sciences (SPSS) was used for analysis and the Microsoft Excel was used to graph the descriptive statistics. The study provided a description of the sample from which data was collected; descriptive information on age, gender, and village setting were described, as well as the means, range, and standard deviations to compare the economic benefits of people around Green Scheme and the control. Chi-square test was used to determine an association of challenges faced by people around the Green Scheme and as the tool to control as well as a means to find out income generating activities for people in the immediate village from the Green Schemes and those around. Cross tabulations were used to evaluate the impact of the Green Schemes between village settings.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter provides information on the findings and analysis of the data collected for the study. The responses from the respondents are used to describe, analyze and make inferences so as to establish relationships.

4.1 Background Information on Respondents

Table 4.1 Position of respondent in the household cross tabulation

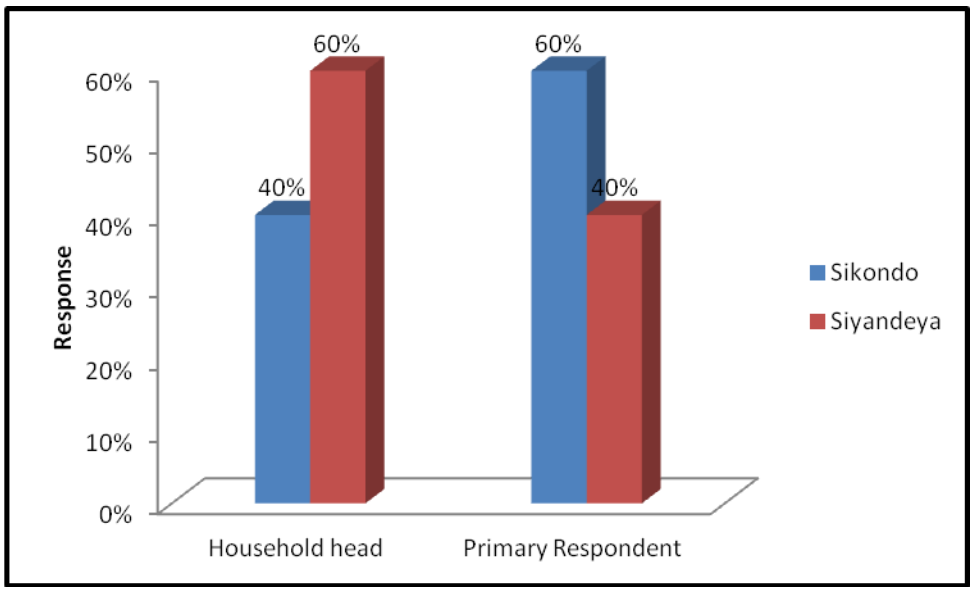


Table 4.1 shows 30 households that were surveyed per village of which 40% were household heads and 60% were primary respondents who were not household heads for Sikondo whereas for Siyandeya 60% were households and 40% were primary respondents. These further allows an understanding that respondents from both Sikondo and Siyandeya were equally represented by household heads (50%) and primary respondents (50%).

The relation to household head distribution showed that both Sikondo and Siyandeya were represented by wife, a child or other relatives such as a grandchild, niece/nephew in the study. The overall majority of the respondents for both villages were the household heads (self) with 45% followed by wife (25%) and son (13.3%). Only 8.3 % of households were represented by daughters and 8.3% by other relatives as shown by Figure 1 in the appendices.

The sex distribution depicted, both males and females were represented in the study and out of thirty (30) respondents interviewed for each village, 66.7% were females and 33.3% were males for Sikondo village whereas Siyandeya had 60% males and 40% females as indicated by Figure 2 and 3 (appendices). The results further indicated that, in terms of gender, majority of the respondents were females (53.3%) anchoring to the fact that the national gender distribution is skewed towards females. This can be attributed to the few opportunities that exist for women in the region such as educational development and the fact that women are homemakers.

The analysis of the respondents' marital status on Table 1 (appendices) revealed that for both villages the respondents were single, 50% and 83.3% for Sikondo and Siyandeya respectively.

Cohabiting was the second highest marital status for Sikondo (26.7%) followed by married respondents (16.7) and lastly 6.7% was for the widows. Widows were the second category (10%) and cohabitating (6.7%) being the last for Siyandeya. No cohabiting respondent were recorded for Siyandeya.

Chi-square test result showed that there was a strong statistically significant association between village and marital status of respondents with $X^2=11.986$ *and* $p=.007$ (appendices Table 1).

Table 2 (appendices) describes the distribution of age within the surveyed communities. Sikondo respondents had a mean age of 47. 03 years old with error term of ±2.839 while for Siyandeya there was a mean age of 45.83 with ±2.988 error term. The overall mean age of respondents was 46.43 ±2.045 S.E.

Education levels that were used in this study included no formal education; some primary school; primary school completed, some high school; high school completed and tertiary education as shown in Figure 5 (appendices). Highest level of education showed that most respondents from both the village with an intervention and that without had completed primary school but did not complete high school, 40% and 43% for Sikondo and Siyandeya respectively. 4% and 3% have completed their high school. The least represented group was the Tertiary education with only 4% for a village with a government intervention. None of the respondents from the village without an intervention had a tertiary education. About 28% and 20% of respondents did not have any formal education for Sikondo and Siyandeya respectively. This implies that respondents had appreciably low level of education.

Agriculture was observed to be the most important occupation for the employed for both village settings with Sikondo having 38% and 28% for Siyandeya as in Figure 6 (appendices). The rest of the respondents were unemployed, Sikondo(62%) and Siyandeya(72%) were the majority. Sikondo tend to have more employed and less unempolyed household heads compared to Siyandeya.

Table 4.1 Household size

Village name	Mean	Std. Error of Mean	Std. Deviation
Sikondo	7.20	.633	3.468
Siyandeya	6.77	.602	3.298
Total	6.98	.434	3.362

Table 4.1 depicts the size of the households. The mean household size was 7.20 for Sikondo and 6.77 for Siyandeya. Each sampled household had more than 6 habitants in the household. A member of the household counted was one who has belongings in the household. A student at an institution for instance was considered as a member of the household because the belongings are there and even if this student goes to school elsewhere, that is the only home that s/he lives in.

Table 4.2 Residence of respondent on current village before the green scheme was established

		Yes	No	Total
Sikondo	Count	29	1	30
	% within Village name	96.7%	3.3%	100.0%
Siyandeya	Count	27	3	30
	% within Village name	90.0%	10.0%	100.0%
Total	Count	56	4	60
	% within Village name	93.3%	6.7%	100.0%

96.7% of residents at Sikondo resided on the village before the establishment of the green scheme, while 3.3% were elsewhere and came at the village after the Green Scheme was already under production. A similar trend was observed with Siyandeya that the majorities (90%) of the villagers were born there and only 10% migrated from other villages. The overall respondents for the residents were 93.3% while migrants were 6.7%.

4.2 Impact of Green Scheme on the livelihood of communities

4.2.1 Economic benefits of people around Sikondo irrigation project

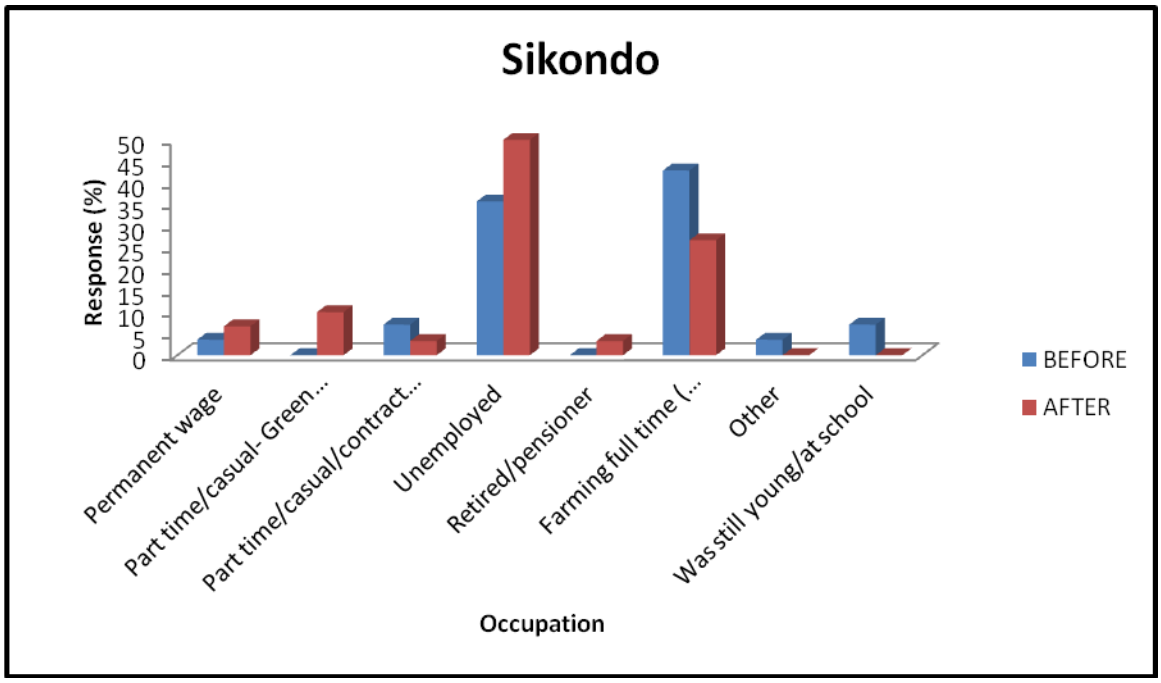


Figure 4.3 Main occupation before and after the Green Scheme started

Figure 4.3 sought to identify the main occupation of the respondents. Before the establishment of the Green Scheme, the majority of the respondents (42.9%) were farming full-time in the communal area; 7.1% were part-time workers; 3.6% were permanent workers in a private sector. 3.6% had other occupations such as informal trade and 35.7% were unemployed. This implies that among the groups that were interviewed in Sikondo the farmers constituted the largest.

The main occupation of the respondents after the Green Scheme was identified to be farming full-time in the communal area(26.7%); 10% are part-time workers in the green scheme and

3.3% elsewhere; 6.7% were permanent workers in a private sector, 3.3% are pensioners and 50% are unemployed.

It should be noted that though the main occupation before and after the establishment of the Green Scheme was observed to be farming in communal areas in Sikondo, a change in the main occupation was recorded. The results showed that there was an increase in the number of people employed permanently following the establishment of the Green Scheme (from 3.6% to 6.7%). Part-time occupation also increased in terms of category, 10% being in the Green Scheme and 3.3% elsewhere. Unemployment rate was 35.7% before the Green Scheme to 50% after the Green Scheme. This can be as a result of not having a lot of people having their own fields or farms to employ others especially when it comes to farm work from clearing to harvesting.

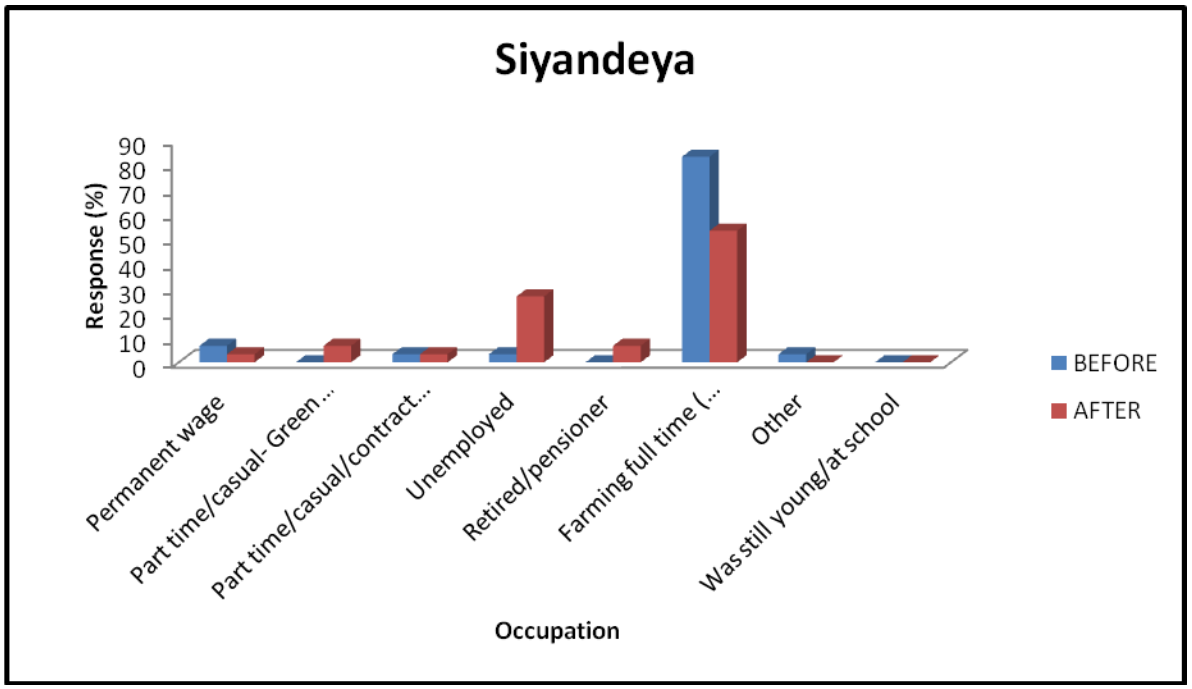


Figure 4.4 Main occupation of Siyandeya residents before and after the Green Scheme

Categories that were given by respondents regarding the main occupation included permanent wage employment in the government, part time employment, unemployed, retired/pensioner and farming as shown in Figure 4.4. Like in Sikondo (Figure 4.3 above), before the Green Scheme, farming was the main occupation for Siyandeya residents (83.3%) followed by permanent employment in the government (6.7%) and finally part-time employment (3.3%). 3.3% of residents were unemployed.

The leading main occupation after the Green Scheme was farming in communal area (53.3%) followed by part time employment (6.7%) and finally permanent employment with 3.3%. 6.7% were pensioners whereas 26.7% were unemployed. A decrease in main occupations was observed after the establishment of the Green Scheme especially with farming from 83.3% to 53.3%. The decrease may be attributed to the drought that hit the country as a whole. Many farmers have shifted from cultivating or crop farming (job creation) to employment seeking in the Green scheme.

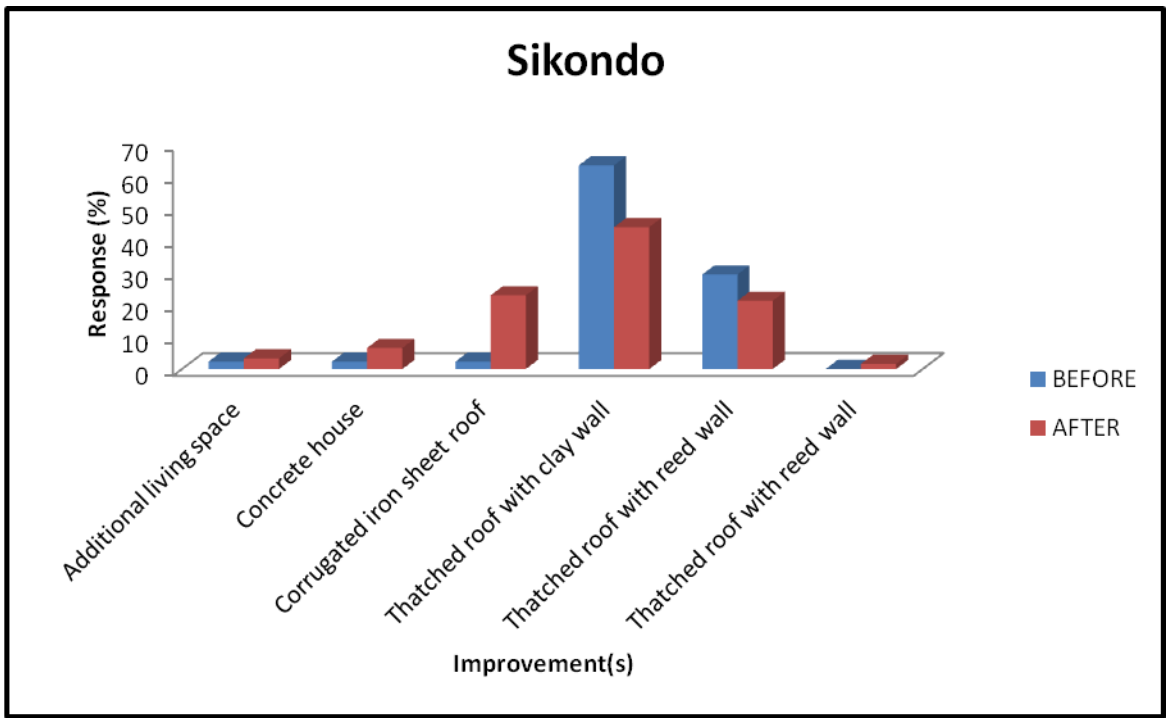


Figure 4.5 Sikondo housing or improvements to a house before and after the Green Scheme

Before the establishment of the Green Scheme, few of the respondents in Sikondo (2.3%) were able to add space to their houses such as sitting room or living room and were able to construct concrete houses in both villages (Figure 4.5). The most observed kind of housing that the respondents had were thatched roof and clay wall (63.6%) followed by thatched roof and reed wall (29.5%).

After the Green Scheme however, the most improvement made was construction of houses with with thatched roof and clay wall (44.3%) followed by houses of corrugated iron sheet roof (23%) and thatched roof with reed wall (21.3%) .

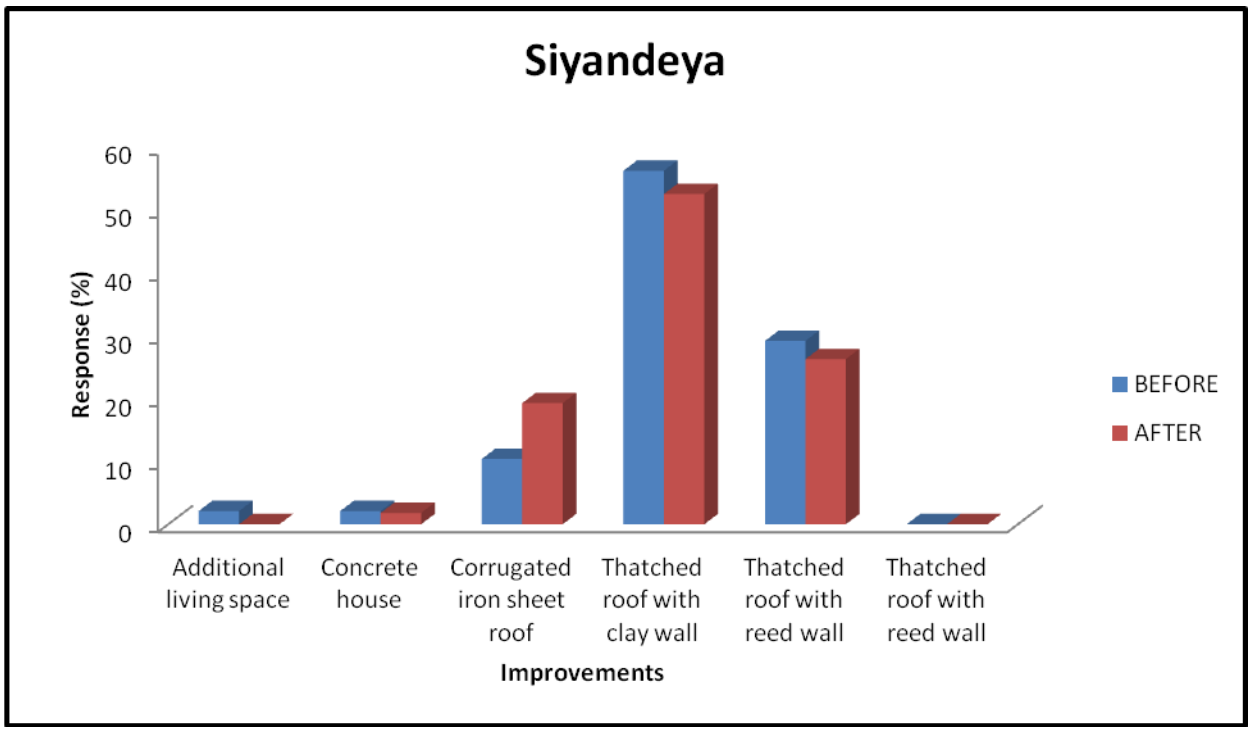


Figure 4.6 Siyandeya housing or improvements to a house before and after the Green Scheme

In Siyandeya, the most observed kind of housing that the respondents had were thatched roof and clay wall both before and after the Green Scheme (56.3%) and (52.6%) respectively, followed by thatched roof and reed wall (29.2%). The households had few respondents (2.1%) who were able to add space to their houses before the establishment of the Green Scheme. This addition was not undertaken after the Green Scheme. Concrete houses were constructed in both cases with the major being after the Green scheme (Figure 4.6).

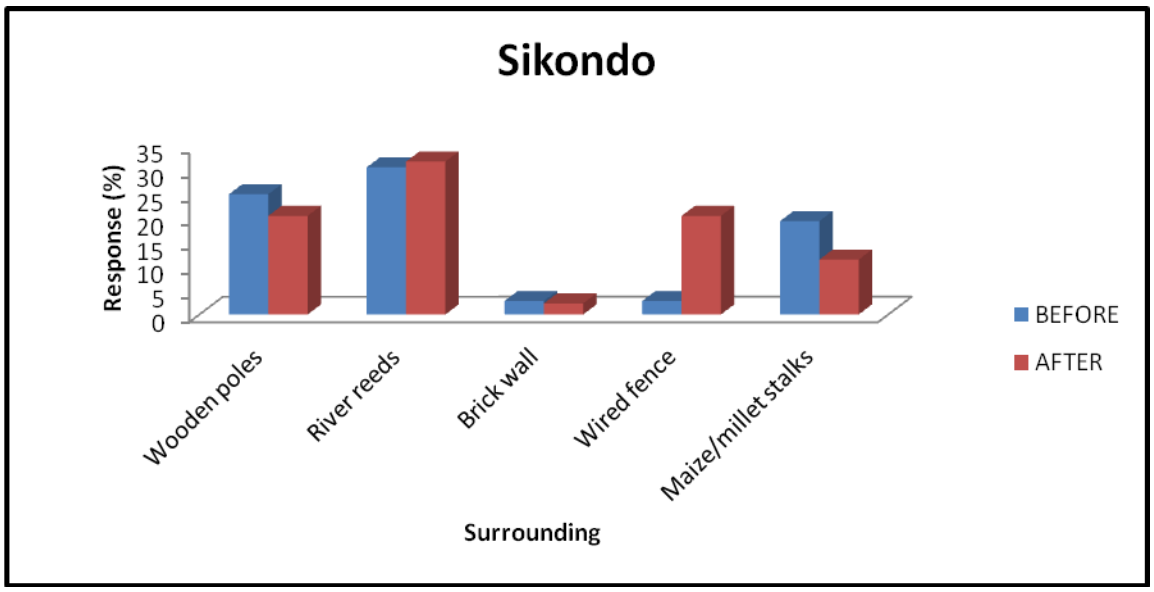


Figure 4.7 Type of fence surrounding Sikondo households

As depicted by Figure 4.7, Sikondo households mainly used wooden poles (25), river reeds(30.6%) and maize / millet stalks (19.4%) before the Green Scheme. The same type of fencing was used after the intervention in exception of maize/mahangu stalks (11.4%). The late has been replaced by wired fencing (20.5%). Same type of surroundings were used after the establishment of the Green Scheme. A common usage of river reeds was higher than the rest of the fencing, wooden poles (20.5%); river reeds (31.8%); brick wall (2.3%); fence (20.5%) as well as maize and millet stalks (11.4%). Other type of materials used for fencing were milk trees commonly known in the area as Kaveya (*Euphorbia tirucalli*) and palm tree leaf main stem.

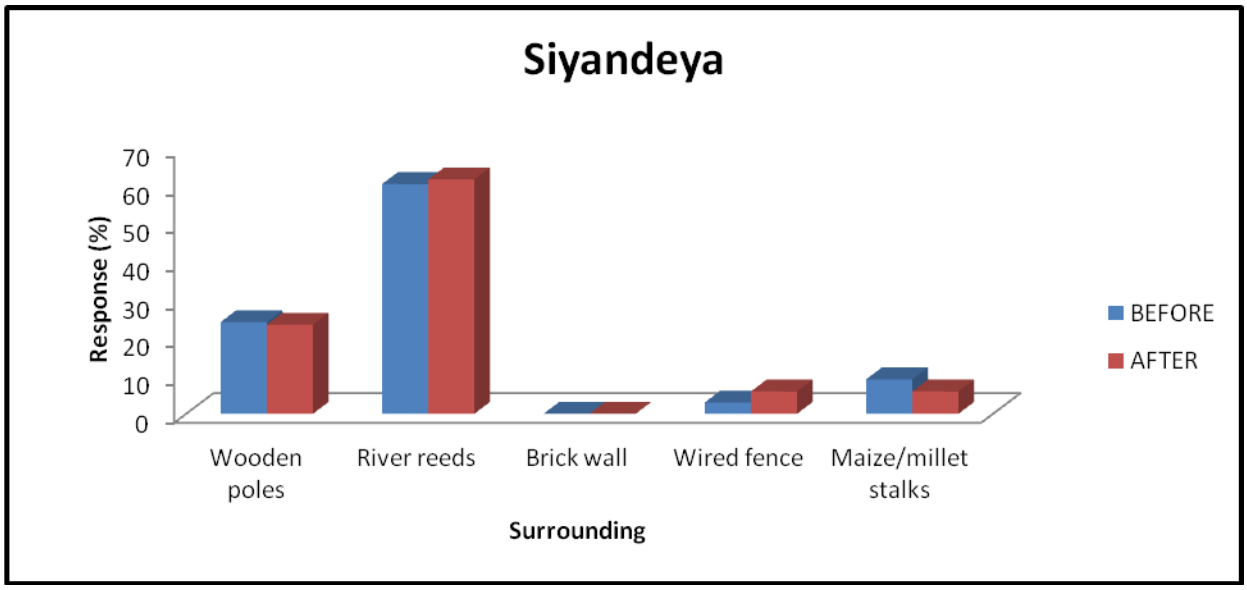


Figure 4.8 Type of fence surrounding Siyandeya households

As in Sikondo (Figure 4.8), households in Siyandeya had the same type of surroundings with river reeds(60.6%) being the commonly used material followed by wooden poles before the scheme. These remained to be the commonly used after the scheme (61.8%) and (23.5%) for river reeds and wooden poles respectively.

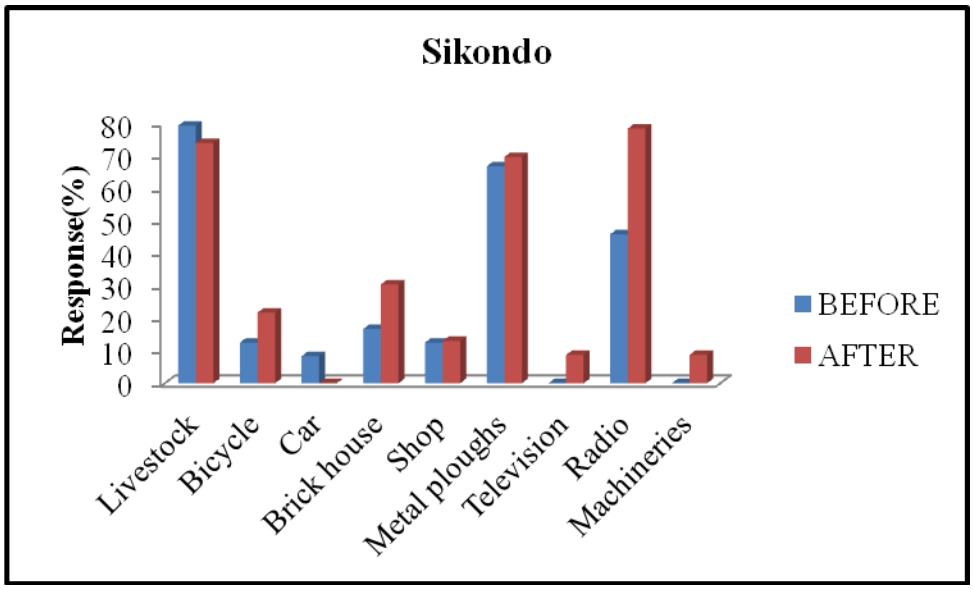


Figure 4.9 Physical assets owned by Sikondo

Although the majority (79.2% and 73.9%) of the respondents in Sikondo owned livestock before and after the establishment of the green scheme (Figure 4.9), data showed that many had this physical assets before as opposed to after the scheme. Metal ploughs and radios were also owned by many residents with an increase of the number of people who owned the metal ploughs from 66.7% before to 69.6% after the project. These means that although there is a lack of grazing for cattle resulting to death and lack of the need to own assets such as metal ploughs, Sikondo residents still buy this asset to help create jobs for themselves such as loaning the plough for a charge per day for those who have cattle but not own ploughs.

An increase in the number of respondents that owned radios was from 45.8% to 78.3%. The rest of the physical assets had a response ownership of below 22% before and after the intervention.

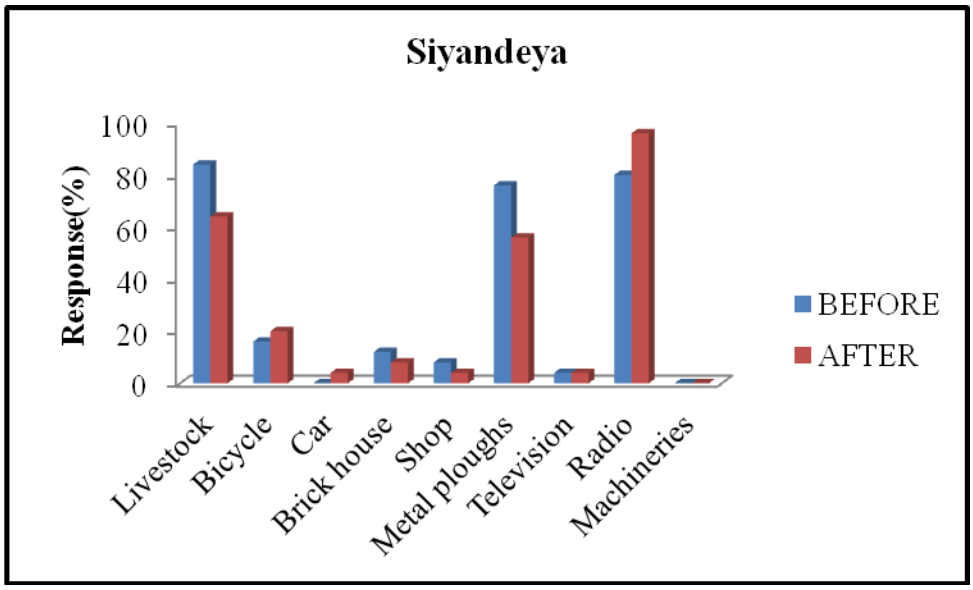


Figure 4.10 Physical assets owned by Siyandeya

The majority (84% and 64%) of the respondents in Siyandeya owned livestock before and after the establishment of the green scheme. As in Sikondo a reduction in number of respondents who owned this asset reduced after the scheme. Metal ploughs and radios were also owned by many residents with a decrease in the number of people who owned the metal ploughs from 76% before to 56% after the project. An increase in the number of respondents that owned radios was from 80% to 96%. The rest of the physical assets were owned by less than 21% of the respondents before and after the intervention (Figure 4.10).

Table 4.3 Financial capital of respondents before the establishment of the Green Scheme

	Sikondo N(%)		Siyandeya N(%)	
	BEFORE	AFTER	BEFORE	AFTER
Savings	16 (72.7)	14 (60.9)	23 (100)	23 (100)
Empolyment wage	6 (27.3)	9 (39.1)	0	0

A total of 45 respondents from both village settings had a financial capital (Table 4.3). Sikondo had savings and employment wage as a financial capital with 72.7% and 27.3% respondents rspectively. All respondents from Siyandeya had savings as a financial capital. It was however noted that the savings are not kept to mature or to accumulate, rather the money saved is used up immediately when the money in the household is spent.

A total of 37 out of 46 respondents opted for savings and 8 respondents opted for employment wage as a financial capital from both village settings (Table 4.23). As before the Green Scheme, Sikondo had savings and employment wage as a financial capital with 60.9% and 8% respondents respectively. All respondents from Siyandeya had savings as a financial capital (100%). No change was observed in the kind of financial capital between and within the villages.

Table 4.4 Chi-Square Tests for financial capital before Green Scheme

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.238[a]	1	.007		
Continuity Correction[b]	5.070	1	.024		
Likelihood Ratio	9.559	1	.002		
Fisher's Exact Test				.009	.009
Linear-by-Linear Association	7.077	1	.008		
N of Valid Cases	45				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.93.

b. Computed only for a 2x2 table

A statistical significant association was found for financial capital between Sikondo and Siyandeya villages before the founding of the Green Scheme; $X(1) = 7.238$, $p = 0.007$; ($p<0.05$); as seen in Table 4.4. The type of financial capital used was not the same for Sikondo and Siyandeya. Sikondo had two kinds of financial capital namely savings and employment wage whereas Siyandeya only had savings.

Table 4.5 Chi-Square Tests for financial capital after Green Scheme

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.189[a]	2	.004
Likelihood Ratio	14.688	2	.001
Linear-by-Linear Association	10.652	1	.001
N of Valid Cases	46		

a. 4 cells (66.7%) have expected count less than 5. The minimum expected count is .50

A statistical significant association was found between Sikondo and Siyandeya villages for financial capital after the start of the Green Scheme; $X(2) = 11.189$, $p = 0.004$; ($p<0.05$); as seen in Table 4.5. The type of financial capital used was not the same for Sikondo and Siyandeya just like before the Green Scheme.

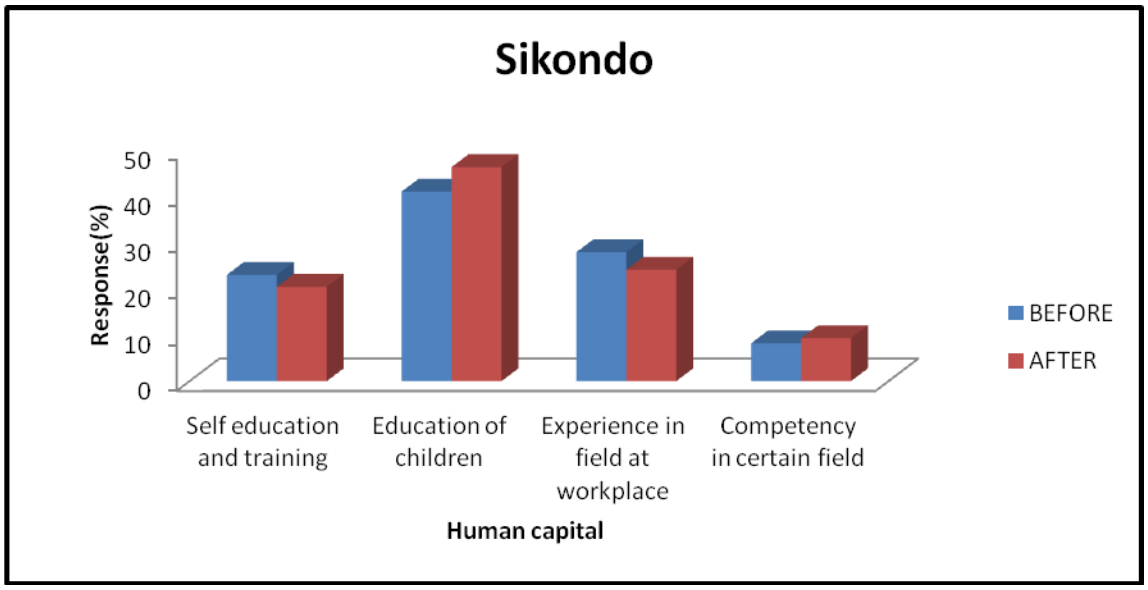


Figure 4.11 Investment in human capital for Sikondo

Most respondents from Sikondo (41%) invested in the education of children before the Green Scheme. Some had experiences in sewing, others in the use of certain machinery. About 23% invested in self education mostly in trainings leading to voluntary work; 27.9% invested in human capital in a form of experience in a certain field. After the initiation of the Green Scheme, respondents invested in human capital especially education for children (46.3%). These can be attributed to the newly introduced free education for primary and secondary education. Self education also showed an increase in number of respondents who invested in it (20.4%). A lot of trainings were offered to villagers especially women that included craft work and training leading to voluntary and counselling careers.

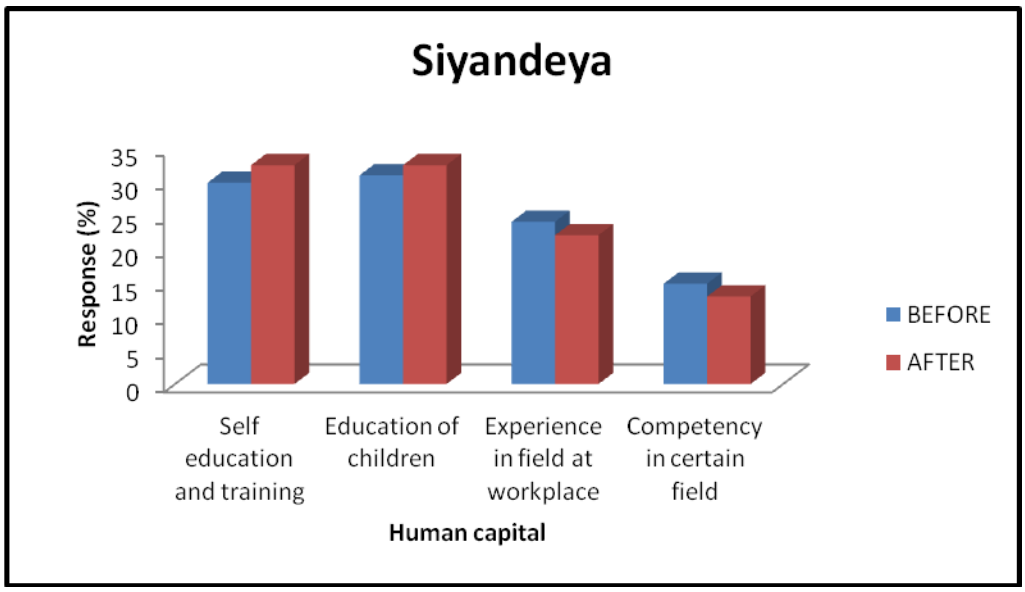


Figure 4.12 Investment in human capital for Siyandeya

Siyandeya followed the same trend as Sikondo (Figure 4.12) with education of children being the highest (31%) followed by self education (29.9%); experience in a certain field (24.1%) and lastly building competency in certain fields (14.9%).Self education and training was same to the education for children. The villagers invested in themselves as they were doing likewise for their children as far as education if concerned both before and after the scheme.

Table 4.6 Social investment for community members

	Sikondo (%)		Siyandeya (%)	
	BEFORE	**AFTER**	**BEFORE**	**AFTER**
Joint neighbor fence repair	41.2	38.9	29.8	6.9
Guarding animals jointly	39.2	22.2	29.8	3.4
Joint borehole water points	19.6	38.9	38.6	89.7
Others	0	0	1.8	0

The social investments above in Table 4.6 were the ones that the respondents took part in before the Green Scheme. Sikondo having most of the respondents participting in joint neighbor fence repair (41.2%) followed by guarding animals jointly at stock posts (39.2%). The minority took part in joint borehole water points (19.6%). The latter included digging shallow wells together as well as wells. 38.6% of respondents from Siyandeya were involved in joint borehole water points, 29.8% in joint neighbor fence repair, another 29.8% in guarding animals jointly at stock posts and lastly 1.8% others.

After the establishment of the Green scheme all the villages under study resorted to only three social investments (Figure 4.6) namely guarding animals jointly at stock posts (22.2% Sikondo, 3.4% Siyandeya); joint neighbor fence repair (38.9% Sikondo, 6.9% Siyandeya) and joint borehole water points (38.9% Sikondo, 89.7% Siyandeya). Siyandeya had a high percentage in the area of joint borehole water points due to the fact that the community has a borehole which is shared among members and repairs are jointly done. Though the borehole exists water is too salty for consumption thus mostly used for cooking some food items and washing.

Table 4.7 Chi-Square Tests: Social investments after Green Scheme

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.493[a]	2	.000
Likelihood Ratio	19.222	2	.000
Linear-by-Linear Association	14.935	1	.000
N of Valid Cases	65		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 4.02.

A very strong association was found between Sikondo and Siyandeya communities (Table 4.7) where $X\ (2) = 17.493$, ($p<0.05$). This means that though the communities had the same kind of social investment, they differ in terms of proportions in which they are invested.

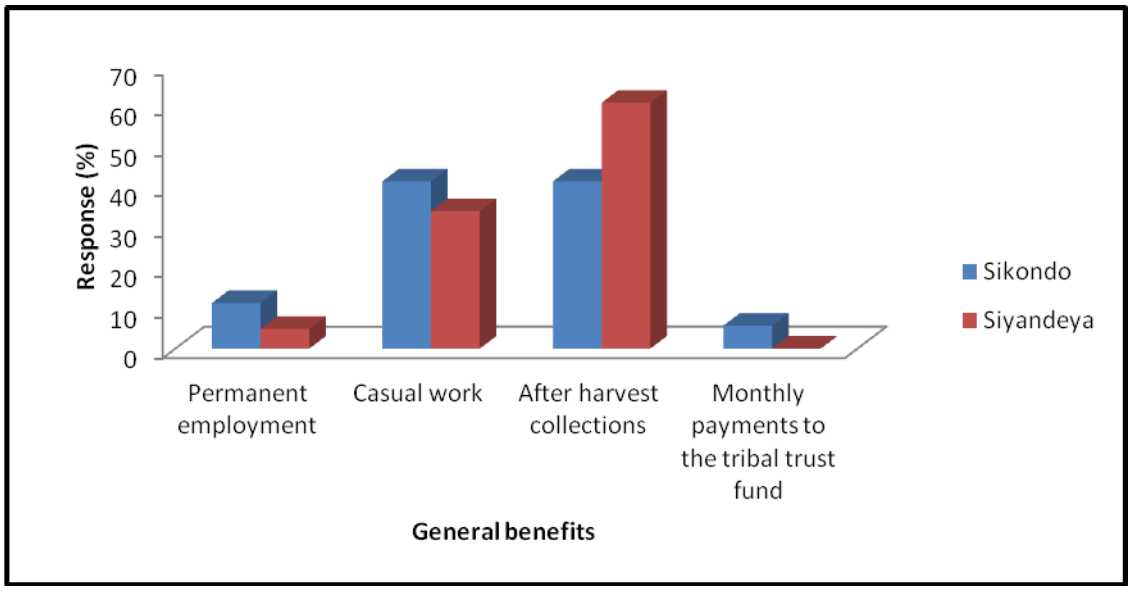


Figure 4.13 General benefits from the Green Scheme

The Green scheme was credited for its contribution towards benefiting the communities (Figure 4.13). In Sikondo, 10.3% of respondents were aware of the Green Scheme's contribution towards the tribal trust fund; 75.9% after harvest collections; 75.9% casual work and 20.7% permanent employment. Whereas in Siyandeya none knew whether the Green Scheme paid anything to the tribal fund (0%). However benefits known to them included after harvest collections (86.2%); casual work (48.3%); and permanent employment (6.9%). With regard to after harvest collection, most respondents highlighted that it was practiced at the beginning of the first harvest in the Green Scheme. The medium farmers in the green scheme have now changed to burning the left overs in the field and ploughing it in. At times the crop residues are poured somewhere (like a dumpsite) outside the Scheme for the community to come and pick it up from there. In most cases the food items poured are rotten. Casual work requires a Namibian identification document to be able to be employed. For all the villagers, picking out a paper from a box comprising Yes/No at the Green Scheme offices determines whether one will work that month or not.

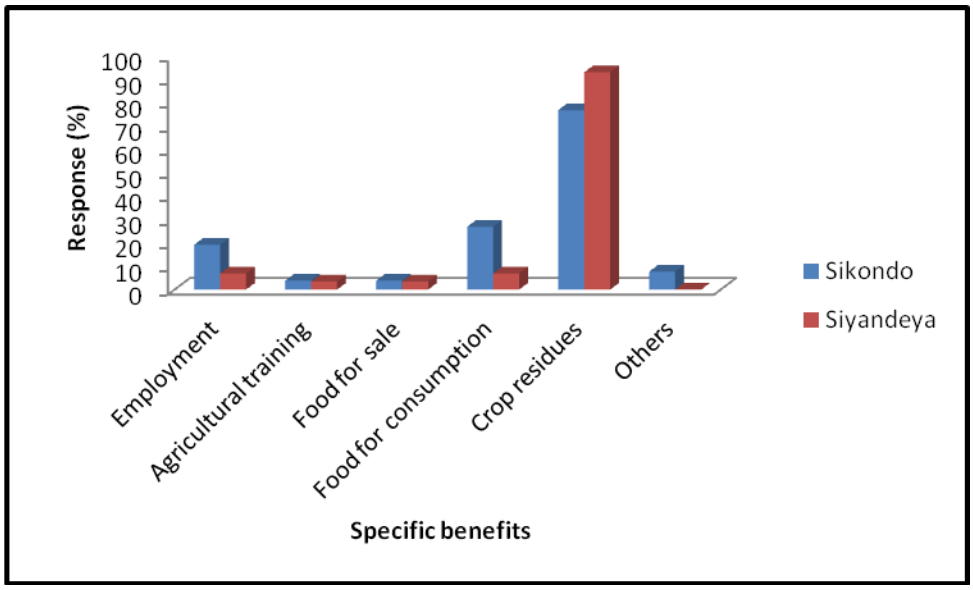


Figure 4.14 Specific benefits from the Green Scheme

Specific benefits are those that the respondents get directly from the scheme. The benefits from the Green Scheme that were highlighted by respondents included employment; agricultural training; food for sale; food for consumption; crop residues and others (Figure 4.14). Most residents from both villages indicated that crop residues is the main benefit 76.9% and 93.1 for Sikondo and Siyandeya respectively. This is especially after the maize has been harvested and sometimes butternuts. Food consumption (26.9%) was the next category that was of benefit as well as employment (19.2%) for Sikondo. These categories were equal benefits for Siyandeya (6.9%). Between 3% and 4% indicated that they get some training from the SSF especially when they go for casual work. Others buy food items for resale. Although there were other benefits such as employment and food for consumption, these remained marginal.

Table 4.8 Land acquisition and post settlement support

	Sikondo (N(%))	Siyandeya (N(%))		
Acquired land from villagers(with consent)	26 (89.7)	27 (90)		
Acquired land from villagers(without consent)	3 (10.3)	2 (6.7)		
Others(No idea)	0	1 (3.3)		
	Gave way farm land for GS?		**Alternative land given**	
Yes	14 (46.7)	18 (60)	0	0
No	16 (53.3)	12 (40)	28 (100)	26 (100)
Kind of settlement received				
Financial package	11 (100)	8 (100)		
Source of financial package received				
MAWF	9 (90)	8 (100)		
Others	1 (10)	0		

Table 4.8 shed light that 46.7% and 60% respondents gave away their land for the establishment of the Green Scheme from Sikondo and Siyandeya accordingly. 53.3% from Sikondo and 40%

from Siyandeya did not give away land. Despite the residence at the villages some did not have fields or land where the Scheme is established today.Others are migrants from other regions or they were not born and raised at the village.

Another variable sought knowing the alternatives that were given to the farmers that gave their land for the establishment of the Green Schemes. The result shows that no land was given as an alternative. Farmers (respondents/ villagers/community members) had to look for own pastures to make it a field or farm for production. Atleast 52% of Sikondo respondents received support after giving the land to the Green Scheme and only 25.9% in Siyandeya got that support. The rest did not receive anything.

There was a need to know the kind of support that was received for those who indicated as such. All that recceived support was in form of a financial package. Most of the respondents if not all were not happy with the package that was given, reporting that it did not go hand in hand with the value of the field that was lost or given away. Some had to ask for compensation when they heard that their colleagues are getting money for the farm land. A dissappointment was shared where those that did not want their land to be taken had to forteit it whether they approve of it or not. In hearing so, those that did not want to lose out on all joined the queue of farm owners to be compensated. A male respondent shared that he had more than 6 hactares of land and was only given N$1200. The majority did not exceed N$500 regardless of the size. Not all farm owners were compensated. The source of financial package was Ministry of Agriculture but 10% of the respondents in Sikondo indicated that it was from a differnent organisation that they were not aware of.

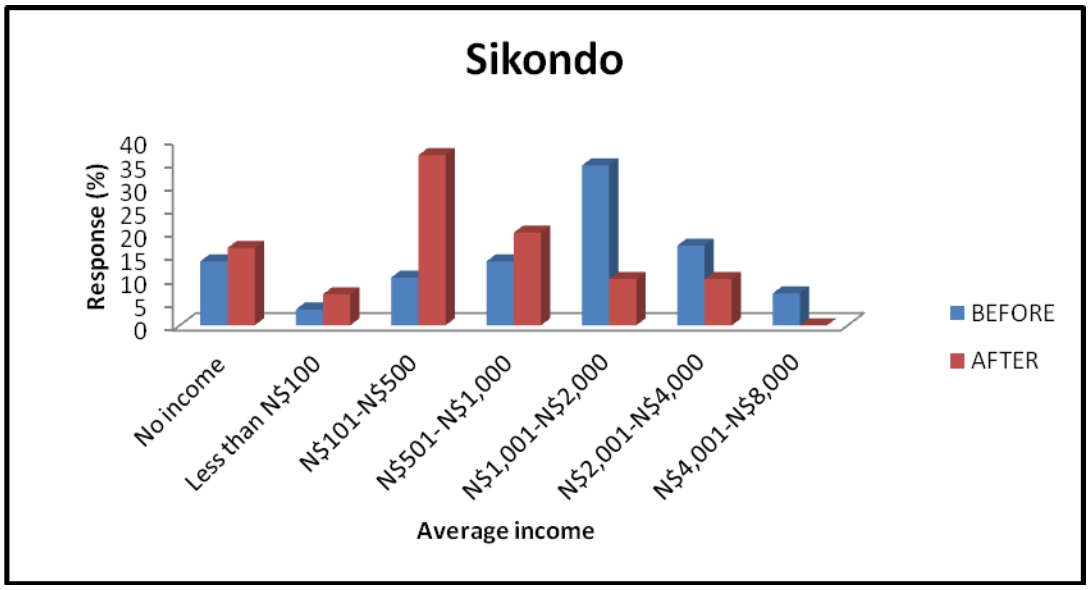


Figure 4.15 Average income per month before and after Green Scheme

The Figure 4.15 shows that 13.8% of respondents in Sikondo had no income before the intervention. The majority of the respondents had an average income between N$1,001 and N$2,000 (34.5%). A shift in the uincome was observed after the intervention ranging between N$101-N$500 (36.7%). Atleast 6.9% of respondents had an average income between N$4,001-N$8,000. No one fell in this category after the intervention.

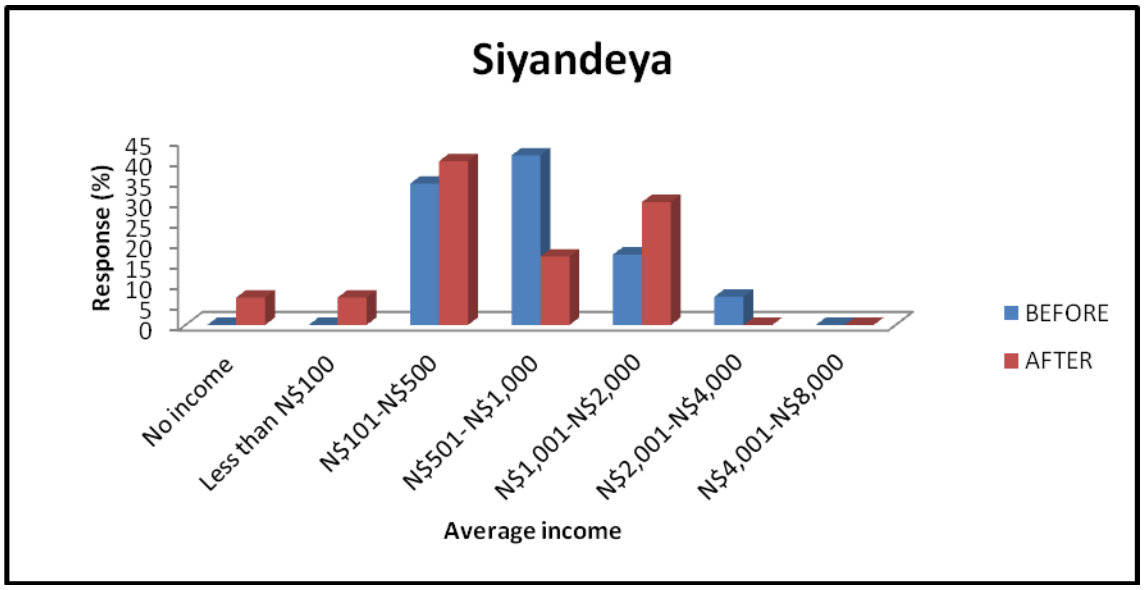


Figure 4.16 Average source of income before and after the Green Scheme

None of the respondents in Siyandeya lacked an income nor got less than N$100 per month on average before the intervention. The income was between N$501- N$1,000 (41.4%) followed between N$101- N$500 (34.5%). After the Green Scheme, the highest average income of the respondents was in the category of N$101-500 (40%). N$1,001-2,000 category was observed as the second (16.7%) as seen in Figure 4.16.

Table 4.9 Sources of income before and after the project

	Sikondo (N)		Siyandeya (N)		
	BEFORE	**AFTER**	**BEFORE**	**AFTER**	**Total**
Sale of livestock/livestock products	17	15	19	16	**67**
Crop sales	17	4	24	15	**60**
Herding livestock for others	13	1	21	12	**47**
Full wage employment (GRN)	2	0	0	1	**3**
Full wage employment (elsewhere)	5	1	1	0	**7**
Casual/seasonal employment	6	4	1	2	**13**
Informal trade	3	4	3	5	**15**
Old age pension	3	0	10	2	**15**
Other	9	0	0	0	9
Total	**75**	**29**	**79**	**53**	**236**

The study identified that most respondents from Sikondo got their income from sale of livestock/livestock products(17); crop sales(17); herding livestock for others(13). After the project however, sale of livestock or livestock products(15) was the main source of income. The contributor to such is the the reduction in the farm sizes and the climatic conditions(drought) affecting the cultivation and lack of grazing land for the animals. Some have no where to farm and just wait for others to help out or do odd jobs to get something to put on the table.

Other sources of income did not contribute as much. Sale of livestock products included the purchase of milk from someone who has cattle then resells the milk and the same applied to the

sale of crops. Casual employment includes seasonal jobs like clearing forests from someone's field, weeding, and harvesting. Informal trade on the other hand included selling fat cakes, sweets, traditional brews to mention but a few (trade that has not been certified by the authority on paper).

Siyandeya respondents had the same sources of income as that of Sikondo, the difference was observed where the villagers maintained the same sources after the project.

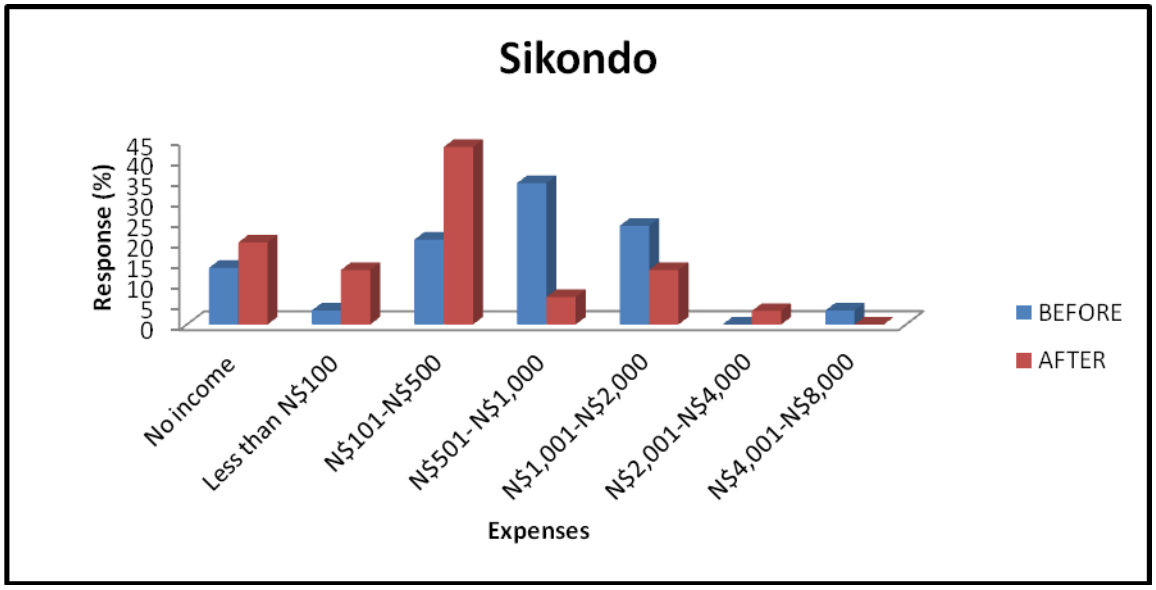


Figure 4.17 Monthly expenditure for Sikondo respondents before and after the Green Scheme

Figure 4.17 showed that before the project, respondent's expenditure was in the category of N$501-N$1,000. Between N$101-N$500 was spent per month by the majority of the respondents (43.3%) in Sikondo village after the project, followed by less than N$100 and N$1,001- N$2,000 with the response of (13.3%).

It should be noted that the monthly expenditure for Sikondo residents ranging from N$101-N$500 increased after the Green Scheme. The change can be attributed to the current situation of depending all food stuff and other commodities from the shops as opposed to them growing their own at a fair scale and buying few commodities from the shops.

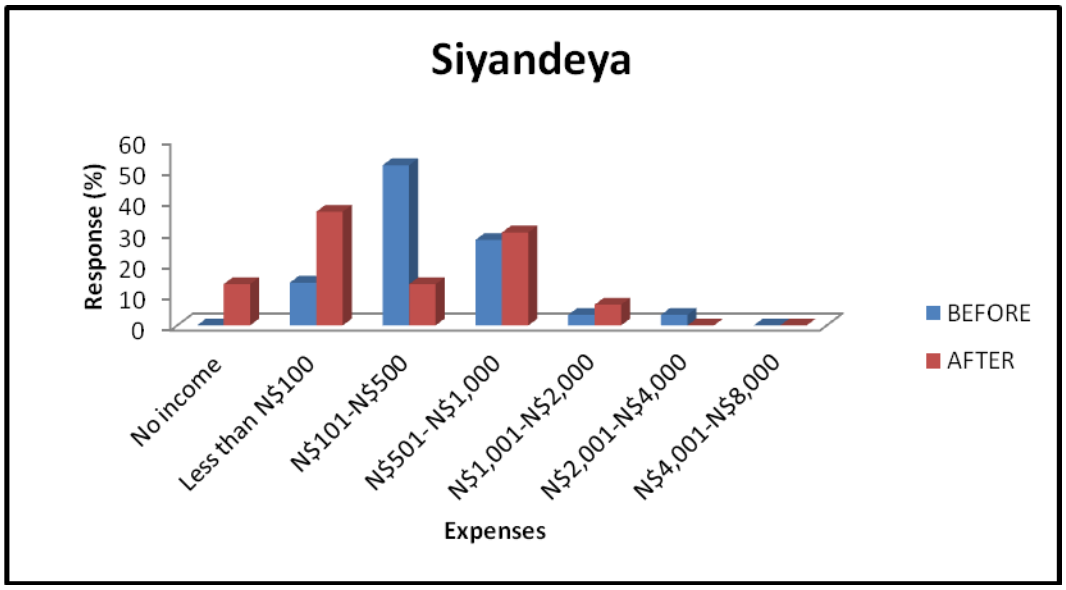


Figure 4.18 Monthly expenditure of respondents before and after the Green Scheme-Siyandeya

Between N$101-N$500 is spent per month by the majority of the respondents (51.7%) in Siyandeya village before the scheme (Figure 4.18), followed by N$501- N$1,000 with the response of (27.6%). More than N$100 and less than N$500 was mainly spent after the project followed by more than N$500, but less than N$1,001.

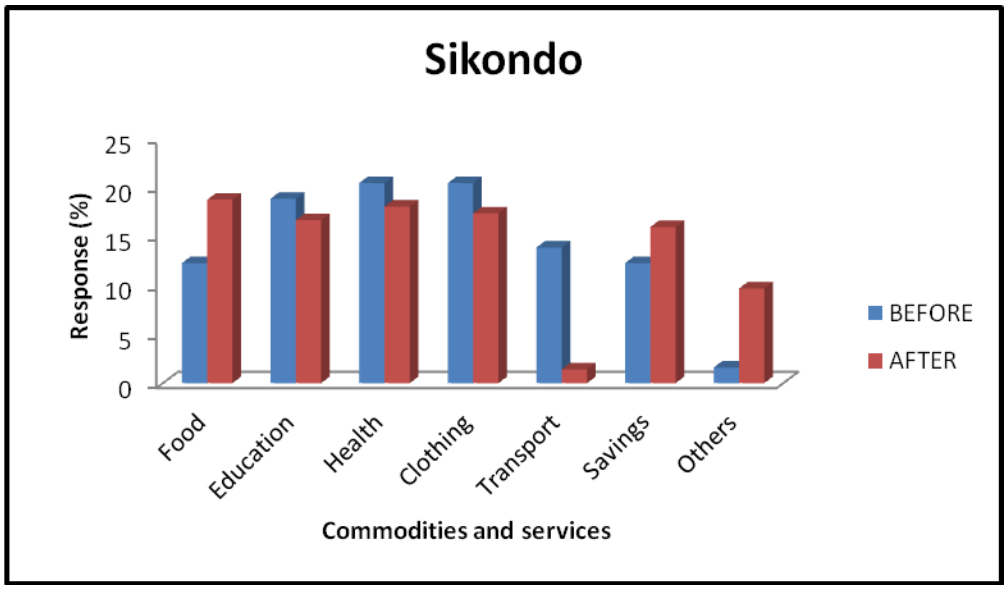


Figure 4.19 Commodities and services on which income was spent before and after Green Scheme-Sikondo

This variable sought to see on what comodity is the average income received by the household spent (Figure 4.19). The commodities included food, education, health, clothing. Transport, saving and others. Though all items were spent on before and after scheme, the figure depicts that health and clothes were the major items spent on whereas food became the main one after the scheme. However, Sikondo spends more on food and less on education which was the opposite before the establishment of the Green scheme. This means that Sikondo residents buy most of their food items, if not all, as compared to before the establishment of the Green Scheme following the lack of fertile and sufficient land for farming activities. Low investment in education is characterized by the free education system in Namibia from Pre-primary (Grade 0) to high school (Grade 12).

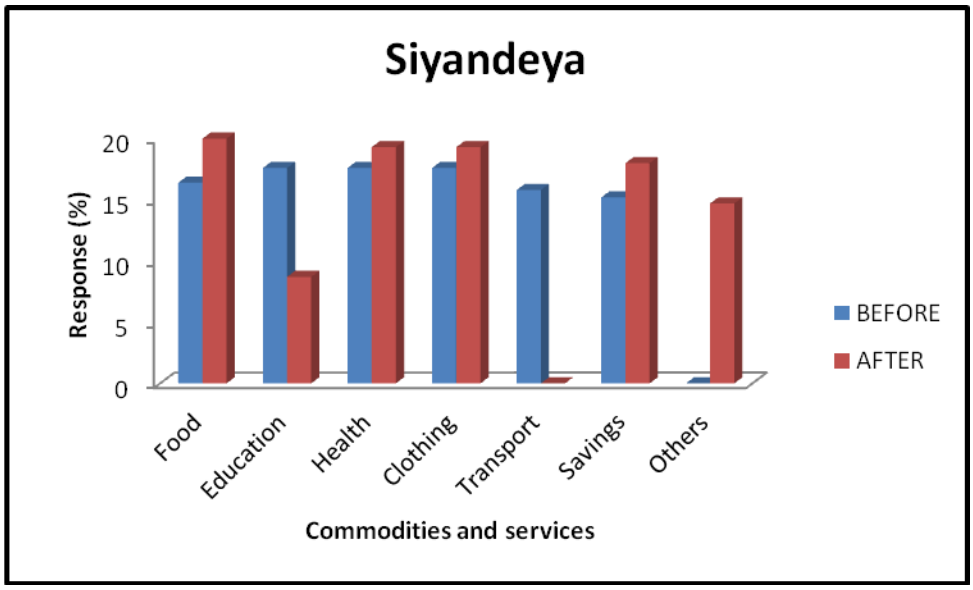


Figure 4.20 Commodities and services on which income was spent before and after Green Scheme-Siyandeya

Same commoditoes and services that were spent on before the Green Scheme were spent on after the establishment of the Green Scheme in exception of transport (Figure 4.20). Major expenses covered food, education, health, clothing and savings before the scheme. Eduction, health, and clothing became main afterwards and other categories followed. Little or no money spent on transport in the latter.

Table 4.10 Has the green scheme improved your life?

	Yes	No	Total
Sikondo	20.7%	79.3%	100.0%
Siyandeya	10.7%	89.3%	100.0%

Upon asking the respondents whether the green Scheme has changed their lives, a total of 15.8% respondents from both villages confirmed that their lives were indeed changed by the Green Scheme. However 84.2% could not agree that the scheme has changed their lives (Table 4.10).

No developments were attributed by the establishment of the Green Scheme in both villages. Benefits that formed as other kind of development included provision of jobs and provision of various food items for schools.

4.2.1.1 Expectations

Table 4.11 Respondents' expectations of the green scheme

	Sikondo	Siyandeya
Creation of more job opportunity to people	30.0%	27.5%
Improve food security to the people	23.3%	22.9%
Improvement of social infrastructure such as schools and hospitals	18.9%	24.8%
Support to village development ideas	21.1%	24.8%
Others	6.7%	0.0%

The community members had a lot of expectations when it comes to the Green Schemes. Job creation was expected by 29.6% of Sikondo residents, while for Siyandeya residents was 17.1% (Table 4.11). Improving food security of the people was another expectation as outlined to be one of the aims of the establishment of the Green Scheme. This was expected to be so by 28.4% of Sikondo farmers and 42.9% of Siyandeya farmers. Improvement of social infrastructure such

as schools and hospitals was another issue expected by 29.6% and 40% of Sikondo and Siyandeya respectively. 12.3% of Sikondo village also expected the Green Scheme to give support to village development ideas.

Table 4.12 Expectations of the green scheme-Other specified

	Frequency	Percent
No expectations	10	33.3
Provision of water and electricity	5	16.7
School goers to be given holiday jobs	5	16.7
To employ the people who cleared the land permanently	5	16.7
To employ the people close to the scheme as priority	5	16.7
Total	30	100.0

The following additions were made as further expectations that the communities wanted to see being brought to fruition. Most were expansion of the expectation that they already mentioned but gave details as to how it should be done. No expectations accounted for 33.3%; provision of water and electricity 16.7%; school goers to be given holiday jobs 16.7%; To employ the people who cleared the land permanently 16.7%; To employ the people close to the scheme as priority16.7% (Table 4.12).

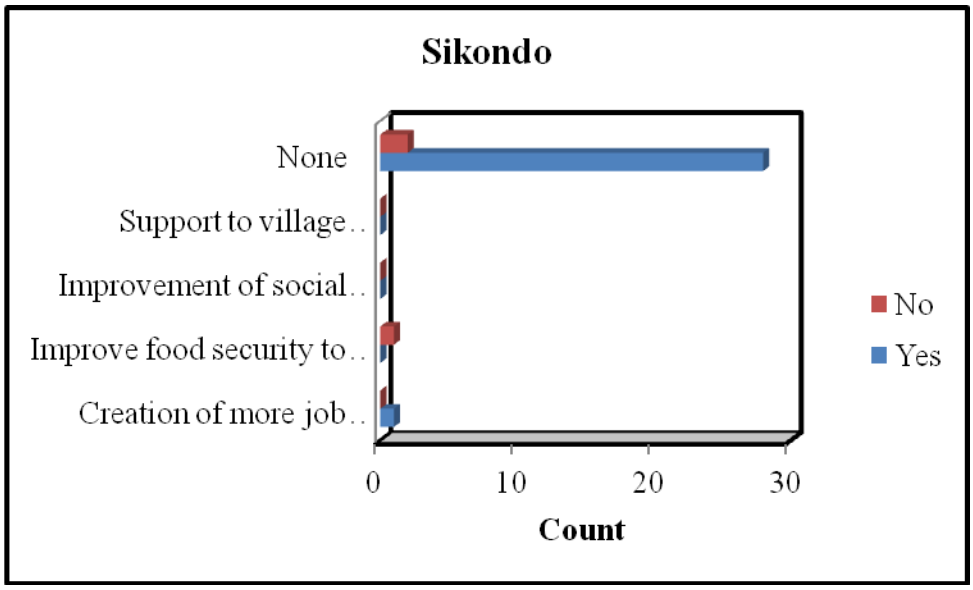


Figure 4.21 Which of the expectations were met?-Sikondo

Among the expectations by the Sikondo villagers, only two were met which included creation of job opportunity to people accounted for by one respondent and the rest of the respondents (26) said no expectations were met (Figure 4.21). Food security improvement was not met.

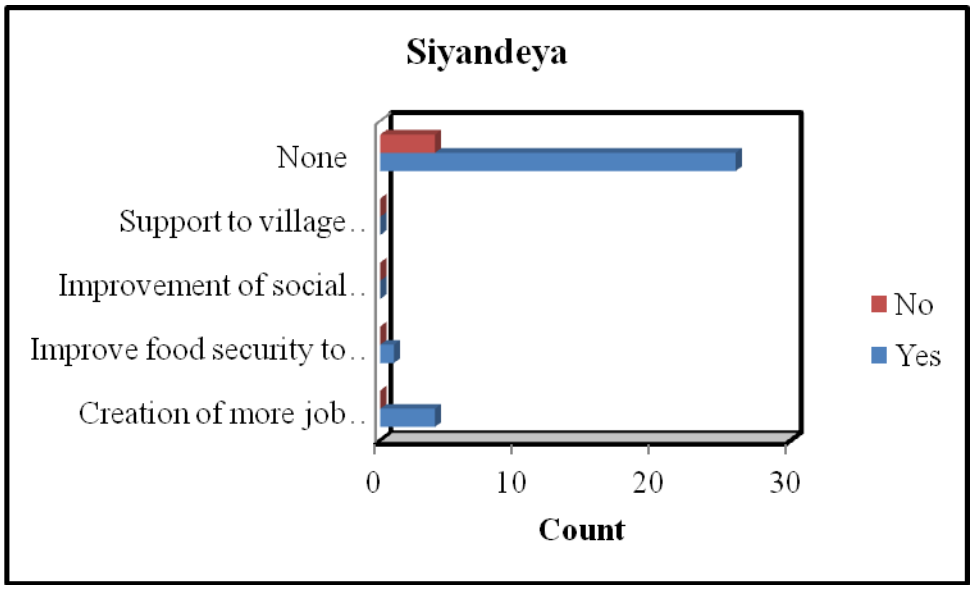


Figure 4.22 Which of the expectations were met?-Siyandeya

In Siyandeya about 4 people's expectations were met when it comes to more job creation and 1 for an improvement in food security (Figure 4.22). However, 26 respondents shared that indeed none of the expectations were met by the Green Scheme.

4.2.2 Food diversification

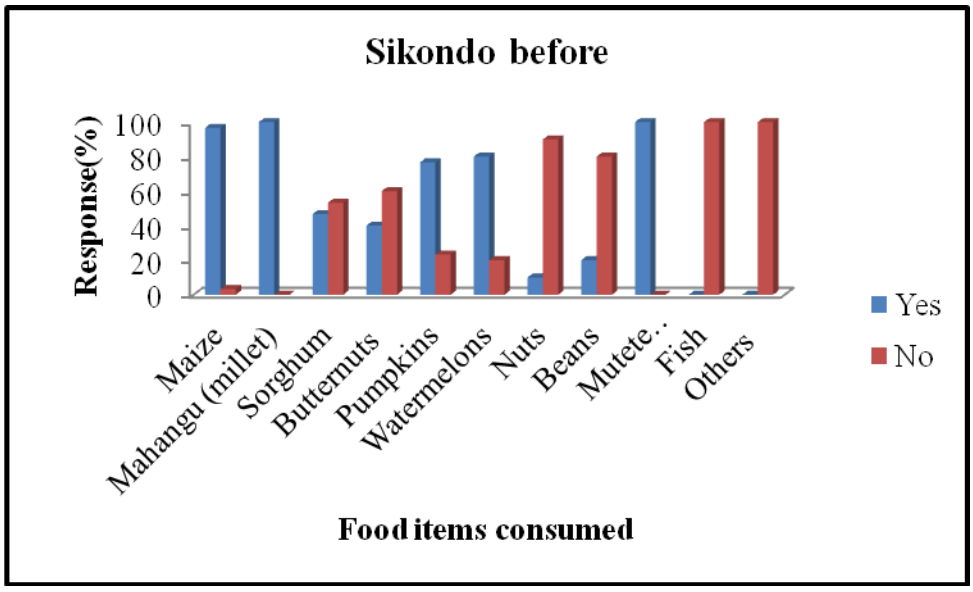


Figure 4.23 Food items consumed before establishment of the green scheme-Sikondo

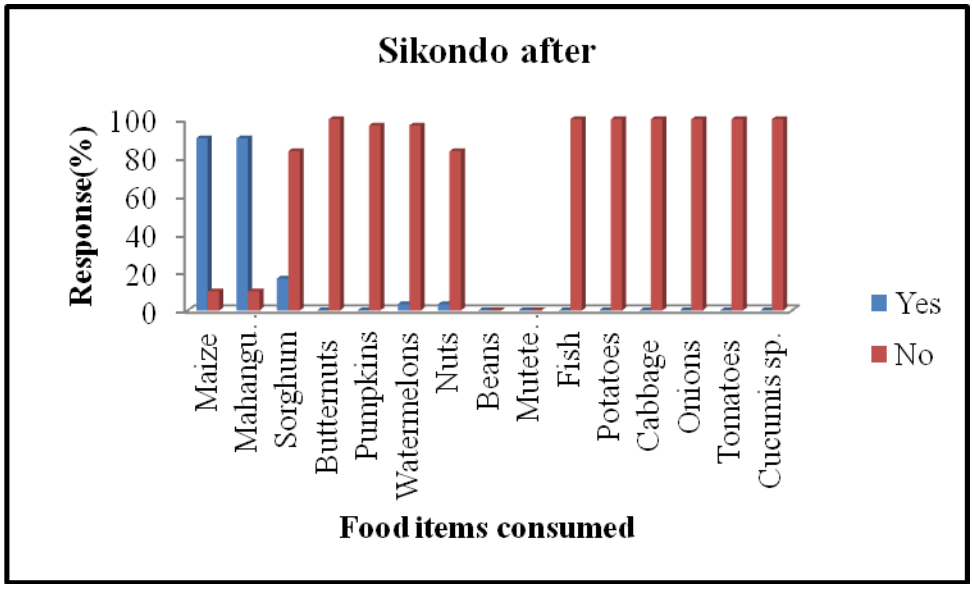


Figure 4.24 Food items consumed after establishment of the green scheme-Sikondo

As shown in Figure 4.24, Sikondo respondents consumed a diverse number of food items before the establishment of the green scheme. Millet and maize were observed to be the most consumed crops by the villagers as 96.7% and 100% of villagers in a GRN intervention (Sikondo) confirmed the consumption of such. The result depicts the fact that millet and maize and the very common vegetable called mutete (*Hibiscus sabdarifa)* (all respondents) is the staple food for Kavango West inhabitants. Other crops that were grown included sorghum (46.7%); butternuts(40%); pumpkins(76.7%); watermelons (80%); nuts(10%) and beans(20%).

The establishment of the green scheme showed to have impacted a change in the village setting with a green scheme intervention. Most of the food items that were used before the establishment of the scheme reduced significantly(Figure4.24). Maize and millet remained to be the most consumed food item on the list with 90% respondents informing as such. Sorghum (16.7%) became the second crop consumed as well as watermelons (3.3%) and nuts (3.3%).The rest of the crops are not consumed after the intervention.

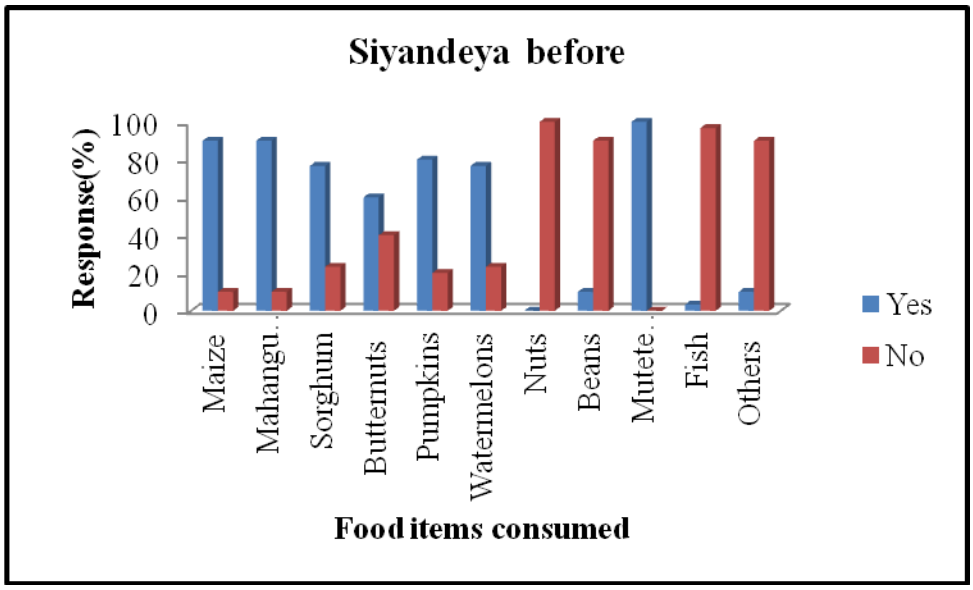


Figure 4.25 Food items consumed before establishment of the green scheme-Siyandeya

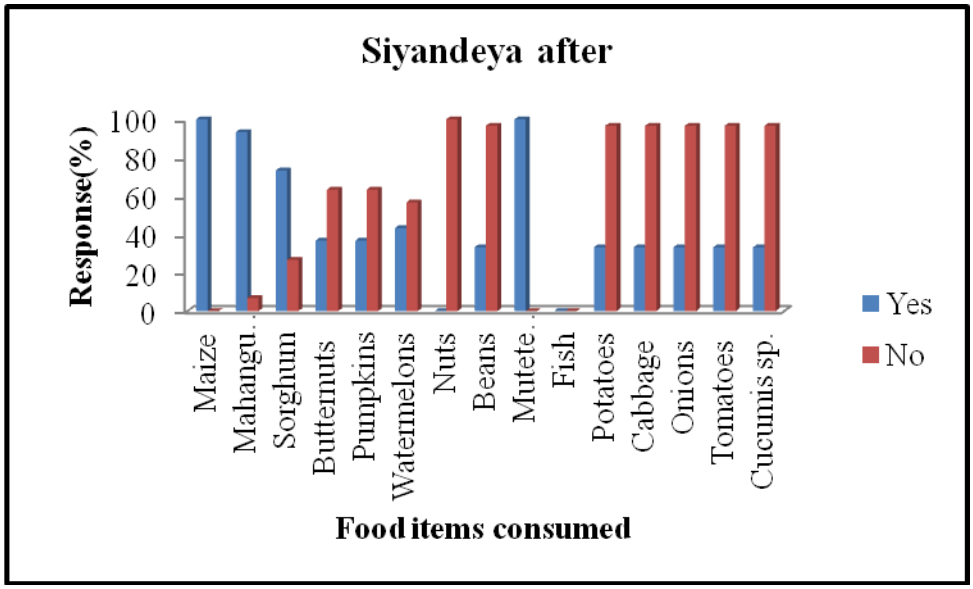


Figure 4.26 Food items consumed after establishment of the green scheme-Siyandeya

The majority (90%) of respondents in Siyandeya (no GRN intervention) showed that maize and millet are the most consumed food items before the intervention and mutete being the major vegetable as shared by all the respondents (Figure 4.25). Other crops that were grown included sorghum (76.7%); butternuts(60%); pumpkins(80%); watermelons (76.7%); and some households indicated that fish was one of the food items but it was however only mentioned by 3.3% of respondents.

The non GRN intervened community also showed that the same pattern of food items consumed before the establishment of the green scheme are still being consumed in exception that the consumption of fish has decreased and do not grow nuts as they used to. The minority (33.3%) added more food items consumed than before. The trend is depicted in Figure 4.26

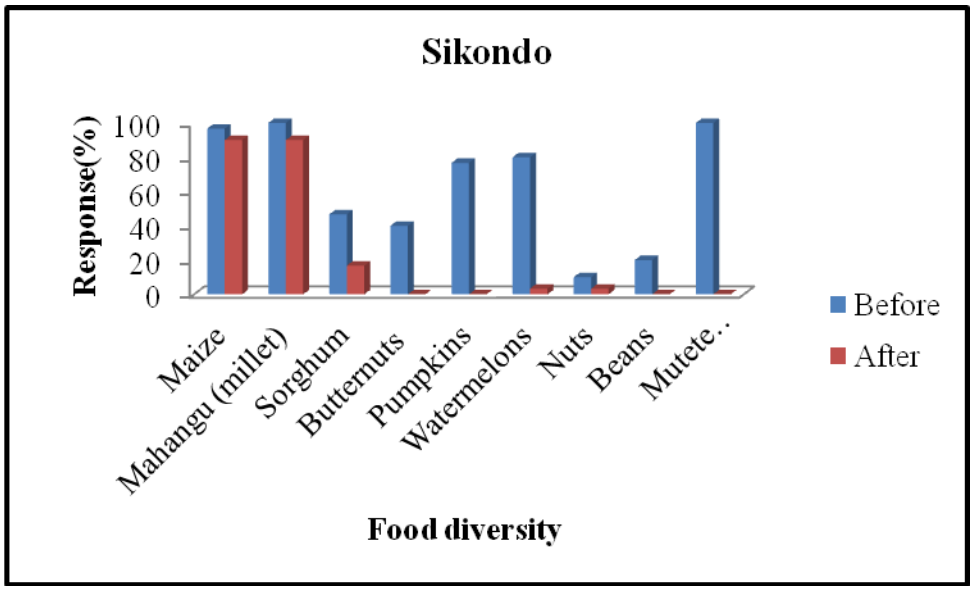


Figure 4.27 Depicts the food diversification before and after intervention for respondents from village with a GRN intervention (Sikondo)

The pattern shown in Figure 4.27 followed by the food diversity of community members from Sikondo can be seen above. The bar graph showing the difference in responses before and after intervention for every food item. Food diversification was decreased with the GRN intervention. The figure depicts that most of the food items consumed before the green scheme such as butternuts, pumpkins, watermelons, beans, and mutete are not consumed since the establishment of the green scheme. This tells that one of the objectives of the green scheme regarding food diversification is not met at a household level of the community in which the green scheme is based. Although most of the food items (crops and vegetables) are grown in the Sikondo irrigation project, the data showed that not every household member has access to it, be it through purchasing or in kind.

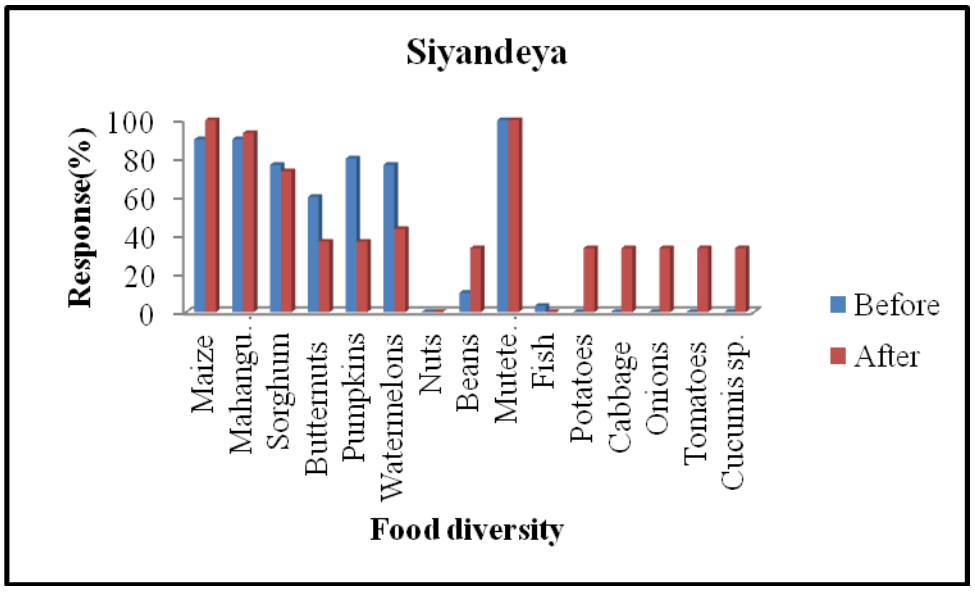


Figure 4.28 Depicts the food diversification before and after intervention for respondents from with no GRN intervention (Siyandeya)

A twist was observed in Siyandeya as far as food items for consumtion is concerned (Figure 4.28). Food diversification was shown to increase with the intervention in place. Most of the food items that were not consumed before the Sikondo irrigation project are now part of their diets and includes potatoes, cabbage, onions, and tomatoes. An exception is the fish and nuts.

This can be attributed to the fact that the green scheme does not grow nuts or it is not grown at a larger scale for distribution. Another is the absence of aquaculture practice in the green scheme. Fish is one of the staple food for the Kavango habitants, but for these villages the distance covered to get to the fresh water body of the Kavango River to catch fish is very long (about 5 to 10 kilometers). These result from buying fish when they have money and only opt to go catch fish if agreed as a village or with neighbours for safety reasons when travelling the long distance. The increase in the food diversification in Siyandeya village is due to a women's project (Joint Venture Project) in the neighbouring village Kasote. Some of the women in Siyandeya are beneficiaries and in turn spread the gardening techniques to fellow women, relations and friends.

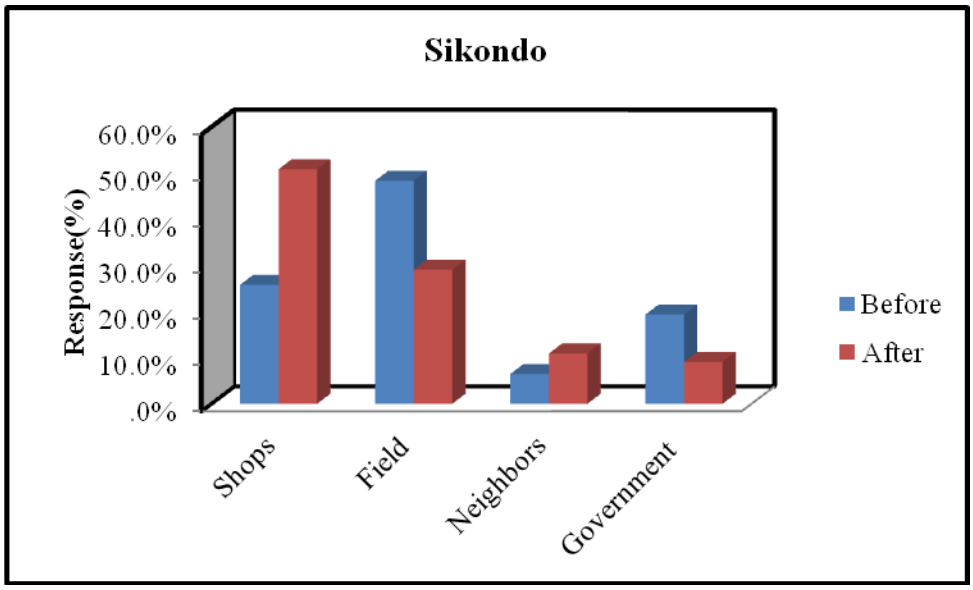


Figure 4.29 The sources of food items for consumption - GRN intervention

The study further found out that the source of food items for consumption before GRN intervention was the same for both village settings. However, most respondents from Sikondo got their food items from their fields through cultivation (48.4%) even after displacement (though not the major source after displacement) and 25.8%; 19.4% and 6.5% got from shops, GRN drought relief and neighbors respectively. Although most respondents from Sikondo got their food items from shops (50,9%) after the scheme, cultivation is still ongoing for some residents (29.1%). At-least 10% is received from the neighbors and 9.1% from GRN drought relief. Figure 4.29 above means that even after losing the fields to the green scheme, the community members are still able to cultivate elsewhere. Most of the residents buy their food supplies as opposed to getting most of the items from the fields which they do not have now.

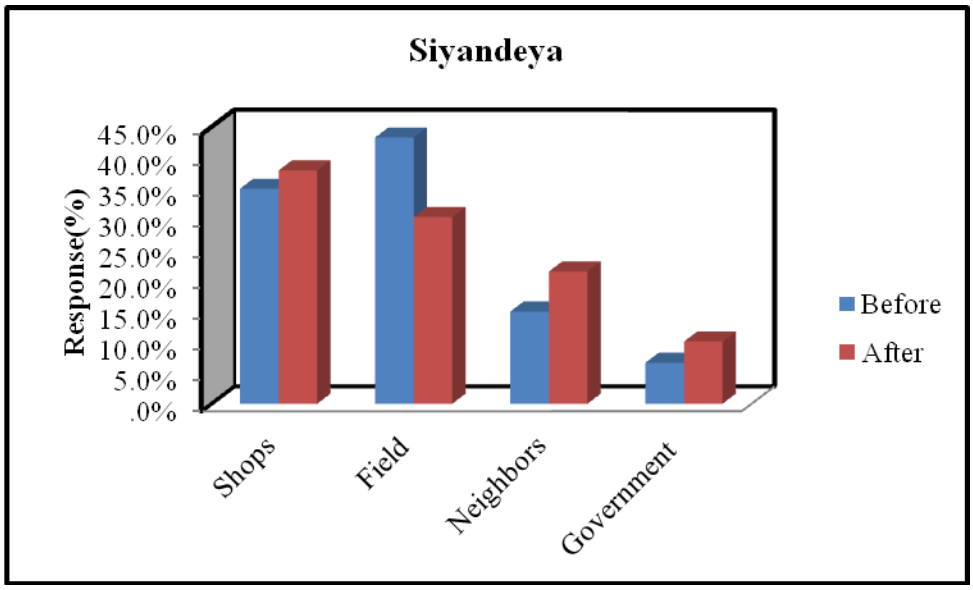


Figure 4.30 The sources of food items for consumption non-GRN intervention

The field showed to be the main source for the Siyandeya community members as well (43.3%) before the project, followed by shops, neighbors and finally GRN drought relief with the response of 36%, 15% and 6.7% (Figure 4.30). Buying showed to be the main source for the Siyandeya community members after the project was established (38%), but the number of those who got from the field were many (30.4%). These were followed by neighbors (21.5%) and finally GRN drought relief with the response of 10.1%.

4.2.3 Challenges faced by communities

The targeted communities rose challenges such as water, sanitation, energy sources and land usage. The results are shown below.

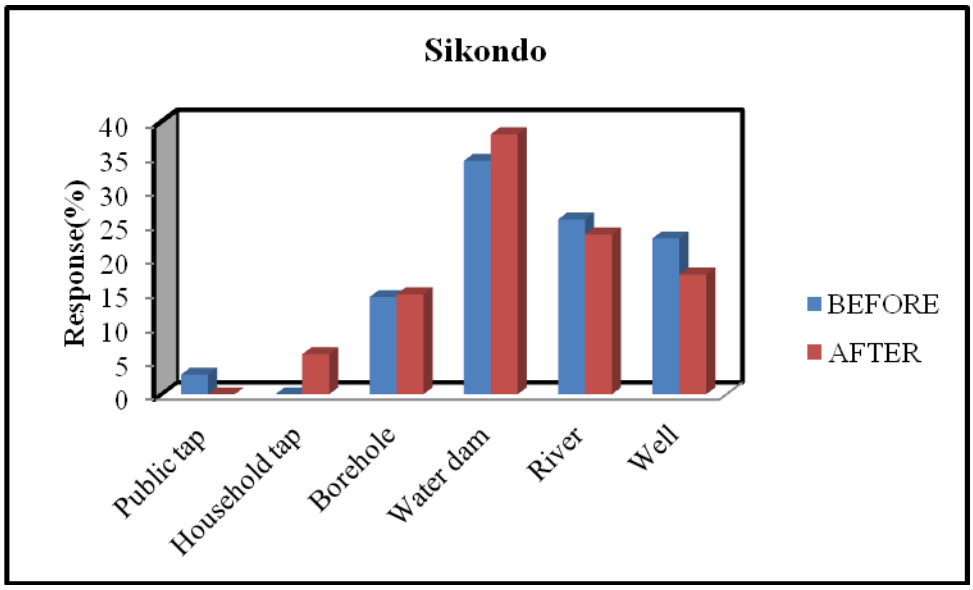


Figure 4.31 Source(s) of water -Sikondo

The majority (34.3%) of Sikondo respondents used water from the dam before the green scheme, whereas 25.7%; 22.9%; 14.3% and 2.9% got water from the river, well, borehole and public tap. After the green scheme Figure 4.31.depicts that Sikondo does not use public taps anymore and most of the respondents (38.2%) get water from the dam. A decrease in the use of the river (23.5%) and the well (17.6%) as a source of water was observed. These may be due to safety reasons of going to the river especially in the company of a crowd as well as the adverse effects of drought that makes digging wells difficult and hopeless.

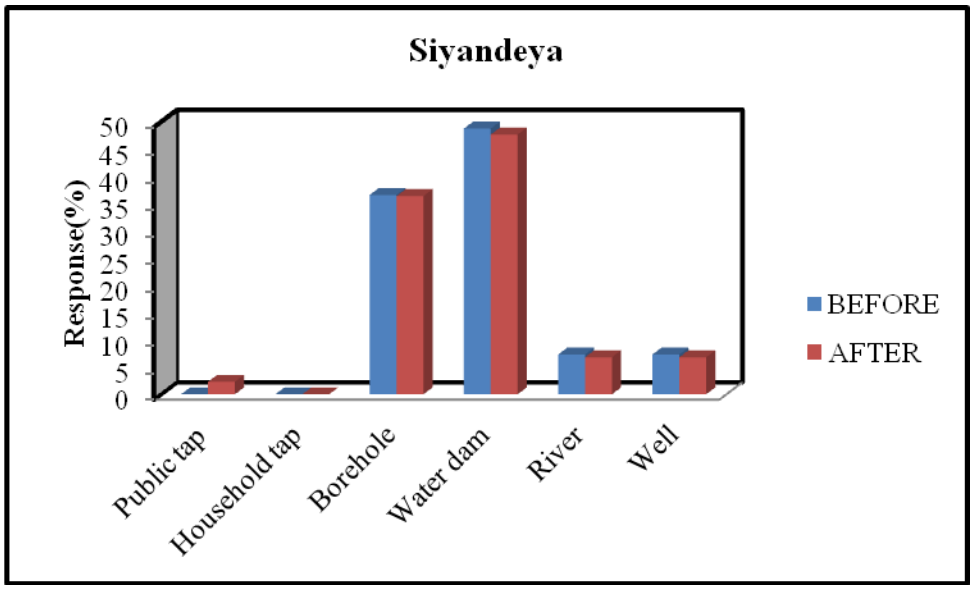


Figure 4.32 Source of water -Siyandeya

The current water sources used by the villagers are not different from those before the Scheme. Residents from Siyandeya mostly used water dam (48.8%) as a source of water, while 36.6%, 7.3%, 7.3% got water from borehole, river and well respectively (Figure 4.32). Siyandeya does not get water from the household taps as these do not exist. The water in Siyandeya from the borehole(36.6%) is salty and could not be consumed or used to quench thirst, it is mostly used for cooking and washing. The minority (7.3%) used the river and well as the source of water before the intervention.

After the scheme however, about 2.3% Siyandeya residents use a public tap to get water. A slight decrease in the use of all sources of water were observed, yet the dam remained the main source (47.7%), followed by borehole (36.4%) and the minority being the river and well with the response of 6.8% residents.

Both Sikondo and Siyandeya commonly use water from the dam (38.2% and 47.7%) as the main source of water. These dams were not as a result of the intervention.

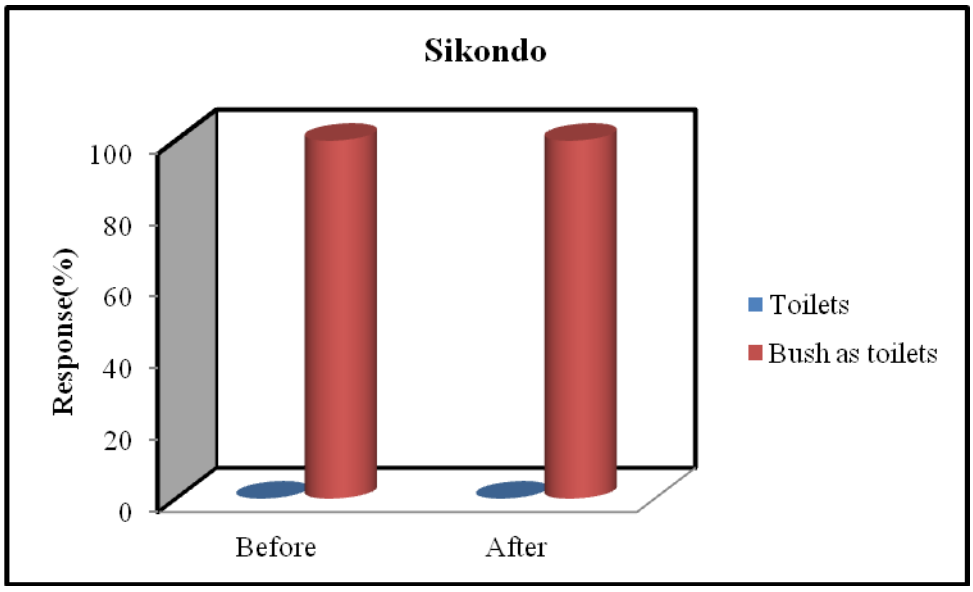


Figure 4.33 Sanitation measure Sikondo

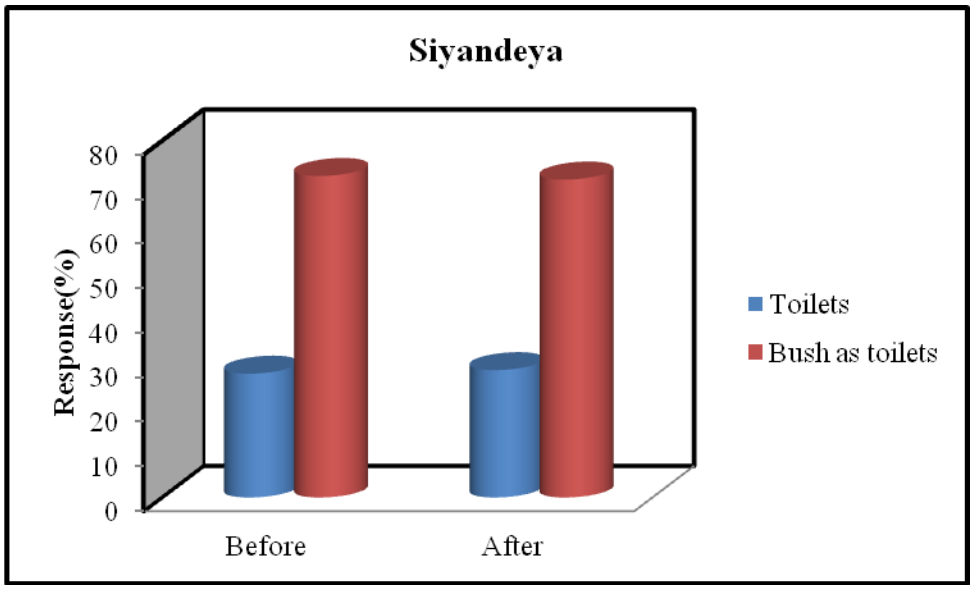


Figure 4.34 Sanitation measure Siyandeya

Figure 4.34 shows that all Sikondo respondents used bushes as toilets before and after the intervention. Siyandeya had toilets(27.8%) and bush toilets (72.2%) before the green scheme and these were accounted for by 28.6% of respondents using toilets and 71.4% using other measures including bush as toilets and pit latrines.

This variable also sought to know if there are any measures that were offered to the villagers that could perhaps contribute positively to their livelihood as far as sanitation is concerned. The green scheme did not offer the communities with any sort of sanitation measures.

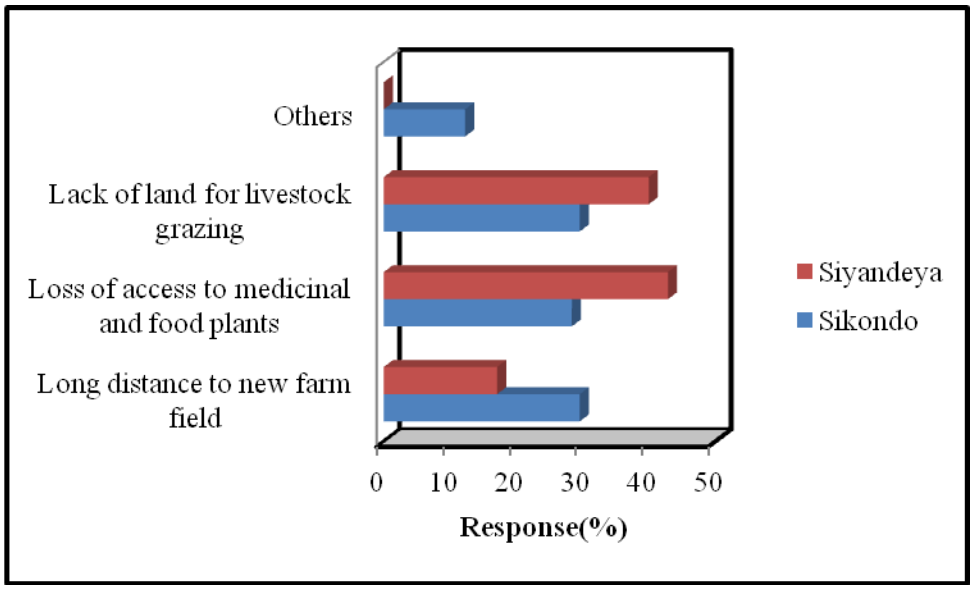


Figure 4.35 Constraints attributed by the establishment of the green scheme

A lot of constraints were shared with regard to Green Scheme (Figure 4.35). They all seemed equally important for Sikondo residents (29.6%, 28.4% and 29.6% for long distance to new farm field; loss of madicinal and food plants and lack of land for livestock grazing respectively). Other constraints including hard to have seed inventory; lack of land for cultivation; long distance to access grass; loss of wood land; and not applicable (no constraints) were minor. " Some had lost everything and others have to go around the scheme to new fields; we are being killed; we go far to get firewood." Some respondents stated. Lack of land for livestock grazing(40%) and loss of access to medicinal and food plants(42.9%) were the main ones for Siyandeya respondents. Long distance to new farm fields was a minor limitation.

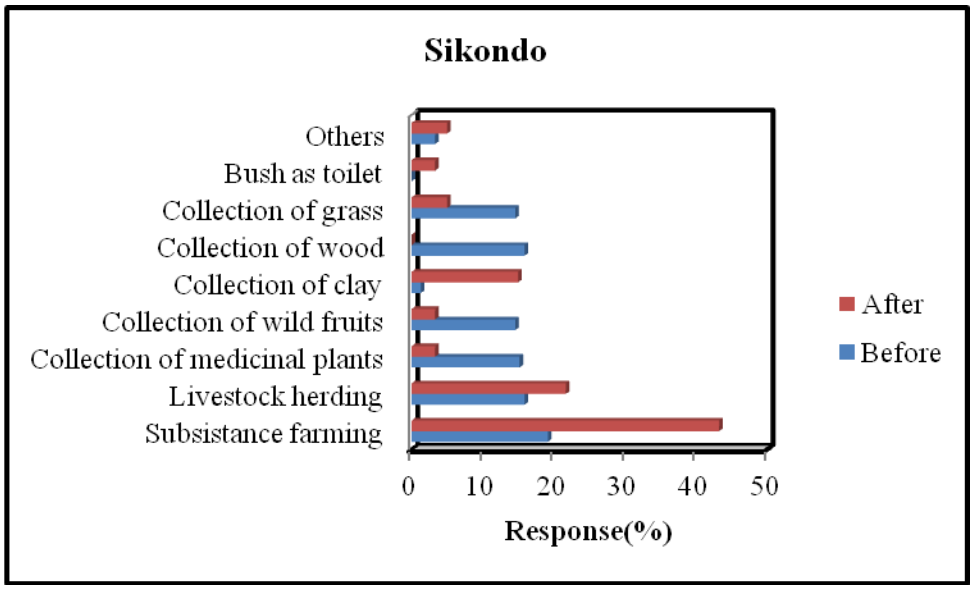


Figure 4.36 Community land utilization in Sikondo

Though Figure 4.36 shows many of the benefits that the villagers got from the land before the intervention, it is worth mentioning that the land usage here included those that were able to get farm lands elsewhere on their own and those that are able to access the scheme through employment; as well as those that try to cultivate on their residential (communal) area on which they are currently based. It was mentioned that they do not get anything from the scheme anymore as access to the facility is not given to all. The land that was given is mainly used for commercial farming, the little pieces of land (as were referred to by the respondents) are used for homesteads and little gardens especially for maize.

Most of Sikondo respondents ranging from 14.6% to 19.2% acknowledged that before the project, the land was mostly used for the variables in Figure 4.36 with the minority being collection of clay (1.3%) and other uses(3.3%). After the project the land on which they have

settled is used for everything as before the green scheme. 43.3% use it mainly for subsistence farming and 21.7% for livestock herding, whilst 15% for collection of clay (from the river side). Although the same activities were still being employed at their new land on which they occupy, the result from these activities are not as positive as they used to be. The same household area is the same one used to cultivate.

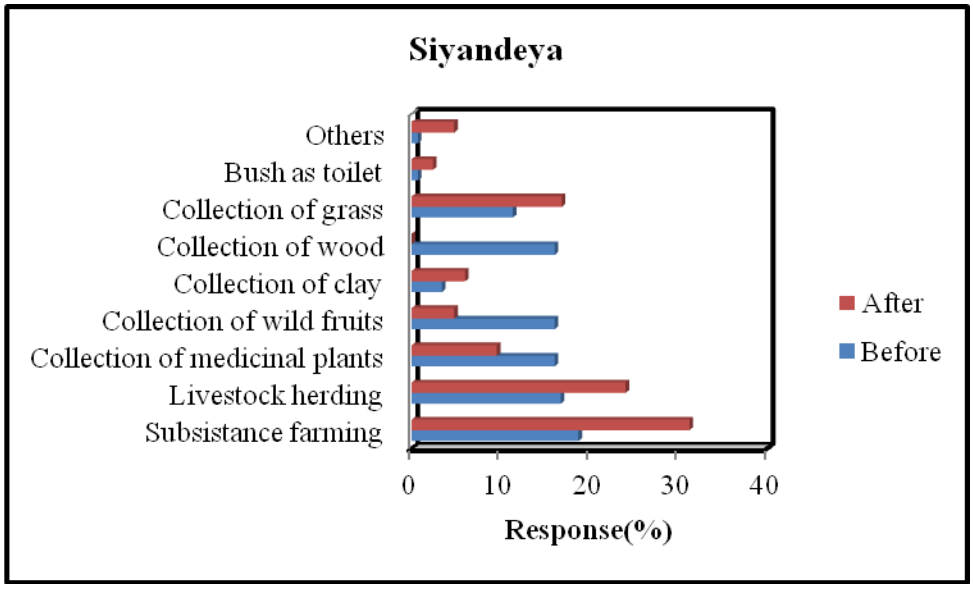


Figure 4.37 Community land utilization after the Green Scheme

Land use was one of the challenges that the respondents saw worth mentioning. The land that was given for the establishment of the Green scheme benefited them as indicated by Figure 4.37, with the expectations that were given to them. A range of 11.4% to 18.8 respondents used the land for the variables given in Figure 4.37 above and only 3.4% used the land for collection of clay and 0.7% for bush as toilet and others.

Some respondents further added that some of them gave the land voluntarily while others only gave after being convinced by the chief (traditional leader). For them the benefits that they got from the land that was lost would still continue to be a positive addition to their livelihood.

Other land uses highlighted by the respondents from both village settings before the project are included in Table 4.13 below.

Table 4.13 Utilization of community land before the green scheme -Other specified

	Count	Percent
Collection of a plant used in making traditional methods for catching fish	9	16.7
Collection of poles for fencing homesteads and acacia trees for livestock kraals	9	16.7
Poles for the surrounding	9	16.7
Well	18	33.3
Wild meat	9	16.7
Total	54	100.0

Other land usages included collection of plants used in making traditional methods of catching fish; collection of poles for fencing homesteads; acacia trees for livestock kraals, there is a well in which people used to fetch water and collect clay as well as a source of wild meat.

Table 4.14 Utilization of community land after Green Scheme- Other specified

	Frequency	Percent
Build homesteads	45	71.4
Commercial farming	9	14.3
Green scheme and home stead	9	14.3
Just for the homestead	9	14.3
Total	63	100.0

The land that is available to them after the Green Scheme is used and mainly suitable for constructing homesteads (71.4%) as shown in Table 4.14. The land that was once their farm land is used for commercial farming by the scheme.

Table 4.15 How the Green Scheme was established- Sikondo

	Frequency	Percent
Aquired land from villagers(without consent)	26	89.7
Aquired land from villagers(with consent)	3	10.3
Total	29	100.0

The establishment of the scheme followed that land was taken from community members from Sikondo without their consent (26 respondents). At least 3 respondents confirmed that their lands were acquired with consent (Table 4. 15).

In terms of state development in communal areas the Ministry obtains the land through the Land Board in terms of Leasehold or Occupational Land Right, develops the land itself or jointly with a private investor, and the land is utilised by irrigation farmers under lease or profit sharing agreements with the Ministry (Hansen & Kathora, 2013). The majority(89.7%) of Sikondo respondents claimed that this procedure was not followed in obtaining the land from them.

Table 4.16 How the Green Scheme was established- Siyandeya

	Frequency	Percent
Aquired land from villagers(without consent)	27	90.0
Aquired land from villagers(with consent)	2	6.7
Other	1	3.3
Total	30	100.0

As in Sikondo, Siyandeya respondents mostly (90%) shared that the land was taken without the owners' consent and only 6.7% were aware of the what was at hand (Table 4.16). Only one (3.3%) respondent did not have any idea on how the Green Scheme was established. The member was not at the village during the time that the Green Scheme was established.

The respondents gave suggestions as to how the Green Schemes should be managed so that it improves people's livelihood. Table 3 (appendices) has the detailed information of the suggestions given by respondents. In brief the community members suggested that the Green Scheme reintroduce the crop residue collection, be fair when it comes to employment and employ as priority the people from the village so that they benefit in one way or the others. The management was advised to work together with community leaders towards attainment of a positive change in people's livelihood. The villagers expected that the intervention will be able to provide clean running water for the community as well as allow them to get electricity transformer to the village. The villagers also added that once the transformer is at the village,

they will then be able to look for money or accumulate savings so that they pay for the extensions from the transformers to their households. The water that the community consumes is not very clean; therefore it was proposed that the scheme look into giving the communities training in agriculture as well as in water purification. They suggested that Green Schemes should be buying chemicals for them to treat the water and teach communities how to treat it.

Without outstanding the above, the biggest concern was the ploughing in of crop residues. The respondents demonstrated and showed a disappointment in the only intervention that was supposed to be the source of income and food security.

Following personal communication with the manager of the scheme; it was indeed confirmed that the villagers do get casual work through the scheme about two are permanently employed. Though villagers complain about the unfairness of employment practices, he is convinced that the method that is currently used is the best in this situation. It was raised that the use of identification card at Sikondo in employment will cause a lot of chaos because some are born in different hospitals or places that are indicated on the document as the place of birth even if the person lives in the communities surveyed. As far as food diversification is concerned, the Scheme always sells produce when it is ready; it is up to them to invest in their health by buying the produce.

A misunderstanding that exists is the fact that villagers expect to be given all food items for free which is not practical. Crop residues can be given but can only apply to maize and sometimes watermelons. Whatever remains is ploughed in, and is done because the soil fertility is also a concern of the green scheme as far as production is concerned.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter gives the summary of the findings, conclusions and managerial recommendations.

5.2 SUMMARY

The research revealed that all categories that were measured under the economic benefits did not differ between the villages and within the villages. The same was observed with regard to type of housing improvements; and materials used for fencing. Physical assets that were owned before the scheme also did not differ between and within the scheme. Human capital; the benefits that were received from the Green Scheme; lack of alternative lands for the villagers after giving their land away; the kind of support received after giving away land; the source of income before the Green Scheme; average income per month after Green Scheme; commodities and services; benefits from the Green Scheme; developments by the scheme; as well as expectations were the same for both village settings.

An exception was the financial capital which was not the same between the villages ($p=0.004$). Sikondo had both savings and employment wage, while Siyandeya only had savings as a form of financial capital. Social investment after the Green scheme was not the same for both villages. Sikondo was more involved in joint neighbor fence repair and joint borehole water points, where as Siyandeya invested mostly in joint borehole water points. Source of income after the Green Scheme ($p=0.000$), Sikondo with the main source being sale of livestock while Siyandeya had

both sale of livestock, crop sales as main sources of income and herding livestock. The expenditure before the Green scheme in Sikondo was not the same as the one in Siyandeya. Sikondo average expenditure ranged from N$101-N$2,000 while Siyandeya ranged from N$101-N$1000. The results also revealed that there were no developments attributed by the establishment of the Green Scheme. The constraints characterized by the establishment of Green Scheme were not the same with that of a non GRN intervened village (p=0.002).

Food diversification results revealed that respondents in Sikondo had more diversity of food items before the Green Scheme than after the scheme. There was low diversity of food in Siyandeya before the intervention than after.

Main challenges faced by the respondents include source of water which is a problem in the area coupled with the drought. Results from sanitation measures revealed that most respondents used bush as toilet in Sikondo and Siyandeya had both bush as toilet and pit latrines which are not a result of the intervention. There was no sanitation measures that were provide by the Green Scheme. The community land on which the residents are now living is used for households and for farming though no harvest was obtained. The majority of the respondents confirmed that indeed the villagers gave their land in order for the intervention to be established. Lack of training in agriculture especially water treatment and production of vegetable at the small scale and the working together of management, traditional leader and community members would help

the villagers identify area in which to pursue as far as agriculture is concerned. The absence of these led a lot of villagers to idle hoping that one day things will change suddenly.

5.3 CONCLUSIONS

The study reveals that there was no significant association between economic activities of the two village settings ($p>0.05$). Most variables were the same before and after the scheme for both village settings. Changes in food diversification for people were assessed and results indicate that food items for consumption reduced for Sikondo and increased in Siyandeya. The study reveals that the hope of encouraging the villagers to diversify food depends on factors such as the affordability of the food stuff when sold on site of the scheme. What is missing in the Green scheme is a lack of intervention to provide the community members with the knowledge required to earn a living instead of waiting for residues.

The study highlights community's assertion that Green Schemes are not adding significant improvements or changes to community livelihoods as no significant developments in the surrounding villages have been attributed to the Green Schemes. While there are benefits from the Green Schemes to the communities, these are minimal and are not worth their losses and expectations for improved livelihood. The economic benefit of people around the Sikondo irrigation project comes in the form of employment offered by the Scheme. But communities surrounding the Schemes continue to face challenges such water, sanitation, jobs and energy. Villagers also faced a lot of challenges from the moment their land was given for the establishment of the Green Scheme. Many lost homes, productive farms and plants of medicinal value to the human body. There is need to inculcate a change in attitude of communities and

Green Scheme managements so as to encourage collaborative efforts between communities and the Green Scheme management which will impact on the livelihood of people positively.

5.4 RECOMMENDATIONS

Lack of understandings between the management and the villagers brings misunderstandings between the parties involved. The community members are not well informed concerning the aims and objectives of the Green scheme and there is a need for these to be done. Although most of the suggestions made by the respondents are not solely the main objectives of the Green Scheme, a need should be created to educate the villagers on production for own consumption or sale by giving them the knowledge that they need. They lost the land on which they relied for their survival with no clear message about the intervention and an unfair compensation (as they called it) cannot be very helpful for them over a long run. The manager of the Green Scheme and the traditional leaders should therefore work together to educate the villagers on most of the challenges that they are facing especially water and farming. Not every individual of the community is able to be employed everyday or every month, there is a limit on the casual workers thus a helping hand in the form of social services should be stretched to help out those that are unable to have the jobs especially the elderly and scholars.

REFERENCE

AGRIBUSDEV. (2011). Sikondo Green Scheme Irrigation Project. Retrieved April 05, 2016, from http://www.agribusdev.org.na/index.php/farms

Agriculture - Namibia - area, annual, farming, system, sector. (2010). Retrieved February 04, 2015, from http://www.nationsencyclopedia.com/Africa/Namibia-AGRICULTURE.html

Bank, A. D. (2004). Republic of Namibia Tandjieskoppe Green Scheme Project Appraisal Report. *Population (English Edition)*, (June).

Burke, J. S. and A. (n.d.). namibia. Retrieved May 22, 2015, from http://www.fao.org/ag/agp/AGPC/doc/Counprof/Namibia/namibia.htm

CAADP Nutrition Capacity Development Workshop for the Southern Africa Region. Nutrition Country Paper- Namibia. (2013). *Comprehensive Africa Agriculture Development Programme (CAADP)*, (September), 1–16.

Fiebiger, M., Leader, T., Behmanesh, S., Dreuße, M., Huhn, N., Schnabel, S., & Weber, A. K. (2010). *The Small-Scale Irrigation Farming Sector in the Communal Areas of Northern Namibia – An Assessment of Constraints and Potential*. Retrieved from http://edoc.hu-berlin.de/series/sle/242/PDF/242.pdf

Food, Agriculture and Natural Resources Policy Analysis Network - FANRPAN. (n.d.). Retrieved March 19, 2015, from http://www.fanrpan.org/news/6267

Hansen, A., & Kathora, H. (2013). REPORT OF THE AUDITOR-GENERAL ON A PERFORMANCE AUDIT STUDY GREEN SCHEME PROGRAMME IN THE MINISTRY OF AGRICULTURE , WATER AND FORESTRY, (79).

Iica, J. S. (2012). The Food Security Situation in Namibia, 4.

Kandjeke Junias Etuna. (2013). Performance audit study on the Green Scheme Programme in the Ministry of Agriculture, Water and Forestry, (79), 45.

Ministry of Agriculture Water and Forestry. (2008). Green scheme, (December).

Namibia: Regions, Cities & Urban Localities - Population Statistics in Maps and Charts. (2015). Retrieved August 10, 2016, from http://www.citypopulation.de/Namibia.html

New Era. (2010). Namibia: Agronomic projects aligned with green scheme. *Food, Agriculture and Natural Resources Policy Analysis Network - FANRPAN*. Retrieved from http://www.fanrpan.org/news/6267

Ofori, W. (2011). Effectiveness of Internal Controls: A perception or Reality? The Evidence of Ghana Post Company Limited in Ashanti Region, 69.

Schlechter, D. (2016). Mutorwa spells out role of agronomy in Harambee Plan | New Era Newspaper Namibia. Retrieved from https://www.newera.com.na/2016/04/01/mutorwa-spells-role-agronomy-harambee-plan/

Sikondo Reaps NAB Maize Award | New Era Newspaper Namibia. (2015). Retrieved April 05, 2016, from https://www.newera.com.na/2015/04/14/sikondo-reaps-nab-maize-award/

Surveys, A., & Guidelines, I. (2010). Surveys and Questionnaires. *Policy*, 2–3.

WHO. (2014). Namibia: Analytical summary - Food safety and nutrition - WHO. Retrieved May 07, 2015, from http://www.aho.afro.who.int/profiles_information/index.php/Namibia:Analytical_summary_-_Food_safety_and_nutrition

Xoagub, F. (2014). Green scheme products need protection - Windhoek Observer. Retrieved May 07, 2015, from http://observer24.com.na/8-latest-news/2832-green-scheme-products-need-protection

APPENDICES

Instrument(s)

Questionnaire number	

UNIVERSITY OF NAMIBIA

MULTIDISCIPLINARY RESEARCH CENTRE (MRC)

IMPACT OF SELECTED GREENSCHEME PROJECTS ON THE LIVELIHOOD OF COMMUNITIES IN NAMIBIA

RESPONDENT QUESTIONNAIRE

----------CONFIDENTIAL----------

SECTION A: IDENTIFICATION INFORMATION

PARTICULARS OF AREA

VILLAGE/TOWN NAME _____

VILLAGE HEADMAN/WOMAN

_____

NAME OF CONSTITUENCY

_____

HOUSEHOLD NUMBER

GREEN SCHEME NAME

_____

NAME AND CODE OF REGION -

_____

1= Kavango East; 2= Kavango West

SECTION B: HOUSEHOLD STRUCTURE AND LIVELIHOOD ASSESSMENT

I: HOUSEHOLD STRUCTURE AND COMPOSITION

(Note: Please write the information of the respondent on the first row)

1a Position in HH	1b Relationship to HH	2 Sex	3 Marital status	4 Age (years)	5 Highest level of education	6a Most important occupation		6b Second most important occupation	
						Occupation[1]	Working mode[2]	Occupation[1)]	Working mode[2)]

1a) 1=HH head; 2=primary respondent; 3=other

1b)1=Self; 2=Husband; 3=wife;4= son; 5=daughter; 6=Other(specify)

2) Code: 1=male; 2=female

3) Code: 1= single; 2=married; 3=divorced; 4=separated; 5=widowed; 6=cohabiting(living together)

5) Code: 0= below schooling age;1= no formal education; 2= Some primary school; 3= Primary school completed Some high school; 4= high school completed; 5= Tertiary education (college, university or similar)

6a[1],b[1]) Code: 1=agriculture; 2=forestry; 3=fisheries; 4=trading; 5=construction; 7=transportation; 8=other service activities; 9= unemployed; 99= Not applicable (For the disable, children at school ages, etc…)

6a[2],b[2]) Code: 1=self-employed; 2=employed;3=casual

NO.		
	QUESTIONS AND FILTERS	**CODING AND CATEGORIES**
7	How many people reside in your household? *(Indicate the number in the box)*	Males…… …☐ Females……...…...…….. ☐
2 8	Did your household reside on this village before the Green scheme was established? *Circle only ONE.*	Yes…… …..1 No……...…… …2
9	For how long have you lived in this village? *please indicate years.*	Year(s) ..... Since birth 1

	II: IMPACTS OF GREEN SCHEMES ON COMMUNITY LIVELIHOOD	
10	**A)** What were your food items for consumption before the establishment of the Green scheme?	Maize..... ..... 1 Mahangu (Millet)..... 2 Sorghum..... ..... 3 Butternuts..... .... 4 Pumpkins..... .... 5 Watermelons ..... 6 Nuts 7

		Beans ..... 8 Kavango spinach (*Hibiscus sabdarifa*) ..... 9 Fish ..... 10 Others (specify)..... 11
	B) What are your food items for consumption after the establishment of the Green scheme?	Maize..... ..... 1 Mahangu (Millet)..... 2 Sorghum..... ..... 3 Butternuts..... 4

		Pumpkins..... .... 5 Watermelons ..... 6 Nuts .....7 Beans ..... 8 Kavango spinach (*Hibiscus sabdarifa*) ..... 9 Fish ..... 10 Potatoes ..... 11 Cabbage ..... 12 Onions .....

		13 Tomatoes ..... 14 *Cumus* genus ..... 15 Others (specify)..... 16
11	**A)** Where did you get the food items for household consumption before the establishment of the Green scheme?	Shops..... ..... 1 Field..... ..... 2 Neighbours..... .... 3 Government drought relief ..... 4 others

		(specify)..... 5
	B) Where do you get the food items for household consumption?	Shops..... ..... 1 Field..... ..... 2 Neighbours..... .... 3 Government drought relief ..... 4 others (specify)..... 5
12	**A)** What was your source(s) of water before the Green scheme?	Public tap..... 1 Household tap..... 2

		Borehole..... .... 3 Water dam..... 4 Mobile water tanker..... 5 River..... .. 6 Well ..... 7 Others (specify)..... 8
	B) What are your current source(s) of water?	Public tap..... 1 Household tap..... 2 Borehole.....

		.... 3 Water dam..... 4 Mobile water tanker..... 5 River..... .. 6 Well ..... 7 Others (specify)..... 8
13	**A)** What sanitation measures were available in the community before the Green scheme?	Toilets..... ... 1 Pit latrines..... 2 Clean running water..... 3

		Bush as toilet..... 4 Others (specify)..... 5
	B) What sanitation measures have been provided to the community by the Green scheme?	Toilets..... ... 1 Pit latrines..... 2 Clean running water..... 3 Bush as toilet..... 4 Others (specify)..... 5
14	**A)** What energy sources were available to you before the Green schemes?	Electricity..... ..... 1 Solar power..... 2

		Fire wood..... 3 Others (specify)..... 4
	B) What energy sources are now available to you as a result of the Green scheme?	Electricity..... ..... 1 Solar power..... 2 Fire wood..... 3 Others (specify)..... 4
15	**A)** How was the community land utilised before the Green scheme?	Subsistence farming..... 1 Livestock herding..... 2 Collection of medicinal plants..... 3

		Collection of wild fruits..... 4 Collection of clay..... 5 Collection of wood..... 6 Collection of grass..... 7 Others……specify)..... 8
	B) How is the community land utilised after Green scheme?	Subsistence farming..... 1 Livestock herding..... 2 Collection of medicinal plants..... 3 Collection of wild fruits..... 4

		Collection of clay..... 5 Collection of wood..... 6 Collection of grass..... 7 Others……specify)..... 8
16	**A)** What kind of housing or improvements did you have to your house before the Green scheme?	2.1.1 Additional space (living space)..... 1 Concrete house..... 2 Corrugated iron sheet roof ..... 3 2.1.2 A thatched roof with clay wall..... 4 2.1.3 A thatched roof with reed wall..... 5 2.1.4 Saving energy (renewable

		energy)..... 6 2.1.5 Safety and preparedness (emergency i.e. fire and burglar alarm systems)..... ..... 7 Other (specify) 9
	B) What kind of housing or improvements do you have to your house after the Green scheme?	2.1.6 Additional space (living space)..... 1 Concrete house..... 2 Corrugated iron sheet roof ..... 3 2.1.7 A thatched roof with clay wall..... 4 2.1.8 A thatched roof with reed wall..... 5 2.1.9 Saving energy (renewable energy)..... 6 2.1.10 Safety and preparedness (emergency i.e. fire

		and burglar alarm systems)..... ..... 7 Other (specify) 9
17	**A)** What type of fence surrounded your homestead before the Green scheme?	Wooden poles..... 1 River reeds..... 2 Brick wall..... 3 Fence..... .. 4 Maize and millet stalks ..... 5 *Euphorbia tirucalli* ..... 6 Others

		(specify)..... 7	
	B) What type of fence surrounds your homestead after the Green scheme?	Wooden poles..... 1 River reeds..... 2 Brick wall..... 3 Fence..... .. 4 Maize and millet stalks ..... 5 *Euphorbia tirucalli* ..... 6 Others (specify)..... 7	
18	**A)** What physical assets did you own before	**Items owned**	**Number owned**

	the Green scheme?	Livestock	
		Bicycle	
		Car	
		Brick house	
		Shop	
		Barbed wires	
		Metal ploughs	
		Television	
		Radio	
		Machineries	
		Others (specify)	
	B) What physical assets do you own after the Green scheme?	**Items owned**	**Number owned**
		Livestock	

		Bicycle	
		Car	
		Brick house	
		Shop	
		Barbed wires	
		Metal ploughs	
		Television	
		Radio	
		Machineries	
		Others (specify)	
19	**A)** What financial capital did you own before the Green scheme?	Savings..... ..... 1 Investments..... ..... 2 Employment wage..... 3 Others	

		(specify)..... 4
	B) What financial capital do you own after the Green scheme?	Savings..... ..... 1 Investments..... ..... 2 Employment wage..... 3 Others (specify)..... 4
20	**A)** What investments did you make in human capital before the Green schemes?	Self-education and training to use machinery..... 1 Education of children..... 2 Experience in a/ field(s) at workplace.....3 Built competency in certain field of work.....4 Others (specify).....5

	B) What investments do you make in human capital after the Green schemes?	Self-education and training to use machinery..... 1 Education of children..... 2 Experience in a/ field(s) at workplace.....3 Built competency in certain field of work.....4 Others (specify).....5
21	**A)** Which of the following social investments did you make before the Green scheme?	Joint neighbour fence repair..... 1 Guarding animals jointly at stock posts..... 2 Borehole..... 3 Others

		(specify)..... 4
	B) Which of the following social investments do you make after the Green scheme?	Joint neighbour fence repair..... 1 Guarding animals jointly at stock posts..... 2 Joint borehole water points..... 3 Others (specify)..... 4
22	How did the Green scheme get established?	Acquire land from villagers(without consent)..... 1 Acquire land from villagers (with consent)..... 2 Proposed by government ..... 3 Initiated by the community..... 4

		Established on a forest not belonging to an individual..... 5

3	**23**	What was your **MAIN** occupation before the Green scheme started? *Circle only **Appropriate answer.***	Permanent wage employment – government .....1 Permanent wage employment – private sector....2 Self-employed (Formal sector) .....3 Self-employed (Informal sector) .....4 Part-time/ casual/ contract employment.....5 Unemployed .....6 Retired/ pensioner .....7 Farming full-time (communal).....8 Other (please specify) .....9 _____ __
4	**24**	What has been your main occupation after the Green scheme? Circle only **Appropriate answer**	Permanent wage employment – government .....1 Permanent wage employment – private .....2 **Permanent wage employment – Green scheme** 3 Self-employed (Formal sector) .....4 Self-employed (Informal sector) .....5 **Part-time/ casual/ contract employment- Green scheme** .6

		Part-time/ casual/ contract employment- elsewhere .....7 Unemployed .....8 Retired/ pensioner .....9 Farming full-time (communal).....10 Other (please specify) .....11 _____ __

5	**25**	How does the Green scheme benefit your community? (Circle **ALL** which applies)	Permanent Employment……1 Casual work…….....…….2 After harvest collections…….....……...…3 Community projects support…….…….4 Monthly payments to the tribal trust fund…….....…….5 Others(please specify)….....……6
6	**26**	Did you give away your farm land for the Green scheme to get established? *Circle only **ONE**.*	Yes.....1 No.....2
7	**27**	**A)** Did you receive alternative farm land after giving your land to Green Scheme? *Circle only **ONE**.*	Yes.....1 No.....2

	B) If yes, is the land able to produce enough to sustain you? *Please explain.*	B) ....

<table>
<tr><td>8 28</td><td>A) Did you receive support after settling elsewhere?
Circle only ONE.</td><td colspan="4">A)Yes 1
No .....2</td></tr>
<tr><td>9</td><td colspan="5">B) If YES, what KIND of post settlement/occupation support did you receive and from WHOM?
Column (a): Circle ALL that apply.
Column (b): Enter the source(s) using the codes in the rightmost column.</td></tr>
<tr><td></td><td rowspan="2">(a) Kind of post settlement/occupation support</td><td colspan="4">(b) Source of post settlement/occupation support</td></tr>
<tr><td></td><td>(i)</td><td>(ii)</td><td>(iii)</td><td>Codes</td></tr>
<tr><td></td><td>(i) Financial package ..... 1</td><td></td><td></td><td></td><td rowspan="6">1 = MLR
2 = MRLGHRD
3 = Ministry of Agriculture
4 = Agribank
5 = German Initiative Programme
6 = Farmers' Union (specify)
7 = Other (specify)</td></tr>
<tr><td></td><td>(ii) Water points/ efficient water supply ..... 2</td><td></td><td></td><td></td></tr>
<tr><td></td><td>(v) Fencing materials..... 3</td><td></td><td></td><td></td></tr>
<tr><td></td><td>(vi) Provision of livestock..... 4</td><td></td><td></td><td></td></tr>
<tr><td></td><td>(Vii) Other (please specify)..... 5</td><td></td><td></td><td></td></tr>
<tr><td>10 29</td><td>A) What were the sources of income of your</td><td colspan="4">(a) Sale of livestock/ livestock products .....1</td></tr>
</table>

	household before the Green scheme? *Circle all that apply.*	(b) Crop sales .....2 (d) Herding livestock for others .....3 (e) Full time wage employment (GRN)……...….……4 (f) Fulltime wage employment (elsewhere) .....5 (g) Casual/seasonal employment .....6 (h) Informal trade, e.g. selling fat cakes.....7 (k) Old age pension……....……..8 (l) Other income source (please specify)… ....…….9 _____ —

11	**B)** What are the sources of income of your household after the green scheme? *Circle all that apply.*	(a) Sale of livestock/ livestock products .....1 (b) Crop sales .....2 (d) Herding livestock for others .....3 (e) Full time wage employment (GRN)……...….……4 (f) Fulltime wage employment (Green scheme) .5 (g) Casual/seasonal employment (Green scheme) 6 (h) Informal trade, e.g. selling fat cakes.....7 (k) Old age pension……....……..8 (l) Casual/seasonal employment (elsewhere).....9 (l) Other income source (please specify)… ...……10 _____ —	
12 30	**A)** Which of these sources of income were the most important **before the**	**Importance**	**Code**
		Most	

	establishment of the Green scheme? Mention up to three in order of importance. *Write the income source in the first column and the corresponding code from Question 29A in the next column.*	Second	
		Third	
13	**B)** Which of these sources of income are the most important? Mention up to three in order of importance. *Write the income source in the first column and the corresponding code from Question 29B in the next column.*	**Importance**	**Code**
		Most	
		Second	
		Third	
14 31	**A)** What is the average income per month did your household receive from the sources of income mentioned in Question 30A above? *Circle only ONE.*	No income .....1 Less than N$ 100.....2 N$ 101 – N$ 500 .....3 N$ 501 – N$ 1000 .....4 N$ 1,001 – N$2,000 .....5 N$ 2,001 – N$ 5,000 .....6 N$ 5,001 – N$ 10,000 .....7 More than N$ 10,000 8	

15	**B)** How much income does your household get on average per month from all the income sources mentioned in Question 30B? *Circle only ONE.*	No income .....1 Less than N$ 100.....2 N$ 101 – N$ 500 .....3 N$ 501 – N$ 1000 .....4 N$ 1,001 – N$2,000 .....5 N$ 2,001 – N$ 5,000 .....6 N$ 5,001 – N$ 10,000 .....7 More than N$ 10,000 8
16 32	**A)** How much did your household spend on average per month from the income in 31A?	No income .....1 Less than N$ 100.....2 N$ 101 – N$ 500 .....3 N$ 501 – N$ 1000 .....4 N$ 1,001 – N$2,000 .....5 N$ 2,001 – N$ 5,000 .....6 N$ 5,001 – N$ 10,000 .....7 More than N$ 10,000 8
17	**B)** How much does your household spend on average per month from the income in	No income .....1 Less than N$ 100.....2

	31B?	N$ 101 – N$ 500 .....3 N$ 501 – N$ 1000 .....4 N$ 1,001 – N$2,000 .....5 N$ 2,001 – N$ 5,000 .....6 N$ 5,001 – N$ 10,000 .....7 More than N$ 10,000 8

18 33	**A)** Which commodities and services were you spending your income on before the Green scheme?	Food…… …1 Education…… …2 Health…… ……3 Clothing…… ……4 Water…… …5 Electricity…… …6 Transport…… …7 Saving…… …8 Others (Please specify)……...……9
19	**B)** Currently on which commodities and services do you spend your income?	Food…… …1

		Education…… …2 Health…… ……3 Clothing…… ……4 Water…… …5 Electricity…… …6 Transport…… …7 Saving…… …8 Others (Please specify)……...…….9

20 34	Has the Green scheme improved your life?	Yes…… ……1 No…….…… …2
21 35	How do you benefit from the Green scheme?	Employment…… …1 Agricultural training…….....…2 Food for sale…….....……3 Food for consumption…….....……4 Crop residues.....……...….5 Others……..…… …6
22 36	List various developments attributed by the establishment of green schemes in your village.	Build a school……1 Build a hospital…….....……2

		Build a church……...……3 Build a shop……...……4 Brought water and electricity to the village.....…5 Financed the palace…….....…….6 Financed village development projects.....7 No development .....8 Others (specify)……...…… 9

23 37	What are the constrains attributed by the establishment of the green scheme? *Circle ALL that apply.*	(a) Long distance to new farming fields .....1 (b) Loss of access to medicinal and food plants .2 (c) Lack of land for livestock grazing.....3 (d) Others (please specify) .....4 _____ –
24 38	What were your expectations of the Green scheme?	Creation of more job opportunity to people……1 Improve food security to the people……..2 Improvement of social infrastructure such as schools and hospitals..... .....3 Support to village development ideas…....……4 Others

		(specify)…..…….5

25 39	Which of the expectations in Q 38 have been met? *(Circle all that applies)*	Creation of more job opportunity to people……...……1 Improve food security to the people…….....……..2 Improvement of social infrastructure such as schools and hospitals..... .....3 Support to village development ideas……..…….4 None 5
26 40	What are your suggestions on how Green schemes should be managed so that it improves people's livelihood	…… …… …… …… …… ……

		…… …… …… …… ……....

Thank you for your time and support!

FIELD ADMINISTRATIVE INFORMATION

RESULT OF INTERVIEW (1 = Completed 2 = Partially completed 3 = Non-contact 4 = Refused 5 = Other) ☐

COMMENT FOR RESULT CODES 2 – 5 _____

FIELD STAFF

INTERVIEWER NAME _____ SUPERVISOR NAME _____

INTERVIEWER SIGNATURE _____ SUPERVISOR SIGNATURE _____

DATE OF INTERVIEW (DD/MM) _____/_____/ 2015

DATE INTERVIEW CHECKED (DD/MM) _____/_____/ 2015

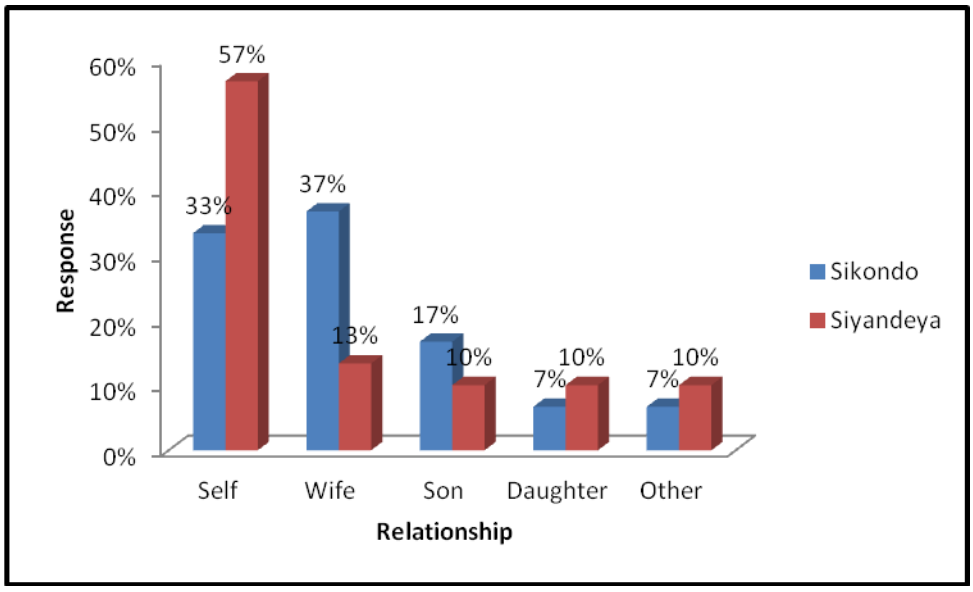


Figure 38Relationship of respondent to household head

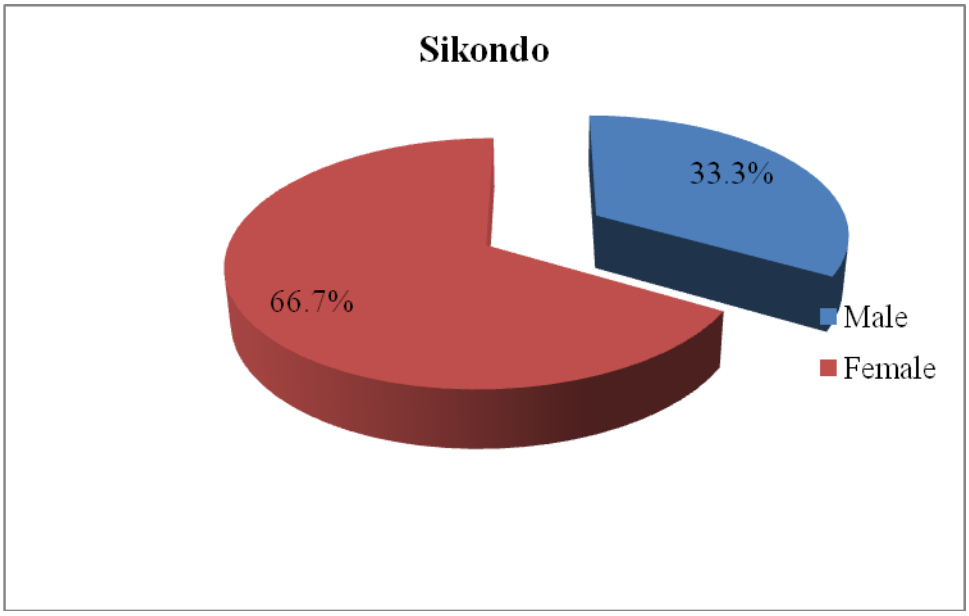


Figure 39 Gender of respondents-Sikondo

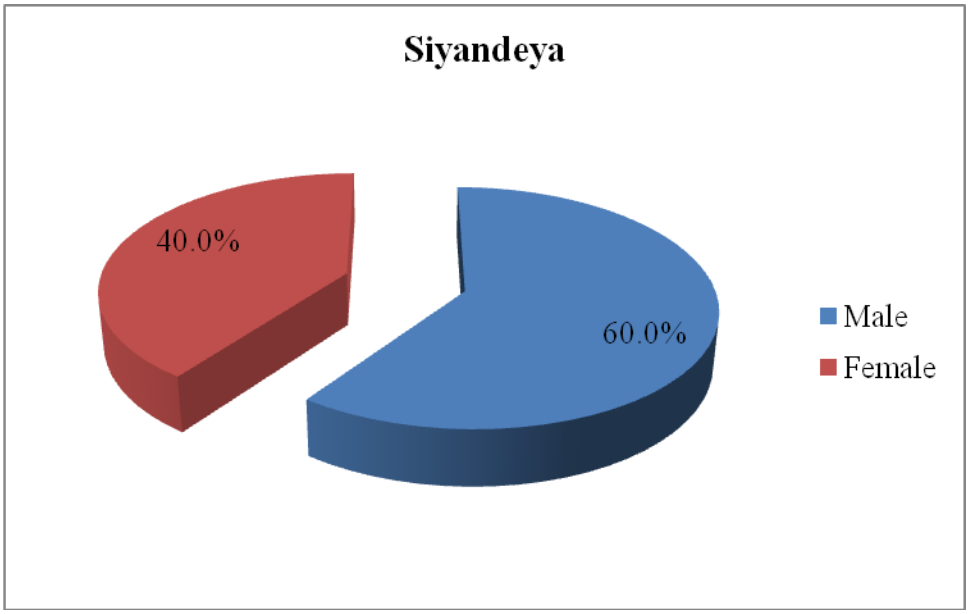


Figure 40 Gender of respondent- Siyandeya

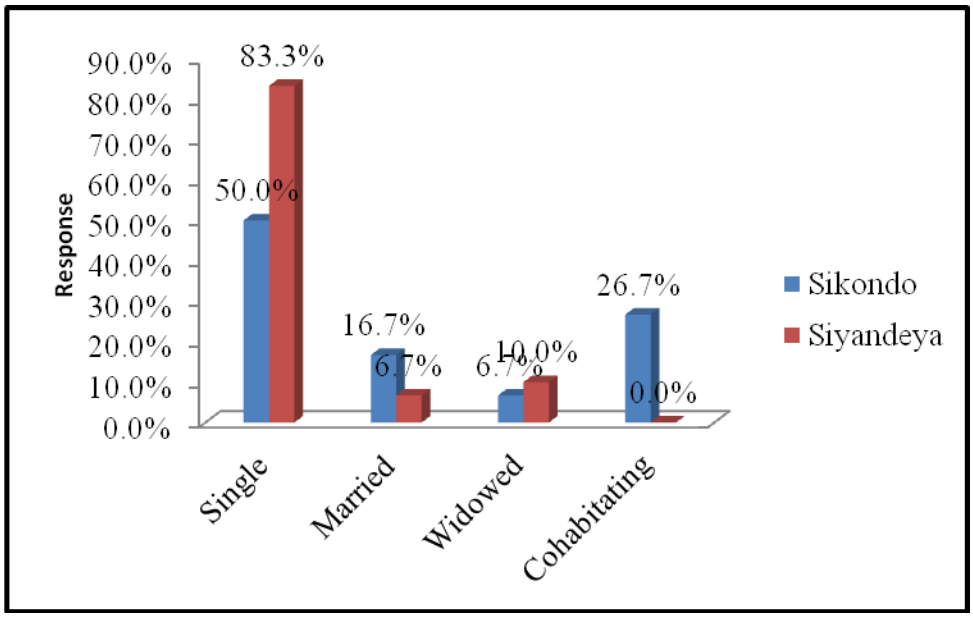


Figure 41 Marital status of respondents

Table 17 Chi-Square Tests (measure of association Village and marital status)

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.986[a]	3	.007
Likelihood Ratio	15.147	3	.002
N of Valid Cases	60		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 2.50.

Table 18 Age of respondent (in years)

Village name	Mean	Std. Error of Mean	Std. Deviation
Sikondo	47.03	2.839	15.551
Siyandeya	45.83	2.988	16.365
Total	46.43	2.045	15.839

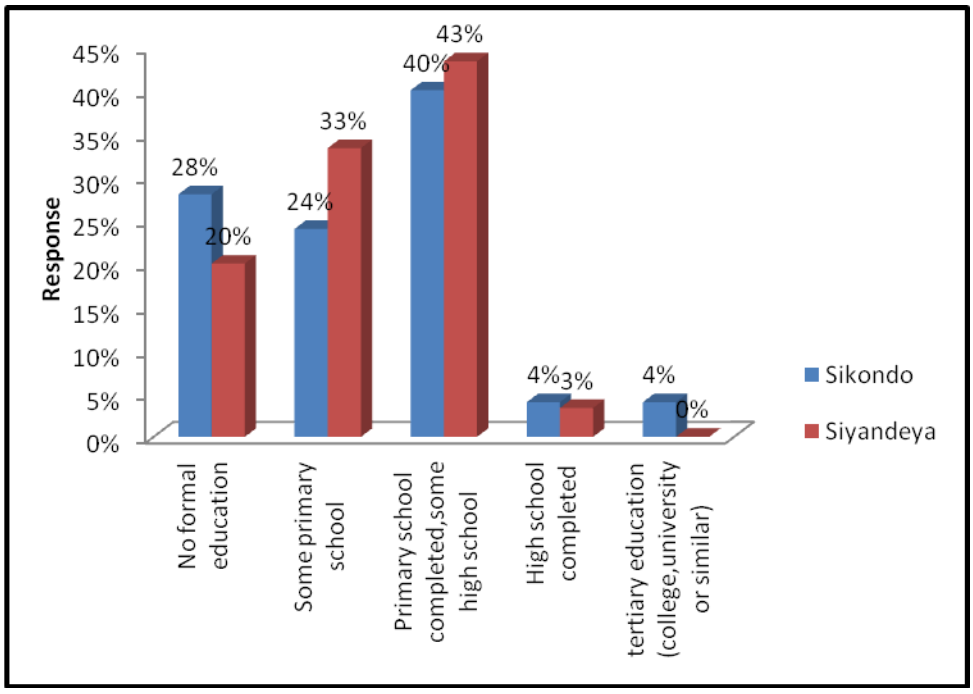


Figure 42 Respondents' highest level of education

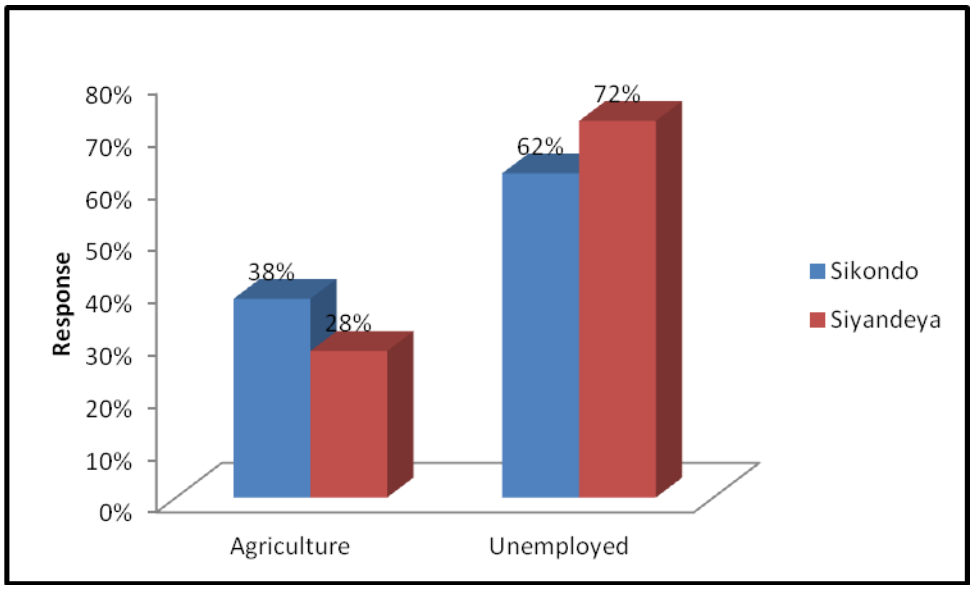


Figure 43 Most important occupation of respondents

Table 19 Respondents' suggestion on managing the Green Scheme to improve the livelihood of people

A come together of community members and Green scheme management to look into how to help the community to improve their livelihood
Aim to be a leading scheme in taking care of the community especially that lost their land
Allow collection of crop residues not to burn or plough it in
Allow permanent employment
Allow strong pensioners to seek casual work from the scheme
Bring

Bring back crop residue collection
Build houses for the people who were having fields where the scheme is
Communication between the chief, manger of the scheme and community leaders/ members needs to be improved then everything will fall into place
create more job opportunities
Eliminate the rule of picking up cards written YES/NO
Emplo more people
Employ majority of community members surrounding and close to scheme
Employ some community members especially females on a permanent basis
Employ villagers
Give back the field or give alternative land to those that had field where the scheme is
Give different jobs and supply foods to people
Give every villager a chance to work casually, repetition of workers is not good, some will not benefit
Give job opportunity
Give permanent jobs to people
Green scheme to help people get food or a way of getting food e.g. training in agricultural practices

If the green scheme will be cared for. it will continue growing and will get casual jobs
Improvement needed in provision of temporary jobs, permanent jobs needed
Increase the wage of the employees
Managers should focus on the village and call meetings so that they listen to our complaints
Provide a path for villagers to pass through to the other side as walking around the scheme is lengthy
Provide a path through the scheme to the forest
Provide jobs in a fair manner/way
Provide public tap
Provide villagers with treatment for water from the well to avoid sickness
Provision of water and electricity to the villagers
Provision of business idea or project for community
Provision of job opportunities to villagers
Provision of maise to villagers
Provision of public tap with clean water
Provision of public taps to community
Provision of route through the scheme to new farm land(s)
Provision of route through the scheme to the new fields
Provision of water

Provision of water points to villagers
Provision of water to villagers
Recruit more villagers in the Green scheme
The manager has a good heart for the community but he met people who do not want to correct the wrongsHe is a good person on his own and care for the people
They must be fair at recruiting people and atleast provide crop residue to people
To bring development in the community
To build a school at this village since people are a lot and schools are far
To establish an opportunity for the villagers to be recruited permanently. The cards given to select a YES or No should be minimised because selecting a YES means working for a month and back to picking again
To follow the president's order of direction on crop residues to improve livelihood
To get back to the system of allowing people to pick crop residues after harvest. Some of us used to get 100kgs or more
To give back our fields
To give permanent recruitment to people
To give us food or jobs
To give water/ taps to the public (villagers) due to the fact that the river is far

To plant a public tap in the community
To provide water to the villagers
To recruit people in need
To revruit people who surround the scheme
Villagers need permanent employment in the scheme
YES or NO card selection is pathetic, real employment needed
Yes/no system should be stopped to employ according to households
A route through the scheme to the fields then people will not complain anymore
Allow some women to be employed permanently
Electricity to be extended to the village
Employ villagers
Employ villagers where the scheme is based
Give food to surrounding communities even to school goers only
Give or share the harvest with community
Give villagers different food items not only maize
Help plough the fields of the villagers with a tractor
I have 9 grandchildren and no one gets employed
Job opportunities to be given to school children on school holidays as priority

Management to work together towards helping villagers have variety of food staff, not just maize
No ID,no work in Green scheme(even voter's card is welcomed)
Provide food to people instead of throwing the food at a dumb site for people to pick it up from there. Manager to give food to the headman for distribution
Provide jobs
Provide jobs to community members
Provide running water to people throug taps
Provide the villagers with water, electricity and atleast a school
Provision of crop residues
Provision of electricity
Provision of public taps with clean running water
Provision of water
Recruit villagers as permanent employees, not only as casual workers
Short route through the scheme to fields
Supply water through taps
Tackle hunger thought people have food supply that we buy
The leadership ladder is weak; the counsellor, headman and community elders
To provide a public tap since the river is far

Agricultural training to be provided to community to come up with own gardens
Encourage scholars by buying uniforms/books for them or even paint their school
Give good food to people to improve food availability and provision of tractors to villagers to plough their fields at a reasonable price
If leaders talked to the manager whenever there was a problem, he would have changed for the better
Management and headmen to work together
Provide seeds for gardens or fields
Scheme to offer agricultural training to csual and permanent workers
The Green scheme should not be biased when choosing who to employ
To be allowed to get electric lines from the transformers
Allow people to pick food from pivots instead of ploughing it in,Food is in the scheme but it rots there
Manager to work with headman hand in hand not outside th law of the communal land
Provision of electricity and clean water
Small farmers to be from the community not from Zimbabwe and other regions of the country

Allow people under 60 years to be involve in casual work
Manager to inform casual workers when treatment had been administer in the water (negligence almost took 28 lives)
Provision of a shortcut route through the scheme to new fields
Salaries/wages are too long,the manager pays well but the secretary or the accountant tempers with the money
Learners born from 1997 onwards are not allowed to involve in the casual work. Learners need pocket money for cosmetics and uniform.
Manager's farming side (commercial) has more restrictions than that of the small scale farmers. This restrictions should be relaxed