BINDURA UNIVERSITY OF SCIENCE EDUCATION

GEOGRAPHY DEPARTMENT

ASSESSING THE IMPACT OF ORGANIC FARMING AS A METHOD OF IMPROVING FOOD SECURITY: A CASE STUDY OF WARD 10 DZVETE GOROMONZI

BY

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APPROVAL FORM

The undersigned certify that I have read this project and have approved its submission for marking after confirming that it confirms to the Faculty of Science, Geography Department and HBScDG requirements.

…….. ……

Supervisor Date

DECLARATION

I Shelter Mafukidze B1129408 declare that this project herein is my own work and has not been copied or adopted from any source without acknowledgement.

Signed…… Date……

DEDICATION

I dedicate this work to my parents Simbarashe and Tsvakai Mafukidze, my siblings Stanley, Sharon, Ruvimbo, and my sister in-law Grace Tambo who supported me tirelessly during my four year study in Bindura.

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ABSTRACT

The aim of this dissertation is to explore issues to do with agriculture in an attempt to solve food shortages currently faced by the country, Zimbabwe. The main objective of the study was to assess the contribution of organic agriculture to the livelihoods of smallholder farmers in Dzvete, Ward 10. The study was done using the qualitative research design. Interview guides, questionnaire schedules, focused group discussion guides and non-participant observations research instruments were used to gather data. The data collected was analyzed using Statistical Package for Social Sciences version 21. Analysis and presentation was also done using Microsoft Excel. To bring out the research findings; figures, graphs, charts and tables were constructed to show relationships. Results indicated that many farmers in organic farming are not only growing crops to enhance food security, but also to feed their families and sale to increase their incomes. Farmers adopted organic farming primarily to increase their incomes and reduce the cost of inputs. These farmers joined different organic organizations to improve the knowledge they had on organic farming. From this move, income increased, stronger family and community ties were created and they had their lives in control. Furthermore, it was seen that organic farming and methods are ideally suited for many marginalized smallholder farmers in rural Zimbabwe since it builds on and stimulates the formation of human, financial, social natural and physical capital and the recent rise in food prices illustrates the importance of making agricultural production less energy and external input independent.. The following recommendations were made in this research; organic farming should be used as a strategy for community development and a sustainable food system for improved food security, it helps farmers to act against land degradation and to ensure that land is fertile for the future generation; Agricultural Policy should be revisited and implemented. Also there is need for active participation of the government in promoting organic agriculture.

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS

UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environment Programme
CBTF	Capacity Task Force on Trade, environment and Development
DFID	Department for International Development
FAO	Food and Agriculture Organization
IFOAM	International Federation of Organic Agriculture Movements
AGRITEX	Agricultural Technical and Extension Services
ZOPPA	Zimbabwe Organic Producers and Promoters Association
GMO	Genetically Modified Organisms
NGO	Non-Governmental Organisation
GDP	Gross Domestic Product
UNDP	United Nations Development Programme
ZIMASSET	Zimbabwe Agenda for Sustainable Socio-Economic Transformation
SPSS	Statistical Package for Social Scientists

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1 Introduction

This study is an assessment of organic farming as a method of improving food security in Ward 10, Goromonzi District. The first chapter introduces the background of the study and gives readers a basic idea of this research. It also brings out the statement of the problem, purpose of the study, research questions, significance of the study, delimitations and limitations of the study and also definition of key terms that are integral to the research.

1.2 Background of the study

Food security is an issue of great and growing concern in many countries, particularly in Africa. The United Nations Conference on Trade and Development (UNCTAD) and the United Nations Environment Programme (UNEP),through their joint Capacity Task Force on Trade, environment and Development (CBTF), take food security very seriously and have joined forces to contribute to the search for sustainable solution.

Organic farming is a sustainable and friendly production system that offers Africa and other developing countries a wide range of economic, environmental, social and cultural benefits. In support of the fact that organic farming can be a solution to shortages of food, Oram (2003), realized that organic farming can be an important strategy in improving food security in developing economies, since it is compatible with the capabilities of rural communities.

According to Wagawa (2005), modern agricultural methods have resulted in spectacular increases in agricultural productivity. However, the majority of the chronically poor are smallholder famers in developing countries who produce much of what they consume, who are often poor to purchase inputs and are marginalized from products markets, as in Zimbabwe smallholder farmers generally lack capital to buy synthetic pesticides and inorganic fertilizers required when practicing modern agricultural strategies. Thus the practice of organic agriculture can improve the production capacity of the poor.

Mpande and Madziwa, (2011) identifies Zimbabwe as a country with many arid and semiarid areas, experiencing recurrent droughts and crop failures. Svotwa et al. (2009) suggest that the use of organic solutions in agriculture contributes immensely to converting much of the poor fragile land into stable productive zones. In Dzvete, Ward 10 farming strategies that require intensive use of expensive and sometimes unavailable inputs such as inorganic fertilizers and herbicides have proved to be very effective on paper than in practice because food insecurity issues are still prominent problems hence the purpose of this study to assess organic farming as a method of improving food security.

1.3 Statement of the problem

Zimbabwe food security has deteriorated since 2009.It has been realized that 25% of rural population are in need of food aid during the pre-harvest period each year (World Food Programme, 2013).The rise in food insecurity is caused by various factors such as lack of inputs due to non-affordability and unavailability of inputs such as fertilizers and seed, weather conditions and high food prices due to poor harvest. Thus organic farming as a low cost agricultural practice can be a bridge between the rising need to improve food security and the economic constraints in the country. To smallholder farmers, organic agriculture may offer the most comprehensive response to the sustainability problems within the agro-industry and food production system in Zimbabwe, yet little considerations have been made in the assessment of effectiveness of organic farming as a strategy to improving food security. Most studies of organic agriculture to date have focused on production aspects of organic agriculture (Holt and Reed, 2006). This research, however, joins the small but growing number of studies that assess the effectiveness of organic farming as a strategy to improving food security.

1.4 Aim

The overall aim of the study is to assess the impact of organic farming as a method of improving food security in ward 10, Dzvete Goromonzi.

1.5 Objectives of the study

- To examine the contribution of organic agriculture to livelihoods of smallholder farmers in Dzvete, Ward 10, Goromonzi Rural District.
- To assess the roles of stakeholders in enhancing organic farming in Dzvete, Ward 10, of Goromonzi Rural District.

1.6 Research questions

- How has organic agriculture contributed to smallholder farmers' livelihoods in Ward 10, Goromonzi Rural District?
- How are the roles of stakeholders in enhancing organic farming in ward 10, Goromonzi district?

1.7 Definition of key terms

Organic farming: refers to a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people (Byerlee and Alex, 2005).

Food security: is when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active healthy life (World food Summit, 1996).

Livelihood: comprises of the capabilities, assets (store, resources, and claims) and activities required for a means of living in times of drought or adverse climatic conditions. Chambers and Conway, (1992), proposed that the livelihoods are the weapons to salvage rural people from the extremes of poverty ensuring their food security and self-sustenance.

Sustainability: is the long term, cultural, economic and environmental health with the vitality with emphasis on long term, together with the importance of linking our social, financial and environmental wellbeing this is according to (Thomas, 2006).

1.8 Justification of the study

Given that smallholder farmers are facing problems in accessing the inputs needed to practice modern agricultural practices, more research needs to be conducted to find effective rural agricultural development strategies, with this fact, it is the motive of this research to examine organic agriculture as a strategy that can improve food security of smallholder farmers.

Although organic agriculture is thought to hold promise as an effective development strategy and several initiatives are now in place in Zimbabwe, the research was also motivated by the element that little ground-level research has been undertaken on the implementation of organic farming in Dzvete, Ward 10.Thus there is a severe knowledge gap concerning organic agriculture and small-scale farmers in Zimbabwe, and that further research is crucial for the development of effective policies to support organic agriculture for improvement of food security of poor small-scale farmers.

While the existing literature on organic agriculture has put forward a convincing case for human benefits, there remains a research gap in understanding the physical environmental impacts of organics agriculture. This knowledge is vital if organic agriculture is to be used as a widespread strategy for conserving the environment.

This research will therefore go some way to filling the major research gaps in organic agriculture and its impacts on farmers' livelihoods. This information will be useful for farmers, development organizations, donors and policy makers, in formulating the development of effective initiatives and policies to support the development of organic agriculture.

1.9 Organization of the study

The research is presented in five interrelated chapters which seek to satisfy the assessment of the effectiveness of organic farming as a strategy that improve food security of smallholder farmers of Dzvete area, ward 10, Goromonzi rural district.

The introductory chapter one outlines the background of the study presents the statement of the research problem and explains why it is relevant to carry out the study. The chapter also outlines the objectives of the research. To satisfy the research objectives, research questions are also presented in this section of the study. Key terms are also explained in this chapter.

Chapter two covers all the literature related to the study. The theoretical framework which the study is based upon is presented in this chapter. A description of the study area follows in chapter three complemented by the research design, research methods, data analysis procedures, the population, sample size and sampling procedure to complete the chapter. The chapter also discusses the methods utilized in exploring the subject, the limitations encountered and the ethical issues considered.

The results are presented in chapter four which presents and analyzes the results juxtaposing them with existing literature on the contribution of organic farming to food security. The whole study is summed up in chapter five which presents summary, discussion, recommendations and conclusion in relation to the adoption of organic farming as a method of improving food security in rural livelihoods. The list cited literature follows and the questionnaire guide used to gather household data in the communities, the interview guide as well as the observation guide used.

1.10 Chapter Summary

This chapter highlighted the critical aspects of the research, notably the background of the study, statement of the problem, research objectives, the research questions, justification of the study and assumptions. The next chapter focuses on theoretical and conceptual literature of the research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter introduces the literature on organic agriculture and places in the context of rural development initiatives. The chapter mainly focuses on literature that has been generated concerning issues to do with organic farming and its positive impacts on food security.

2.2 Organic farming

Organic farming refers to a holistic production management system that avoids use of synthetic fertilizers, pesticides and genetically modified organisms, minimizes pollution of air, soil and water, and optimizes the health and productivity of interdependent communities of plants, animals and people (Byerlee and Alex, 2005). Just as any other types of farming, organic farming rely on five capital assets for success, that is natural, social, physical, human and financial assets. It contributes much to and builds up stocks of these assets over time, thus limiting many factors that lead to food insecurity (Bett, 2007).The idea that many people in most parts of Zimbabwe are still depending on food hand-outs, indicates how crucial the issue of food insecurity is and there is need for action to be taken so that people's livelihoods do not remain at risk (Nyamanhindi, 2006)

In Dzvete, Ward 10, organic farming was introduced after the farmers were resettled. They changed from subsistence, dry land farming to oriented, and irrigation crop production. Previously, the farmers produced vegetables organically for household consumption and now they are into organic market gardening. This initiative was made possible through assistance from various organizations such as Kaite Initiative and Kufunda in a bid to improve food security and increase income levels (Mpande and Madziwa, 2011).Hence this study highlight how organic farming have not been considered in agricultural policy.

2.3 Framework for Analysis: Sustainable Livelihood Framework

Rural households participate in organic farming as a strategy to increase their income by diversifying their livelihoods (Mung'ong'o, 2000). According to the Sustainable Livelihood Framework (DFID, 1999; Carney, 1998), the sustainability of livelihood diversification strategies of rural households depends on access, use and development of different types of assets. These are considered to be stocks of different types of 'capital assets' that can be used directly or indirectly to generate livelihoods. These include human, social, financial, physical, and natural capital. The success of livelihood strategies depend on the context within which they operate which include political, institutional and vulnerability issues such as shocks and stresses. According to Scoones (1998), a livelihood is sustainable when it can utilize opportunities created by existing policies and institutions and cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base.

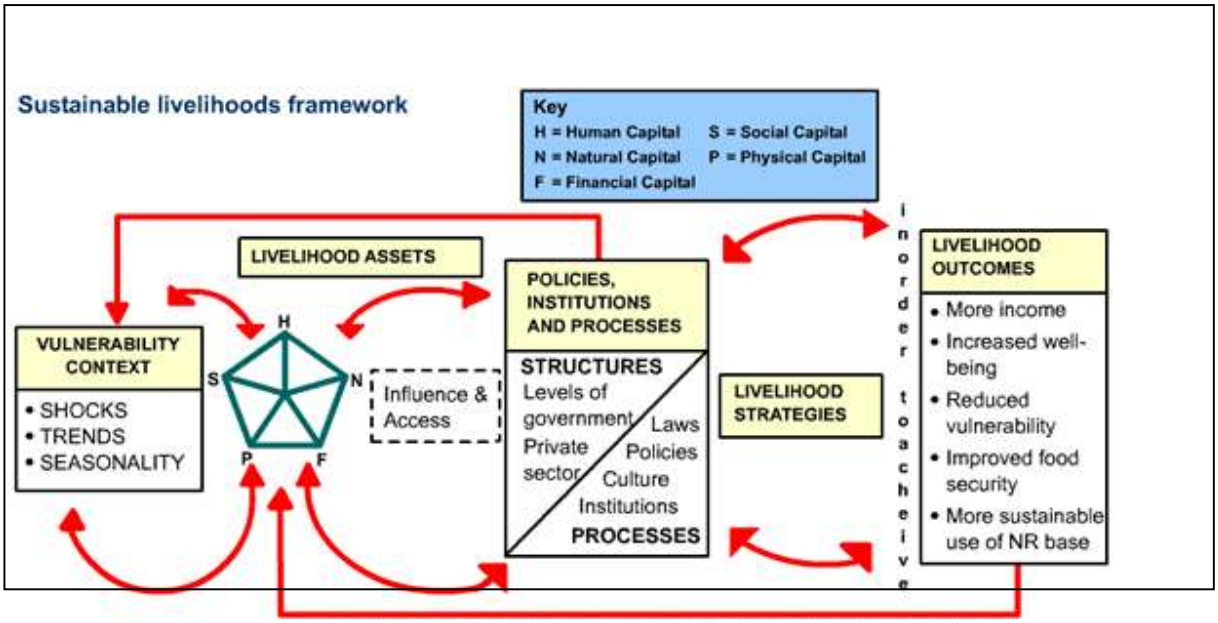

Figure 2.1 Sustainable Livelihoods Framework

Source: Scoones, (1998, page 4)

2.3.1 Human capital

Human capital is a vital determinant of the livelihood strategy outcomes. It includes the skills, knowledge, ability to labor and good health important to the ability to pursue different livelihood strategies (Reardon, et al. 2006). It is also critical in organic farming and a livelihood since information on organic farming skills is acquired first, hence proving the importance of human capital to the area of study. Increasingly, organic agriculture is being adopted as a rural development strategy (European Action Plan for Organic Food and Farming, 2005) and vibrant organic communities can be observed in rural areas of many countries. Organic farms provide more than 30% more jobs per hectare than non-organic farms and, thus, create employment opportunities. However in Dzvete Ward 10 jobs can only increase if on-farm processing and direct marketing are considered, because such enterprises are more likely fostered in organic systems.

2.3.2 Social capital

Social capital comprises a variety of social resources for instance, networks, membership of groups, relationship of trust and access to wider institutions of society upon which people draw in pursuit of livelihoods (DFID, 1999). These resources have a greater role to play as determinants of participation and performance of organic farming in rural areas. According to Gordon and Craig (2001), there is ample anecdotal evidence of the influence of social capital on access to different types of employment. In Dzvete Ward 10, very few trainings and workshops are being carried out which makes it impossible for farmers to make new contacts and expand their markets for their products through mingling with different stakeholders thus expanding their markets.

2.3.3 Financial capital

The financial capital encompasses the financial resources which are available to people whether savings, supplies of credit or regular remittances or pensions and which provide them with different livelihood options (Gordon and Craig, 2001).

Access to financial capital or credit, in farming is one of the principle problems of rural households and individuals wishing to start farming. In Dzvete, Ward 10 without start-up funds, or with only little cash available for investment, organic farmers are limited to a small number of activities which yield poor returns, thereby affecting their food security. Poorer households are less able to tolerate or cope with negative shocks to their income and are thus more averse to this type of risk therefore this study is necessary in this area (Gordon and Craig, 2001).

2.3.4 Physical capital

Physical capital includes the basic hard and soft infrastructure for instance, transport, shelter, water, energy and communications and the production equipment and means which enable people to pursue their livelihoods (Reardon, et al. 2006; DFID, 1999; Carney, 1998).

Proximity to towns and access to infrastructure such as roads, electricity and water are crucial capacity determinants of organic farming and income levels (Barrett, et al. 2001). According to Reardon, et al. (2006), where infrastructure is good, transport costs are low, so effective output prices of organic products are higher. In Dzvete Ward 10road networks that lead to the main road are not in good condition so this research aims to assess the physical capital in terms of organic farming since roads can make it cheaper to ship the raw products to a town or city for processing hence reducing transport cost.

2.3.5 Natural resource capital

The natural resource capital includes stocks, from which resource flows which are useful for livelihoods are derived for instance land, water, wildlife, biodiversity, environmental resources (Reardon, et al. 2006).

According to the World Bank (2007) and FAO (1998), the agro-climatic characteristics of particular area, which may be favorable or unfavorable, more or less variable, influence farm households' risk motive for income diversification into organic activities. Households in areas with a high-risk agriculture would be more pushed to diversify into organic farming. A larger share of such activity would be undertaken merely to cope ex post with shocks to farm income

such as lack of financial capital. Therefore the purpose of this research is to assess whether these assets are being fully utilized and to make suggestions on those that are missing in Dzvete Ward 10 so that food security can be improved through organic farming.

2.4 Differences between organic and conventional farming

Scialabba, (2007), noted that the introduction of synthetic chemical fertilizer and pesticides has boosted production output per hectare in most cases that is Green Revolution. However, the increase in production has slowed down and in some cases there are indications that production is going down. The main reasons being decrease in soil fertility, damage to biodiversity and the environment ,degradation or destruction of water sources and the built up of pest populations and resistance (Willer and Yousef, 2007).

More over the success of industrial agricultural and the Green Revolution in recent decades has often masked significant externalities affecting natural resources and human health as well as agriculture itself. Environmental and health problems associated with agriculture have increasingly well documented, but it is only recently that the scale of costs has come to be appreciated (Pretty et al, 2000). As the external costs of farming are not internalized in the price of food, tax payers or more likely future generations will pay the bill that it is getting bigger every day.

According to Hewlett and Melchett (2008), convectional farming`s problem is that by introducing chemical fertilizers and pesticides, production that tries to be independent of natural regulating process and local resources has been stimulated and has dependent much on non-renewable resources. Mono-cropping and regional specialization in the food system has been stimulated. This normally leads to more pests and increased problems with nutrient management, as nutrient cycles are broken. To fix the problems more pesticides and chemical fertilizers have to be used in a vicious cycle is established. It is of important though difficult to assess the long term effects on the fertility than other factors. Since we are dealing with a variety of soils as well as many different production systems, it is difficult to make general statements, but there are clear indications that fertility is dropping and that farmers try to compensate by increasing

fertilizer application Helga and Yussefi, (2007). This worsens the problem, since the reasons for the decline fertility is the lack of proper management of the soil organic matter. Soil organic matter is mainly eroded when synthetic fertilizers replace more natural ways of nutrient management like recycling of matter, crop rotation and integration of animals and crop production. When organic matter is lost, soil becomes more susceptible to physical erosion by wind and water; water retention capacity is diminished and nutrient uptake harmed (Rundgren, 2007).

Thomas, (2006) highlighted that organic farming entails all approaches/methods based on local technology development that supplement existing know-how among farmers regarding local environmental factors with scientific insights. On the other hand, the Green Revolution put more emphasis on introducing high yielding varieties like maize, wheat or rice in developing countries in the South, which had the aim of improving agricultural output. The yield of these varieties will only be higher in comparison to organic land races only if intensive use is simultaneously made of artificial irrigation, fertilizer and pesticides which is expensive, which is why Green Revolution coincided with accelerated structural readjustment in agriculture.

Meanwhile the same actors who promoted the Green Revolution are calling for a New Green Revolution (James 2005). They have hopes that have risen from new types of gene transfer engineering. Environmentalist and development advocates fear that further spread of this agro-genetic engineering could result in negative impacts similar to those of the first Green evolution as well as creating new problems. Agro-genetic engineering is the application of genetic engineering methods in plant breeding and the use of genetically modified plants in agriculture (Macey, 2005).Cross-breeding, the transfer and side effects of the genes into this organism makes this method problematic. Currently, this application is restricted to the modification of individual genes in order to develop resistance to herbicides, insects, fungi, bacteria, viruses or a modification in the composition of contents in useful plants. Thus in the essence, genetic engineering of organisms clashes with the concept of organic farming in which the ecosystem with its diversity of interactions is to be regarded as a whole. In order to risk, the distributors of seed and the government impose the conditions the users that no longer give any considerations to the existing traditional knowledge among the peasants (Tiziano, 2011).

2.5 Contribution of organic farming to smallholder farmers' livelihoods

2.5.1 Organic farming and food security

As Naphtali (2010) says, there have been studies undertaken in developing countries to show effects of organic farming to food security. He said that yields hardly fall but they remain stable on conversion period from systems that use relatively low synthetic inputs. As years goes on, yields increase as capital assets in systems improved thus outperforming in traditional systems and matching those in non-organic input-intensive systems. Also in some areas organic conversion in tropical Africa results showed that yield increase rather than decreasing (Gibbon and Bolwig, 2007). Therefore this research aims at assessing if conversion period is not affecting the output and to find suggestion on how to correct this in Dzvete, Ward 10.

Organic farming increase and improve food security at all levels. Perfecto (2007) postulated that household food security can increase due to increased quantity of food produced in every farm. Also farmers' income increase thus improving their purchasing power. Finally it also enables different groups in a community to be involved in agricultural production and trade even if they had financial or cultural problems.

2.5.2 The role of organic farming in agricultural production

Since issues to do with climate change and energy scarcity are increasing, there is need for urgent attention to reduce greenhouse gas outputs and energy inputs in the current food production system. In addressing this issue, studies have shown that organic farming have the full potential in solving this problem and can increase food supply thus increasing food security. For instance Bradley et al. (2006) stated that organic farming has the potential to contribute substantially to the global food supply since the transition to organic management could double their output without to invest in environmentally unfriendly synthetic inputs.

According to Svotwa et al (2009), organic agriculture has contributed remarkably in converting much of poor fragile land of the world not stable protective stables. Most farmers in developing countries including Zimbabwe experience recurrent droughts and crop failures. In Dzvete Ward 10 farmers pursue into farming strategies that require intensive pesticides and herbicides. Instead

of repairing the damage it will be increasing the effects leading to water pollution resulting in eutrophication. These cases have reported in Lake Mtirikwi, Kariba and Chivero.To reduce this problem there is need to opt for adopting and improving organic agriculture which promotes safe, non-polluting, affordable and sustainable at the same time increasing food security.

Long ago people always stuck to organic principles that were of no use of synthetic inputs, crop rotations and environmental preservation. Due to inversion of green revolution to advent of engine powered tractors and synthetic farming chemicals all those methods have been abandoned since 1st half of 20th century. All these have to improve food security, however when their trends are traced, studies have shown that there are harmful effects of such chemicals on food and the environment (Elisa et al 2012).

Rudolf (1984) believed that organic farming plays a major role in balancing land use for agriculture and environment. He discovered a unifying principle between the critics of industrial farming which were that organic methods led to long term health of soil, production of higher quality goods and a more sustainable land use. The idea became popular in Europe, USA from 1940s-60s among those who were particular with what they eat. This motivated most farmers, grassroots organizations and traders to form an organization that advocate for their cause organization like Demeter International in Germany, the Rodale Press in USA and Soil Association in UK. These associates finally formed the IFOAM (International Federation of Organic Agriculture Movement) which now have 750 organizations in 108 different countries.

2.6 Environmental benefits of organic farming

Conventional agriculture priorities high yields and does little to harmoniously interact with the environment. This therefore results in widespread environmental degradation commonly resulting in soil erosion, water, soil and air pollution, biodiversity and desertification. They also contribute to global warming today for more than 13% of anthropogenic greenhouse gas emissions (Kuepper, 2002). Conversely, organic agriculture uses an individualized approach to land management that emphasizes preservation of land's natural ecosystem, while consuming less energy and reducing the risks of pollution compare to conventional agriculture. Therefore

organic farming seeks to offer a responsible alternative to conventional practices in the face of ever-growing concerns to eliminate change and environmental degradation.

Through comparisons Brett and Freyer (2007) noted that between conventional and organic farms, he found out that organic methods improve the fertility and overall health of the soil. Organically managed soils also demonstrate better moisture-retention capacity than those conventional farms which is important in arid climates and to reduce the risk of desertification hence soil fertility is a key concept of organic farming soil fertility is actually a cornerstone of organic farming by necessity because farmers cannot use synthetic products to restore degraded lands. They rely instead on monitoring and building soil fertility through multi-cropping systems, crop rotations organic fertilizers and minimum tillage.

Organic farming has the ability to increase organic content in the soil enhancing the capacity to retain water and circulate pollutants. Organic methods also counter soil erosion since they use natural pesticides and maintain a permanent soil cover, restoring degraded soil. Rijsberman (2006), cited that there is little scientific evidence demonstrating that organic farming can reverse desertification and there are examples to show that organic farming can return degraded lands back to fertility, this prove that organic farming may be effective means to counter desertification.

Water pollution in agriculture is due to soil erosion whereby nitrate and synthetic products leak into water supplies. The risk of water pollution in organic farming is greatly diminished since there is no use of synthetic. Organically tended soils show reduced rates of nitrate pollution in water supply and they have the capacity to retain water. Moreover, organic farming consume less energy and tend to be more energy efficient than conventional farming. FAO (2007) showed that through studies 45-64% of the non-renewable energy is consumed by conventional farms. Depending on the climate and crops studied organic farming were found to be between 25-81% more energy efficient.

The majority of the rural poor have made improvements to their capital base and local natural environment, with most of them reporting observed benefits to soil fertility, water supply, flood

control and biodiversity. Organic farming leads to improvement to natural environment which include water retention in soils, improvements in the water table increasing drinking water in dry season, reduce soil erosion and improve organic matter in soils, leading to better carbon sequestration and increase agro-biodiversity. As a result soils are healthier, better able to hold water, more stable, better able to sustain plant growth and have a higher nutrient content. This then enables farmers to grow crops for longer periods, with higher yields and marginal conditions (Bett, 2007).

2.7 Organic agriculture and climate change

Nadia and Maria (2010), argued that refraining totally from the use of synthetic inputs does not qualify an operation as organic, but it involves a proper farm management and design that preserves natural resources from degradation.

Organic farming system design limits external inputs like mineral fertilizers and chemical fertilizers. According to Nadia and Maria (2010), the energy used for chemical synthesis of nitrogen fertilizers are totally excluded in organic system. Williams et al. (2006) calculated the total primary energy burden of conventional wheat production in the UK to be allocated by 56% to mineral fertilizer and by 11% to pesticides. Pimentel et al. (2005) supported this with similar calculations for corn in USA, 30-40% for fertilization and 9-11 for plant protection for corn and wheat .Out of these calculations it can be clearly shown that organic farming can avoid these emissions thus reducing the effects of climate change.

Crop rotation, cover crops, manure and application of organic amendments are recommended strategies that can restore degraded soils thus improving food security of rural populations affected by climate change. Taking into account Ethiopia in Tigray Province, it is highly degraded but agricultural production doubled by soil fertility techniques over 1 million hectares through agro forestry, application of compost and introduction of leguminous plants into crop sequence. Yields increased much to a greater extent at both farm and regional levels than using purchased mineral fertilizers (Smith et al 2008). In Dzvete Ward 10 most farmers are adopting

this method with the intention of increasing income yet the issue of protecting the environment is being ignored, therefore this study sought highlight this gap.

2.8 Socio-economic environment

Global food supply shows that organic farming can produce enough food on per capita. It is estimated that food availability can increase by 57% especially in developing countries showing potential to cater for a larger population. These results are based on average organic ratio of different food categories without increase in current agricultural land use (Bagley et al, 2006; Halberg et al, 2006).

Even though the global supply is adequate, about 850 million people still go hungry (Bargley et al, 2007). Also food prices have risen in the past decade and there is less diversity in food due to conventional agricultural methods. Since organic farming does not require expensive inputs hence it has the potential of meeting food shortages (Byerlee and Alex 2005). This type of farming has been proved to be self–sufficient to rural farmers. It also improves the availability of food by lowering risks of diseases, increase biodiversity in the long run and provide the means for local food production. Organic advocates argue that organic farming reduce yield while organic advocates believe that yields are just equal to those of non-organic farms and is more sustainable because it also consider the health of the environment which is not much considered by non-organic.

Accounting for about 60 to 75 percent of overall employment, agriculture is the chief employer in rural regions. It is not only the landless who earn their living in agriculture, with wage labour in production, distribution or manufacture. Smallholders are also forced to secure their income with additional wage labour. In Africa, Asia and the Arab states, employment outside one's own agricultural undertaking provides the lion's share of family income nowadays. In Latin America, too, an average of 40 percent of income is still earned in supplementary and secondary occupation. In order to secure their survival, as a rule, the poor have to combine several sources of income and activities, with wage labour usually being very poorly paid and often being characterized by exploitative working conditions. Therefore this study seeks to assess the

importance of organic farming to smallholder farmers in Dzvete Ward 10 in the creation of empowerment and job opportunities.

2.9 Organic farming and dietary health

Non-communicable diseases associated with changing diets and lifestyle are increasing and they are accounting for 58 % of premature deaths due to heart disease, diabetes and cancer, along with hunger and malnutrition (Bargley et al., 2007). In China, 8.1 % of households have an underweight and an overweight member within the same household. Although modern food patterns have greatly contributed to combating under nutrition, the specialization of agricultural systems into a few staple foods has exacerbated micronutrient deficiencies. Low dietary diversity and related micronutrient deficiencies like vitamin A, iodine, and iron affect more than half of the children in Dzvete, Ward 10. This is a major public health concern, usually addressed through supplementation and food fortification but with low efficiency, especially in targeting vulnerable segments of population.

Promoting a diverse local food supply, accessible to poor households, has proven to be a simple and successful way to improve malnutrition. The viability of an organic field is synonymous to a diverse agro-ecosystem, both in space and time. The cropping diversity found on organic fields, coupled with rotation crops of minor economic value but high micronutrient and protein content, enriches household diets and health (Pretty, 2007). Choosing to forego synthetic inputs requires using more underutilized seeds and breeds for their better resistance to pest, diseases and climatic stress. The reintroduction, selection and improvement of locally-adapted varieties make an invaluable contribution to “hidden hunger”, or dietary micronutrient deficiencies. Consumer surveys find that organic consumers have a better nutritional status, especially due to choices of “minor” legumes that contribute to healthier diets, which are also good for HIV/AIDS patients.

2.10 The roles of stakeholders in organic farming

2.10.1 Organic farmers

Organic farmers are the main stakeholders since they are the main drivers of the project. For them to successfully adopt organic production methods it depends on a number of important

considerations, including technology options, access to extension services, and efficiency of the monitoring system. Walaga (2005) postulates that the way people put value behind the environment is the key in the adoption of organic methods of production. In contrast, analysts relying on a more conventional micro economic framework argue that farmers will adopt organic technologies if the returns are higher than those obtained using conventional technologies. Studies revealed that the attitudes of farmers towards organic production were linked to the expectation of higher returns which is the main driving force for smallholder farmers to shift to organic agriculture (Walaga, 2005).Therefore this research focus on revealing other benefits like improvement in food security and the socio-economic environment other than finance issues that organic farming has through assessing organic farming in Dzvete ward 10, Goromonzi.

In addition, Hine and Jules (2006) in their studies showed that small-scale farmers often face great difficulty in selling their products because they lack marketing skills and the right connections. Many of them depend on middlemen who pay them lower prices. In most cases the buyers of organic products in both international and domestic markets do not want to deal with a large number of individual small-scale farmers, an alternative that would be too costly and time consuming (Thomas, 2006). Thus, they prefer to negotiate with an agent who has organized the small farmers and coordinated the production and deliveries of a reasonable number of producers. Thus, small farmers are in a relatively weak position in negotiations with firms because they have limited information and poor organization. In Dzvete, Ward 10 small producers selling to marketing firms end up receiving relatively low prices and accepting contract terms that are not advantageous to them. So, there is need for right policy intervention so as to remove this challenge so as to improve security, hence that is the reason for this research to assess the contribution of organic farming as a method of improving food security (Kimemia and Oyare 2006).

2.10.2 Government

If there is coordination between agricultural research, training and extension institutes, it results in research prioritization, updating training materials and extension messages. However in Dzvete ward 10, Goromonzi area the role of the private sector has been undermined with

government taking the centre stage in determining producer prices on cash crops and other agricultural products (Greenpiece, 2002). Lack of an institutional framework to translate policy instruments continues to slow down organic farming recovery.

Mpande and Madziwa (2011) postulated that a more detailed study on how to improve horticultural markets throughout the country would be a first step in responding to the current challenges facing the organic farming sector in. The current unfair competition between local small scale horticultural producers calls for policy intervention. The lack of updated market information makes it difficult to develop informed policy interventions that support the development of horticultural markets in Dzvete area, ward 10 Goromonzi.

2.10.3 Non-governmental organizations

Codex Commodity Committees consist of non-governmental organizations like IFOAM that develop standards that apply to aspects of specific foods or classes of food. Such standards generally concern quality factors such as the composition or presentation of certain products. The Codex Commodity Committee subject matters range from fresh fruits and vegetables to processed fish and fishery products (Naphtali, 2010). General subject Committees focus on so-called horizontal subjects such as food hygiene, labeling, additives and contaminants. These committees develop concepts and principles applicable to foods in general or applicable to specific foods or food groups review provisions in Codex commodity standards as required.

The IFOAM was formed to monitor and control the quality of the food and standards that were necessary to create consumer thrust and provision of assurance that production processes were similar in all areas (Pretty et al, 2000). Due to persistent demand for organic products from people in the 1980s,local and national governments responded to it with legislation on organic farming that could assist countries in achieving environmental objectives, further encouraged governments to adopt agricultural environmental laws to promote organizations for example 1992 reform of European Community's Common Agricultural Policy. However in Zimbabwe strong boards are not yet established to control and monitor the organic produce hence the assessment of stakeholders in organic farming in Dzvete, Ward 10.

2.10.4 Chiefs

Village chiefs play a vital role in organic farming. In most cases they are the ones who take control in the allocation of land in conjunction with the Ministry of Local Government, Public Works and National Housing, thus enhancing natural capital. Also chiefs are the ones who give organizations permission to operate in their area so, the more they accept the programmes are launched in their community thus enhancing development.

2.11 Summary

The chapter has reviewed related theories and literature in relation to the study. It reflects the previous researches in concordance with the current research objectives. Purposively the literature was to representation the areas where gaps exist due to organic farming and food security highlighted with results in chapter 4.

CHAPTER 3: DESCRIPTION OF THE STUDYAREA AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter constitutes the research methodology which involves the research design, study area in terms of location and climatic conditions, target population, sample procedure, data collection method and instruments. Data analysis techniques and procedures followed are also described in the chapter.

3.2 Description of study area

Goromonzi district of Mashonaland East Province is in the North-eastern part of Zimbabwe in a district located approximately 25km from the capital city Harare. It has a land area of 254 072 ha and over 50% of the land is arable. The soils vary from sandy loams to clay suitable for the production of a variety of crops. Goromonzi district is a major supplier of fresh agricultural produce to Harare which comprises fresh herbs due to its proximity to the city. The main sources of water are Nyamasanga River, Chinyika and Mapfeni dams. These water sources provide farmers both small and large scale adequate water for domestic use and irrigation. Apart from fresh herbs, the district is well known for producing cut flowers of high quality that are marketed in the main floricultural shops. Factors that mainly facilitate ease of access to urban markets include the developed road infrastructure and proximity distance.

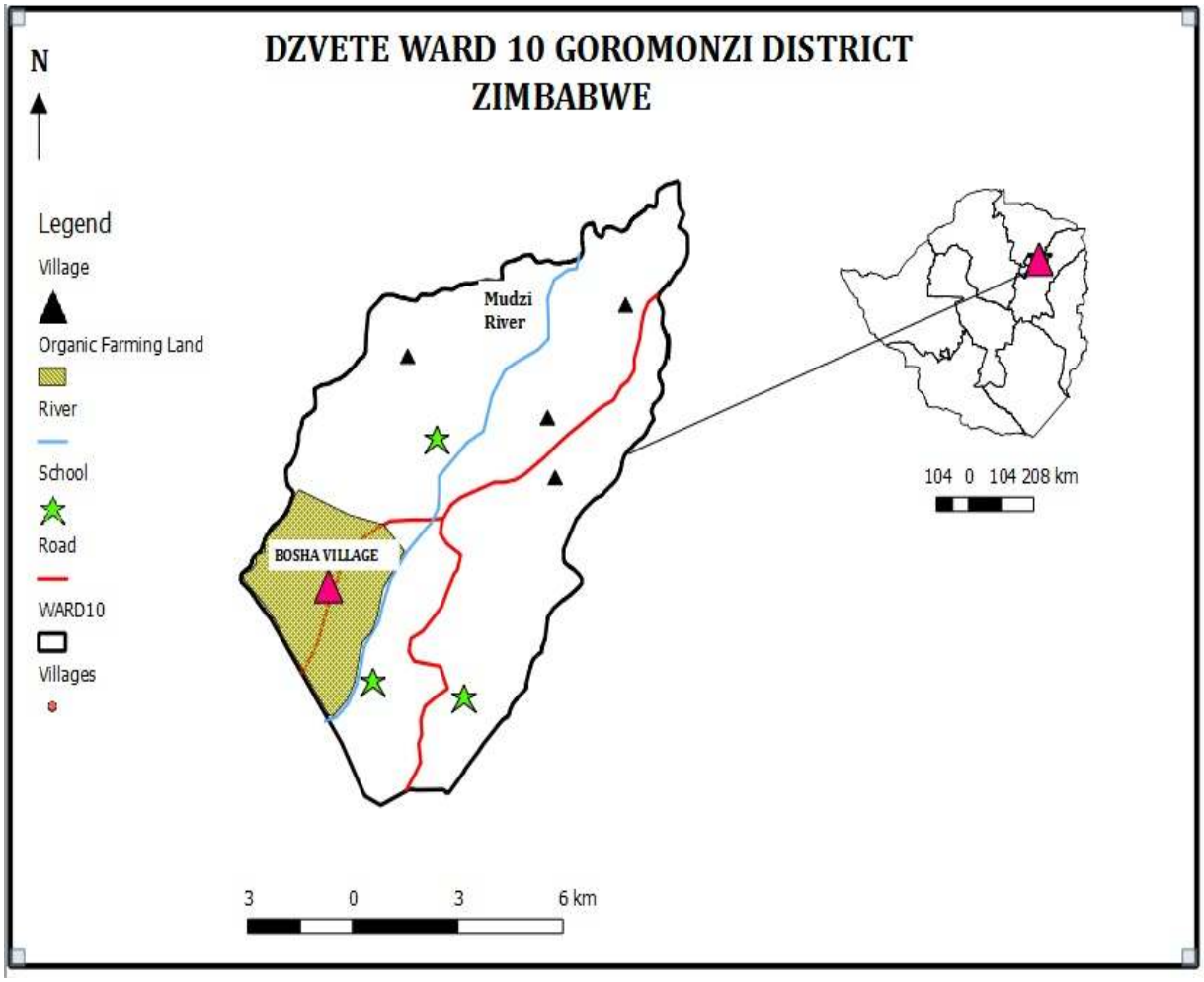

Figure 3.1 Map of the research area

Source: (Author)

3.3 Research design

The research design undertaken is the qualitative research method to show things in their natural setting, try to make sense or interpret them as per the names and in terms of the meanings people bring to them and this is done in an interactive manner (Flick,2007). The research instruments involved interviews, questionnaires, focused grouped discussions and non-participant observation. A combination of these techniques was applied for the purpose of triangulation

since this concept deliberately seeks and compares findings from different sources and ads to the trustworthiness, validity and reliability of data (Silverman, 2006).

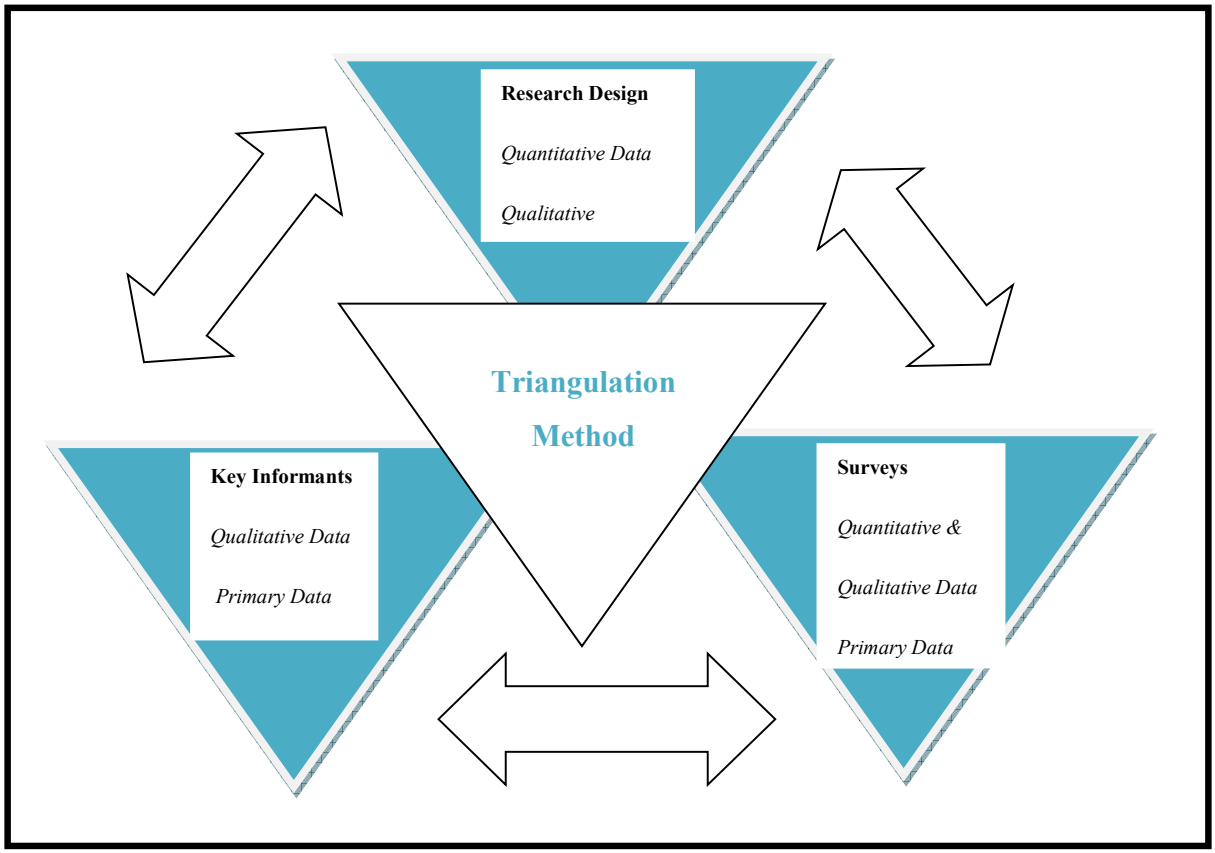

Figure 3.2 Triangulation of Data sources

Source: (Silverman, 2007)

Qualitative research involved descriptive interpretation of data that was obtained from documents both published and unpublished, interviews, focused group discussions and observations. It was effective since it identified intangible factors such as social norms, socio-economic status, gender roles, and levels of education whose role in the research may not have been be readily apparent. According to Mack et al (2005), qualitative research paradigm is useful for the interpretation and better understanding of the complex reality of a given situation. Pattons and Cochrain (2002) added that if one aims at understanding how a community or individuals within an area I perceive a particular issue, then qualitative methods are often the most

appropriate. Quantitative research was also used in presenting coded data. This approach involved the use of questionnaires which in this research has generated larger amounts of data.

3.4 Population

The targeted population of this research consisted of Agritex officers, Goromonzi market gardeners, Dzvete organic farmers in Goromonzi ward 10 and other organic stakeholders like ZOPPA trust. Since the population proved to be large, this entails that researching the entire population was expensive and time consuming, the researcher used samples to overcome this problem.

3.5 Selection of sample and respondents

In this research stratified random sampling and purposive sampling were used. According to Shajan (2005), stratified random sampling is the best way in selecting a large sample and it provides a more representative sample by dividing the given population into a number of subgroups that is stratus.

In qualitative research, only a sample that is a subset of a population is selected for any given study. Mark et al (2004) stated that even if it were possible, it is not necessary to collect data from everyone in a community in order to get valid findings. Purposive sampling begins as common sense which is a process of talking to those informants who are most likely to provide early information.

According to Patton and Cochran (2002), purposive and stratified sampling implies that participants are likely to generate useful data for the project. This was done for key informants such as extension executives, District Admin and organic NGOs. Gender issues were carefully considered in the sample.

To calculate the sample size, the researcher used the sample size calculator at 95 % confidence level at 10 % confidence interval. In a total of 40 households in Ward 10, the sample size that the researcher will dwell on is 32 households. Luck and Robin (2006) argued that a sample size of

10% of the whole population gives reliable results but, for the purpose of more reliability and validity of this research.

Purposive sample sizes were determined by the size of the population, and the type of research method used for a particular group. In this study, the total population of the farmers was 100 and 40 were accessible for the research. Of the 40 farmers interviewed 10 were purposively sampled for one on one interview to shade more light on how they were managing it since they showed success on farming.

In this study, the researcher made deliberate efforts to include Kaite farmers and those who are in market gardening that show signs of organic farming success into the sample since they had the potential to provide an insight why they have succeeded when others have failed.

3.6 Data sources used

Primary Data-was obtained through interview guides, questionnaires, observation and focus group discussion.

Secondary Data-this was obtained from different sources like archived data sources from different organizations which include management reports, policy documents and organic standards.

3.7 Research instruments

Questionnaire, interview, observation and focused group discussions were the research instruments used in this study for data collection. The questionnaire composed of closed and open ended questions. By using the observation guide this was going to be easy in verifying on the correctness of the information given by the respondent. Focus group discussions and interviews were used to verify triangulation hence conformation of one research instrument to another thus reducing the occurrence of margins of errors into the process of collecting data.

3.7.1 Questionnaires guides

According to Leeds (1997) a questionnaire is a totally impersonal probe which is a practical way of collecting data. This normally contains a set of questions aimed at soliciting information from respondents. The questionnaires were administered mainly to organic farmers. This enabled the researcher to gather as much information needed and to reach out to as a large number of people she intended to reach out. Information needed basically included demographic characteristics, level of education, income earned per annum, and access to organic knowledge.

A total of 40 questionnaire guides were self-administered to organic farmers by the researcher. Due to limited time available for the researcher and the research participants it was easy for the researcher to administer these participants since they were check boxes and options so as to minimize errors.

For the researcher to maintain control over data collection process said close and to collect as much data as possible, closed questions were used as argued also by Kothari (2004).

Burns (2000) in his research observed that some respondents lack knowledge of some questions. Often they gave false responses to save time and their prestigious ego. To avoid this in some instances the researcher administered the questions to the interviewee if there was a sign of unauthenticated in the response the researcher probed further so as to get correct information as possible.

3.7.2 Interview guides

According to Sharma et al (2010) interview is referred to as a form of questionnaire filled by the interviewer or researcher herself. For the researcher to conduct the interviews an interview guide was constructed. This was used to access information from other stakeholders like AREX officers and NGOs like Kaite Initiative and ZOPPA Trust where it was impossible to use questionnaires. This created room for the researcher to obtain information in depth since it encouraged participants to express their views at length. For instance clear information on what is expected for one to be a certified organic farmer and the people's attitude towards the

programme. Patton and Cochran agreed with the above by saying this interview guide is mainly useful where it is important to gain an in-depth understanding of the phenomenon at hand and they rightly served so. This also enabled the researcher to validate what was said through non-verbal behavior since there was face to face interview.

3.7.3 Observation guide

The researcher used the Observation guide by the use of a digital camera. These were employed by the researcher during home visits. This enabled the researcher to clearly identify, assess and evaluate the livelihoods of organic farmers. The photos taken by the researcher were useful for validation of responses. Obtained from questionnaires, interviews and focused group discussions

3.7.4 Focused group discussion

Focused group discussion was held with organic and non-organic farmers in the community. The researcher brought together these representatives into a group of twelve people and discusses issues to do with socio-economic and environment impacts of organic farming .This process enabled the researcher to conceptualize these people's view point which was the critical in determining the socio-economic impacts of the programme. Since focus group discussion represents a qualitative research method that directly interacts and sensitize were different topics work better (Morgan, 1997).

3.7.5 Documentary information

To attain documentary information the researcher analyzed the documents that were available at Kaite Initiative. The documents included internal control systems on organic farming, journals which were acquired from the internet. These were useful in clarifying and explaining some of the issues that did not clearly came out during interviews, focus group discussion, questionnaires and observations on assessing the socio-economic impacts of the organizational interventions in the community (Duheim, 1999).

3.8 Data collection procedures

The researcher requested for permission from Kaite Initiative management to carry out the study. The importance and purpose of the study was highlighted and permission was granted to the researcher. For the survey to commence, the researcher had to seek authority from Ministry of Agriculture then from the District Administrator. The researcher paid courtesy call visit to the Chief in the area and made the use of the letter of permission from the DA and ministry. Questionnaires were then distributed to sampled households, and then key informants like extension officers from the Agritex office, Kaite Initiative and Zoppa Trust. Due to financial challenges and limited time the researcher took the opportunity to do observations.

3.9 Data analysis

Statistical Package for Social Sciences version 21(SPSS) was used for data entry. Analysis and presentation was also done using Excel. To bring out the research findings of the study figures, graphs, charts and tables were constructed to show the relationship for easy interpretation of the results.

3.10 Limitations of the study

The researcher faced a number of challenges especially on the survey part of the research. Since the project required a lot of traveling, printing survey material like questionnaires and purchasing of diaries for point jotting a camera for taking photos for proof, this was rather difficult since the researcher had to finance herself yet she had no source of income. Hence this led to the researcher into improvising for instance reducing the number of questionnaires from 40 to 30 which could affect the results. Also some individuals were illiterate so the researcher had to do face to face interview with some of the farmers thereby reducing the number of people being interviewed.

3.11 Chapter summary

This chapter focused mainly on the research design and research instruments used as well as sampling techniques. The research was designed in a manner that accommodates both quantitative and qualitative research paradigms which use research instruments such as interview guides, questionnaires observation guides and focused group discussion as well as documentary analysis. Qualitative data was then coded for statistical analysis using data analysis package the SPSS21.0 and was presented for interpretation.

CHAPTER 4: DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

The previous chapter focused on the methodology used for the purpose of this research. This chapter present, interpret and discuss the findings of the research. Data was analyzed for frequencies and percentages of the responses. The interpretation is based on inductive and reviewed in chapter two. The results obtained were linked to the research questions and objectives of this research study.

4.2 The response rate

The researcher received a pleasant response from all participants due to the use of techniques like questionnaires, face to face interviews and evaluative observational techniques as well as focused group discussions a great deal of participants were covered immensely, these are presented in table 4.1

Table 4.1 Analysis of responses to research instruments used

Source of data	Target	Reponses	Response rate
Questionnaires	32	32	100%
Interviews	5	4	80%
Observation trips	2	2	100%
Focused group discussions	1	1	100%

4.3 Demographic characteristics of the respondents.

4.3.1 Age of distribution of the respondents.

Table 4.2 Age of respondents

Age group	%
20-29	**19**
30-39	**20**
40-49	**26**
50-59	**30**
60+	**5**

Source: (Primary Data)

Table 4.2, shows that 5% of the selected participants were 60 years and above, 30% were between 50-59 years of age, 26% were between 40-49 years of age, 20% were between 30-39 years of age and 19% were between 20-29 years of age. The results indicated that of the household heads, those who were in the age group 40-49 years of age produced better results than the younger and older ones. This was as a result of the commitment and passion that these farmers had to embark on this kind of agriculture since most of them take farming as a source of livelihood. Economically active farmers are depended on synthetic fertilizer and pesticides and are into non-farming activities like gold panning, cross border trading and petty trading. However, economically active farmers could transform farming into sustainable livelihood if they were capacitated with much information and resources. Mapanga (2012), highlighted that older farmers are capable of using indigenous knowledge system which is in line with the organic standards; they are hard workers since they can utilize much of their arable land since they have already acquired assets like tractors and cattle.

4.3.2 Sex aggregated data

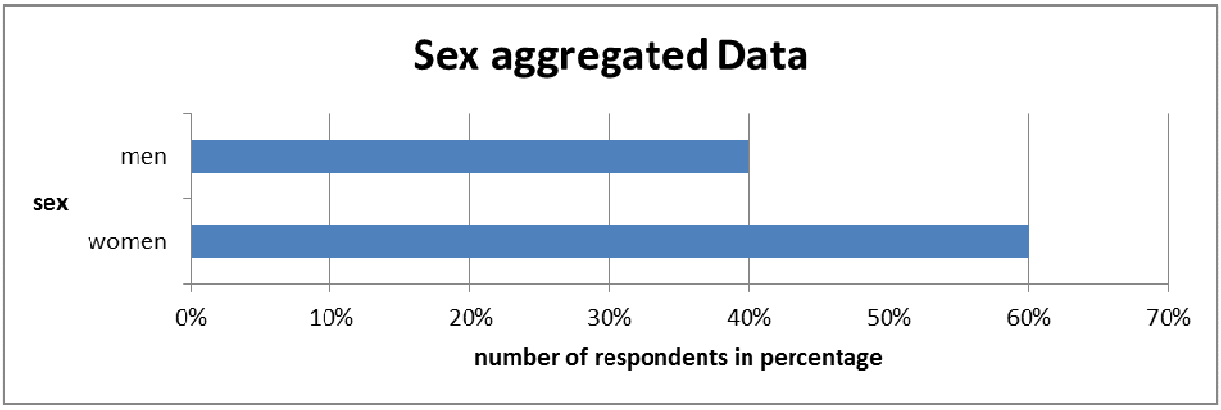

Figure 4.1 Sex aggregates data of the respondents

Source (Primary Data)

In Ward 10 the composition of organic farmers using gender aggregated data revealed that 60% of the respondents constituted women and men were 40% of the respondents. This attributed to the fact that women are left in the village whilst men are engaged in formal employment in

informal jobs in urban areas. Also of the few men that were into agriculture focused on non-organic agriculture. In this case women are at the cross roads of production and reproduction. In this case Todaro and Smith, (2009) concurs with this study that rural women are mostly involved in agriculture.

Table 4.3 Marital status of respondent

MARITAL STATUS	PERCENTAGE
Married	**42**
Single	**11**
Divorced	**7**
Widowed	**40**
Total	**100**

Source: Primary Data

The table 4.3 shows 42% married farmers, 11% single, 4% divorced and 40% widowed thus the majority of organic farmers are married household heads. When the divorced and widowed are combined they are more than the married household heads which showed how weak their capital base is in acquiring farm inputs. Lack of required machinery in modern agricultural production made them stick to smallholder farming like market gardening compared to married spouses. For married couples, it was attributed by combined household income, sharing of ideas in decision making concerning agricultural production between spouses. Mpande and Madziwa, (2011) also concurred with the findings of this research that married farmers produce more than their counterparts because they use combined efforts and ideas towards the improvement of food security.

4.3.3 Level of education of respondents

Level of education in this research was deemed important amongst the rural people because it influences the economic activities of the household and shows the level of understanding on the issues to do with organic farming.

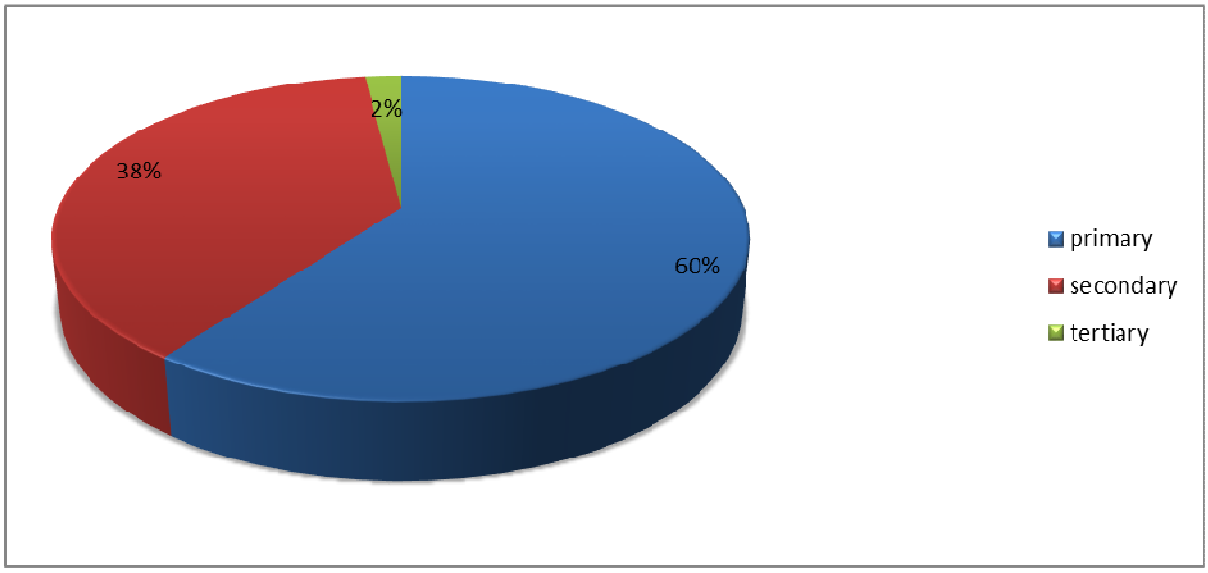

Figure 4.2 Education level of respondents

Source: (Primary Data)

Figure 4.2 shows that of the whole total 60% attained primary education, 38% attained secondary education and the minority of the respondents 2% attained tertiary education. The majority of farmers attained primary education which indicated that they had basic skills in agricultural economics. The researcher observed that these farmers relied much on traditional farming practices such as mono-cropping, crop rotation which is said to reduce yields yet it improves the soil quality. Guthman (2004) argued that as organic farmers enter large distribution system they may be forced to shift once again into monoculture and industrial agriculture. That is because of the pressure from agricultural food corporations that buy and distribute their organic products, and from the market itself.

4.3.4 Household size of family

Household size in organic farming plays a crucial role in determining labor force of the family, since organic farming is labor intensive. Many organic farmers depend on family labor in their farming endeavors even though the hiring of casual labor is done mostly during harvest time. According to the responses given by the key informants, household size determines the food

required by a family per given period. More over family size also determines how much money and the family will save per season.

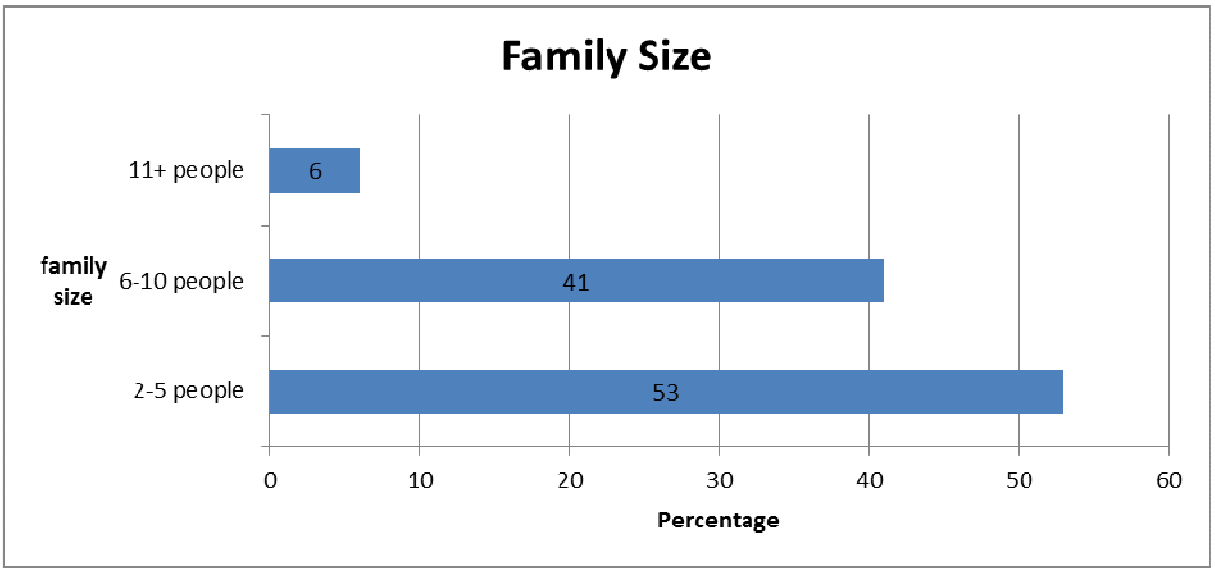

Figure 4.3 Family size

Source: (Primary Data)

Figure 4.3 shows that 40% indicated family size 6-10. This strained food security for organic farmers since more food was required to feed the family. Their harvests covered a shorter period hence exposed the family to food insecurity. However large families had added advantage in terms labor. Also since these farmers are grew crops for consumption and sale they gain some extra income that they used to purchase food thus improved their food security. Another factor that came out from this research was that farmers in Dzvete, Ward 10 had their children in boarding schools. It turned out that in communal areas the distance to school is too long and also the quality of education is a bit low. This goes in line with what (Pretty ,2007) said that there is little or no infrastructure and services in most communal areas such as roads, electricity, protected water supplies, schools and clinics.

In focused group discussions and interviews, it came out that about 60% of the households faced critical labor shortages due to the fact that most schoolchildren were not be available during

school session and other members moved to Harare in search for greener pastures and better markets for their produce. The family size for figure 4.3 did not necessarily only include labor force but it also takes food consumption on consideration. This research also revealed why most people in Dzvete Ward 10 hesitated to practice organic farming and the reason also came as labor shortage since it is labor intensive.

4.3.5 Causes of food insecurity in households of Ward 10, Goromonzi District.

Food insecurity can be directly linked with the failure of the agricultural production process. Figure. 4.4 present the factors which are affecting the productivity of small holder farmers in ward 10 Goromonzi District as describe by the respondents in their response to interviews and questionnaires.

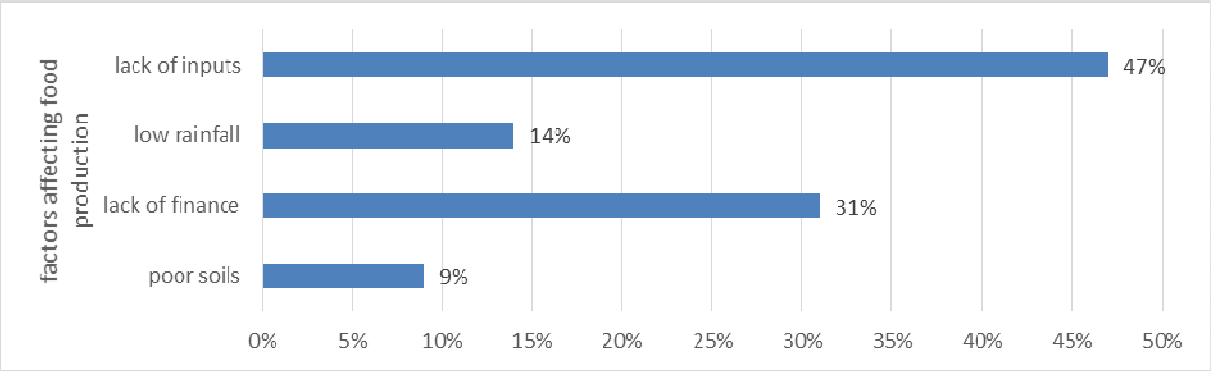

Figure 4.4 factors affecting food productivity

Source (primary data)

Figure 4.4 indicates that 47 % of the respondent said the main factor affecting food production was the lack of inputs, the findings also showed that lack of finance was one of the problems to food productivity, 31% of the respondent are failing to finance food production. Food production in ward 10, is also constrained by low rainfall and poor soils as evidenced by (14% and 9% respectively) the respondents in figure 4.4. From the findings presented organic farming can be a sustainable strategy in overcoming these challenges. In this notion non-organic farmers in Dzvete, Ward 10 are planning to adopt organic farming methods as a solution to financial

problems they were facing in production. Organic farming seemed to be the cheapest method to adopt and which also environmentally friendly and could enhance the soils in their farm lands.

4.4 The contribution of organic agriculture to smallholder farmers' livelihoods in Ward 10, Goromonzi Rural District

The contribution of organic farming to smallholders farmers` livelihoods in Dzvete, Ward 10 can be economic or social.

4.4.1 Socio-economic contributions of organic farming to smallholder farmers.

The following are socio-economic contributions of organic farming to smallholder farmers in Dzvete, Ward 10. (Note that where farmers gave more than one reason for joining the organic initiatives, these were counted as separate responses).

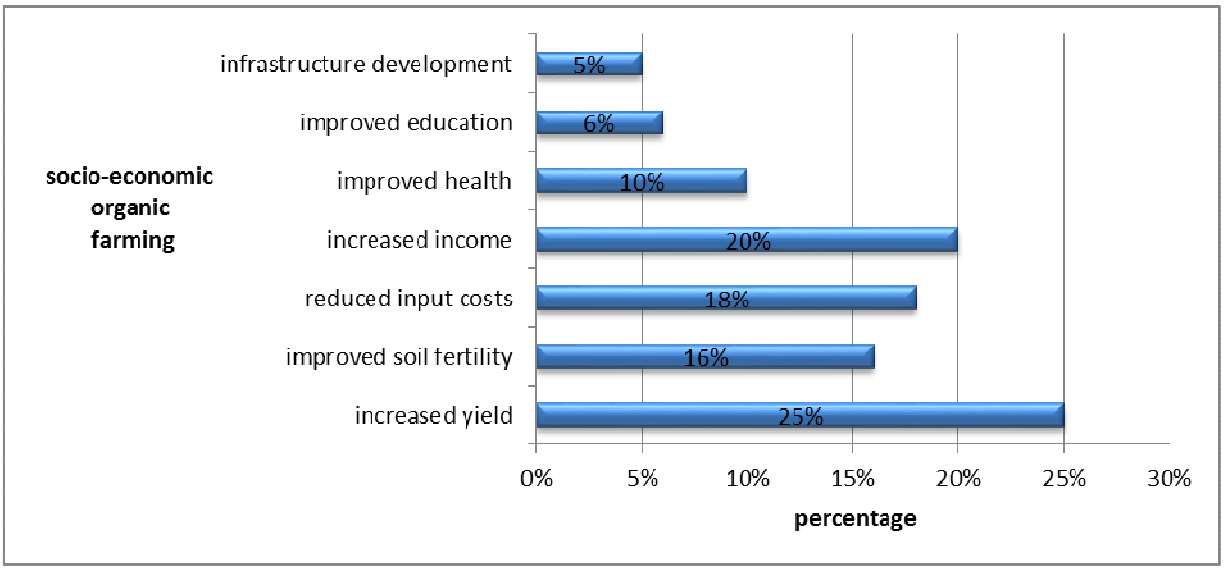

Figure 4.5 socio-economic contribution of organic farming (multiple responses n = 6)

Source: (Primary Data)

Figure 4.5 depicts that (increased yield) has the highest percentage with 25% followed by (increased income) with 20% the reasons why farmers are adopting and joining organic

agriculture initiatives was to increase their yield so as to improve their food security. Stolze, (2005) supported this saying that at least organic farming offers more food for the rural poor using traditional methods and employing any external inputs an opportunity to directly raise yield and thus improve income. In Dzvete, Ward 10 organic farmers' income is increased through growing Bird`s eye chilli and safflower. Responses on (reduced input) costs and (increased income) were economic motivations for adopting organic farming. 13% represented, improved health, being the least of them all. This showed the possibility of better health for the farmer and family playing a role in people's motivations for converting to organics. This result is important in the face of literature that sees the organics movement globally as falling prey to conventionalization, whereby people are more motivated by conventional profit motives and perhaps losing the original ideals of the movement (Guthman, 2000).

Education improved with 5% because most farmers received education before organic farming trainings were just advancement where they were taught book-keeping for their business. This is so because most of them were educated up to primary level it became easy to disseminate information to these people. It improved their social asset since field days were held giving them room to share ideas and market their products to the local market like boarding schools like St John's Chikwaka high school and The Village lodge.

Through focused group discussion, non-organic farmers agreed with this, since most of them were planning to adopt organic methods and joining organizations that are into organic farming. Kaite Initiative co-coordinator added on to say that since 2001, the number of organic out-growers increased tremendously because there were only ten members when the project was launched and the produce from this ward also increased. The Agritex officer highlighted that yields increased immensely because through their market surveys they observed that produce like vegetables and fruits got cheaper by the day reducing the farmers' financial asset. However, this calls for the government to set standard prices for the produce so as to keep a constant income at the same time feeding the nation with healthy food. In summary organic farming is improving food security to a greater extent.

4.4.2 The effect of organic farming on income of the respondents.

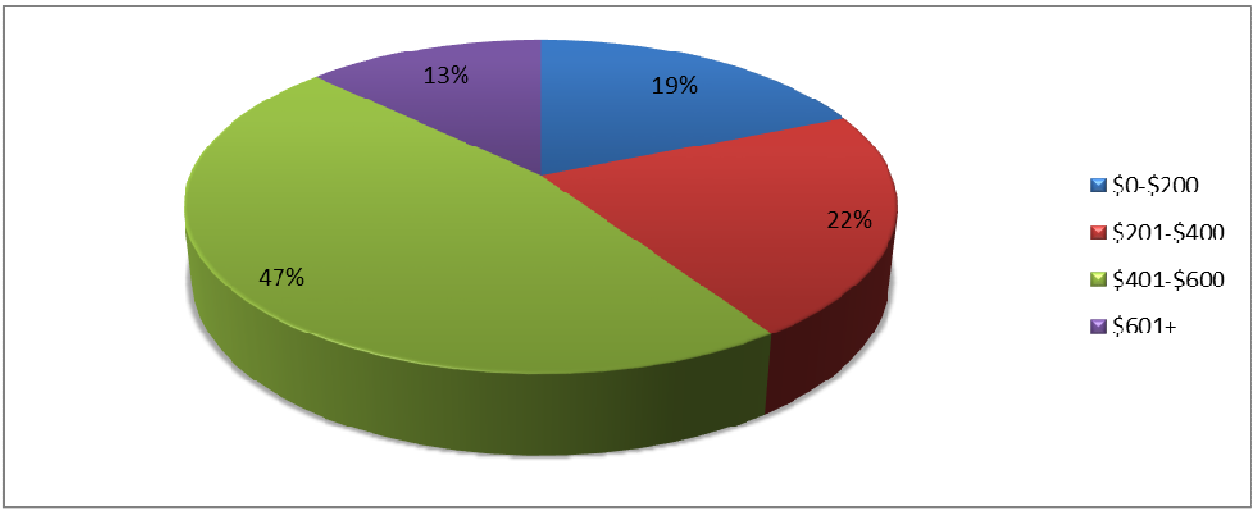

Figure 4.6 Income per season

Source: (Primary data)

Figure 4.6 shows that 47% of the population is earned income that is from $401-$600 from sale of their organic produce. Very few farmers earn $0-$200 and it is 16% of the sampled population. Also 16% of the population earn more $601 and above. These results show that organic farming is improving the livelihoods of smallholder farmers in Dzvete, Ward 10 remarkably since it is providing a better income per season. Mvuramanzi Trust (2013) supported that people in Dzvete village normally sell their produce in Mbare Musika in Harare and their business is very lucrative since they harvest at least 50 boxes of tomatoes per season and from that they earn from $300-$500 in the case of tomatoes. These organic farmers are growing fruits and vegetables like tomatoes, carrots, green mealies, cucumbers and beans for consumption and sale (Mpande and Madziwa, 2011). Tomato production is increasing their food security in the sense that they can eat and from their income they have more buying power since they can buy more food stuffs they are unable to grow themselves, pay school fees for their children and clothes.

In support of this, Kaite Initiative assistant coordinator said that the organization launched the selling of water pumps on hire purchase to the farmers since the can afford to buy the pumps and save some money for their household.

4.4.3 Availability and easy access of inputs

Time of accessing inputs determines planting time for organic farmers. Table 4.4 shows the time at which farmers access their inputs.

Table 4.4 Time of accessing inputs

	Frequency	Percentage%	Valid Percentage%
October	13	41	41
November	6	19	19
December	10	31	31
January	3	9	9
Total	32	100	100

Source: Primary data

Table 4.4 indicates that 41% of the organic farmers receive seeds in October before early rains as well as 31% who received their inputs in December, 19% received inputs in November and 9 % access their inputs in December. This clearly shows that most farmers in ward 10 received inputs early from non-governmental organizations in and outside the area like KAITE Initiative, Kufunda Learning Centre and FITRAC (Mpande and Madziwa, 2011). These organizations are providing agricultural inputs like organic seeds, fertilizers from Nico-Orgo and equipment like irrigation pumps, transportation of produce which reduce transport costs for organic farmers, financing on and off farm operations.

Through focused group discussions it came out that after harvesting some of the farmers keep some of their produce for future use since they already qualify to be organic making it possible to plant their crops early. With Kaite Initiative there is no need of using organic fertilizers because it advocate for pure traditional methods like green manure and compost. This is why some crops like green mealies are found in late November. Willer and Yussefi (2007) also agreed that organic farming offers those peasants using traditional methods employing hardly

any external inputs which directly raise yield and improve income since they can grow their crops all year round. It improves the natural asset since they are natural ways of restoring soil minerals like leguminous plants and practicing crop rotation.

Also organic farmers in Dzvete, Ward 10 are no longer basing on rain fed production but they get assistance from a non-governmental organization that installed rope pumps to draw water from the river. In addition to this, some farmers attained water pumps from different organizations as prize gifts and some bought them on hire purchase. However most organic farmers complained that transport to ferry their produce is still a problem since the roads are bad so there is need for government to solve this. In a way organic farming is bringing a positive change to smallholder farmers in Dzvete, Ward 10.

4.4.4 The impact of Organic agriculture on production

Comparing output per season before adopting organic farming practices and after adopting brings out the extent to which organic farming have improved food security.

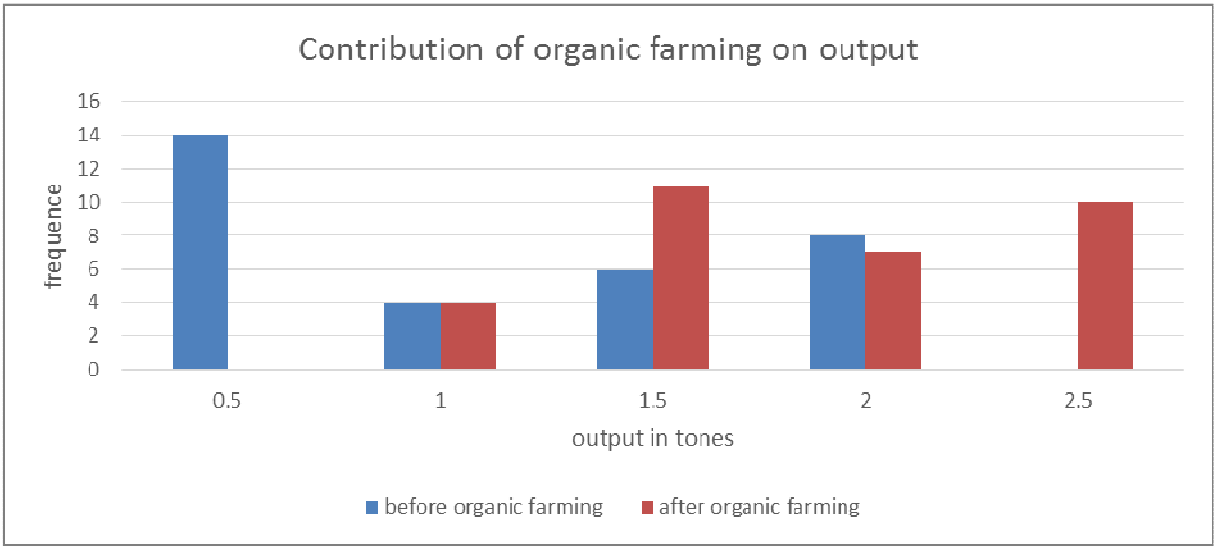

Figure 4.7 The effects of organic farming on output

Source: Primary data

Evidence from figure 4.7 above indicates that food security in Dzvete, Ward 10 increased immensely. Ten people are producing about 2.5 tonnes per season yet in previous seasons they produced 2 tonnes at most. Findings also presents that they are now few people producing less than 1.5 tones. This shows that agricultural yield in organic farming tend to increase when converting from low input system as in the findings of Saprin (2002).

4.5 Roles of stakeholders in enhancing organic farming in Dzvete, Ward 10, of Goromonzi Rural District

For organic farming to be effective, there are active drivers that work hand in hand to make sure that all is in place. These include organic farmers, NGOs, the Government and chiefs.

Table 4.5 Roles of stakeholders in organic farming

Stakeholder	Roles
Organic farmers	Implementers
NGOs	Facilitators
Government	Policy makers, facilitator
Chief	Information disseminators, facilitate gatherings

Source: (Primary Data)

4.5.1 Organic farmers

Organic farmers have the role of producing the available crops hence controlling the production process and the market. They get inputs, information and readily available markets from the donor funds and small loans for them to go through the whole process of agricultural production. The farmers also hold an important position in the indigenous knowledge that they hold on issues of pest control and traditional weed control measures. They also choose whether to join, stay or exit organic farming as members of the organic groups Pretty et al., (2007). A precondition for developing the self-help potential of poor smallholders is that they hold responsibility and are supported by a participatory extension approach. Methods such as farmer field schools or participatory technology development promote the farmers' scope for action. Organic farming provides the preconditions for this development, for it requires that the farmers constantly

engage in learning. Being organized in interest groups strengthens the political power of the smallholders.

It clearly shows agriculture is the main employer in rural areas and wage labour provides an important source of income for the poor. Thus, by being labour intensive, organic agriculture creates not only employment but improves returns on labour, including fair wages and non-exploitive working conditions. This study concurs with (Bargley, 2007) who pointed out that agriculture occupies 80% of population in Africa and agricultural employment remains a source of social and ecological wellbeing of global importance. In this case organic farming restores agricultural labour as well as the natural environment that would have been damaged by use of chemicals and machinery.

During the interviews with key informants ZOPPA trust assistant also agreed that organic farming is providing employment to smallholder farmers and the other people in Dzvete ,Ward 10 are practicing all year round through due to the use of irrigation pumps.

4.5.2 NGOs

Non-Governmental also play an important role in the development of organic agriculture in ward 10, Dzvete Goromonzi, they are an institution that is helping smallholder agricultural producers. Figure 4.8 present the types of assistance provided by this institution according to the respondents' perception.

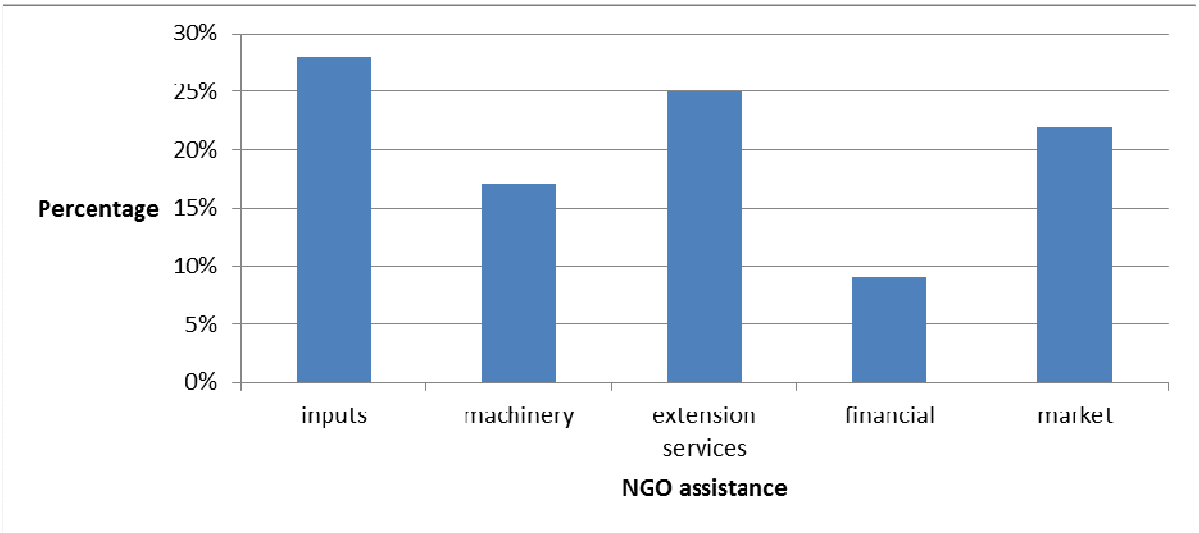

Figure 4.8 Percentage of NGO assistance

Source: (Primary data)

Figure 4.8 show that 28% of assistance from NGOs was in form of inputs. NGOs also provide assistance in form of extension services and market, 25 % and 21% of the respondents said they received this form of assistance respectively. This is so because most organizations like Kaite Initiatives establish their projects with Extension officers who distribute inputs such as seeds, provides knowledge about organic farming methods and managing water supplies so as to increase production thus enhancing food security make sure that the organic farmers are adhering to organic standards. Kaite Initiative also provide ready market for organic products and most of their produce is sold in countries like German, USA and Australia which enhance the country`s GDP.

Key informants like Mvuramanzi Trust, Kaite Initiative confirmed that they are working hand in hand with smallholder farmers in enhancing organic farming through offering micro-finance to improve access to credit, drip irrigation systems, training in crop production and managing water supplies. Through this research it came out that all NGOs have their extension officers for their programme who assist organic farmers in all aspects of their production each and every organization. However, most farmers showed dissatisfaction with the prices considering the fact that organic farming is labour intensive and time they have joined some initiatives.

4.5.3 Government

The government is one key stakeholder in the implementation of organic agriculture because it acts as a regulatory board, that controls the way policies and strategies are implemented. They are the policy makers thus it is of relevance to involve it role as an important stakeholder in the implementation of organic agriculture. Figure 4.10 presents the roles of the government to organic farmers in ward 10, Dzvete Goromonzi District.

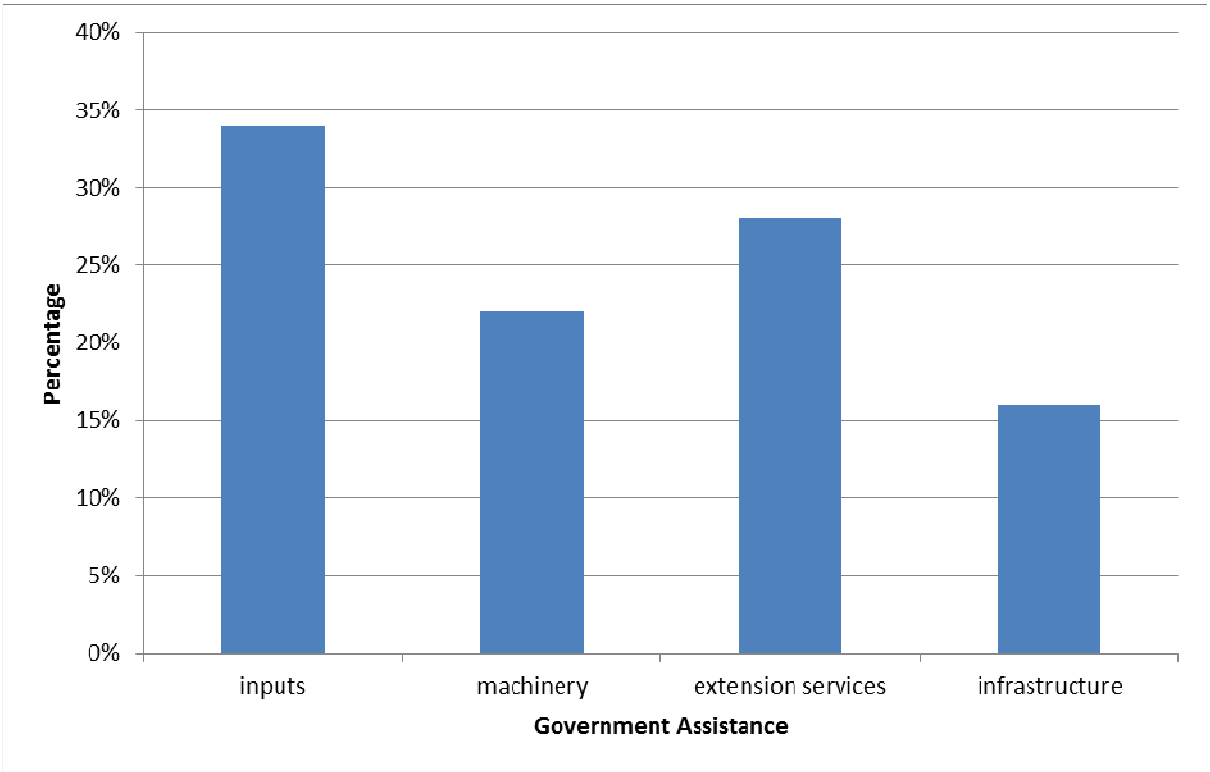

Figure 4.9 Government assistance

Source (Primary Data)

Figure 4.9 depicts that 34% of the government`s assistance are inputs. However the inputs are distributed late thus delaying growing season thus affecting food security negatively. 16% is for infrastructure like government schools that are used for conducting trainings, workshops and

trainings. 26% is for extension services which are provided for vegetable producers in Dzvete, Ward 10 thus contributing to improved food security in the area.

As part of this decree, the government plans to diversify production, encourage the participation of poor people and women in agriculture and enhance information flows to farmers. However, as yet there are no domestic organic standards, and barriers to participation in international markets are still thought to be prohibitive for many small-scale organic farmers (IFAD, 2005).

4.5.4 Chiefs

Key informants like Kaite Initiative and Kufunda highlighted that most chiefs are playing a pivotal role in organic farming by giving NGOs permission to operate in Dzvete, Ward 10. Another interesting aspect was that the Chief`s wives were also members of Kaite initiative. The Chief said,

"These organic organizations are the only NGOs that have operated in this area successfully because I personally am seeing fruitful results unlike other organizations who are politically motivated who come here in the name of development strategies."

Figure 4.10 Drip irrigation equipment from Mvuramanzi Trust

Source: (Mvuramanzi Trust, 2013)

During the interview it was reviewed that the farmers had small drip irrigation equipment which was securing food for the family. Mvuramanzi Trust assisted the group to install a rope pump to help draw water to the garden. The village now plans to extend the area and have already been given an extra piece of land by the headman of the village. Mvuramanzi Trust have also advised the group on how to protect the area from soil erosion by moving further from the river, and planting vetiver grass along contour ridges.

However, there are also challenges like lack of local markets. Most farmers travel to Harare in search of better markets and also there are poor roads that link the villages with the main road which increase costs of production in transport costs.

4.6 Collateral security

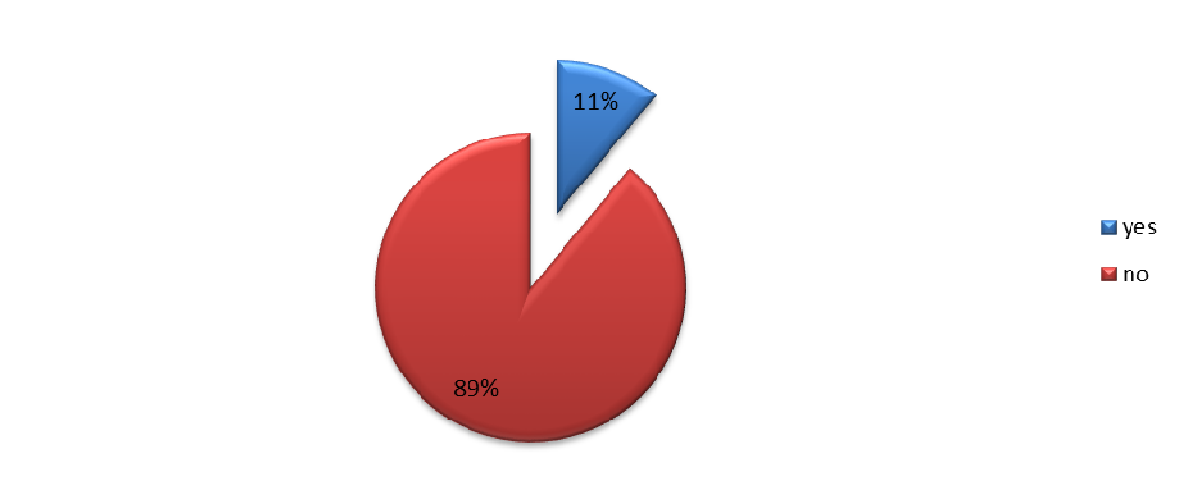

Figure 4.11 Demands for accessing loans

Source: Primary data

The study established in figure 4.11 shows that 89% of the organic farmers lack collateral security. This shows that smallholder farmers have difficulty getting access to formal credit for organic agriculture, since they do not have the requisite collateral to obtain credit and also for the fact that financial institutions do not recognize the differences between organic and conventional agriculture. (Brett and Freyer, 2007). 11%indicated that they had collateral since they were formally employed or are elderly who already acquired their assets and are on pensions. Lack of collateral is an obstacle for farmers to secure funds to finance the agricultural operation.

4.7 Chapter summary

Chapter 4 highlighted the findings of the research and made interpretations, discussions and analysis of the findings, answering the research questions and research objectives. Triangulation of data was done to come up with effective discussions of the findings in linking the information from the farmers and the key informants from the interviews, questionnaires and observations made by the researcher.

CHAPTER 5: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter gives a summary of the research findings. Conclusions and recommendations are from the research finding. Recommendations were made to NGOs, the government and the organic farmers.

5.2 Summary of the results

This study was aimed at assessing organic farming as a method of improving food security in Ward 10 of Goromonzi District. In order to achieve food security, diversify rural livelihoods, and gain access to value-added markets. The research showed that for most farmers to overcome all these so as to improve food security, they had to work hand in hand with different organizations that are into organic farming and farmer training programs.

Literature review showed that organic farming encounter can improve not only food security but also environment, creation of job opportunities many ways number of challenges which are mainly socio-economic in crop production decline. Some of the challenges are attributed to recurrent droughts caused by climatic change, poor access to inputs, labour shortages, lack of draught power, poor extension services, and lack of collateral and security of tenure, lack of irrigation equipment lack

The research design used was qualitative and quantities strategies. The population of the research study was of Kaite Initiative organic farmers and other individuals in the community. Agritex officers and NGO representatives were the key informants. Data obtained was coded analyzed using SPSS and Microsoft Excel as bar charts, pie charts and frequency tables. The data revealed that NGOs are playing a pivotal role in supporting a needs assessment was thoroughly done. However it was revealed that there are other challenges that are emanating from these NGOs.

This study was aimed at assessing organic farming as a method of improving food security in Ward 10 of Goromonzi District. The main findings revealed that most smallholder farmers faced a number of constraints ranging from shortage of inputs, access to loans, lack of draught power, lack of money, shortage of labor and poor extension services. The research showed that for most farmers to overcome all these so as to improve food security, they had to work hand in hand with different organizations that are into organic farming and farmer training programs.

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5.3 CONCLUSION

This research concludes that organic farming can improve food security though there are other constraints like poor extension services who fail to disseminate information for variety of crops like maize for mealie-meal since it is our staple food. However, some individuals are failing to adopt this type of farming because of constraints like low market price provided by some organizations, lack of ready markets for some of the crops they produce and lack of labour. Moreover, most assistance is given by NGOs in the form of Irrigation pumps and generator

where there is no electricity. The area lacks good infrastructure like road networks that links them with the major Harare-Mutoko road which lead them to their major markets.

Organic production is offering opportunities for the development through value addition in small scale agro-food processing industries which is in line with the ZIMASSET. The lack of starting capital and access to appropriate technology has limited small-scale producers to primary processing that is cleaning, grading and drying compared to secondary processing ending, fermenting, roasting and baking. There has a remarkable introduction and adoption of fruit processing technologies in the past five years amongst small scale farmers. The most common juices produced by small-scale farmers include tomato, mango lemon, pineapple, banana, passion fruit, apple, peach and apricot. The most common and easy to use fruit and vegetable processing technology is drying. It represents the earliest techniques used to process fruit and vegetables. Leafy vegetables and cabbage are the most popular crops processed through drying. There are a number of appropriate solar drying equipment that can be used by farmers for fruit and vegetable drying.

5.3Recommendations

For organic farming to be viable and acceptable by many there is critical need for farmers market since it provides a platform for farmers and consumers to undertake business. A well developed and structured famers market minimizes the role of middlemen. Under such a market the farmer receives a fair price for produce whilst the consumer is not exploited through overpricing. New markets for organic produce should therefore be developed outside the existing infrastructure. Creation of a separate niche market for horticulture to counter the Mbare Market is therefore a key strategy.

- Information dissemination should be done using formal methods and should be also included and prioritized in the budget in the department of Agriculture. Agricultural training and education is biased towards conventional farming practices. Reviewing the current agricultural curriculum in primary, secondary and tertiary institutions is

important. In service training of agricultural extension staff on the principles of organic farming should be prioritized.

- There is also need for the promotion of research and development in organic production systems is for the growth of the organic movement. Soil fertility, pest and disease management are some of the key technical challenges facing organic farmers. Lack of organic inputs in managing the soil, pests and disease can be a major barrier to the adoption of the organic farming systems.
- There is need for formulation of a Zimbabwean policy on organic agriculture by the government in partnership with the sector stakeholders. This should include modalities discussed by a multi stakeholder team comprised of government, NGOS, the private sector, farmer representatives and policy makers. Experience of other countries that have gone through the policy development process could be sought with the assistance of organization such as UNDP, UNEP, UNCTAD and International Federation of Organic Movements (IFOAM) and FAO.
- The current government policy supports subsidies for conventional farming (chemical fertilizers, herbicides, and pesticides. There is an urgent need to consider support for organic farming systems through procurement of organic inputs appropriate equipment.
- The sector currently lacks focused research on all aspects of production with much of the research carried out skewed towards the conventional farming system. This undoubtedly militates against the development of the sector in the country. There is a lack of home grown organic technologies to support soil fertility management, pest and disease control. In cases where the technologies are available, exposure to farmers is limited.
- Transfer of environmental sound agricultural technologies from various regional and international organization should be a priority. The establishment of field demonstration schools to show case the current technologies on organic farming can be one way of bringing the technologies closer to the farmers.
- Lack of market research on organic products has limited the entry of organic products into niche markets domestically and internationally. An example of aggressive marketing of organic produce that has paid off is the Honey Council of Zambia that has ventured

into the internationally market with its honey products. Zambia is now the second in the world on honey exports.

- There is pressure for governments to adopt GMO technology against environmentally friendly technologies like organic farming. The GMO advocates are as strong as they are supported by big multinational seed and chemical companies. Creating national, regional and international alliances to appose this profit driven technology is important.
- There is opportunity to work with organized farmers to support organic producers through contract farming. Contract farming can be a good platform in providing other services like financing, training, inspection and marketing.
- There is need for investing into an aggressive media campaign to create awareness on the concept of organic production system and the advantages of its products on issues to do with health, environment and trade.

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APPENDIX 1: QUESTIONNAIRE GUIDE FOR ORGANIC FARMERS

My name is Shelter Mafukidze. I am a student at Bindura University of Science Education and currently studying Bachelor of Science Honors Degree in Development Studies. I am carrying out a research as part of my academic study and my research project is an assessment of organic farming as a method of improving food security.

I am kindly asking for your co-operation in responding to some questions below and this will take 15 to 20 minutes of your time. The information collected will be used for this study for academic purpose and I hold the conviction that the information shall be kept confidential.

Demographic Data

1. Sex: Male ☐ Female ☐

2. Age Group: 20-29 ☐ 30-39 ☐ 40-49 ☐

3. 50-59 ☐ 60+ ☐

4. Marital status: Married ☐ Single ☐ Widowed ☐

Divorced ☐

5. Level of education: Primary ☐ Secondary ☐

Tertiary ☐ None ☐

6. Family size: 2-5 ☐ 6-10 ☐ 11+ ☐

☐

Challenges

7. Where do you get your farm inputs from? Government ☐ Contractors ☐
NGOs ☐ banks ☐ other ☐

8. What is your source of income? Crop production ☐ animal husbandry ☐
Petty trade ☐ other specify ☐

9. What do you use for tillage? Tractor ☐ Draught power ☐ other ☐

10. Do you have irrigation equipment? Yes ☐ no ☐

11. How often do you get assistance from the government?

Every year ☐ Once in a while ☐ none ☐

12. What form of assistance have you received from the government?

Farm inputs ☐ financial ☐ technical ☐ mechanical ☐
none ☐

13. When do you usually access your agricultural inputs?

October ☐ November ☐ December ☐ January ☐

14. What could be the major cause of food insecurity in your area?

☐ ☐

Lack of inputs Low rainfall

Lack of financial resource ☐ Poor soil ☐

15. Do you have collateral for borrowing? Yes ☐ No ☐

b) If yes specify ☐

16. What is your source of labor? Family ☐ ☐Hired labor
Cooperatives ☐ Other ☐

Strategies used to solve the challenges faced by smallholder farmers

17. Which NGOs operate in your area?

_____

18. What form of assistance do you usually get from the NGO?
Inputs ☐ Machinery ☐

Chemicals ☐ Financial ☐

19. Do you produce food organically for a) Sale? ☐

b) Consumption ☐

18. How much do you produce per season or annum?

_____

20. How much do you earn per annum or season?

_____

21. How often do extension officers visit your fields?

_____

APPENDIX 2: FOCUSED GROUP DISCUSSION

Guide of questions to the organic and non-organic farmers in Ward 10, Goromonzi on the assessment of organic farming on socio-economic environment.

1. What has the government done in helping out farmers in this ward to improve food security?

2. What strategies are being implemented by government or non-governmental organization to bring about positive results to rural livelihoods?

3. Why are some farmers producing higher yields than others?

4 .a) Do you have planting, harvesting or irrigation equipment? (If yes state)

b) If the answer above is no (state why?)

5. What kind of problems are you facing as a community to be self-sufficient in terms of food supply?

6. What do you think should be done in your community to improve self-sufficiency in terms of food supply?

APPENDIX3: INTERVIEW GUIDE FOR KEY INFORMANTS

Guide of questions to the Extension Officers of Agritex and NGOs on the roles of stakeholders in organic farming in Dzvete, Ward 10 Goromonzi.

1. Is there any training on organic farming from the government or any other civil society?

   Yes or no

2. What is the government doing to assist in this programme?

3. Are you affiliated to any organization? Yes or no

4. What might be the causes of the challenges in agriculture development?

5. How successful are the NGOs interventions in assisting with knowledge in organic farming?

6. How is certification carried out and how has it impacted livelihoods and the environment

7. How has organic farming impacted the lives of people in Goromonzi?

APPENDIX 4: OBSERVATION

1. Farm productive assets

2. Dominant crops

3. Conditions of crops

4. Building Structures

5. Soil type

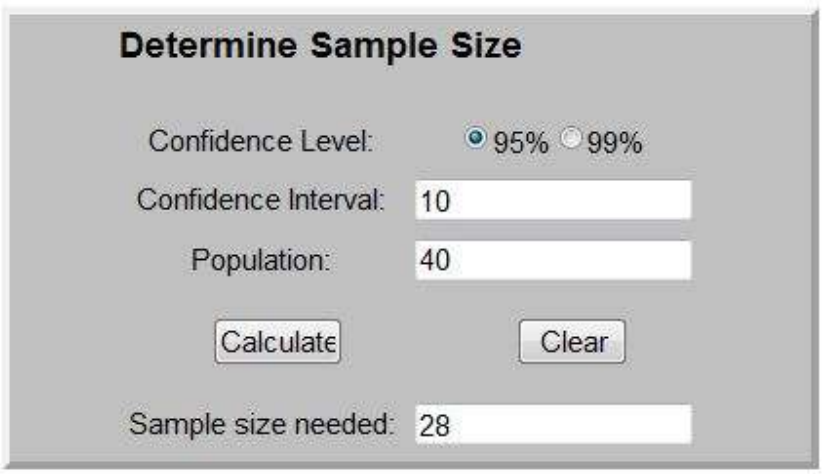
6. Farming activities

7. Compost heap/pit

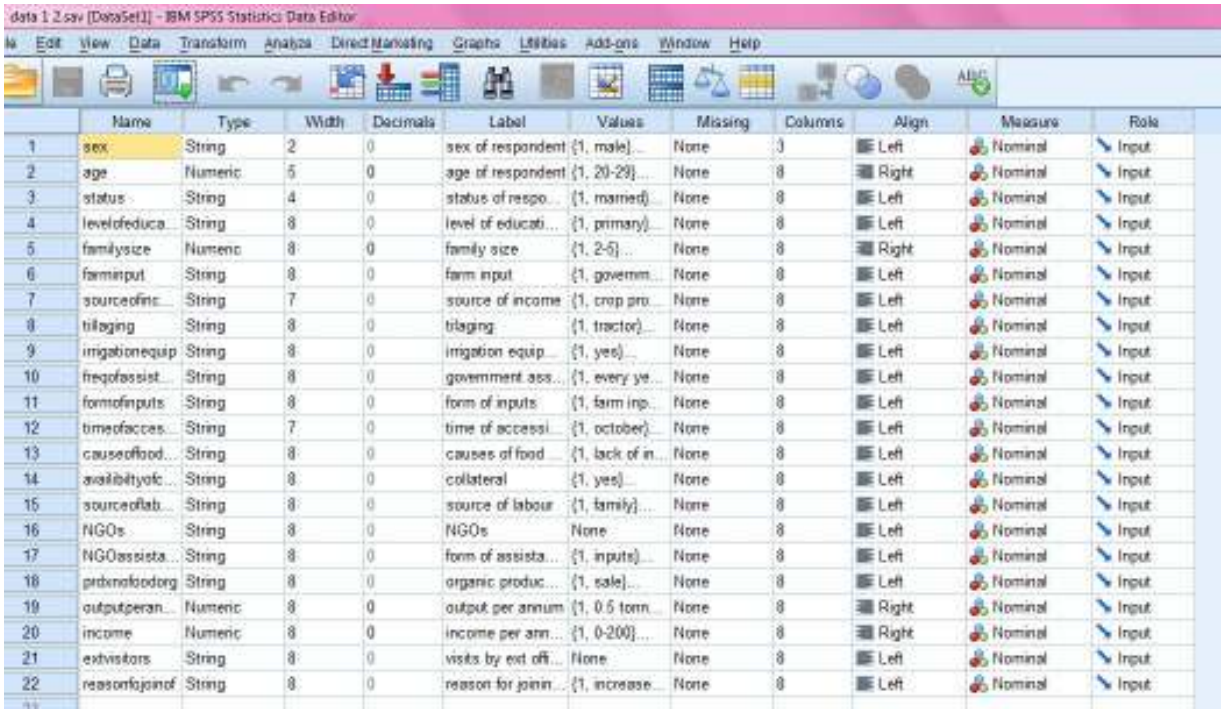
8. Presence of separate storage facilities

9. Good buffer zone

APPENDIX 5: SAMPLE SIZE CALCULATOR



APPENDIX 6: SPSS DATA ANALYSIS TOOLS (cut out)



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
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2	age	Numeric	5	0	age of respondent	{1, 20-29}...	None	8	Right	Nominal	Input
3	status	String	4	0	status of respo...	{1, married}...	None	8	Left	Nominal	Input
4	levelofeduca...	String	8	0	level of educati...	{1, primary}...	None	8	Left	Nominal	Input
5	familysize	Numeric	8	0	family size	{1, 2-5}...	None	8	Right	Nominal	Input
6	farminput	String	8	0	farm input	{1, governm...	None	8	Left	Nominal	Input
7	sourceofinc...	String	7	0	source of income	{1, crop pro...	None	8	Left	Nominal	Input
8	tillaging	String	8	0	tilaging	{1, tractor}...	None	8	Left	Nominal	Input
9	irrigationequip	String	8	0	irrigation equip...	{1, yes}...	None	8	Left	Nominal	Input
10	freqofassist...	String	8	0	government ass...	{1, every ye...	None	8	Left	Nominal	Input
11	formofinputs	String	8	0	form of inputs	{1, farm inp...	None	8	Left	Nominal	Input
12	timeofacces...	String	7	0	time of accessi...	{1, october}...	None	8	Left	Nominal	Input
13	causeoffood...	String	8	0	causes of food ...	{1, lack of in...	None	8	Left	Nominal	Input
14	availabiltyofc...	String	8	0	collateral	{1, yes}...	None	8	Left	Nominal	Input
15	sourceoflab...	String	8	0	source of labour	{1, family}...	None	8	Left	Nominal	Input
16	NGOs	String	8	0	NGOs	None	None	8	Left	Nominal	Input
17	NGOassista...	String	8	0	form of assista...	{1, inputs}...	None	8	Left	Nominal	Input
18	prdcnofoodorg	String	8	0	organic produc...	{1, sale}...	None	8	Left	Nominal	Input
19	outputperan...	Numeric	8	0	output per annum	{1, 0.5 tonn...	None	8	Right	Nominal	Input
20	income	Numeric	8	0	income per ann...	{1, 0-200}...	None	8	Right	Nominal	Input
21	extvisitors	String	8	0	visits by ext offi...	None	None	8	Left	Nominal	Input
22	reasonfojoinof	String	8	0	reason for joinin...	{1, increase...	None	8	Left	Nominal	Input