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ANALYSIS OF GOVERNMENT AGRICULTURAL FOOD SECURITY PACK PROGRAMME: THE CASE OF MPULUNGU DISTRICT, NORTHERN PROVINCE, ZAMBIA

by

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DECLARATION

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Analysis of government agricultural food security pack programme: the case of Mpulungu District, Northern Province, Zambia

I declare that the above thesis is my work and that all the sources that I have used or quoted have been indicated and acknowledged using complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.

SIGNATURE 30th June, 2021 **DATE**

DEDICATION

This study is dedicated in memory of my deceased parents:

My father, James Tembo

And

My mother, Alaidah Zulu Tembo

May their Souls Rest in Peace

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ABSTRACT

This study investigated the effects, capacity, and challenges of the food security pack programme in Mpulungu district, Northern Province, Zambia. The primary sources of data were farm household surveys, focus group discussions, key informant interviews and observations. The study used a mixed-method research design. The study sampled 147 food security pack beneficiaries and 152 non-beneficiaries, two government officials, four area food security pack committees and a combined group of agro-dealers and NGOs using a simple random and purposive procedure. Quantitative and qualitative data were analysed using SPSS and thematic/content analysis, respectively.

The results showed that the majority, 66 percent, of the beneficiaries cultivated a quarter to half a hectare compared to the non-beneficiaries, whose majority 61 percent cultivated less than a quarter hectare. Similarly, the majority, 70.1 percent, of the beneficiaries harvested more than 20 (50kg) bags of maize grain on average, per 0.25 hectares of land compared to eight percent of the non-beneficiaries for the three farming seasons reviewed. The independent samples test revealed that the land cultivated by the beneficiaries had a larger mean (M = 2.00) than the land cultivated by the non-beneficiaries (M = 1.59). Also, the maize crop productivity by the beneficiaries had a larger mean (M = 4.25) than the maize crop productivity by the non-beneficiaries (M = 2.45).

The above pattern of results was similar to those analysed on the amount of land cultivated and maize crop harvested before and after the beneficiaries had access to the programme during the same period of review. The majority, 66 percent, of the beneficiaries cultivated a quarter to half a hectare while the majority, 85.7 percent, cultivated less than a quarter hectare before being introduced to the programme. Correspondingly, 70.1 percent of the beneficiaries harvested more than 20 (50kg) bags of maize grain on average, per 0.25 hectares of land compared to 7.5 percent that harvested the same quantity of maize crop on the same size of a piece of land before accessing the programme. The paired samples test showed that the land cultivated after the beneficiaries' access to the programme had a higher mean (M = 2.00) than

the land cultivated before access (M = 1.18). Also, the maize crop productivity after the beneficiaries' access to the programme had a higher mean (M = 4.25) than before access (M = 1.71).

The study also revealed that, despite the food security pack beneficiaries having cultivated more land and harvested more maize crop than the non-beneficiaries, there were challenges that they faced during the programme implementation. Unpredictable rainfall, political interference, and late receipt of the farming inputs were some of the major challenges that the beneficiaries encountered.

The study concludes that the food security pack programme had a significant positive effect on land cultivation as well as maize crop production as established by both the independent and paired samples tests' mean results that had Cohen's d estimated at 0.6 and 1.5, respectively.

To address the identified challenges, the study recommends the following: intensification of agricultural research to develop all-weather varieties of seed crops; development of stringent programme guidelines to curb political interference in the selection process of beneficiaries; and decentralisation of the supply of the farming inputs to district level for timely delivery to the beneficiaries, among others. On the positive effect of the programme, an increase in the ceiling of the beneficiaries from the current 300 households is proposed. These recommendations can be used as a foundation for effective strategy design and implementation of agricultural food security programmes in Zambia.

KEY TERMS: Food security; household; agriculture; livelihood; small-scale farmer; food security pack; Mpulungu; Zambia

OKUCASHUNIWE

Lolu cwaningo luphenye imiphumela kanye namandla ohlelo lwamaphakethe okuphepha kokudla esifundeni saseMpulungu, esifundazweni saseNyakatho, eZambia, kanye nezinselelo okuhlangatshezwane nazo kulolu hlelo. Imithombo eyinhloko yemininingwane kwakuyizinhlolovo zasekhaya zasepulazini, izingxoxo zeqembu labantu abahlangene ukubamba iqhaza engxoxweni ngomkhiqizo ngaphambi kokuthi wethulwe, izingxoxo ezibalulekile ezinolwazi kanye nokuhlolwa. Kwasetshenziswa ukusungulwa kwecebo locwaningo oluxubile lwezindlela esifundweni. Bangu-147 abantu abazuze ngamaphakethe okuphepha kokudla kanye nabangu-152 abangazuzanga, izikhulu ezimbili zikahulumeni, amakomidi amane wamaphakethe okuphepha kokudla endaweni kanye neqembu elihlangene labathengisi bezolimo kanye nezinhlangano ezingenzi nzuzo zenziwa amasampula kusetshenziswa izinqubo ezilula ezingahleliwe nezinhloso. Imininingwane eveza inani elithile noma ububanzi nechaza izimfanelo yahlaziywa kusetshenziswa isetshenziselwe Ukuhlaziywa Kwemininingwane Yezibalo yeSayensi Yezenhlalakahle (SPSS) kanye nendlela yokuhlaziya imininingwane yekhwalithi / okuqukethwe, ngokulandelana.

Imiphumela ikhombise ukuthi iningi (amaphesenti angama-66) labazuzi belilime ikota kuya kuhhafu wendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 yomhlaba ngenkathi iningi (amaphesenti angama-61) labangebona abazuzi belilime ngaphansi kwendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 zomhlaba. Ngokunjalo, iningi labazuzi (amaphesenti angama-70.1%), kuqhathaniswa namaphesenti ayisishiyagalombili alabo abangazuzi, lase livune izikhwama ezingaphezu kuka-20 (amakhilogramu angama-50) zommbila ngokwesilinganiso esingu-0.25 sendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 zomhlaba maqondana nezinkathi ezintathu zokulima ezibuyekeziwe. Ukuhlolwa kwamasampula okuzimele kuveze ukuthi umhlaba olinywe ngabazuzi unesilinganiso esikhulu (M = 2.00) kunomhlaba olinywe ngabangazuzi (M = 1.59). Futhi, umkhiqizo wezitshalo zommbila otholwe ngabazuzi unesilinganiso esikhulu (M = 4.25) kunomkhiqizo wezitshalo zommbila otholwe yilabo abangazuzi (M = 2.45).

Le ndlela engenhla yemiphumela ibifana nemiphumela ehlaziyiwe maqondana nenani lomhlaba olinyiwe nommbila ovunwe ngaphambi nangemva kokwethulwa kwabazuzi ohlelweni ngesikhathi esifanayo sokubuyekeza. Bangamaphesenti angama-66 abantu abazuzile abebelime umhlaba oyikota nohafu wendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 kanti amaphesenti angama-85 abelime umhlaba ongaphansi ngekota lendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 ngaphambi kokuba bethulwe ohlelweni. Ngokunjalo, amaphesenti angama-70.1 abazuzi babevunile amasaka angaphezu kwama-20 (amakhilogramu angama-50) okusanhlamvu wommbila ngokwesilinganiso esingu-0.25 sendawo elingana nesikwele nezinhlangothi zamamitha ayi-100 zomhlaba, kuqhathaniswa namaphesenti angama-7.5 abebevunile inani elifanayo lezitshalo zommbila ngosayizi ofanayo womhlaba ngaphambi kokuba bethulwe ohlelweni. Ukuhlolwa kwamasampula okubhanqiwe kukhombisile ukuthi umhlaba olinywe ngemuva kokungena kwabazuzi kulolu hlelo lube nesilingansio esiphezulu (M = 2.00) kunomhlaba olinywe ngaphambi kokungena kwabo (M = 1.18). Futhi, umkhiqizo wezitshalo zommbila ngemuva kokungena kwabazuzi kulolu hlelo lube nesilingansio esiphezulu (M = 4.25) kunomkhiqizo wezitshalo zommbila ngaphambi kokungena kwabo (M = 1.71).

Ucwaningo luphinde lwembula ukuthi, yize abazuzi bamapakethe okuphepha kokudla bebelime umhlaba omningi futhi bavuna isitshalo sommbila esiningi kunalabo abangazuzi, babhekane nezinselelo ezithile ngesikhathi kwenziwa uhlelo njengokunqunyiwe. Imvula ebingalindelekile, ukugxambukela kwezombusazwe kanye nokuthola sekwedlule isikhathi okokufaka kwezolimo ngezinye zezingqinamba ezinkulu abazuzi abahlangabezana nazo.

Ucwaningo luphetha ngokuthi uhlelo lwamaphakethe okuphepha kokudla lube nomthelela omuhle ekulimeni umhlaba nasekukhiqizeni isitshalo sommbila, njengoba kukhonjisiwe yimiphumela yesilinganiso yomibili yamasampula esivivinyo esizimele kanye nesivivinyo samasampula abhanqiwe, lapho uCohen's *d* alinganisela ku-0.6 no-1.5, ngokulandelana.

Ukubhekana nezinselelo ezikhonjiwe maqondana nohlelo lwamaphakethe okuphepha kokudla, kuphakanyiswa lezi zinyathelo ezilandelayo ocwaningweni: ukuqiniswa kocwaningo

kwezolimo ukuthuthukisa izinhlobo zezulu zonke zezitshalo zembewu; ukwenziwa kwemihlahlandlela yohlelo olunzima ukunqanda ukugxambukela kwezombusazwe ekukhethweni kwabazuzayo; kanye nokudluliswa kokulawulwa kokuhlinzekwa kokufakwa kwezolimo ezingeni lesifunda ukuze kuqinisekiswe ukulethwa ngesikhathi esifanele kwalezo zinhlinzeko kubazuzi bohlelo, phakathi kokunye. Ukwenza ngcono imiphumela emihle yalolu hlelo, kuphakanyiswa ukwanda kokukhuphuka ezingeni lenhlangano yize kunemikhawulo engashiwongo evimbela intuthuko yabazuzi emindenini yamanje engama-300. Lezi ziphakamiso zingasetshenziswa njengesisekelo esisebenzayo sokusungula kwamasu nokwenza njengokunqunyiwe maqondana nezinhlelo zokuphepha kokudla kwezolimo eZambia.

AMAGAMA ASEMQOKA: Ukuphepha kokudla; umndeni**;** ezolimo**;** indlela yokuthola izidingo zempilo**;** umlimi ohlanganyela ekulimeni kwendabuko endaweni encane**;** amaphakethe okuphepha kokudla**;** Igama lesigodi / lendawo**;** Igama lezwe

ISISHWANKATHELO

Esi sifundo saphanda ngefuthe namandla enkqubo yokufumaneka kweepakethe zokutya kwisithili saseMpulungu, kwiphondo eliseMantla, eZambia, kunye nemingeni eyavelela le nkqubo. Imithombo yokuqala yolwazi yaba ziintlolomvo zamakhaya asezifama, amaqela engxoxo, iindliwano ndlebe nabanolwazi kunye nokuqwalasela. Kwasetyenziswa iindlela zophando ezixubeneyo, kwenziwa isampulu yabantu abanikwa iipakethe zokutya abali-147, nabangazange banikwe abali-152, amagosa karhulumente amabini, iikomiti zengingqi ezine nezijongene neepakethe zokutya kwakunye neqela elixubeneyo loosomashishini bezolimo namaqumrhu angasebenzeli ngeniso. Isampulu yakhethwa ngokuxuba iinkqubo ezingacwangciswanga Iinkcukacha zolwazi ezivele ngobuninzi bamanani nangokuzathuza zahlalutywa kusetyenziswa indlela yohlalutyo ekuthiwa yi*Statistical Package for the Social Sciences (SPSS)* kunye nohlalutyo lwemixholo/lweziqulatho.

Iziphumo zabonakalisa ukuba uninzi (66 ekhulwini) lwabantu abafumana iipakethe zokutya babelima malunga nekota ukuya kwisiqingatha sehektare yomhlaba lo gama uninzi (61 ekhulwini) lwabangafumani pakethe zokutya lwalulima ngaphantsi kwekota yehektare yomhlaba. Ngokunjalo, uninzi (70.1 ekhulwini) lwabafumana iipakethe zokutya, kuthelekiswa nesibhozo ekhulwini sabangafumani pakethe zokutya, lwavuna ngaphezulu kwamashumi amabini (50 kg) zombona kwi 0.25 yehektare kumaxesha okulima amathathu awayeqwalaselwe. Iimvavanyo ezizimeleyo nezizisampulu zadiza ukuba umhlaba olinywa ngabafumana iipakethe zokutya wawunomyinge ongumndilili ongaphezulu (M = 2.00) kunalowo wabangafumani pakethe zokutya (M = 1.59). Kwakhona, ukuvelisa kwembewu yombona okwazuzwa ngabafumana iipakethe zokutya kwakunomyinge ongumndilili ongaphezulu (M = 4.25) kunalowo wabangafumani pakethe zokutya (M = 2.45).

Le pateni yeziphumo ingentla yafana neziphumo ezahlalutywa malunga nobungakanani bomhlaba owawulinyiwe nesivuno sombona esasifunyewe ngaphambi nasemva kokungeniswa kwabafumana iipakethe zokutya kule nkqubo. Ama-66 ekhulwini abo bafumana iipakethe zokutya balima ikota ukuya kwisiqingatha sehektare yomhlaba kanti ama-

85.7 ekhulwini alima ngaphantsi kwekota yehektare yomhlaba phambi kokuba bangene kule nkqubo. Ngokunjalo, ama-70.1 ekhulwini abo bafumana iipakethe zokutya avuna ngaphezu kweengxowa zombona ezingama-20 (50 kg) kwisithuba se-0.25 sehektare yomhlaba, lo gama isi-7.5 ekhulwini savuna kwalo myinge ulinganayo kumhlaba olinganayo phambi kokuba bangene kule nkqubo. Uvavanyo lweesampulu ezithelekiswa ngokwezibini lwabonisa ukuba umhlaba olinywe emva kokungena enkqubeni kwabafumana iipakethe zokutya wawunomndilili ongaphezulu (M = 2.00) kunalowo womhlaba olinywe phambi kokungena enkqubeni (M = 1.18). Kwakhona, ukuvelisa kwembewu yombona emva kokungena enkqubeni kwabafumana iipakethe zokutya kwaba nomndilili ongaphezulu (M = 4.25) kunoko kwakuveliswa ngaphambi kokungena enkqubeni (M = 1.71).

Isifundo saphinda sadiza ukuba abafumana iipakethe zokutya babelime, bavuna umbona ongaphezu kwalowo wabo bangafumani pakethe zokutya, bajamelana nemingeni ngexesha lokuqhubeka kwale nkqubo. Ukungaqiniseki ngexesha lokuna kwemvula, ukugxuphuleka kwezopolitiko kokufika kade kwezibonelelo zolimo yayiyeminye imingeni ephambili abajongana nayo abafumana iipakethe zokutya.

Isifundo sagqibela ngelithi inkqubo yokufumaneka kweepakethe zokutya yayinefuthe elihle ekulinyweni komhlaba nasekuvelisweni kwesivuno sombona, njengoko wabonisa umndilili weziphumo zovavanyo oluzimeleyo nolwezibini, apho iCohen's d yayiqikelelwa kwi- 0.6 nakwi-1.5.

Ekuhlangabezaneni nemingeni yenkqubo yokufumaneka kweepakethe zokutya, kucetyiswa la manyathelo alandelayo kwesi sifundo: makuqiniswe uphando kwezolimo ukwenzela ukuba kuveliswe iimbewu ezilungele nayiphi na imozulu; makuqulunqwe izikhokelo zenkqubo ezingqongqo zokuthintela ukugxuphuleka kwezopolitiko xa kukhethwa abantu abafumana iipakethe zokutya; kwaye mazingakhutshwa kwindawo enye izibonelelo zolimo, koko maziye kwizithili ukwenzela ukuba zifike kwangethuba kwabo bafumana iipakethe zokutya. Ukwandisa ifuthe elihle lale nkqubo, kucetyiswa ukuba longezwe inani lamakhaya afumana iipakethe zokutya, libe ngaphezulu kula ma-300 anikwayo ngoku. Ezi ngcebiso

zinokusetyenziswa njengesiseko sokuqulunqa icebo lobulumko neliya kusetyenziswa kwiinkqubo zokufumaneka kweepakethe zokutya eZambia.

AMAGAMA APHAMBILI: Ukufumaneka kokutya; ikhaya; ulimo; ukuphila; umlimi osakhasayo; iipakethe zokutya; Mpulungu; Zambia

ABBREVIATIONS

7NDP	Seventh National Development Programme
AFSPC	Area Food Security Pack Committee
CADA	Computer Aided Data Analysis
CSO	Central Statistical Office
DACO	District Agriculture Co-ordinator
DCD	Department of Community Development
DCDO	District Community Development Officer
DFID	Department for International Development
DFSPC	District Food Security Pack Committee
DLG	Department of Local Government
DSWO	District Social Welfare Officer
ENSO	El Nino-Southern Oscillation
FAO	Food and Agriculture Organization
FFSSA	Forum for Food Security in Southern Africa
FGD	Focus Group Discussions
FSLF	Food Security Learning Framework
FSP	Food Security Pack
FSPP	Food Security Pack Programme
IMF	International Monetary Fund
MDC	Mpulungu District Council
MFNP	Ministry of Finance and National Planning
MNDP	Ministry of National Development Planning
NAP	National Agricultural Policy
SAP	Structural Adjustment Programme
SNAP	Second National Agriculture Policy
SNDP	Sixth National Development Programme
SPSS	Statistical Program for Social Sciences
UNISA	University of South Africa

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 Introduction

This chapter presents the background to the study of the government-financed agricultural food security pack programme in Zambia and Mpulungu district, in particular, as it relates to food security for the vulnerable, but, viable small-scale farming households. It provides the background literature on Zambia and Mpulungu district relating to the topic of the study. The chapter also introduces the food security pack programme which is the centre for investigation. It also presents the statement of the problem and outlines the objectives alongside research questions. Also, the chapter discusses the scope and importance of this study. Thereafter, it defines the key concepts in relation to the central theme of this study. The chapter ends by outlining the structure of the thesis.

1.2 The background of the study

The previous and current Zambian governments recognised the agriculture sector as the top strategic driving force of the economy that can complement the mining sector, which has been the primary source of the national revenue and foreign exchange earnings. Presently, Zambia's agricultural sector contributes approximately 19 percent of the National Gross Domestic Product (GDP) and provides livelihoods to not less than 70 percent of the total population (U.S. Department of Commerce 2019). Zambia's agriculture sector has also developed into a vital foreign exchange earner, chiefly in the floriculture and horticulture sub-sectors (Zambia. Department of Agriculture [DA] 2018).

Due to its vast natural resources, such as water, fertile soils, arable land and human capital endowments, Zambia can increase agricultural production. Therefore, the Zambian government launched a new agricultural policy direction in March 2016. This new National Agriculture Policy (NAC) prioritises agriculture in the development and poverty reduction plan that is intended to reduce the high poverty levels of 76.7 and 24.3 percent in rural and urban areas of the ten provinces of Zambia, respectively (Zambia. Central Statistical Office

[CSO] 2018). These ten provinces, where agriculture is practised with varying types of crops and intensity, are Northern, Eastern, Western, North-Western, Southern, Lusaka, Luapula, Copperbelt, Central, and Muchinga provinces as shown in Figure 1.1 below.

Figure 1.1 below shows the map of Zambia displaying its ten provinces where agriculture is practised both on commercial and subsistence levels.

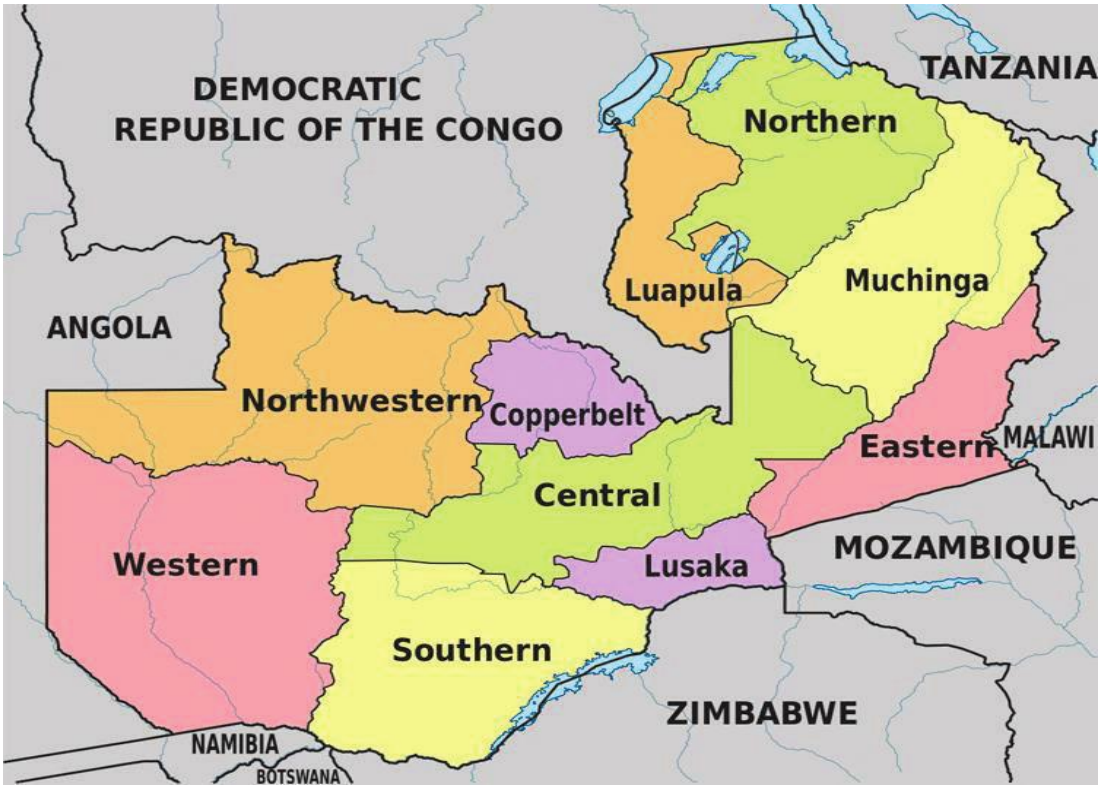

Figure 1.1: Map of Zambia showing the ten provinces and neighbouring countries

(Source: Researchgate 2019)

Zambia is a landlocked sub-Saharan nation sharing its borders with eight countries, namely, Tanzania, Angola, Namibia, Zimbabwe, Botswana, Mozambique, Malawi and the Democratic Republic of Congo as shown in Figure 1.1 above and Appendix 1. With a land area of 752,612 square kilometres, Zambia is further divided into 116 districts (Chikwanda 2018). The capital city of the Zambian government is Lusaka.

1.2.1 Demographic features of Zambia

According to the population and demographic projections 2011-2035 medium variant forecast, Zambia's population was projected at 17,381,168 in 2019 and 17,885,422 in 2020 with life expectancy at 54.9 and 55.3 years, respectively (CSO 2013a:26). The country's population is expected to grow from 17,381,168 in 2019 to 26,923,658 in the year 2035 at an annual average growth rate of 2.6 percent per annum (CSO 2013a:26). The national male/female ratio is reported to be 49 to 51 percent, respectively (CSO 2013b). The 2013 central statistical population and demographic projection report also indicates that, out of a 2019 projected national population of 17,381,168 people living in Zambia, 9,897,231 people, representing 56.9 percent, reside in rural areas and 7,483,937, representing 43.1 percent, reside in the urban areas (Zambia. Statistical Agency [ZSA] 2019). The majority of people living in rural areas of Zambia depend on small-scale farming for their livelihoods (World Bank Group 2019).

1.2.2 Major economic activities of Zambia

Zambia is, economically, deeply reliant on the copper mining industry. Copper is the country's chief export with over 70 percent of export proceeds (Kapata 2014). The Gross Domestic Product (GDP) growth for the period 2006 to 2015 was in the region of six to seven percent (Zambia. Ministry of National Development Planning [MNDP] 2017). Currently, Zambia is broadening its horizons to other sectors, such as agriculture, through Public-Private Partnership (PPP) initiatives, to move away from being dependent on copper for export earnings. Accordingly, the country has designed the Private Sector Development Programme (PSDP) to attract both foreign and domestic investments in several sectors of the economy (MNDP 2017).

The Private Sector Development Programme is one of the critical drivers of growth. It stimulates value addition through the creation and expansion of the manufacturing industry. This is expected to create spillover effects through the development of agricultural supportive infrastructures, such as feeder roads, railways, border facilities and a reliable electricity supply. Despite these initiatives, poverty remains high at 76.7 percent in rural areas of Zambia in comparison with the urban areas that are at 23.3 percent (CSO 2015).

The economic growth recorded throughout the past decade has not resulted in a significant reduction of poverty nor improvements in the general living conditions of many of the Zambian people. The Zambian government's dearth of investment in small-scale farming has resulted in low agricultural productivity, low labour productivity, inadequate agricultural extension services, the late distribution of farming inputs and the inability to effectively mitigate the effects of climate change, among other factors (Zambia. Ministry of Agriculture [MA] 2016; Zambia. Agriculture Research Institute [ARI] 2017).

In southern Africa, around 70 percent or more of the general population lives in rural areas but, in Zambia, this figure is 76.7 percent (CSO 2013b). In that setting, small-scale farmers and their dependents subsist on agricultural ventures. Since independence, the provision of sustainable livelihoods mainly in the rural areas of Zambia has been a crucial development challenge in the country.

As Zambia's poverty rates in rural areas are extremely high, this continues to be a government priority in Zambia's National Development Programmes but solutions have not proved to be successful. Empirical data on Zambia's small-scale farming households, coupled with an agenda for publicising this information, will create a robust and well-defined policy direction that will be able to improve household food security (MNDP 2017).

More than 60 percent of Zambia's populace draws its livelihood from agriculture (Zambia. Ministry of Finance & National Planning [MFNP] 2011). Ngonga (2013) argues that, despite Zambia experiencing sound economic growth in some areas in the recent past, this is not the case with small-scale farming households. In a bid to position agriculture as the engine of development, Zambia has developed agricultural policies and strategies that emphasise the realisation of food security, increasing farmers' yields, stimulating sustainable agriculture and augmenting private sector roles in agriculture input and output marketing (Zambia. DA 2018).

The bulk of rural households in Zambia rely on the production of agricultural food crops. Consequently, Burke, Jayne and Chapoto (2010) explain that insufficient food, the lack of road infrastructure and a shortage of marketing arrangements are the causes of rising poverty

levels in these rural households but that their potential to reduce poverty and attain sustainable economic growth has received little attention.

Kalinda and Kapunda (2009) explain that agriculture in Zambia is one of the fathomed livelihood systems for the rural poor, where more than 80 percent of the rural population depends on agriculture-related activities for their livelihood. Conversely, small-scale farmers whose livelihoods are reliant on agriculture continue to be food insecure as a result of low productivity (ZSA 2019).

The growth of the agriculture sector is fundamental to the attainment of Zambia's long-term vision of becoming "a prosperous middle-income nation by 2030" (MNDP 2017:17). This has necessitated the inclusion of the agriculture sector's goal into the Seven National Development Plan (7NDP) by the Zambian government. The goal of the agriculture sector by 2030 is to have "an efficient, competitive, sustainable and export-led agriculture sector that ensures food security and increased income [and] increasing and diversifying agricultural production and productivity to raise the share of its contribution to 20 percent GDP" (MNDP 2017:10).

Sitko, Chapoto, Kabwe, Tembo, Hichaambwa, Lubinda, Chiwawa, Mataa, Hecks and Nthani (2011) explain that Zambia's high resource endowment shows the capacity for agricultural growth. Zambia has a total land area of approximately 75.2 million hectares that translates to 752,000 square kilometres. Fifty-eight percent, which is 42 million hectares, is categorised as having a medium to a high potential for agricultural production, with yearly rainfall varying from 600 mm to 1500 mm that is suitable for the production of a wide range of crops, livestock and fish (Sitko et al 2011). Zambia also has more than 423,000 hectares of irrigable land, of which only about 100,000 hectares is presently irrigated by large-scale, small-scale and emergent farmers. The country's abundant underground and surface water provides the potential to substantially expand the area under irrigation (Zambia. MFNP 2011).

Despite the availability of resources, Zambia has not fully developed the agricultural sector owing to numerous challenges and limitations. These include inadequate investment and low

productivity, particularly amongst the small-scale farmers, and the consequences of climate change (Simatele 2006). Climate change is characterised by periodic floods, waterlogging, intensified temperatures, elongated droughts and a reduction in the rainy season that have affected the crop growing period (McPherson 2004:43).

The Zambian government introduced the Seventh National Agricultural Policy (7NAP) that provides for public assistance and investment in agriculture to establish a conducive environment for farmers. The 7NAP is aimed at small-scale farmers and private sector participation in agricultural production, as well as support for value addition and trade. The objectives of the 7NAP are: promotion of public and private partnerships, commercialisation, liberalisation and the provision of efficient, productive and sustainable services that guarantee agricultural development (Zambia. DA 2018). These include, among others, the farmer input support programme (FISP), which targets cooperatives and farmer associations, and the food security pack programme (FSPP) (the focus of this study). These measures in the 7NAP are aimed at ensuring sustainable food production, enhance agricultural productivity, improve small-scale farmers' incomes and mitigate the effects of climate change to safeguard household food security among small-scale farmers.

1.2.3 Geographical location of Mpulungu district

From 1927, Mpulungu district was a part of Mbala district. The Zambian government established Mpulungu district under the Statutory Instrument Nos. 118 and 127 of 1997 (Zambia. Department of Local Government [DLG] 2014). Mpulungu district is situated in the far north of the Northern Province of Zambia. It is located on the shores of Lake Tanganyika and lies between latitude 9° south of the equator and longitude 31° east of the prime meridian (CSO 2013c). From Mpulungu district, one can travel by water transport, through Lake Tanganyika, to reach Tanzania in the north-east, Burundi in the north-west and the Democratic Republic of Congo in the west.

Mpulungu district is 1,008 kilometres from Lusaka, the capital city of Zambia, and 210 kilometres from Kasama district, the provincial capital of the Northern Province. The nearest district is Mbala, 38 kilometres away (CSO 2013b). Mpulungu district shares local

administrative boundaries with Mbala district in the east, Mporokoso district in the west and Nsama district in the south-west. Below are maps showing where Mpulungu district is situated in Zambia.

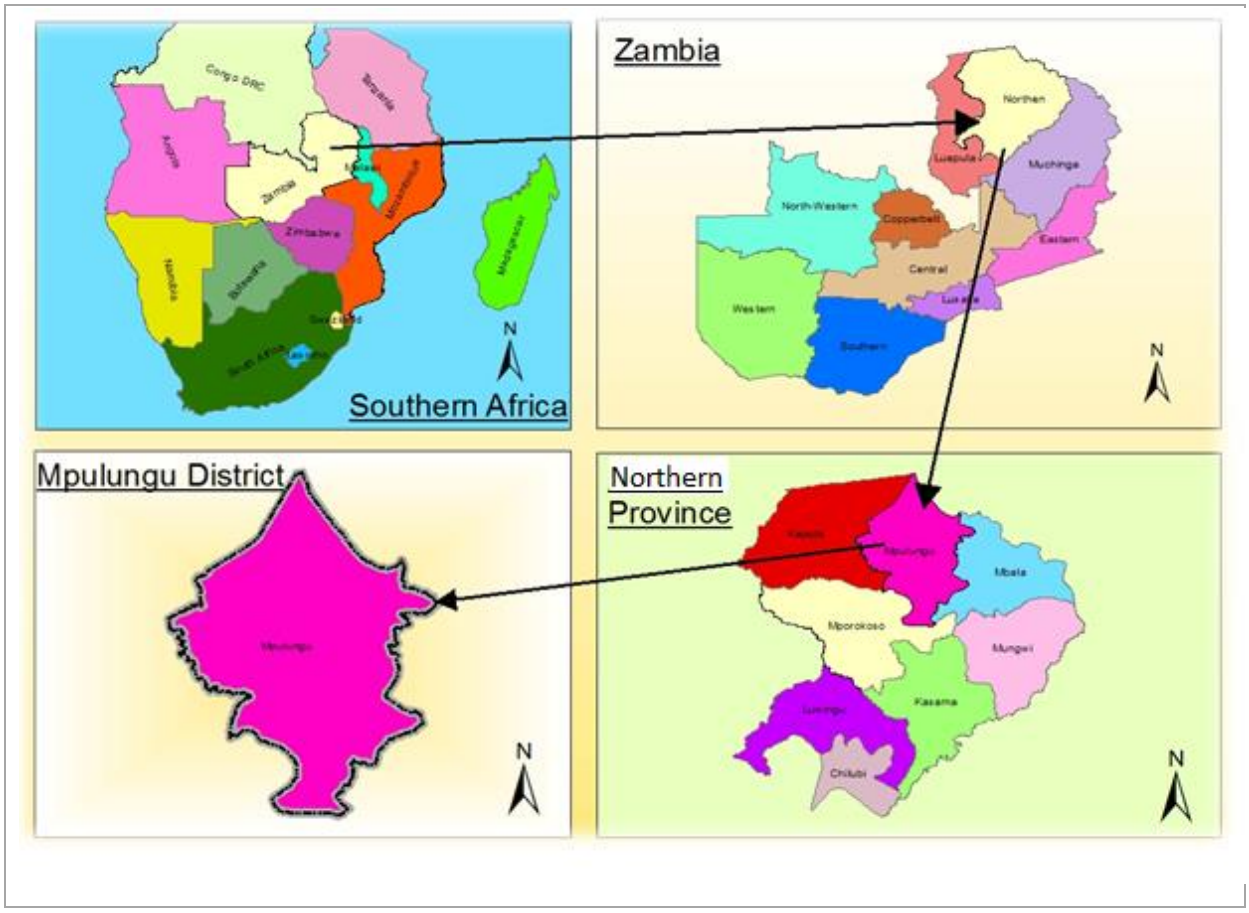

Figure 1.2: Map of Southern Africa showing the location of Zambia and Mpulungu district

(Source: Zambia. Department of Physical Planning and Housing [DPPH] 2017)

1.2.3.1 Demographic features of Mpulungu district

Mpulungu district is about 10,170 square kilometres and has 19,650 households with an estimated population of 98,073 people, representing 0.8 percent of Zambia's national population (DA 2018). The 2013 central statistical report explains that, out of the total number of people, 48,651, representing 49.6 percent of the district population, are males,

while 49,422, representing 50.4 percent, are females (CSO 2013b).

Table 1.1 below shows detailed population statistics of Mpulungu district disaggregated by sex, wards and whether the dwelling is rural or urban.

Table 1.1: Mpulungu district population by ward and sex, rural/urban

S/n	Ward	Total	Total		Rural			Urban		
			Male	Female	Total	Male	Female	Total	Male	Female
1	Kapembwa	2,109	1,061	1,048	2,109	1,061	1,048	-	-	-
2	Katwe	3,213	1,611	1,602	3,213	1,611	1,602	-	-	-
3	Chilula	24,254	12,042	12,212	15,768	7,810	7,958	8,486	4,232	4,254
4	Mpulungu Central	21,465	10,483	10,982	848	426	422	20,617	10,057	10,560
5	Tanganyika	2,813	1,398	1,415	2,813	1,398	1,415	-	-	-
6	Chilumba	768	394	374	768	394	374	-	-	-
7	Isoko	9,111	4,490	4,621	9,111	4,490	4,621	-	-	-
8	Iyendwe	4,060	1,982	2,078	4,060	1,982	2,078	-	-	-
9	Mulile	4,249	2,137	2,112	4,249	2,137	2,112	-	-	-
10	Itimbwe	2,375	1,179	1,196	2,375	1,179	1,196	-	-	-
11	Vyamba	10,431	5,236	5,195	10,431	5,236	5,195	-	-	-
12	Chisha	10,120	5,051	5,069	10,120	5,051	5,069	-	-	-
13	Isunga	3,105	1,587	1,518	3,105	1,587	1,518	-	-	-
Total		**98,073**	**48,651**	**49,422**	**68,970**	**34,362**	**34,608**	**29,103**	**14,289**	**14,814**

(Source: CSO 2013c)

The dependency ratio for Mpulungu district is 6.2 for ages 15 to 64 years. It has a population density of approximately 9.6 persons per square kilometre on a land extent of 10,170 square kilometres. The average annual population growth rate is 3.8 percent per annum, while life expectancy for females stands at 58.7 years and 55.5 years for males (CSO 2013b).

1.2.3.2 Major economic activities of Mpulungu district

The land of Mpulungu district is shared between the plateau and the valley. The valley is predominantly a fishing area (Zambia. DLG 2014). Figure 1.3 below shows fishing activities in Mpulungu district.

Mpulungu Harbour Corporation

Large-scale fishing

Lake Tanganyika

Small-scale fishing

Figure 1.3: Fishing activities in Mpulungu district

(Source: The researcher 2017)

Fishing activities are carried out on Lake Tanganyika which is in the valley, as shown in Figure 1.3 above. The plateau, on the other hand, has rain-fed crop and animal production (CSO 2001). Mpulungu's economic mainstay is predominantly fishing characterised by fishing companies along the shore, as shown in Figure 1.3 above. About 70 percent of

Mpulungu's population depends entirely on the fishing business to earn a living (CSO 2010). Agriculture in Mpulungu district consists mostly of small-scale farmers engaged in subsistence farming (Zambia. DLG 2014).

Agriculture in Mpulungu district

Mpulungu district has four (4) agricultural blocks that are further divided into fourteen (14) agricultural camps (Zambia. DLG 2014). Figure 1.4 below shows commercial and subsistence farming practices in Mpulungu district.

Figure 1.4: Crop fields in Mpulungu district

(Source: The researcher 2017)

Mpulungu district is characterised by subsistence farming that depends on rain grown crops, that include cassava, maize, beans, rice, groundnuts, finger millet and horticultural crops such as vegetables and fruits (DA 2018). Livestock farming (cattle, goats, pigs, sheep and chickens) is also practised among small-scale farmers (DA 2018). Mpulungu district has a population of 27,314 small-scale farming households of which one-third (⅓), that is, 9,105,

are male-headed, while two-thirds (⅔), that is, 18,209, are female-headed (DA 2018). The statistics indicate that the number of female-headed small-scale farming households is double the number of male-headed counterparts. Most of these farmers in the district are vulnerable to shocks that come with the effects of climate change, such as drought, flash floods, heatwaves and crop and animal diseases that ultimately affect agricultural productivity leading to household food insecurity (Zambia. Department of Community Development [DCD] 2016).

Household food security is a vital social determinant of family health and a major public health matter at national, provincial and district levels like Mpulungu district. A lack of food has contributed to malnutrition leading to low birth weight and poor health in children in the district. Food insecurity triggers various health abnormalities in children in Mpulungu district, such as cognitive problems, anaemia, aggression and anxiety, among others. The Food and Agriculture Organisation (2018) explains that most children coming from households that are affected by acute food insecurity are susceptible to lower mental development, lower maternal attachment, increased developmental risks, lower physical functions, lower psychosocial functions, aggression**,** and absenteeism from school**.** In Mpulungu district, children from such households absent themselves from school more often, and the possibilities of repeating a grade are higher than the children from food-secure households.

In Mpulungu district, family members from food-insecure households often consume a poor diet, which has the potential to manifest as hypertension, heart disease, and other chronic diseases, which exert pressure on the health sector. Households that are food-insecure also find it difficult to manage diet-related chronic ailments.

Household food insecurity has also weakened the economy of the district by incapacitating potential contributors to economic development through increased mortality, disease and disability. Markow, Booth, Savio and Coveney (2016) argue that food insecurity bloats the direct economic costs of coping with the health effects and massive decrease in economic productivity and human ability as a result of a lack of food and undernourishment. Therefore,

government-sponsored programmes, such as the food security pack programme aimed at enhancing household food security to prevent the burden of disease, are inevitable in any country that espouses human rights.

1.2.4 The food security pack programme

The food security pack programme (FSPP) provides the most impoverished small-scale farmers with free inputs in the form of a food security pack, throughout Zambia to enhance household food security (DCD 2015). The food security concept, which is dealt with comprehensively under theoretical debates on key concepts in sub-section 2.2.1, is defined as "the access by all people at all times to enough food for an active life" (World Bank 1986:1). However, this study adopted the more embracing and widely accepted definition as advanced by the Food and Agriculture Organization (FAO 2018:159) which explains that "food security" exists "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". This definition meets the objectives of the Zambian government-financed food security pack programme.

The food security pack programme was first implemented in 2000/2001 through the Programme Against Malnutrition organisation, which was the lead agency before it was handed over to the Ministry of Community Development and Social Services in 2003 (Programme Against Malnutrition 2007).

The Programme Against Malnutrition (PAM), a Non-Governmental Organisation (NGO), which came into existence in 1992 under the auspices of the Zambian government, is an NGO that deals with national food security. At the time the PAM was engaged by the Zambian government, it distributed food security packs to recipients making use of the services of the district-based NGO networks (RuralNet Associates 2004). The primary objective of the food security pack programme is to provide vulnerable, but viable, small-scale farming households with free farming inputs. This is done to promote self-sustenance through enhanced agricultural productivity and improve food security at a household level, in a bid to ultimately reduce poverty (DCD 2015:9). The following are specific objectives of the food security pack

programme:

1. To increase food and nutritional security at the household level;
2. To increase agricultural production and output;
3. To promote conservation of scarce agriculture and land resources for future generations; and
4. To increase incomes at the household level, mainly through the sale of agricultural-related products and services (DCD 2015:9).

In accordance with the objective number (2) above, the food security pack for the farming inputs given to recipients is intended to cover 0.75 hectares of agricultural land, broken down as "0.25 hectare of cereal seed, 0.25 hectare pulse seed, and 0.25 hectare cassava/sweet potato tubers, as well as fertiliser" (DCD 2018:21). It has also been observed that, while implementing the FSPP objective (3), conservation farming is not the centre of activities. Consequently, the food security pack programme enhances maize cultivation with fertiliser use rather than encouraging crop diversification and conservation farming (DCD 2016).

The food security pack is a start-up package of crop farming inputs given to the vulnerable, but viable, small-scale farmers according to the agro-ecological area. This package, according to DCD (2016), comprises:

i. One 10-kilogram bag of cereal seed (sorghum, maize, millet or rice);
ii. One 10-kilogram bag of legume seed (sugar beans, cowpeas, soya beans or groundnuts);
iii. One 50-kilogram bag of potato vines (optional);
iv. One (1) bunch consisting of 20 x 1.5-meter cassava cuttings (optional);
v. Two 50-kilogram bags of both basal and top-dressing fertilizer (mandatory); and
vi. One 50-kilogram bag of lime for areas with acidic soils (optional).

The above-mentioned package specification, which is given by the Zambian government freely each farming season to the vulnerable, but viable, small-scale farming households, aims to cover 0.25 hectares of land to produce crops needed to enhance household food security.

The food security pack programme targets small-scale farmers that are vulnerable, according to certain criteria, but have adequate "able-bodied labour to take advantage of the inputs package delivered" (Zambia. Ministry of Community Development & Social Services [MCDSS] 2007:27). Beneficiary lists are first created by traditional leaders and submitted to the Community Food Security Pack Committees (CFSPCs) for review and authenticated by the Area Food Security Pack Committees (AFSPCs) before approval by the District Food Security Pack Committees (DFSPCs). However, Gould (2010:48) explains that "this method is prone to inclusion and exclusion errors owing to elite capture".

Countrywide, for the period spanning four (4) years, 2015 to 2019, statistics from all the ten (10) provinces of Zambia show that a total number of 29,630 households benefited from the food security pack programme during the 2015/16 farming season. There was a slight increase to 30,300 household beneficiaries during the 2016/17 farming season. Sadly, during the 2017/18 farming season, the programme was not funded by the Zambian government and, as such, farming inputs were not supplied to any households. However, during the 2018/19 farming season, the implementation of the food security pack programme resumed. During this period, the caseload increased to 54,663 beneficiaries as indicated in Table 1.2 below.

Table 1.2 below shows the national disaggregated data by sex and provinces of the food security pack beneficiaries from the year 2015 to 2019.

Table 1.2: National statistics on beneficiaries of the FSPP- 2015 – 2019

s/n	Province	Beneficiaries 2015/16			Beneficiaries 2016/17			Beneficiaries 2017/18			Beneficiaries 2018/19		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Eastern	1,039	661	**1,700**	1,761	1,139	**2,900**	-	-	**0**	3,793	3,102	**6,895**
2	Western	2,739	1,711	**4,450**	3,016	1,884	**4,900**	-	-	**0**	4,060	3,298	**7,358**
3	Southern	2,551	1,589	**4,140**	2,649	1,651	**4,300**	-	-	**0**	3,337	2,681	**6,018**
4	Lusaka	1,375	875	**2,250**	1,498	952	**2,450**	-	-	**0**	1,803	1,342	**3,145**
5	Central	1,754	1,096	**2,850**	2,072	1,278	**3,350**	-	-	**0**	3,065	2,701	**5,766**
6	N/Western	1,761	1,139	**2,900**	1,761	1,139	**2,900**	-	-	**0**	2,935	2,199	**5,134**
7	Copperbelt	1,882	1,208	**3,090**	1,919	1,231	**3,150**	-	-	**0**	2,633	2,121	**4,754**
8	Northern	1,602	1,048	**2,650**	1,631	1,069	**2,700**	-	-	**0**	3,087	2,319	**5,406**
9	Muchinga	1,366	884	**2,250**	1,396	904	**2,300**	-	-	**0**	2,432	2,001	**4,433**
10	Luapula	2,052	1,299	**3,350**	2,052	1,299	**3,350**	-	-	**0**	3,081	2,673	**5,754**
	Total	**18,121**	**11,509**	**29,630**	**19,755**	**12,545**	**32,300**	**-**	**-**	**0**	**30,226**	**24,437**	**54,663**

Region of study **(Source: DCD 2016; 2017; 2018)**

Even though the food security pack programme has been distributed nationwide, as can be seen in Table 1.2 above, Kodamaya (2011:19) argues that "a substantial number of food security packs have been allocated on a patronage bias, which diverts resources away from the intended beneficiaries". In addition to the reduced number of deserving beneficiaries, Dorosh, Dradri and Haggblade (2010:51) explain that the food security pack programme has been unpredictable due to late funding and to the limited number of packs available.

Regardless of the obstacles in the execution of the food security pack programme, Nehme (2004) argues that every responsible government must design programmes to target those who cannot afford to purchase farming inputs. This obligation should be aimed at fostering household food security and its progress should be monitored by getting first-hand information from those affected. He further argues that governments should design feasible and results-oriented policies to deal with household food insecurity if food insecure households are to meaningfully contribute to economic development at all levels (Nehme 2004).

At the regional level i.e., Northern Province where Mpulungu district which is the study area is situated, yearly ceilings of household beneficiaries determined by financial resources provided for the programme in the national annual budgets are also given as shown in Table 1.3 below.

Table 1.3 below shows district disaggregated ceilings of household beneficiaries for Northern Province where Mpulungu district is located.

Table 1.3: Northern Province statistics on beneficiaries of the FSPP 2015-2019

S/n	District	Beneficiaries 2015/16			Beneficiaries 2016/17			Beneficiaries 2017/18			Beneficiaries 2018/19		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Chilubi	180	120	**300**	180	120	**300**	-	-	**0**	270	210	**480**
2	Kaputa	186	114	**300**	186	114	**300**	-	-	**0**	286	214	**500**
3	Kasama	183	117	**300**	183	117	**300**	-	-	**0**	284	215	**499**
4	Luwingu	180	120	**300**	180	120	**300**	-	-	**0**	280	220	**500**
5	Mbala	183	117	**300**	183	117	**300**	-	-	**0**	288	201	**489**
6	Mporokoso	180	120	**300**	180	120	**300**	-	-	**0**	294	206	**500**
7	Mpulungu	177	123	**300**	176	124	**300**	-	-	**0**	279	208	**487**
8	Mungwi	183	117	**300**	183	117	**300**	-	-	**0**	288	218	**506**
9	Nsama	150	100	**250**	180	120	**300**	-	-	**0**	279	201	**480**
10	Lunte										272	212	**484**
11	Senga Hill										267	214	**481**
	Total	**1,602**	**1,048**	**2,650**	**1,631**	**1,069**	**2700**	**-**	**-**	**0**	**3,087**	**2,319**	**5406**

Study site **New districts** **(Source: DCD 2016; 2018)**

Though the yearly ceilings of beneficiaries are given as shown in Table 1.3 above, there have been reports of food security packs never delivered to intended recipients in their entirety (Zambia. Department of Agriculture [DA] 2018). For instance, according to the annual report for the Department of Community Development, in the 2016/17 farming season, some recipients were only given basal-dressing fertiliser and maize seed without top-dressing fertiliser (DCD 2018).

1.3 Statement of the problem

Similar to some sub-Saharan African nations, the government of Zambia is confronted with a problem of enhancing household food security among the rural people. Zambia's rural population is more food insecure than the urban population (MNDP 2017). Bridging the household food security gap between the urban and rural populations has continuously been the priority of the Zambian government as enshrined in the National Development Programmes. Significant hindrances to closing the household food security gap are a deficiency of technical knowledge, the political economy and governance-related problems. Guarino (2009) argues that technical knowledge cannot be converted into result-oriented

action unless the policy process can apportion scarce public resources in a manner that reflects this technical knowledge. Further, bad result-oriented actions are associated with the absence of widely available "solid micro-level information about the kinds of policies and investments needed to achieve broad-based and equitable growth in rural living standards" (Guarino 2009:51), a situation that has remained a challenge in most of the southern African countries, including Zambia.

In Zambia, small-scale farming is a predominant farming system for rural households. Small-scale farmers are producers of subsistence staple food crops with an intermittent surplus for sale. Sadly, productivity in this type of farming system has been dwindling over the years due to several factors such as low usage of purchased input technologies, high reliance on rain-fed production, effects of climate change, and soil degradation resulting from long-term practices of subsistence agriculture (Mwale, Chizyuka, Sokotela, Banda & Matsuda 2007). The scenario explained above exists in Mpulungu district in the Northern Province of Zambia where household food insecurity among small-scale farming households has remained a problem. According to the Northern Province central statistical analytical report, Mpulungu district is categorised as a district that is prone to hunger due to low agricultural food crop production (CSO 2013b).

A case study conducted by Goma (2012:29) to explore the causes of seasonal household food insecurity around Lake Tanganyika area in Mpulungu district revealed that 17 percent of the households were always food insecure, denoting chronic food insecurity and 21 percent were food secure temporarily as their crop production was inadequate to last until the following harvest season. Further, 25 percent of the households were food insecure in crucial times, i.e., October to May, whereas 37 percent were food secure throughout the year as a result of their crop production. From the statistics presented above, it is evident that food insecurity in the Lake Tanganyika basin area in Mpulungu is a source of concern.

Despite the Zambian government introducing the food security pack programme in the year 2000 to enhance household food security for the vulnerable, but, viable small-scale farmers, the contribution of the programme towards the realisation of household food security has not

been clear in Mpulungu district (Zambia. Department of Local Government [DLG] 2014). This has led to stakeholders that include donor agencies, policymakers, civil society and opposition political parties, among others, questioning the implementation and realisation of the objectives of the food security pack programme in the district. Also, there have been few or no attempts to get comprehensive primary data from the beneficiary households on how the food security pack programme has contributed towards the enhancement of the food security status of the recipient households in Mpulungu district.

Such efforts to alleviate food security in Mpulungu district have attracted few studies therefore there is an urgent need to analyse the effects of the food pack programme. It is against this background that the study assessed the influence of the food pack programme and its challenges.

1.4 Objectives of the study

The general objective of this study was to analyse the effects, capacity and challenges of Zambia's agricultural food security pack programme in Mpulungu district of Zambia.

1.4.1 Specific objectives

1. To compare the household food security status of the food security pack beneficiaries and non-beneficiaries in Mpulungu district of Zambia;

2. To identify other economic activities that the food security pack beneficiaries pursued to foster household food security in Mpulungu district of Zambia;

3. To explore the perceptions of the food security pack beneficiaries on the effects of the food security pack programme in Mpulungu district of Zambia;

4. To establish challenges that the food security pack programme encountered in meeting its goal of enhancing household food security in Mpulungu district of Zambia; and

5. To solicit recommendations from the food security pack beneficiaries on the strategy implementation of the food security programmes in Mpulungu district of Zambia.

1.5 Research questions

1.5.1 The general question

Did the government-financed agricultural food security pack programme contribute to household food security of the vulnerable, but viable, small-scale farmers in Mpulungu district of Zambia? If it did, to what extent? If it did not, what were the challenges and how could they be addressed?

1.5.2 Specific questions

To answer the general question above, this study addressed five specific questions as outlined below:

1. What difference exists in household food security status of the food security pack beneficiaries and non-beneficiaries in Mpulungu district of Zambia?

2. What other economic activities did the food security pack beneficiaries pursue to foster household food security in Mpulungu district of Zambia?

3. What are the perceptions of the food security pack beneficiaries on the effects of the food security pack programme in Mpulungu district of Zambia?

4. What challenges did the food security pack programme face in meeting its goal of enhancing household food security in Mpulungu district of Zambia?

5. What recommendations could the food security pack beneficiaries make on the strategy implementation of food security programmes targeted at small-scale farmers in Mpulungu district of Zambia?

1.6 Scope of the study

The scope of the study is the parameter within which the study was conducted. Wiersma (2000) explains that the scope of the study is the domain of the research that presents what is to be studied and what is not. Therefore, this study was limited to Mpulungu district, which was selected as a case study, out of the nine districts in the Northern Province of the Republic of Zambia because of its mixed economic activities as explained in sub-section 1.2.3.2 of this Chapter. To solicit primary data, the study analysed the food security pack programme targeting the households of the vulnerable, but viable, small-scale farmers, aged 18 years and older, who participated in the food security pack programme in Mpulungu district. The key informants that included the District Community Development Officer, District Agricultural Coordinator and a traditional leader, were targeted for interviews, and four (4) Area Food Security Pack Committees took part in focus group discussions, as well as one combined group consisting of some representatives from key NGOs and Agro-dealers.

1.7 Importance of the study

The food security pack programme was implemented in Mpulungu district by the Zambian government owing to the persistence of household food insecurity among small-scale farmers. The findings of this research, concerning the effectiveness of the government-financed agricultural food security pack programme, can be applied to other districts with similar characteristics to those of Mpulungu district, which was purposely sampled as a case study.

The outcome of this research gives new insights to policymakers, planners, aid agencies and other stakeholders on how to design poverty reduction programmes, such as the agricultural food security pack programme studied. The findings also serve as a reservoir of information that can guide policymakers and implementers to design and implement similar demand-driven agricultural food security programmes effectively.

It is envisaged that the findings will have practical relevance to the government of Zambia as this research provided an opportunity to get an in-depth understanding of the phenomena studied. The findings serve as a reference for future planning of similar community targeted

programmes in areas with similar characteristics to Mpulungu district. The study results can be used as a basis for improvements in designing strategies for the formulation and implementation of agricultural food security programmes targeted at small-scale farmers in Zambia. The findings also provide an opportunity for new research to look at the gaps that have not been covered in specific development issues as they relate to household food security in light of current development policy debates.

1.8 Definitions of key concepts

These key concepts are central to the research, hence, the need to make clear their meaning and usage in the context of this study.

1.8.1 Household

Saad (1999) argues that the meaning of "household" is subject to the understanding of local people and may differ from one community to the other. In this research, De Stage's (2002:28) definition is used, which defines a household as "people who eat together, share resources and live under the same roof". This study regards a household as a unit of study and therefore it is discussed in greater detail under theoretical debates in section 2.2.2.

1.8.2 Agriculture

The word "agriculture" stems from two Latin terms, "ager", which is land or a field and "cultura", which means cultivation (Anderson 2009:21). Thus, the word connotes the cultivation of land. Anderson (2009:73) explains it as "the science and art of producing crops and livestock for economic purposes" and Brooks (2010:47, 48) describes it as "the science of producing crops and farm animals from the natural resources of the earth" and as "a biological production process, which depends on the growth and development of selected plants and animals within the local environment". Bezemer and Headet (2008:1347) add that agriculture is a focused venture through which essential elements in nature are exploited to bring into being; plants and animals to satisfy human needs. The goal of agriculture is to make the soil produce in abundance, while protecting it from degeneration and ill-usage. This concept is

critically analysed in this research with a tie to the past and contemporary global, international and local debates in section 2.2.3.

1.8.3 Livelihood

Chambers and Conway (1992) define "livelihood" as consisting of capabilities, assets (both social and material) and activities needed for a means of living. A livelihood is understood as a combination of resources used and the activities carried out to live (Department for International Development 1999). A sustainable livelihood can cope with shocks and recuperate "from stress and shocks or enhance its capabilities and assets, while not undermining the natural resources base" (Bagchi, Blaikie, Cameron, Chattopadhyay, Gyawali & Seddon 1998:457). The concept of livelihood is explored comprehensively under the theoretical and analytical framework in section 2.5, sub-section 2.5.1 in Chapter Two.

1.8.4 Small-scale farmer

Small-scale farmers are defined as those households whose "food security is dependent on their ability to produce sufficient amounts of food crops in their fields for their own consumption" (Kodamaya 2011:19). In Zambia, small-scale farmers are the majority of the most deprived people who live in rural areas of the country and are engaged in subsistence agriculture. They cultivate maize and other crops that are dependent on rainfall (Burke et al 2010).

In Zambia, small-scale farmers use traditional tools, such as hoes, oxen-driven ploughing implements and scotch carts. They usually cultivate between one quarter to five hectares of land depending on agro-climatic conditions. Beyond this, they would not have enough time to harvest and weed at the appropriate times (McPherson 2004:29). Simatele (2006:26) explains that, in Zambia, these farmers usually "sell some of their agricultural produce, even when it is not surplus, to get money for goods and services such as education and health." The food security pack programme targets small-scale farmers.

1.8.5 Vulnerable, but viable, farmer

The vulnerable, but viable, farmers are farming households that satisfy a range of criteria

concerning vulnerability while, at the same time, having an adequate able-bodied workforce to take advantage of the agricultural inputs package received (RuralNet Associates 2004:19). The vulnerable, but viable, farmers are classified with primary and secondary eligibility criteria. The household heads should fulfil all the primary tier conditions to qualify for consideration as a potential recipient and any one or more of the secondary tier criteria presented below (RuralNet Associates 2004:19).

The primary criteria are: 1) access to land, but cultivating less than one hectare; 2) having adequate labour, and 3) not in gainful employment (DCD 2016). Tembo (2007:2) outlines the secondary criteria as being:

> "1) female-headed households, but not in gainful employment (widows and single mothers), 2) households keeping orphans and abandoned children, but not in gainful employment, 3) terminally-ill headed households, 4) households with disabled children, whose household-heads are not in gainful employment, 5) households headed by disabled people, but not in gainful employment, and 6) households headed by the elderly, but with access to labour."

In this study, the concept of "vulnerable, but viable, farmers" is used as a target group.

1.9 Structure of the thesis

This thesis consists of five chapters as summarised below.

Chapter One introduces the background to the study covering background literature, the food security pack programme, the statement of the problem, objectives of the study, the scope and importance of the study, definitions of key concepts, as well as the structure of the thesis.

Chapter Two presents a literature review of global, international and national theoretical debates on the key concepts. It also discusses the theoretical framework of the study as well as ongoing discussions on poverty, agriculture and food security realities in Zambia.

Chapter Three discusses the research methodology taking into account the study site,

research design, population of the study, data-gathering instruments/methods and data analysis. It also discusses the steps taken to ensure the validity and reliability of the data gathered.

Chapter Four presents the research results and discussions on the findings with reference to the literature reviewed, as well as the researcher's points of view.

Chapter Five presents a summary of the findings and the conclusion of the study, indicating what the study results affirm. It also presents recommendations in areas that deserve interventions and highlights areas for future research.

1.10 Summary of the Chapter

The chapter explained the background of the study by discussing the background literature relating to the topic of the study. The statement of the problem that necessitated the study is presented. Also, the objectives of the study along with the research questions are outlined. The scope and importance of the study are fully presented. The chapter also made clear the meaning of the key concepts linked to the central theme of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents a theoretical literature review. The theoretical literature review discusses debates on food security, household, agriculture and poverty in Zambia. The chapter also discusses the experience in implementation of the food security programmes from the four selected African countries namely; Malawi, Rwanda, Ethiopia and Zambia. It as well explains the Sustainable Livelihood Framework (SLF) which is also the analytical framework for this study. The chapter discusses in detail the Food Security Learning Framework (FSLF) and the Theory of Change on which this study is grounded.

2.2 Theoretical debates on the key concepts

This section discusses in detail the concepts of: food security, household, and agriculture, in light of the global, international and national theoretical debates.

2.2.1 Evolution of the "food security" concept

The concept of food security was first discussed in 1974 at the United Nations Food and Agriculture Organization World Food Conference (Saad 1999). Maxwell (2001) and Pingali, Alinovi and Sutton (2005:40) argue that "food security" is an ambiguous term with different meanings and that these have changed over time as the debates are framed differently. To understand the evolution of the "food security" concept, the concept of "food insecurity" should be explained. The FAO (2004) explains that "food insecurity" is defined as a food shortage at any level. Maxwell (2001) notes that food shortage is the gap between production and consumption. Helena (2002) found that, in many instances on a global scale, food production can be seen to have increased, but food insecurity persists regionally and locally.

Maxwell (2001) points out one significant paradigm shift in the evolution of the "food security" concept and the discussions surrounding it since the World Food Conference in 1974. According to Maxwell (2001:24), the fundamental shift in "thinking about food security

from the global and national to the household and individual" levels is a breakthrough to efforts aimed at eliminating hunger and poverty at lower levels such as community, household and individual levels.

2.2.1.1 Global and national food security discussions

Frongillo and Wolfe (2001) explain that later it was realised that the above-stated explanation of the concept of food security by the Food and Agriculture Organization at the 1974 World Food Summit gave an insufficient view of the food security problem. It became noticeable that a large part of the population could be living in hunger and starvation, even if the nation has plenty of food in aggregate, all year round (Frongillo & Wolfe 2001).

Similarly, a large segment of the inhabitants could be living in hunger during periods of crises, even though the country has adequate food supplies (Foster & Leathers 1999). For this reason, sufficiency in an aggregate does not automatically guarantee adequacy and capability at the household or individual level. What matters is to have access to the available food (Babu & Quin 1994:215). Foster and Leathers (1999:95) further explain:

> "The world has ample food. The growth of global food production has been faster than the unprecedented population growth of the past forty years. Many developing countries and hundreds of millions of poor people do not have a share in this abundance. They suffer from food insecurity, caused mainly by lack of purchasing power".

Devereux and Maxwell (2001:61) support the above explanation by Foster and Leathers (1999) and also assert that a country may exhibit "equilibrium in the aggregate supply and demand for food" yet have many families and households that, for different reasons, are unable to get adequate food for healthy survival. For this reason, Maxwell (2001:39) argues that "it has been impossible since the early 1980s to speak credibly of food security concept as being a problem of food supply, without at least referring to the importance of access and entitlement both at the household and individual levels." Because of this reality, the notion of food security has shifted from an over-emphasis on national food supplies to concern over hungry people (Benson 2004).

The expansion of the meaning of the food security concept mentioned above includes securing access by vulnerable people to available supplies and "ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO 2003:43). In line with this, the Zambian government, since 2000, has introduced the food security programme to enable small-scale farming households and farmers' groups to grow food crops through the provision of agricultural inputs to enhance household food security.

In summary, putting the concept of food security into practice at the national level is not the same as putting it into force at the household level. Benson, Braun, Minot, Pender and Robles (2008) explain that, at the national level, food security entails adequate supplies through local production and food imports but this does not necessarily translate into even distribution across the country, or equal access among households (Smith & Yamamori 1992). Thus, the availability of adequate food (as in culturally acceptable, safe and nutritionally adequate), as well as the ability of the household to have stable access to such food through its production and purchase, is what translates to household food security (Smith & Yamamori 1992).

2.2.1.2 Entitlement approach to food security

Devereux (2001:259,260) believes that food security is "centred around two sub-concepts: food availability and food entitlement … food availability refers to the supply of food at the household, national or international levels, while food entitlement refers to the capability of individuals and households to obtain food".

The "entitlement" mentioned above "refers to the various means through which households avail themselves with food" (Saad 1999: 31). Saad (1999) also explains that individuals do not go hungry as a result of inadequate food supply but as a result of a lack of resources that include money to purchase food, as one of the entitlements.

In the context of poverty and famine, the entitlement approach comprehensively describes all legitimate food sources, which Sen (1981:12) put into four groupings as:

1) Production-based entitlement (growing food)

2) Trade-based entitlement (buying food)

3) Own-labour entitlement (working for food), and

4) Inheritance and transfer entitlement (from the state or friends and relatives).

Sen (1981:13) argues that households and individuals live in hunger "if their full entitlement does not provide them with adequate food". Ellis (2003:43) also explains that entitlement supports the following:

> "1) emphasis on access to food rather than the supply of food; 2) stress on the access to food by all people, implying that an aggregate view is insufficient and that the situation of individuals and social groups at risk is of critical importance; and 3) reference to both the availability of food and the ability to acquire it."

In support of Ellis' (2003:43) argument, Devereux and Maxwell (2001:17) mention that food insecurity was recognised before the 1980s but that it is now inadequate to address food insecurity without referring to the significance of entitlement and access and that

> "it has been more usual to define food insecurity as being a problem of access to food, with food production as the best route to entitlement, either, directly from food producers or indirectly by driving market prices down for consumers" (Devereux & Maxwell, 2001:18).

2.2.1.3 Determinants/indicators of food security

There are a wide range of determinants or indicators of food security at individual, household, community, national, international or global levels. The United States Agency for International Development (USAID 1995) developed three (3) determinants or indicators of food security. They are: food availability, food access and food utilisation.

Food availability

According to USAID (1995), food availability consists of food aid, imports of food and local production. Devereux and Maxwell (2001:20), however, explain that the term, "availability", can refer to food supplies available at both household and regional or national levels. In this thesis, the term "availability" is used to refer to agricultural food production at the household level.

Food access

Clover (2003:12) explains that food access

> "is influenced by the availability of food and other requisites through the latter's impact determined by the resource capability of the household, which defines the set of productive activities they can pursue in meeting their income and food security objectives".

This study investigated the access to food by family members of the vulnerable, but viable, small-scale farming households sampled as respondents under the food security pack programme in Mpulungu district.

The "food availability" and "access" determinants discussed above are not synonymous with self-sufficiency in food. Self-sufficiency implies the ability either to produce food or purchase food (Hussain 1991:52). Hussain (1991:54) further argues that a country might experience severe food shortages even though the world food supply is excessive, while a household or an individual might go hungry even though the food is available within the country. Masini (1991:66) further argues that "adequate access can be achieved without a household being self-sufficient in food production, or more importantly, without the household's ability to generate sufficient income".

Food utilisation

Clover (2003:13) explains that food utilisation means "proper biological use of food, requiring a diet that provides sufficient and essential nutrients" and that efficient and effective utilisation of food mostly relies on "a measure of knowledge, food storage and processing techniques, basic principles of nutrition and proper child care, and illness management within the household". Food utilisation is also concerned with intra-household distribution and the right to a nutritious diet for household members together with access to a wide range of foodstuffs (Donnisson 1982).

In light of "food utilisation" as one of the indicators of food security, this study looked into the following issues in line with one of the stated research objectives outlined in Chapter One:

1. Household food security – looking at the effect that food crop production with the help of the government-financed agricultural food security pack programme has had on participating small-scale farming households; and

2. Intra-household distribution and rights to access to food.

There are many determinants, such as sex and education, that ensure the optimum realisation of the indicators of household food security discussed above, namely, food availability, food access, and food utilisation (Nkomoki, Bavorová & Banout 2019). Sex is one of the non-economic factors of a household that influences access to critical economic resources in a community (Lupton & Smith 2003:131) as revealed by several studies conducted worldwide. For instance, in Kenya, Kassie, Ddiritu and Stage (2014:158) conducted a study to establish the relationship between the gender of the head of a household and food security. The results indicate that female-headed households were prone to food insecurity compared to male-headed households. Likewise, a study was conducted to assess the effects of gender inequality on food security among small-scale farming households in South Africa by Tibesigwa and Visser (2016:37). The outcome of the study showed that households headed by males were more food-secure than those headed by females. On the contrary, the study that was done by Mallick and Rafi (2010:599) in Bangladesh on the status of food security of households headed by males and females revealed that the gender of the head of a household did not affect household food security. This was due to the non-existence of "cultural and social restrictions for women's participation in the labour force" (Mallick & Rafi 2010:601).

Zhou, Shah, Ali, Ahmad, Ud Din, and Ilyas (2017) explored the role of education in the attainment of household food security in Pakistan's rural areas. They found that education level was the highest contributing factor to the attainment of household food security. The outcome of an ordered probit model revealed that a family household head with high education attainment boosted the potential of a household to become food-secure (Zhou et al 2017). Similarly, making use of the logistic regression model, De Cock, D'Haese, Vink, Rooyen, Staelens and Schonfeldt (2013) examined the household food security situation in rural South Africa. The study indicated that the higher the education level of a household head, the more food-secure the household was. This result matches the work of Mason,

Ndlovu, Parkins and Luck (2015) conducted in Tanzania using food consumption as an indicator of food security to establish the factors influencing household food security. They discovered that households with family heads with higher education levels had improved household food security status than those with none or lower education levels (Mason et al 2015).

2.2.1.4 Food security, economic growth and social protection

According to Ellis et al (2009), social protection and economic growth can best be used to discuss food security while the Forum for Food Security in Southern Africa (2004) argues that there is no clear-cut borderline between social protection and development-oriented undertakings.

Ellis et al (2009) argue that a comprehensive view of food security that considers both food availability and food access needs to include social protection because it serves three purposes, namely, promotion, prevention and protection. Ellis et al (2009:23) further note that a broader view of "social protection implies a response to the wide sources of the vulnerability, risk, and deprivation that poor people face". A complete view of social protection intervention in supporting food security includes production using "free agricultural farming inputs, employment (food for work), trade (food-price interventions such as consumer subsidies)", and small-scale farmers' access to credit facilities (Forum for Food Security in Southern Africa 2004:33).

Provision of access to credit facilities to small-scale farmers places value onto their land through the acquisition of farming inputs to enhance production and productivity as established by numerous studies. For example, Awotide, Abdoulaye, Alene and Manyong (2015) investigated the influence of access to credit on agricultural production and productivity amongst small-scale farming households in Nigeria. The results established that small-scale farming households that had access to agricultural credit facilities were committed to ensuring that they realised higher cassava productivity than those that did not have access. Awotide et al (2015) concluded that those that had access to credit facility were more food-secure and committed than those that did not have access because of the obligation of paying

back the credit. This outcome is supported by Aidoo, Mensah and Tuffour (2013:37) who investigated the determinants of food security in rural households in Ghana. Their results established that access to credit had a positive effect on food security in the households they studied. As a result of the positive influence that access to a credit facility has on production and productivity, Tirivayi, Knowles and Davis (2016:57) advocate for interventions in the agriculture sector that can influence the spread of microcredit and microfinance institutions in rural areas with affordable lending rates to small-scale farmers.

In the absence of credit facilities, Devereux (2001) explains that production-based entitlement can "be boosted by free farming input packs or fertiliser subsidies, labour-based entitlement by food-for-work or cash-for-work opportunities, and trade-based entitlement by food-price stabilisation".

2.2.1.5 Critique of the "food security" concept

Even though this study preferred the FAO's (2002) definition of food security, Maxwell (1991) sees it in both positive and negative ways. Positively, Maxwell argues that the definition has many advantages in that it stresses consumption over production (Maxwell 1991). On the other hand, he argues that the definition is incomplete in four aspects, namely:

1) It subordinates the concept of "security" to that of food consumption;
2) It pays insufficient attention to people's perceptions of risk;
3) It underplays issues of food security at the national level; and
4) The definition does not refer to the difference between poverty and food insecurity

(Maxwell 1991:2).

According to Maxwell 1991:3), nearly all present definitions of the concept of "food security" commence with individual entitlement, while acknowledging the multi-faceted "inter-linkages between the individual, the household, the community, the nation and the international economy".

Devereux and Maxwell (2001:170) argue that there are many reasons for household and individual food insecurity in developing countries that include:

> "chronic poverty, low agriculture productivity, high rates of population growth, civil war and ethnic conflict, poor infrastructure, ecological constraints, inappropriate policies, limited arable land, diseases, inadequate water and sanitation, inadequate nutritional knowledge and even cultural practices developed over time."

Haddinott (1999:47) believes that the leading trigger of food insecurity is chronic poverty, which is a result of the absence of economic opportunities "either to produce adequate food or to exchange labour for the income to purchase adequate food". Reily, Mock, Cogil, Bailey, and Kenefick (1999:35) support the above view and further argue that "rapid population growth may affect the food security status through the impact of overcrowding on reduced per capita land availability and per capita food availability". They further assert that rapid population growth may also have an impact "through its effects on environmental degradation and reduce agricultural productivity or through its effects on sanitation and the spread of diseases that influence not only labour productivity and incomes, but also nutritional status" (Reily et al 1999:36).

2.2.2 Understanding of the "household" concept

Saad (1999) argues that the meaning of "household" is subject to the understanding of local people and may differ from one community to the other. According to De Stage (2002), livelihood analysis often starts by examining household structures and how they interrelate because households in different parts of the world are not homogeneous. The concept of family, kinship and their way of living differ according to culture and social groupings (Crehan 1998:68). However, the best way to comprehend the food security concept is to consider the household as an economic unit, for instance, as this research took "household" of the vulnerable, but viable, small-scale farmers in Mpulungu district as the unit of study. This way, the study can explore its capabilities, sources (or lack) of wealth and income, internal motives and external pressures, and differences between different households (Overseas Development Institute 2003).

According to De Stage (2002:29), "the 'household' concept is seldom neutral and may be distorted by the biases of researchers and planners". This is the reason for working out

appropriate local definitions according to people's criteria and values, then comparing these definitions with the diversity of local household situations. Local definitions should always be sought because there are different perspectives of the household, namely, economic, anthropological and gender (De Stage 2002).

However, despite its complexity, a household can be defined simply as the basic unit within which people live (Crehan 1998:61). This definition is in line with De Stage's (2002:13) definition that looks at a household "as people who eat together, share resources and live under the same roof". Rogers (1995:52) describes a household as a collection of individuals who share their resources for the maintenance of their members. This group of individuals live under one roof and eat together from a shared kitchen. All these definitions are consistent with Masini's (1991 cited in De Stage 2002:29) argument that:

> "the household, in all its different cultural connotations, is the primary social living unit. In it are encapsulated cluster of activities of people who live together most of the time, and provide mutual physical, socio-psychological, and developmental support and functions within the broader organisation and environment of the community."

Crehan (1998:66) notes that the meaning of family and kinship and how they get translated into institutions of everyday life vary between different cultures and social groups. For instance, De Stage (2002:32) explains that the livelihood framework, adopted in this study, emphasises the importance of agreeing on criteria for defining household membership in local conditions.

In light of the above, this research looked at the vulnerable, but viable, small-scale farming household as a domestic unit and the unit of study, whose definition relied on small-scale farmers' values and customs in Mpulungu district of the Republic of Zambia. Therefore, this study used the definition of a household which states:

> "that the household, in all its different cultural connotations, is the primary social living unit. In it are encapsulated cluster of activities of people who live together most of the time, and provide mutual physical, socio-psychological, and developmental support and functions within the broader organisation and environment of the community" (Masini cited in De Stage 2002:29).

2.2.2.1 Critiques of the "household" concept

Debates have emerged around the argument that the household is an economic unit. For instance, Clover (2003:13) argues that

> "food insecurity is no longer seen simply as a failure of agriculture to produce sufficient food at the national level, but instead as a failure of livelihood to guarantee access to sufficient food at the household level".

The FAO (2016:72) adds that "a household is food-secure when it has both physical and economic access to adequate food for all its members, and when it is not at undue risk of losing access". This argument is said to be "broad enough to embrace the essential components of household food security, namely, physical access, economic access and sustainability of access [and] provides a well-focused scope for discussing monitoring and assessment of household food security" (Frankenberg & Goldstein 1992:10).

Both physical access to food and adequate purchasing power determine household food security (FAO 2016:18). The FAO (2016:19) further argues that "while access to adequate food at the household level is needed to satisfy nutrition levels for all members of a household, nutrition security also depends on non-food factors such as satisfactory health and hygiene conditions and social practices".

The above arguments regarding the household level relate to the status of food security of the vulnerable, but viable, small-scale farming households studied. Analysing the impact of the government-financed agricultural food security pack programme in Mpulungu district, therefore, entailed measuring, both quantitatively and qualitatively, the changes brought about by the programme at the household level.

2.2.2.2 Household coping strategies

In trying to maintain food security and production potential, households employ various coping strategies to deal with uncertain conditions. The World Bank (1986) mentions that, in response to food insecurity, which has become chronic in many developing counties, households pursue an array of responses which may include changes in planting and cropping

practices, migration, the sale of possessions, increased petty trading and reliance on remittances (World Bank 1986). Such coping and adaptive strategies are sometimes grouped under the broader term "livelihood strategy" (FAO 1995). Hence, the adoption of the Sustainable Livelihoods Framework as one of the theoretical frameworks used in this study.

Therefore, using the Livelihoods Approach, the study established how the targeted vulnerable, but viable, small-scale farming households in Mpulungu district responded to low crop production due to a lack of access to adequate agricultural inputs, a lack of resources to purchase inputs to boost food crop production for survival and a lack of conducive climatic conditions.

2.2.2.3 Household resources

For a household, as a domestic unit, to engage in meaningful economic activities, such as small-scale farming, it should have resources at its disposal. Tsimwaa (2007:66) divides these resources into two broad categories, namely, household labour and household capital.

- **Household labour**

  Household labour describes the workforce that is available to enhance productivity (World Bank 2000). It includes, not only the physical dimensions "of how many people are there and available to work but also a 'knowledge' or human dimension" (World Bank 2000:20). Research shows that the size of the household determines productivity in developing countries. The study conducted by De Cock et al (2013:277) in rural South Africa to investigate the determinants of food security revealed that the size of a household was the main determinant of food security at the household level; further, a household smaller in size was less expected to be food-insecure. Similarly, Kabunga, Dubois and Qaim (2014:27) conducted a study in Kenya using the Household Food Insecurity Access Scale to measure household food security. Their study found that larger household sizes are linked to higher food insecurity. Conversely, the study by Maitra and Rao (2015:321) that looked at the influence of the family size on household food security in India revealed that a larger household size is less likely to be food-insecure. This was so because the number of

breadwinners depended on by other family members for the provision of household requirements was higher.

- **Household capital**

  Household capital denotes resources, such as land, tools for agriculture and non-agricultural production, finances and livestock that, when put together with household labour, produce food crops or income to purchase food and other essential services (Kunnenman & Epal-Ratjen 2004). Haddinott (1999:6) explains that "households allocate these endowments across different activities such as food production, cash crop production, and non-agriculture income-generating activities that include: wage labour, handcraft, food processing, services, et cetera [and that] households may receive transfer income from other households or any public body such as the state or NGOs" (Haddinott 1999:7). Put together, the above mentioned four sources, food production, cash crops, non-agricultural income-generating activities and transfer income determine household income (Ekpere 2001).

Therefore, in line with the above arguments, the study established other sources of income or livelihoods of the household beneficiaries of the government-financed agricultural food security pack programme, apart from small-scale farming as discussed in Chapter Four.

2.2.2.4 Household consumption

It is argued that "households face a set of prices that determines what level of consumption can be supported by the level of income" or livelihood (FAO 1983:17). Benson et al (2008:27) point out that "household consumption is divided between those goods that affect households and individual food security". They further explain that "those goods that affect food security include food consumption, or acquisition, at the household level, referred to as food access in much of the food security literature" (Benson et al 2008:30). Also included are goods that are associated with health care that affect environmental health such as shelter, water and sanitation. Ellis (1992) explains that these goods, collectively, with education and competent practice of nutrition and health practices, generate nutritional status or food utilisation.

However, in analysing household food security, Devereux (2001:252) argues that ambiguity remains, "particularly, about whether the unit of analysis should be the individual or the household". This ambiguity arises because some schools of thought recognise the importance of intra-household issues, such as access to food by individuals in a household, being "pervasively linked to the control they have over household resources and the access they have to household income" (Devereux 2001:253).

Given the above arguments, the study looked at an array of issues from the respondents that included: household food consumption patterns, decisions on household food consumptions, and individual household member's access to food.

2.2.3 The role of agriculture in development and poverty alleviation

Agriculture is one of the most critical production enterprises in the world. As a production venture, it meets the essential human needs and facilitates civilisation through the provision of food, clothing, shelter, medicine and recreation. Agricultural production can bring prosperity, harmony, peace, health, wealth creation, and especially household food security (Bahta, Willemse & Grove 2014). It elevates communities and provides a better social, cultural, political and economic life (Barrett, Carter & Timmer 2010:451). Developing economies have been explained as dual economies embracing both a modern capitalist sector and a traditional agriculture sector. Productivity is presumed to be higher in the modern sector than in the traditional agricultural sector (FAO 2016).

To understand the role of agriculture in development and poverty alleviation, this subsection explores the foundation of agricultural development, investment and appropriate technologies, as well as, extension services. Also discussed are agricultural environmental challenges, technological barriers, and diversification of income generation in rural areas.

2.2.3.1 The foundation of agricultural development

This section looks at the foundations of agricultural development in various regions of the world. It highlights the challenges encountered by farmers in developing countries that have the potential to diminish their returns and may affect agricultural food security. Agricultural

production structure, technological barriers and environmental issues, among other vital matters, are discussed as seen from the global, international, and local perspectives.

Green Revolution and the adoption of technology

The green revolution was achieved, globally, by investing in fertilisers, irrigation technology, and high-yielding agricultural seed varieties (Pingali 2012:12307). The extensive usage of fertilisers all over the world transformed agricultural methods. The Green Revolution increased the volume of food produced universally and reduced the occurrence of famine, especially in Asia (Campbell, Beare & Bennett, 2017:4). There have also been significant setbacks. Firstly, since only a few species of high-yield varieties of wheat, rice and corn were grown, many seed varieties that were used before the Green Revolution have been abandoned (Christiaensen 2017:7). Secondly, increased crop homogeneousness means that seeds are more susceptible to pests and disease since there are no varieties to fight them (Christiaensen 2017:9). In a bid to safeguard these species, the use of pesticides has increased which has also triggered undesirable environmental effects.

Notenbaert, Pfeifer, Silvestri and Herrero (2017:158) explain that, from 1980 to 2004, the agricultural sector developed at an average rate of 2.6 percent globally, with two-thirds of this development taking place in Asian economies. Agricultural produce in Asia grew at an average rate of 2.8 percent from 1961 to 2004 (Notenbaert et al 2017:160). Whereas in sub-Saharan Africa, the average rate of agricultural development was 3 percent during the same period, while "growth per capita of the agricultural population stood at 0.9 percent, less than half the growth rate in other regions" (DeFries, Davisa, Chhatred, Raof, Singh, Ghosh-Jerathi, Mridulj, Poblete-Cazenaveg & Pradhan 2019:7). Furthermore, while intensification propelled agricultural growth during the Green Revolution in Asia, agriculture in sub-Saharan Africa had been developing at the same speed as a response to land expansion. World Bank (2017) believes that as the capacity for land expansion gets exhausted, more agricultural development will have to come from increasing production through yield boosting. Agreement on the requirement for Africa's Green Revolution is unanimous, but then, the features of the African continent demand a different approach (Reardon, Barrett & Berdegue 2009:1720). In comparison to Asia, Africa is heterogeneous as regards "agro-ecological conditions, farming

systems, and types of crops planted" (Reardon et al 2009:1722).

Hanjra, Noble, Langan and Lautze (2017:27) point out that the Food and Agriculture Organization assumes that fourteen (14) key farming practices in sub-Saharan Africa depend on rice, corn or wheat, which have been the primary propellers of the Asian Green Revolution. Also, for most of Africa, agriculture is rain-fed, while intensive irrigation drove the Green Revolution in Asia (De Janvry & Sadoulet 2009a:11). Warinda, Nyariki, Wambua and Muasya (2019:21) agree that not more than 4 percent of crops grown in Africa are irrigated compared to 34 percent in Asia. Another factor that differentiates the sub-Saharan African setting is the underdevelopment of the infrastructure which impedes market access and causes transportation costs to be abnormally high (DeFries et al 2019:9).

Consequently, Hanjra et al (2017:29) emphasise that many revolutions need to take place across sub-Saharan Africa. The systems backing agricultural development and growth should be identified to understand historical developments in agriculture and foretell future ones. Rosa, Rulli, Davis, Chiarelli, Passera and D'Odorico (2018:105) note that many farmers remain poor, not because they are "primitive" but because their governments offer them little technical and economic help. Rosa et al (2018:117) advised making inputs accessible to farmers, producing new indigenous specific knowledge and improving education regarding new seed varieties and technologies through extension services. However, in their advice, there was no specification on how this process should be handled.

Lynum, Beintema, Roseboom and Badiane (2016) believe that, since agricultural research is principally a public good, the governments of developing countries are required to allocate resources in response to market signals and demands for technologies that respond to environmental changes.

2.2.3.2 Agricultural investment and appropriate technologies

Chaudhary, Gustafson and Mathys (2018:107) explain that it is not the agricultural characteristics in Africa that cause low yields but the lack of appropriate technology. This requires African countries to carry out research on agricultural conditions and to identify the

obstacles to the adoption of technology. Agricultural research and development can produce efficient and productive technologies that can improve agricultural production (Chaudhary et al 2018:128).

Shikuku, Winowiecki, Twyman, Eitzinger, Perez, Mwongera and Läderach (2017:238) affirm that technology elicited the Green Revolution in Asia and can do the same for African farmers. However, crop varieties that are grown in Asia may not be suitable for Africa therefore technological flow "from high-income countries to low-income African countries" is unlikely because there are regional disparities within the continent that hinder technology spill-overs among African states (Binswanger-Mkhize & McCalla 2010:3573).

The institutional arrangement at the regional level includes the New Partnership for Africa's Development (NEPAD) and the National Agricultural Research Systems (NARS). The FAO (2019) explains that NEPAD has "a target of 6 percent agricultural growth to encourage public spending in this sector". However, only a few African states have reached that target, while public spending has been less than the equivalent expenditure in other parts of the world (FAO 2019).

NEPAD is a regional initiative aimed at boosting Africa's agricultural productivity through agricultural research and development. Engaging farmers in such efforts, through participatory approaches, can assist in the research process by establishing whether biotechnology can encourage agriculture in African countries to move towards a Green Revolution (Christiaensen 2017:10). The assessments by Liao, Brown and (2018:52) indicate that transgenic crops can be adopted by poor subsistence farmers because they are disease-resistant.

Although biotechnology may be a compelling force for Africa's Green Revolution, there are some constraints to its adoption. The private sector has conducted studies on transgenic crops but this does not affect the interests of poor farmers in Africa (Ochieng, Schreinemachers, Ogada, Dinssa, Barnos & Mndiga 2019:190). Public research should, therefore, be undertaken into these latest technologies to establish the pros and cons for the adoption of transgenic

crops by poor farmers in Africa.

Strict intellectual property rights on present technology, the lack of biosafety regulations and weak regulatory capacity in African countries can impede public research efforts (World Bank 2017). Ochieng et al (2019:191) reveal that African policymakers are doubtful about biotechnology because of European consumers' health concerns and environmental issues.

2.2.3.3 Agricultural farm size versus productivity

Many agriculturalists in developing countries work on a small scale, not because they want but, due to constraining factors that they encounter. The Food and Agriculture Organisation. 2018, therefore, advocates for agriculture-for-development strategies for the smallholder sector to make it more productive. Farm size plays a significant role in agricultural production and productivity according to research findings from the previous studies undertaken in different parts of the world. For example, Khonje, Manda, Alene and Kassie (2015:699) conducted a study in the Eastern Province of Zambia to determine the role farm size plays on households' welfare that looked at the adoption of improved varieties of maize seeds using welfare indicators such as crop income, food security, and poverty, among others. Their findings revealed that, with a small farm ranging from 0.1 to 3.5 hectares, poverty levels were higher than those farming households with a farm size of more than 3.5 hectares. Similarly, a study by Koirala, Mishra and Mohanty (2016:375) in the Philippines that examined the role of proprietorship of land on productivity amongst the farmers involved in rice farming found that an increase of 1.0 percent in farm size improved the yield of rice by 0.40 percent.

The above findings are in agreement with the study by Frelat, Lopez-Ridaura, Giller, Herrerod, Douxchamps, Djurfeldt, Erenstein, Henderson, Kassie and Paul (2016:461) in sub-Saharan Africa which revealed that the size of the farm is a determining factor of household food security. The correlation in the above study is that an increase in farm size increases the likelihood of farming households being food-secure due to enhanced production and productivity. In contrast, the investigation into the connection between farm size and productivity by Paul and Wa Githinji (2018:773) in Ethiopia established a negative correlation between farm size and yield per hectare.

2.2.3.4 Agricultural extension services

Small-scale farmers in developing countries have a high probability of being deprived of information concerning the latest technology available hence agricultural extension services exist to deal with underprivileged small-scale farmers (Shausi, Ahmad & Abdallah 2019). They incorporate related services, such as nutrition and health services, in addition to agricultural-related information. After modern extension services spread to the United States through cooperative extension systems in 1914, "education on the latest technologies, alongside input and credit services, was included in extension services" (Shausi et al 2019:243). Despite this, agricultural field workers were either inadequate or lacked essential technical training or field experience to provide these much-needed services to farmers (Ajayi 2016:102).

In a bid to improve these services, Mutimba (2014:21) explain that in the 1970s, a new approach propelled by the World Bank called "Training and Visit" (T&V) was adopted. Under this new approach, besides training farmers on the latest technologies, it incorporated a mechanism of obtaining their feedback regarding the difficulties they encountered. The feedback was redirected to superiors who were required to resolve these problems. Though agricultural extension workers made links "with a limited number of contact farmers regularly, the cost of the new approach was very high and unsustainable because of its greater staff requirements" (Temesgen & Tola 2015:2153). Uddin, Gao and Mamun-Ur-Rashid (2016:51) found that the effect "of extension services has been mixed, with some projects having high returns on investment and others only negligible success". They also add that a common hurdle with the "Training and Visit" approach was that extension staff members, who were civil servants, lacked accountability (Temesgen et al 52).

As the extension service system wound down, the private sector or farmer groups took charge of extension service provision to deal with these accountability problems. Aydogdu (2017:8) mention that farmer groups may be on both sides of the demand and supply of the extension services. This means that, on the demand side, they are in a position to reach out to farmers and can bargain for their demands while, on the supply side, they can provide services to the members that include financing (Aydogdu (2017:8).

Enhancing the accountability and quality of agricultural extension service provision by putting agricultural extension services into the hands of the private sector has considerably lessened the financial load on the public sector and led to services that are more financially sustainable (Aker (2010a:49). However, Tolera, Temesgen and Rajan (2014:272) note that, worldwide, about five (5) percent of extension services are offered by the private sector. He further explains that private agricultural extension services can perform better in response to demands from commercialised farmers, but that small-scale farmers may not be aware of their own needs, consequently, they are unable to express them or they may not be in a financial position to acquire the services (Uddin, Gao & Mamun-Ur-Rashid 2016). As a result, they may ask for fewer services than they need. In this case, the delivery of agricultural extension services by the private sector may not be a suitable solution. A private-public partnership (PPP) would be able to offer agricultural extension services, along with a publicly funded but privately managed system that would enhance the effectiveness and efficiency of the system by embracing all farmer groups regardless of their economic status (Aker 2010b).

Tsafack and Degrande (2015) point out that the environment in which farmers of today work are ever-changing and therefore new means to offer practical and efficient agricultural extension services are required. This is in line with the recently introduced idea of using "Information and Communication Technologies (ICTs) in agricultural extension services and rural development projects" (Tsafack & Degrande 2015). Aydogdu (2017:9) further explains that ICTs can convey information that is essential for the development of the rural areas, such as education and market information, in the long and short terms, respectively. For instance, ICTs may be utilised for long and open-distance learning programmes thus assisting in growing human capital. In the short term, Mutimba (2014:2153) adds that they can "convey information on market prices, weather and other rewarding income diversification ventures". Conventional essential techniques that can be affordable and user-friendly for small-scale farmers include mobile phones that can increase both public and private information dissemination. Aker (2010a; 2010b) explains that, using cell phones, agricultural extension services may be conveyed at a much lower cost, but with high quality and valuable information.

Agricultural extension services in Zambia

The implementation of agricultural extension services in Zambia is guided by the National Agricultural Policy that incorporates essential components of agriculture to assist in the expansion of the agricultural sector. One of the objectives of the policy is to strengthen agricultural extension service delivery points, improve the efficiency and effectiveness of the existing extension staff, and promote private extension services to supplement the public extension system (MA 2016:7).

The role of extension services in Zambia

In the year 2000, Zambia adopted the Participatory Extension Approach (PEA) as the principal channel for delivering extension services under the auspices of the World Bank-backed government study which looked at systems of stimulating extension service delivery in the country (Burrows, Bell & Rutamu 2017). The PEA is a systematic learning process that focuses on joint learning using local and contemporary knowledge that encourages facilitation in place of teaching (MA 2016).

The Participatory Extension Approach adopted in Zambia's extension service delivery system is typically implemented through four main roles which are:

- To adopt externally developed, tested or proven agricultural technology or management practices and transfer them to farmers;
- To assist individual or farmer groups to find solutions to technological or management problems which arise and inhibit their desire to improve unit performance and productivity;
- To promote proactive informal education which seeks to assist individuals and groups of farmers to understand their situations better, and to be able to make choices and take actions to improve their situations; and
- To promote human development through facilitation and stimulation of individual farmers and communities to take the initiative in problem identification [and] definition and seek

solutions to individual and societal concerns (Zambia. Ministry of Agriculture and Livestock [MAL] 2015:8).

The above four extension service roles are complementary, each applicable to different situations and needs (MAL 2015). Extension services under each of the four (4) roles can be used to bring about change in several areas such as production, food quality, product development, rural development or social improvement (MA 2016).

The above four outlined main extension service roles are delivered through two main channels in Zambia, namely, Farm Institutes, Livestock Service Centres and Farmer Training Centres, on the one hand, and the network of agricultural blocks and camps for fisheries, crops and livestock, on the other hand (Umar 2016).

Agents of extension services in Zambia

In Zambia, agricultural extension services are provided by both public and non-public sector players, though the public agricultural extension services have been more dominant in the delivery of extension services than the private ones (MAL 2013). The private sector players include Non-Governmental Organisations (NGOs), International Development Partners and Farmer Organisations. Notable among private sector players are major seed companies that are active in the delivery of extension and advisory services (MA 2013).

Some International NGOs implement projects funded by bilateral and International Development Partners. They employ full-time extension officers serving the project target areas with specific interventions. Sahlaney, Hoeberling, Bell and Bohn (2015) point out that many NGOs and some International Development Partners, however, depend on agriculture extension staff from the public extension system to make follow-ups on their interventions. Farmer organisations and cooperatives are also active in providing extension services to their members. Sahlaney et al (2015) add that the Zambia National Farmers Union (ZNFU) is the most prominent farmers' organisation with its full-time staff providing various forms of extension services. Other players are the Zambia Cooperative Federation and the Small-Scale Farmers' Association (MA 2016).

Obstacles to effective extension service delivery in Zambia

The Zambian government's efforts to improve the rural poors' livelihoods through increased production and productivity via extension services have been hampered by several challenges that are both structural and institutional. The general challenges include, among others:

- A lack of refresher training for agricultural extension employees. The current extension service delivery system does not embrace extension in-service and refresher training adequately (Boyd & Mthinda 2015). Boyd and Mthinda (2015) argue that this can result in most extension staff meeting farmers with outdated extension service information that may lead to a loss of trust in the public extension service delivery system and ultimately low acceptance and adaption to innovation that may affect production and productivity.

- A lack of coordination amongst the extension service providers. Currently, the extension service system exhibits a duplication of efforts amongst service operators while other needy areas are not covered (Boyd & Mthinda 2015). Tucker et al (2015) further add that the lack of effective coordination and communication has, more often than not, led to issuing contradictory information to the same farmer groups.

- A lack of skills to implement the Participatory Extension Approach adopted by the country as the primary vehicle for the delivery of public extension services (Fowler & White 2015). This is so because the adoption did not go hand in hand with the necessary adjustments in the syllabi of agricultural training institutions (MA 2016). Tucker, Dolly, Phiri, Chisi and Bohn (2015) argue that this has brought about a knowledge gap in participatory extension service delivery methods among graduates resulting in the ineffective dissemination of agricultural innovation.

- An increase in the farmer population with an increased demand for agricultural extension services without a corresponding increase in the number of extension workers at field level resulting in a poor extension officer-to-farmer ratio (Tucker et al 2015). Fowler and White (2015) explain that the rate of addressing the high extension

worker turnover has not been adequate. This has resulted in the current extension worker-to-farmer ratio of 1:1200 in some cases (MA 2016:9). This low ratio, which falls far below the international recommended standards, has stretched the capacity of extension officers to deliver effective extension services.

- Contradictory strategies in extension service delivery between the public and private sector players has brought about conflict in extension delivery strategies, with some providers enticing farmers with monetary payments for their participation in extension programmes (MA 2016).

- Poor support to extension service delivery because, in Zambia, most extension officers work with limited or no operational resources (MAL 2013). In some cases, extension staff may inhabit dilapidated houses, or are not placed in their designated areas and have to commute long distances at their own cost.

Despite the challenges explained above, there are some strengths and opportunities that the Zambian government and the private sector players can take advantages of to allow the extension services to increase agricultural production and productivity, especially, among small scale farmers.

Opportunities for extension services to thrive in Zambia

Burrows et al (2017) explain that there are well-defined extension structures in Zambia at sub-district, district, provincial and national levels, coupled with the existence of farmer and staff training facilities that can enable extension services to thrive if well supported by the government. Also, the establishment of Agriculture Research Stations at national and provincial levels is another advantage through which extension services can be supported. Simpson, Franzel, Degrande, Kundhlande and Tsafack (2015) add that the ever-growing interest by small-scale farmers to adopt new technologies and innovative interventions to improve their agricultural productivity may lead to the possible growth of extension services in Zambia. However, this can only happen if there is a deliberate policy to compel the government to embark on reasonable investment in agricultural extension services.

With the existing government policies, the interest of many small-scale farmers to adopt new technologies through extension service delivery can be enhanced to promote agricultural growth in Zambia. The willingness of the donor community to support agriculture, the readily available markets for agricultural products and the availability of agricultural research training institutions are other fertile grounds for the enhancement of extension services in Zambia.

2.2.3.5 Agricultural environmental challenges

Foley, Ramankutty, Brauman and Cassidy (2011:341) says that the subject of sustainable agricultural systems is receiving high attention in Africa along with the conservation of ecosystems and biodiversity which have the potential for future agricultural growth. Increases in African agricultural produce, which have mainly been realised through expanding land under cultivation, have resulted in land degradation and deforestation (Aksoy & Ng 2010). Ferede, Ayenew and Hanjra (2013) explain that soil degradation has an adverse effect on land productivity. Tittonell, Muriuki, Shepherd, Mugendi, Kaizzi, Okeyo, Verchot, Coe and Vanlauwe (2010:87) give an example of the Ethiopian highlands where the adverse effects from the adoption of agricultural technology have been so devastating that they have counteracted most gains realised.

Because Africa's agricultural revolution must be derived from increased usage of agricultural inputs, intensification has to be sustainable, both ecologically and economically (Tittonell et al 2010:88). Farmers from sub-Saharan African countries have made use of low levels of fertilisers in comparison with farmers in other developing countries (Tilman & Clark 2014:520). This means that most land in sub-Saharan countries is naturally fertile even though Tilman and Clark (2014:521) claim that, as soon as the land is degraded, fertilisers become ineffective and unproductive. They fail to prevent a declining yield effect of fertilisers as soil fertility diminishes.

Palm, Smukler, Sullivan, Mutuo, Nyadzi and Walsh (2010:19664) suggest that intensification must be capital-driven, rather than being realised by hiring more labour, and that refraining from utilising fertilisers and other non-labour inputs could lead to soil mining that is not profitable. Temesgen and Tola (2015:2155) argue that capital-led agricultural production

intensification has adverse effects on the environment and must be well managed to be sustainable. The inappropriate utilisation of fertilisers may result in the pollution of water sources, the poisoning of animals, as well as human beings, which will have an indirect adverse effect on larger ecosystems (Mauser, Klepper, Rice, Schmalzbauer, Hackmann, Leemans & Moore 2013:427). The Food and Agriculture Organisation (2018) report gives an example of South Asia where the adverse effects of inappropriate use of fertilisers were noticed in rice-wheat systems. Pingali (2012:12303) stress that what is necessary is well-managed, agricultural "capital-led intensification that takes into account agro-ecological dynamics to avoid damage to the environment". This is what Gitonga, De Groote, Kassie and Tefera (2013:47) call the "Doubly Green Revolution".

Regarding global climate change, Rao, Poblete-Cazenave, Bhalerao, Davis and Parkinson (2019:845) point out that rising global temperatures may result in a drastic drop in agricultural output, more especially in tropical countries. The rising global temperature may lead to a reduction in the amount of rainfall or induce frequent droughts which could have negative consequences on rain-fed agriculture that may impact negatively on agricultural productivity.

This is particularly pertinent for sub-Saharan Africa, where agriculture is mostly rain-fed because it poses an increased risk for farmers, more especially small-scale farmers who have no or little information on climate change adaptation. Rao et al (2019:846) mention that, in comparison with a no-climate-change setting, the sub-Saharan African agricultural gross domestic product may drop by two to nine percent. Therefore, African farmers need to adapt to climate change. This requires robust investment in agricultural research and development to produce new crop varieties that can withstand drought and an investment in irrigation systems to make African countries resilient to climate change. Gitonga et al (2013:49) add that such adaptation initiatives must be part of the general agricultural development strategies. Although new technologies to cope with climate change already exist, the Food and Agriculture Organisation (2018) report expresses concern that the majority of the farming households in Africa have not attuned to their planting techniques. This is partly because of various barriers to the adoption of new technologies as discussed above.

2.2.3.6 Agricultural technological barriers

There are many barriers to the adoption of new agricultural technologies in Africa. Despite the availability of a variety of new crops in Africa, acceptance rates have continued to be far lower than the Asian rates (DeFries et al 2012:603). For instance, DeFries et al (2012:603)explain that, in the year 2000, the adoption rates of new varieties of maize, rice, and wheat in Africa were far below half those of East and South-East Asia. However, Brooks (2010) justifies this by explaining that, though low adoption rates may appear unreasonable when looking at assured yields, they could be a consequence of realistic decision making by farmers due to the numerous challenges they encounter. Foster and Rosenzweig (2010a) indicate that technology adoption is related to a farmer's education and financial standing, and the adoption of the same technology by the neighbouring communities. Even though this does not show causation, it implies that the lack of credit markets, low schooling levels and other externalities can be the main obstacles to technology adoption.

Undoubtedly, better education levels help farmers to understand the latest agricultural technologies. Foster and Rosenzweig (2010b:27) found that, in India, the returns of high-yield variety seeds are better for the educated than for uneducated farmers. The potential to learn the latest technologies also hinges on the information available to farmers. Byerlee, De Janvry and Sadoulet (2010) state that agricultural extension and other services may, if well applied, deliver the information a farmer requires to adopt the latest technology profitably. Also, access to weather information and markets benefit producers. For instance, Goyal (2010) established that an internet kiosk offering a new marketing channel to soya farming communities in India improved the portion of soya tilled in that area. Goyal (2010) therefore concludes that improved information commands higher returns.

Weather information is crucial for adapting to climate change. Byerlee et al (2010) give an example of Mali saying that, by making timely weather information available, a programme introduced in Mali in 1982 assisted farmers to control climate risks better than in the past. This was as a result of increased information disseminated "through the use of Information and Communication Technology (ICT) which is also closely related to the subject of learning" (United National Environment Programme (2018:7)

The other barrier to the adoption of technology is the absence of credit (Asfaw, Shiferaw, Simtowe & Lipper 2012:288). If the latest technologies need an initial investment, farmers who have insufficient funds cannot get loans even though they will allow them to access agricultural benefits. Sife, Kiondo and Lyimo-Macha (2010:13) observed that credit limitations in Ethiopia inhibited the use of fertiliser by farmers. Sife et al (2010:14)) propose that property rights for land, which could provide collateral, are a vital determining factor in technology adoption.

Clark, Van Kerkhoff, Lebel and Gallopin (2016:4573) mention that risk and uncertainty about yields, particularly when the latest technology is used, may trigger low rates of adoption because poor farmers do not have the assets they can depend on in cases of low output. The lack of insurance presents another barrier to technology adoption for poor farmers. Sife et al (2010:15) illustrate how harvest failure lessens the adoption of fertilisers by farmers in Ethiopia. Sife et al (2010:15) explain that, if the latest technology produces negative results for other farming communities, this could lessen farmers' incentives to adopt it.

Foster and Briceno-Garmendia (2010) point out that the absence of suitable infrastructure could be a hindrance to technology adoption particularly in sub-Saharan Africa. The World Bank report reveals that, in South Asia, only five (5) percent of the rural population has poor access to markets but, in sub-Saharan Africa, this figure is over 30 percent (Orenstein and Shach-Pinsley 2017:248). This is attributed to rural roads and transport systems which are underdeveloped, mainly because of the low population density, which raises the transportation costs of fertiliser and other agricultural inputs. For instance, Chera (2017:317) shows that farmers in Kenya would have potentially high returns from hybrid maize but do not adopt it because of the high prices of seeds and fertiliser caused by transport and rural road infrastructure constraints. Clark et al (2016:4574) argue that the low utilisation of fertiliser in Uganda is due to the relatively high price of fertilisers and other farming inputs for the same reason. Furthermore, they show that, not only do high prices deter the application of fertilisers, but also discourage the use of high-yield maize varieties which need fertiliser (Clark et al 2016:4574).

Removing the barriers described above and offering farming communities better access to agricultural inputs should be a fundamental part of the agriculture-for-development agenda (Orenstein & Shach-Pinsley 2017: 248).

2.2.3.7 Barriers to mechanisation faced by smallholding farms

Smallholding farms face challenges when it comes to agricultural mechanisation due to land fragmentation which is described as a state of owning numerous distant parcels of land, usually spread around a vast area (Ciaian, Guri, Rajcaniova, Drabik, Gomez & Palomaa 2018:594). Farm mechanisation, which is a challenge to many small farms, is an essential agricultural input that enhances performance in farm operations, reduces the operational costs, maximises the use of efficient costly farming inputs, improves the quality of yields, reduces the labour in farm operations, and improves the land productivity and the labour dignity. In Africa and other parts of the world, smallholder farmers find it difficult to benefit from government policies that advocate for agricultural mechanisation on their own without sound policies to bring them on board due to land fragmentation.

Fragmentation of land is a familiar agricultural practice in many African countries. Kadigi, Kashaigili, Sirima, Kamau, Sikira and Mbungu (2017:31) explain that land fragmentation is a hindrance to effective production of crop and modernisation of agriculture in Africa among smallholding farms. Several African states deem land fragmentation to be a major obstacle to the realisation of agricultural productivity gains. However, Looga, Jüngerson, Sikk, Matveev and Maasikamäe (2018:289) argue that most researchers focus on the negative aspects of land fragmentation, though some studies show that it has both advantages and disadvantages on the part of smallholder farmers. His argument hinges on two main factors, namely, demand-side and supply-side aspects, where the supply-side aspect looks at land fragmentation as an imposition on smallholding farmers with negative consequences on agricultural production, whereas the demand-side aspect presumes that the smallholding farmers willingly decide on valuable fragmentation levels.

Advantages of land fragmentation

Sheng, Zhao, Nossal and Zhang (2015:21) explain that, although policymakers draw attention

to the disadvantages of fragmentation, there is no consensus to show that land fragmentation is completely negative. In addition, Ciaian et al (2018:596) argue that the negative aspects triggered by fragmented landholdings are overestimated and that the smallholding farmers' viewpoints are usually not taken into consideration by policymakers. Land fragmentation is arguably linked to the following benefits, among others:

> "[land fragmentation] provides a farmer with a variety of soils and growing conditions that reduce the risk of total crop failure, allows farmers access to many different plots of farmland of different qualities when it comes to soil, slope, micro-climatic variations etc., and several plots of farmland facilitates crop rotation and the ability to leave some land fallow" (Sheng et al 2015).

Kadigi et al (2017:25) further argue that assorted plots of farmland allow smallholder farmers to cultivate a wide range of mixed crops.

Disadvantages of land fragmentation

The disadvantages of land fragmentation outweigh the advantages. The disadvantages are linked to an ineffective apportionment of resources, such as labour and capital that cause the costs of agricultural production to increase and hinder agricultural modernisation. Fragmentation of agricultural land negatively affects productivity in several ways. Firstly, it can increase the costs of transportation of agricultural inputs and products in situations where farmland plots are situated far apart from each other and far from the home. Also, it may take time for the farmworkers to move between the home and farm plots that are far from each other. Kadigi et al (2017:32) further argue that "management, supervision and securing of scattered plots can also be more difficult, time-consuming and costly". Ciaian et al (2018) add that land fragmentation can escalate the risk of land disputes among neighbouring farm plot owners, present difficulties growing certain crops, prevent farmers from changing to high-profit crops, and hinder irrigation, transportation, communication, and drainage of agricultural supporting infrastructure (Ciaian et al 2018:593). Lastly, financial institutions may be disinclined to consider scattered small landholdings as collateral and preclude smallholder farmers from accessing credit facilities to boost their agricultural investments. Looga et al (2018:289) also explain that economies of scale and farm mechanisation are hindered by land

fragmentation.

Farm mechanisation

The mechanisation of agriculture entails the utilisation of an assortment of power sources and modern equipment and farm tools (Arthi, Beegle, De Weerdt & Palacios-López 2018:165). This is intended to lessen the labour of the animals and persons, improve the dilution of cropping, and enhance correctness and timelines of effective use of a range of crop inputs to cut agricultural losses (Arthi et al 2018:166).

Groote, Marangu and Gitonga (20182011) argue that the mechanisation of agriculture in sub-Saharan Africa has slowly taken place, amid generally favourable agro-ecological conditions. Despite the land for crops being plentiful in several parts of the African continent, which, under normal circumstances, would be ideal for the utilisation of motorised farm equipment like tractors and other machines, the bulk of the farmland plots have continued to be cultivated using human power and draught animals due to land fragmentation that hinders farm mechanisation (Kansanga 2017:713). The disadvantages of farm mechanisation on smallholder farmers are: the high cost of implementation due to the numerous machines involved that are usually expensive to operate, and a high likelihood of loss of jobs for farmworkers as very few workers are required (Groote et al 2018:2012). It is due to the above disadvantages on land fragmentation and farm mechanisation that policymakers in many African countries advocate for land consolidation to alleviate the anticipated challenges that may affect smallholder farmers.

Land consolidation

Land consolidation is an intended re-modification and re-assembly of disjointed parcels of land including ownership (Abubakari, Van Der Molen, Bennett & Kuusaana 2016:391). This means the consolidation of smallholding plots of land that are scattered all over. The rationale of land consolidation is to develop a reasonable landholding size to warrant the optimal utilisation of the land and get the maximum benefit out of it (Abubakari et al 2016:392).

There are about four approaches to land consolidation, namely, comprehensive land consolidation, simplified consolidation, voluntary group consolidation, and individual

consolidation initiatives (Asiama, Bennett & Zevenbergen 2017:94). Chen, Yu, Zhu, Shen, Zhang and Yang (2018:2029) explain that the most effective consolidation approach to rural development is comprehensive land consolidation but, at times, other approaches mentioned above can bring benefits if implemented effectively. Comprehensive land consolidation comprises the re-distribution of parcels of land along with a wide range of other activities to support rural development (Asiama et al 2018:96). Asiama et al (2018:98) give examples of such activities as:

> "village renewal, support to community-based agro-processing, construction of rural roads, construction and rehabilitation of irrigation and drainage systems, erosion control measures, environmental protection and improvements including the designation of nature reserves, and the creation of social infrastructure including sports grounds and other public facilities."

Though land consolidation processes differ from country to country, they usually include project initiation, project design, inventory of existing land, rights and land values, detailed consolidation plan presentation, the new land parcels layout, and an implementation plan, among other necessities (Janus & Markuszewska 2017:140). In African countries, policymakers usually recommend land consolidation programmes as a remedy to the associated costs of land fragmentation. These land consolidation programmes that are initiated as a result of government policies, span from the mandatory large-scale to the decentralised small programmes that support consolidation voluntarily (Du, Zhang & Jin 2018:363). Such interventions differ in procedures and the involvement of governments. Notwithstanding the support that some African countries give to the initiation of land consolidation programmes, some advantages and disadvantages come with the implementation of these programmes.

Advantages of land consolidation

Land consolidation can contribute to the enhancement of rural development. When implemented effectively as a channel for rural development, it can enhance the cost-effectiveness and efficiency of private and public investments in various areas, such as communication networks, transportation, utilities and irrigation systems, through mechanisation. The land consolidation permits smallholder farmers to acquire parcels of land

that are bigger, better, well-planned and enables them to be competitive in a quest to improve their agricultural activities.

Disadvantages of land consolidation

Comprehensive land consolidation programmes are usually too costly, time-consuming, and their outcomes are not always successful because the execution involves many political, legal and logistical requirements (Bizoza & Havugimana 2013:70). Due to this, some consolidation programmes fail to overcome the fundamental causes of land fragmentation leading to landholdings getting re-fragmented later. Bizoza and Havugimana (2013:72) add that voluntary programmes take a long time to execute and may not attract a sufficient number of smallholder farmers to take part in the programme to realise its objectives.

Du et al (2018:364) mention that the farmer shoulders the indirect land consolidation costs, even though the programmes are government-sponsored. Land consolidation can also disrupt the crop cycle for years, and also interrupt the benefits of land fragmentation. Land consolidation benefits bigger farms at the expense of smallholder farms since bigger farms "tend to have a lower ratio of labour to land and thus [have] the most to gain by decreasing their travel time through land consolidation" (Abubakari et al 2016:388). This shows that land consolidation can fuel the rural social stratification as it benefits the bigger farms over the smaller farms.

2.2.3.8 Diversification of income generation in rural areas

Many farming households in rural areas earn their income from various types of crops and other sources such as non-farm activities and remittances from migrant members of their households (Estudillo & Otsuka 2010:3451). This indicates that diversification of income performs a central role in the livelihoods of rural communities.

There are four significant causes of diversification of income into non-agricultural activities, namely, risk management, seasonality in employment opportunities, market failures, manufacturing and diminishing returns to factors of production (Davis, Rulli, Seveso & D'Odorico 2017:920). Davis et al (2017:922) clarify that income creation from both farm and non-farm activities allow households to cope with income risks if there is no insurance.

Studies conducted about income generation through diversification in rural areas include the case of Burkina Faso. Pingali, Aiyar, Abraham and Rahman (2019) reveal that rural households in Burkina Faso that supplement their income with non-farm activities were able to cope with drought during the 1980s. Pingali et al (2019) mention that being able to circumvent risks with non-farming activities can enable rural farming households to plant riskier, high-return crops. Farming households that need investment in farm equipment might engage in non-farm activities to raise the capital required to buy the equipment.

Nevertheless, rural non-farm employment is not suitable for all rural households. Survey data from 15 under-developed countries highlights patterns of demographic characteristics in addition to assets acquired by households through different income sources. They conclude that rural households participate in on-farm labour if they have land of their own, low education levels, little access to agricultural-related infrastructure and if the majority of the household labour force is female Pingali et al (2019). Farming households that derive income from non-agricultural activities have better educated members and better access to agricultural-related infrastructure (Fongang & Soko 2017:8).

On the other hand, households earning income from remittances are mostly female-headed (Ochieng, Knerr, Owuor & Ouma 2016:459). Ochieng et al (2016:461) emphasise the fact that rural households with income from non-farm ventures also have a higher total income and more significant land holdings. Further research is required to establish whether diversification of income into non-farm ventures translates to higher income due to a higher generation of returns or whether rural households that diversify have more assets.

Shin, Kim and Sohn (2017:269) agree that asset endowments of rural households hinge on their ability to diversify incomes through taking part in non-farm activities. Education levels of farming household members significantly determine income levels. High-return non-farm ventures need human capital, a situation that may create barriers for households that have little or no education (Shin et al 2017:270). For example, Estudillo and Otsuka (2010:3453) reveal that, in the Philippines, secondary and tertiary learning is directly connected to non-farm income.

Social capital is another factor that affects the ability of individual households to carry out off-farm work (African Development Bank. 2016). Labourers who lack social networks, for instance, immigrants have little access to well-remunerating non-farm works (African Development Bank. 2016). Limited access to infrastructure is said to be another factor that limits rural households from participating in non-farm income diversification (Adah, Chia, & Shaibu 2016:14:11). If rural household members are given access to urban localities, remittances become more significant than non-farm rural income for rural households (FAO 2014). Doss, Meinzen-Dick, Quisumbing and Theis (2017:70) agree that access to appropriate infrastructure allows rural household members to access the non-farm industrial sector but also for this sector to benefit from this labour, thereby opening job opportunities for members of rural households.

The literature shows that diversification increases incomes and reduces poverty in rural areas. Doss et al (2017:71) highlight that increased non-farm income increases earnings and affects consumption patterns in Africa and, in rural parts of Asia, household access to non-farm income contributes to poverty reduction.

DeFries et al (2018:390) explain that policies aimed at the rural non-farm sector and agriculture should not be formulated in seclusion. Himanshu, Lanjouw, Mukhopadhyay and Murgai (2010:71) have demonstrated that agricultural growth "stimulates the growth of the rural non-farm economy through forward, backward, and finally demand linkages that have advantages of proximity to agriculture in rural areas".

2.3 Conceptual issues of poverty, food insecurity and agriculture in Zambia

The concepts of poverty, food insecurity and agriculture are interrelated. Therefore, this sub-section deals with these issues in light of the prevailing situation in Zambia.

2.3.1 Zambia's poverty and food insecurity realities

Zambia's poverty levels are relatively high. According to the report on the population below the poverty line, about 54.4 percent of people in Zambia live on less than the international poverty line of $1.90 per day (Central Intelligence Agency 2019). The country "has been and

is experiencing a high incidence of poverty in both urban and rural areas, with the worst scenario occurring in the rural regions" (CSO 2015:13). Ngonga (2013:29) further explains that "the food security situation in Zambia follows the trends of poverty in that food insecurity is higher in rural areas as compared to the urban areas". Also, "food insecurity in Zambia is worse among the rural small-scale agricultural households who depend on their food production" (Kodamaya 2011:17). The FAO (2006:31) indicates that "the other most vulnerable groups to food insecurity are the aged, female-headed households, orphans, and the youth". Kapata (2014:16-17) argues that even though there is not enough dependable data, for "selected areas of households in Zambia, household food insecurity seems to be the critical problem compared to national food insecurity in the country … measures to ensure household food security deserve a higher priority".

The vulnerability of households to food insecurity in Zambia are caused, according to Ngonga (2013), by low levels of household income, limitations of labour (mainly as a result of lack of opportunities), low levels of food production and high food prices coupled with long distances to food markets, among other reasons. Many of these factors are interrelated. Kakwani (2002:16) also explains that, nationwide, food security is affected, among others, by:

> "low levels of agricultural production and productivity; poor state of road and telecommunication infrastructure and network; unemployment and low-income levels; HIV/AIDS prevalence; inefficient marketing systems (including trade regimes); disasters; efficiency of early warning systems; technological advancement and utilisation; general food price levels; general economic performance; and 'Zambian' food taste."

2.3.2 Food security concerns in Zambia

Chanda and Sakala (1999) believe that there is a need to establish whether Zambia's food security problems are due to a lack of food or to Zambians' inability to access enough food. In many developing countries, food insecurity is caused by a lack of income to buy food rather than a shortage of food (World Bank 1986) but, in Zambia, a shortage of food appears to be a factor (Ngonga 2013). In Zambia, the cotton and tobacco sectors are more lucrative than the food crop sector which produces less than is required to feed the population, especially if food must be imported at a higher cost than producing it locally. Chilangwa and Cromwell

(2004:47) explain that:

> "along with some other countries in Southern Africa, in Zambia, imported food costs between 1.5 and two times as much as food produced locally (depending on whether imports are sourced regionally or internationally). Domestic food production matters even more in countries like Zambia where there are large numbers of poor people who struggle to buy food in the marketplace. For example, over 80% of the rural population is below the local poverty line and they don't have enough money to buy their minimum food needs."

Lubungu et al (2012) argue that the situation in Zambia can be described as a sudden expansion of chronic food insecurity rather than an acute food crisis. They assert that the vulnerability to food insecurity that most households face in Zambia is seen as "a combination of the degree to which households are exposed to climate change hazards and the extent to which they can cope with the effects of the said hazards" (Lubungu et al 2012:57).

People who live in chronic poverty are vulnerable to food insecurity, even where there is not a significant hazard. These are the "vulnerable and non-viable" in the Zambian terminology (Zambia. MFNP 2011). In some households,

> "food insecurity can occur when they are unable to cope with a particular hazard or a combination of hazards. It is this latter group that appears to be expanding significantly as a result of localised climatic events in combination with long-term economic trends and epidemics" (Kalinda & Kapunda 2009:18).

2.3.3 Perception of the concept of "food security" in Zambia

Chanda and Sakala (1999:29) explain that the understanding of food security in the Zambian context has to do with the "availability, accessibility and consumption of maize, primarily in the form of Nshima" (a paste-like substance made from ground maize called mealie meal). Even though Nshima is not eaten on its own, "the type, quantity, and quality of the accompanying foodstuffs (relish) are not of much consequence in a Zambian's general perception of one's food security status" (Chanda & Sakala 1999:35). This perception in Zambia has led small-scale farmers to neglect consumption and production of a variety of other conventional and tropical food replacements for maize that has led to an assumed food

insecurity atmosphere.

2.3.4 Agriculture in Zambia

In the Zambian economy, agriculture remains fundamental to ensuring food security from national to household levels. Agriculture is therefore crucial to the attainment of "Zambia's long-term vision" of being "a prosperous middle-income nation by 2030" (MNDP 2017:4).

Nearly 80 percent of the population of Zambia lives in rural areas and 70 percent of this rural population is dependent on agricultural food production through small-scale farming and livestock keeping for most of their livelihood (CSO 2014). The 2013 survey report states that small-scale farming provides most of the food produced in Zambia, as well as employment for 60 percent of working people (CSO 2013b). Kodamaya (2011) points out that a significant population of small-scale farmers in Zambia is affected by food insecurity which is a result of the reduced agricultural production of food crops. This is attributed to shock occurrences, such as floods, droughts and a lack of resources to purchase agricultural inputs. Other factors that can be attributed to low agricultural food production include:

> "seasonal agricultural production and dependency on rain, low and inappropriate technology use, high production costs (mostly high input costs), inadequate extension services, labour constraints, livestock and crop pests and diseases, poor agricultural and fisheries resource management and inadequacies in land tenure and administration" (Ngonga 2013:15).

Chilangwa and Cromwell (2004) explain that if systems of production of food and food markets can be encouraged in remote areas, the rural population of Zambia may be able to cope with the shocks that are a result of climate change. Tembo (2007:28) explains that, in addition to the shocks discussed above, the low agricultural food production has also been affected "by little investment in the sector and the high costs of financial credit rendered by the financial institutions". The factors mentioned above affect the supply of food at the national and the household level.

The Programme Against Malnutrition (2007:12) News Letter indicates that Zambia has not embraced diversification in agriculture. Crop production has been favoured over livestock and fisheries. Sitko et al (2011:27) add that "even within the crop sub-sector, production has predominantly been for maize; neglecting other food crops like cassava, millet, sweet potato, sorghum, and rice". The Zambian National Development Plan states that broadening the base of agriculture through diversification is significant for "aggregate food supply security at the national level, but it is also important at the household level, where it can make an important contribution to food security" (Zambia. MFNP 2011:17).

2.3.5 Food security and small-scale farmers in Zambia

In Zambia, the food security of small-scale farmers is highly reliant on their capacity to produce enough food crops on their farms for their consumption (Kodamaya 2011). Small-scale farmers that do not grow sufficient food crops for sustenance may acquire food by purchasing harvest surpluses from other farmers. Noyoo (2008) argues that food-insecure small-scale farmers in Zambia suffer from the inaccessibility of food, either because they cannot produce enough for themselves or because they cannot afford to buy or equitably exchange for it in the markets.

A report by the Food Security Forum in Southern Africa, which examined the scope of Zambia's economic development from different sectors, explains that small-scale agricultural farmers are useful economic growth drivers that impact pro-poor growth, food security, and market expansion (Forum for Food Security in Southern Africa 2008). Kodamaya (2011:20) found that expanded cash crop production by small-scale farmers "could contribute both to rural growth (through consumption, labour demand, etc.) and household food security (e.g., through generating cash with which to buy food or inputs)" (Kodamaya 2011:20).

2.4 Food programmes: Experiences from four selected African countries

The study examined case studies conducted in four selected African countries on the performance of food security programmes that were implemented to enhance household food security in different communities. The case studies were implemented and evaluated by the

International Federation of Red Cross (IFRC), Red Crescent Societies (RCS) and the local Red Cross Societies in collaboration with the governments of Malawi, Rwanda, Ethiopia, and Zambia.

2.4.1 Malawi's integrated food security programme

Malawi is one of the poorest countries in Africa, and the highest percentage of the poor is concentrated in the rural areas of the northern and southern parts of the country (Chinsinga 2012). Agriculture is the cornerstone of both the household and the national economy, although the harvests have been dwindling over the years due to weather-related shocks. The most common weather-related shock that affects agriculture in Malawi is drought, which triggers crop failure and increases the price of food. Efforts by the government to reinforce food production have forced Malawi to maintain the agriculture sector's dualistic disposition, comprising both small-scale farmers and commercial farmers. More than 90 percent of the rural households rely on rain-fed small-scale farming, ordinarily characterised by poor harvests as a result of droughts (Chinsinga 2012). Both external and internal shocks, such as floods, drought, and inflation, have subjected a large part of the population to food insecurity.

Arising from the above, the Malawi Red Cross Society introduced the integrated food security programme in 2011 in Mwanza district to supplement the government's national strategy on food security. The programme implemented food security activities aimed to address issues around sustainable livelihoods within communities to improve food diversity, reduce malnutrition and increase income generation.

The agricultural economy for Mwanza district was, in the past, dependent on maize farming and citrus fruits because it is one of the few areas in the country where the climate is conducive for the cultivation of such crops. However, for over a decade, the production of these crops has been failing due to droughts, thereby subjecting households to food insecurity.

It is in light of the above that the Malawi Red Cross Society, a leading humanitarian agency in the country, extended its food security activities which were, until that time, entrenched in the National Society's HIV and AIDS programme. This was influenced by the knowledge that

most households that were food-insecure shared similar socio-economic, agro-ecological and demographic characteristics (Malawi. Red Cross Society [RCS] 2012). The households that were vulnerable to food insecurity were those most susceptible to environmental degradation and climate change.

The purpose of the integrated food security programme was to lessen the food insecurity of the vulnerable households and communities through the implementation of the diversified agricultural production of food and cash crops. Also, the programme aimed at building the capacity of 1,800 targeted households to meet their food security needs and improve their economic status. The project targeted

> "the transient poor (those with the physical capability but lacking productive resources), the vulnerable (those that have been subject to adverse shocks) and the very poor HIV and AIDS affected households who have little resources and require long-term support" (Kassie, Hailemariam, Moti, Marenya & Erenstein 2015).

The implementation strategy of the integrated food security programme by the Malawi Red Cross Society was centred on participatory and community-driven systems. Moving away from conventional approaches of intervention, communities divided themselves into groups and chose agricultural projects that were both sustainable and viable within their environment such as small-scale irrigation to grow maize and vegetables, goat and pig rearing, beekeeping, and fish farming. Through the integrated food security programme, the Malawi Red Cross Society gave out start-up agricultural input packages which included a range of tools such as suitable seeds, beehives, goats and pigs, tools, irrigation equipment, fertilisers and chemicals (MRCS 2012). The provision of start-ups was blended with community-based education on small-scale irrigation, soil and water conservation. Also, regular visits to the projects sites that included technical visits by agriculture extension officers were jointly arranged by the Red Cross Society and local government officials. The team of volunteers from the Malawi Red Cross Society also plays a vital role in the daily management and monitoring of project activities, including ensuring the participation of both men and women in the programme activities.

Effects of the Mwanza integrated food security programme

The assessment of the programme after two years of implementation revealed that it increased the availability of food and access to it by the family members of the benefiting households beyond expectation. The target of the integrated food security programme was to improve household food security by 25 percent; however, information obtained from the field assessment revealed that most of the households' food availability reached as high as 100 percent (MRCS 2012). It was also established that the income base for the beneficiary households increased because of the sale of their agricultural products which enabled them to take care of their household requirements. For instance, those that ventured into fish farming were able to harvest ample fish for feeding their families and for selling. What they realised from the sales was channelled to other household requirements such as paying school fees for their children, investing in new ponds to multiply their income and buying cattle.

The assessment also established that the programme transformed the feeding patterns for most of the benefiting households. The awareness of the need for a balanced diet amongst the beneficiary households was amplified and the availability of fish, mushrooms, vegetables and meat made it possible for the families of the majority of benefiting households to eat a balanced diet. This added to a decrease in undernourishment, especially in children under the age of five. Due to the unreliability of rain-fed planting, the households that participated in small-scale irrigation extended their areas of cultivation by investing in summer cropping. Also, the involvement of more women made it possible to reduce malnutrition among children under the age of five.

Challenges that were encountered by the Mwanza integrated food security programme

During the implementation of the Mwanza integrated food security programme, Malawi was affected by very high inflation coupled with fuel and foreign currency shortages which had a negative bearing on the programme during its two years of execution. Arising from this, farming input prices went up and disturbed the programme budgets. To mitigate the interruption of the programme due to escalated prices, where possible, the Malawi Red Cross Society purchased some of the farming requisites in bulk from local markets closer to the projects to reduce fuel expenses. These bottlenecks also instigated impediments in disbursing

funds for the execution of the programme, which led to some programme activities being deferred. Nevertheless, the programme was a success and attracted more households, particularly, those affected by droughts.

2.4.2 Rwanda's cow rotation initiative

Although Rwanda has made substantial advancement in the reduction of the number of its citizens living in poverty and has also made improvements in its health and education sectors, nearly half of its population continues to be vulnerable to food insecurity (National Institute of Statistics of Rwanda 2015). Almost 45 percent of the population of Rwanda lives in poverty and, according to the World Food Programme's comprehensive food security, vulnerability analysis and nutrition survey, chronic malnutrition amongst children between six months and five years is very high and approximated at the rate of 43 per cent (World Food Programme 2012).

The majority of Rwanda's population resides in rural areas and subsists on small farming enterprises. This further restricts people's access to adequate food to meet their dietary requirements and also endangers rural livelihoods (World Food Programme 2012). To this end, the Rwanda Red Cross Society launched a cow rotation fund in 2008 to commence a livestock initiative as one component of the food security and livelihoods programme in some targeted communities throughout the country to make households and communities resilient to shocks (Rwanda. Red Cross Society [RRCS] 2013). The cow rotation fund, which was connected to agricultural activities, aimed at taking a holistic approach in dealing with food insecurity hitches sustainably.

The cow rotation initiative aimed at providing herds of cattle, pigs, goats, rabbits and other livestock to targeted communities. Chosen beneficiaries received livestock directly from the Rwandan Red Cross that they took care of and managed. To guarantee that every household receives livestock in the community, the firstborn heifer, pig, goat or rabbit is passed on to another household; which again reproduces new-borns for new households (World Food Programme 2014). The rotation continued until each household in the community had livestock that it could raise.

In the cow rotation programme, the local and district level government institutions collaborated with the Rwandan Red Cross to support the implementation of the national programme in different districts across the country. A programme policy was endorsed to guarantee the commitment and assurance of the quality of partnership to improving the livelihoods and food security of the affected households by both sides (government institutions and the Rwandan Red Cross).

The beneficiaries of the programme, directly and indirectly, were identified and a plan was developed which mapped out the rotation process, taking into account that the selected beneficiaries received livestock from the Rwandan Red Cross. Before receiving livestock, household representatives signed contracts with the Rwandan Red Cross committing them to the rotation programme conditions. Lastly, a list of the beneficiaries was created by the steering committee and updated after each rotation phase.

The livestock was distributed by the steering committee. Regarding cattle, only cows were given out, while the new-born males were sold on the market. To ensure quality reproduction, artificial insemination was conducted on these cows by government veterinary technicians. Regarding small livestock, for example, pigs, one boar (male pig) was given out to service about15 sows (female pigs) to take care of the reproduction process (RRCS 2013).

The local experts and Rwandan Red Cross specialists offered training for the programme. They educated beneficiaries on various training gaps, such as livestock maintenance and support services, which included suitable and new farming methods and best systems, nutrition education, management of income and basic accounting (RRCS 2013). To ensure sustainability, the partners, together with local and district level government institutions, ensured that continuous support was given to the beneficiaries in terms of keeping track of the beneficiaries after each round of the rotation to guarantee equality within the community. Additionally, household training covering maintenance of livestock and integration of new best farming practices into daily work was part of the programme since its inception in 2008.

Impact of the cow rotation programme on the beneficiaries

The assessment of the cow rotation programme revealed numerous positive impacts as a large number of beneficiaries had their needs met with limited resources. The majority of beneficiary communities' livelihoods were made stronger in a sustainable manner. Through this programme, households were able to sell surplus farm agricultural products at local markets to realise some income. Therefore, they could put aside money for other household requirements, such as payment of school fees and health insurance et cetera.

It was established that households, through the training that was offered to them, became more knowledgeable about how and what to feed their families, particularly their children. As a result, most families of the beneficiary households became healthier from the balanced meals, which included proteins and vitamins that they ate daily. The volunteers from the Rwandan Red Cross ensured that the nutritional information was made available to as many mothers as possible. Also, households became aware of the dry seasons and their periodic drought coping strategies. They started cultivating diverse crops and growing crops in swampy areas depending on seasonal dynamics. These, among others, were the benefits attributed to the cow rotation programme in Rwanda.

Lessons learnt from the cow rotation programme

Several lessons were learnt from the implementation of cow rotation in Rwanda. The Rwanda Red Cross collaboration with the government and endorsement of the programme policy ensured continuous quality technical support throughout the programme cycle. Linking the livestock programme to agricultural best practices, nutrition and income management activities as well as taking a holistic approach was crucial to ensuring that livelihoods were sustainable and resilient to shocks. Finally, training offered the beneficiary households the ability to care for their livestock to realise the maximum benefits out of their rearing, and to handle the dry seasons. These enabled benefiting households to become independent and continue the programme by themselves, thus, ensuring its sustainability.

2.4.3 Ethiopia's integrated food security development programme

Ethiopia is one of the poorest countries in Africa and has lower socio-economic development indicators than the average in sub-Saharan Africa (Belay & Dawit 2017:58). Food insecurity persists in this nation with a population of 80 million people. Every year, on average, an estimated five million people have challenges in acquiring enough food and need support (Ethiopia. Central Statistical Agency [CSA] 2013). As a result of this, the Ethiopian Red Cross Society (ERCS), in collaboration with the International Federation of Red Cross and the Swedish Red Cross, implemented the Integrated Food Security Development Programme in the Tigray region that ran from 2009 to 2012.

The Tigray food security programme, whose purpose was to improve the food security status of 2,259 vulnerable households that translated to 10,500 people, specifically, targeted Dedba, Dergajen and Shibata sub-districts of Enderta (ERCS 2012). The main focus of the programme was to improve alternative agricultural production and lessen vulnerability to enhance the income of these 2,259 vulnerable households in the three sub-districts mentioned above. The programme achieved this by introducing crossbreed cows, beehives, poultry, training in cattle fattening, fruit and vegetable production, and enhancing food security through the protection of natural resources.

The positive impact of the integrated food security development programme

After four years of the implementation of the Tigray food security programme, the assessment of the project revealed that there were improvements in the livelihoods of the targeted communities that subsequently improved both household food security and introduced income-generating activities. The assessment established that the three major programme activities that contributed to the achievement of the programme objectives were capacity building through awareness and education, income-generating activity training on management of dairy cows, beehives, sheep, goats and cattle fattening, capacity building through experience sharing and exchange, and planning/monitoring/evaluation/assessment (ERCS 2012). Once the beneficiaries were trained in their respective food security programmes, mentioned above, they were given the funds required to actualise the implementation of their chosen interventions.

An assessment of the programme after the four years of implementation under the close supervision of the Ethiopian Red Cross Society showed that, through capacity-building via awareness and education, beneficiaries acquired and developed various skills in income-generating activities and participatory approaches. Capacity-building activities were part of the programme starting from the project design up to the monitoring and evaluation. This led to the introduction of peer-group education, training of trainers (ToTs), and the formation of small group discussions that facilitated the flow of coordinated information amongst the beneficiary groups.

It was established that the participation of the community at every stage of the programme played a pivotal role in meeting the purpose of the programme. For instance, the overall programme planning was carried out with the participation of the community. The Ethiopian Red Cross Society, the Tigray branch and the local government were involved in the monitoring of the programme. In the annual evaluation of the programme, all the above-mentioned stakeholders were involved. The Integrated Food Security Development Programme therefore impacted positively on the lives of the beneficiary households as most of the beneficiaries met their food security needs. However, the project did not go without challenges and lessons learnt during the pre-implementation and implementation phases. These are given below.

Challenges faced by the integrated food security development programme

In the pre-implementation phase, the programme experienced complications in identifying the targeted beneficiaries due to conflicts of interests and limited resources while, during the implementation phase, the cash loans were used for unintended purposes. On project initiators, the staff turnover proved to be a challenge.

Lessons learnt from the integrated food security development programme

It was discovered that support in kind was more successful than the allotment of seed money to the beneficiaries in cash due to the high chances of it being used for unintended purposes. It was also learnt that engaging women in the management of income-generating activities (IGAs) was more successful than engaging men. The assessment also discovered that the

participation of government institutions at each level developed the sense of ownership of the programme, encouraged commitment, created transparency, and ensured sustainability (ERCS 2012). Lastly, the livelihood diversification approach lessened the risk of food insecurity as a result of the shortage of land for agricultural activities.

2.4.4 Zambia's Zambezi River basin initiative (ZRBI) project

Most parts of Zambia enjoy moderate weather conditions. Lowland regions, for example, the valleys of the Luangwa, Zambezi and Kafue Rivers and the coastal areas of the country's major lakes experience very high temperatures (ARI 2017). The majority of the streams in Zambia flow into the Indian Ocean via the Zambezi River. The Zambezi River offers agriculture and other economic benefits to people living along its basin and is a source of drinking water, fish, and agricultural irrigation (World Bank Group 2019). It is also home to some of the climate-related vulnerabilities in sub-Saharan Africa. Climate change, coupled with environmental degradation, triggers the annual floods observed on the coastal areas of the river, leading to the displacement of affected households. The displacement of households has therefore affected the household food security of people living along the Zambezi basin each year.

Due to the background explained above, the International Federation of Red Cross (IFRC), Red Crescent Societies (RCS) and the Zambia Red Cross Society (ZRCS) acknowledged that communities living along the river basins of the Zambezi River needed support to boost their capacity regarding disaster preparedness and enhancement of household food security. Therefore, the Zambia Red Cross Society introduced the Zambezi River Basin Initiative (ZRBI) in 2012 focusing on the districts of Sesheke and Kazungula. The Zambezi River Basin Initiative aimed to address the livelihood needs in an integrated way by ensuring that communities along the Zambezi River basin are more resilient and secure in the long term. The programme focused on lessening the impact of disasters on communities as well as improving the quality of lives of the people living along the Zambezi River basin through comprehensive, sustainable and integrated disaster preparedness and management. Food security and sustainable livelihood initiatives were at the centre of the programme. The Zambezi River Basin Initiative targeted about 22,000 very vulnerable households susceptible

to floods and droughts in Sesheke and Kazungula districts of the western and southern provinces of Zambia, respectively (ZRCS 2016).

The programme involved relevant government institutions at the district level, namely, the departments of agriculture, livestock and meteorology. With these government institutions providing technical support, the ZRBI implemented the following activities: capacity building towards disaster preparedness and early warning systems, household vegetable gardening and upper-land field crop cultivation, and household small animal rearing (ZRCS 2016).

In its implementation of activities, the Zambezi River Basin Initiative adopted a field demonstration strategy. In following this approach, the departments of agriculture, veterinary science and meteorology offered technical knowledge and skills in agriculture and weather patterns, through training. Through the department of agriculture, lead farmers were trained, and they, in turn, trained community members by way of demonstration fields. They used these field demonstrations to share knowledge and skills to foster community resilience towards disasters through the implementation of food security and livelihood initiatives. After training, agricultural inputs, such as maize seed and cowpeas, for upper-land crop production and vegetable seeds, such as cabbage, tomato, rape and Chinese cabbage, were distributed to beneficiaries, as well as insecticides, herbicides and water pumps (ZRCS 2016). Additionally, goats and chickens were given to beneficiary farmers as starter packs.

Positive impacts of the Zambezi River Basin Initiative

The use of the demonstration fields and the lead-farmer strategy in the Zambezi River Basin Initiative promoted the adoption of the best food livelihoods and security practices among the vulnerable farming households in Sesheke and Kazungula communities. This was evidenced by the high number of beneficiaries who replicated the skills they learnt from the demonstration fields and applied them to developing their household fields and gardens.

The training of beneficiaries on the usage of seasonal calendars to aid early planting of seeds and anticipate droughts or floods helped to increase awareness and prediction of looming dry spells (drought) or floods and to develop drought-coping strategies when needed (IFRC 2013). These skills empowered communities to grow a variety of crops that were drought or

flood resilient. The Zambezi River Basin Initiative aided many vulnerable farmers living along the river basin to develop community resilience against disasters which ultimately enhanced household food security.

Most beneficiaries adopted the use of organic manure to improve their soil and enhance its fertility which made their crops grow well and ultimately increased their yields significantly (World Bank 2013). As a result of the increased yields and harvests, families of the benefiting households were able to eat three meals a day.

Lessons learnt from the Zambezi River Basin Initiative

Partnership with the government stakeholders at a district level helped to institutionalise the programme and ensured continuous quality technical support. This was evidenced by several joint capacity building meetings and programme monitoring (conducted by Red Cross with government stakeholders).

The linking of the livestock and crop management programme to agricultural best practices and disaster preparedness presented an all-inclusive tactic of ensuring that food security and livelihoods were sustainable and resilient to unexpected shocks on the basins of the Zambezi River.

Training of the beneficiaries offered them competencies to take care of their livestock and cultivate crops to realise the maximum benefits of engaging in such ventures, as well as coping with the drought. This way, households became independent and continued the programme by themselves even after the expiry period of support from the Zambia Red Cross Society, thus, ensuring its sustainability.

Comparisons of food security programmes: Malawi, Rwanda, Ethiopia, and Zambia

All the food security programmes in the four countries (Malawi, Rwanda, Ethiopia, and Zambia) discussed above showed some positive achievement in line with the purposes (enhancements of sustainable household food security) for which they were designed in the respective countries and communities, though, with varying levels of success. Although all the programmes discussed encountered different challenges in the administration process due

to the countries' socio-economic and environmental settings, as discussed above, generally, the food security programmes made a positive difference in the lives of the benefiting household members.

Similarities and differences in the implementation of food security programmes

Generally, there were more similarities than differences in the manner the food security programmes discussed above were designed and implemented. Below are some of the similarities and differences:

- All the four programmes were designed to enhance household food security for vulnerable households which ultimately would lessen community poverty using different strategies.

- Implementers of the food security programmes discussed in this section worked in close collaboration with government institutions at local levels (areas of implementation). These partnerships with the local government stakeholders helped to institutionalise the programmes, ensured continuous quality technical support and developed a sense of ownership of the programme by the locals that ensured the sustainability of the programmes.

- All the food security programmes discussed in this section used the livelihood diversification approach to ensure the sustainability of food security both at household and community levels, although the emphasis of expected agricultural outputs differed in some cases. For instance, Malawi's integrated food security pack in Mwanza district supported projects in small-scale irrigation to grow maize and vegetables, goat and pig rearing, beekeeping, and fish farming, while Rwanda's cow rotation initiative aimed at providing herds of cattle, pigs, goats, rabbits and other livestock to targeted communities. Ethiopia's integrated food security development programme supported projects in crossbreed cows, beehives and poultry, training in cattle fattening, fruit and vegetable production, whereas, Zambia's Zambezi River Basin Initiative supported projects in vegetable gardening, maize and cowpea cultivation, and goat and chicken rearing. Although the designs of the programmes differed, they were all intended to

promote sustainable household food security.

- All the four food security programmes discussed in this section focussed on training/capacity building of the beneficiaries. This offered beneficiaries competencies to maximally implement their projects, realise the maximum benefits of engaging in such ventures and enabled them to continue the programme by themselves, thus, ensuring its sustainability.

2.5 Theoretical framework

The theoretical framework supports the theory of a research study (Swanson 2013). Bogdan and Bilken (1992) explain that theories explain, predict and understand events, and challenge and expand current information. A theoretical framework introduces and describes the theory of the research problem under study (Pollock 1986). The Sustainable Livelihood Framework is used in this study alongside the Food Security Learning Framework. These two frameworks used to analyse the government agricultural food security pack programme in Mpulungu district of the Republic of Zambia are supported by the Theory of Change.

2.5.1 The Sustainable Livelihood Framework

This study used the Sustainable Livelihood Framework (SLF) shown in Figure 2.1 below, which is also an analytical framework. The SLF is a Livelihood Approach which the study adopted because it puts vulnerable people and their means of living at the centre of discussion. Serrat (2008) explains that a Livelihood Approach is a system of reflecting on the objectives, scope and priorities for the development agenda. It centres on the way that underprivileged and vulnerable people live, as well as the significance of policies and institutions.

The Livelihood Framework offers an all-inclusive and multifaceted approach to comprehending how citizens earn a living. It is a flexible guide that can be used to understand issues of livelihood (Kanji, Macgregor & Taco 2005). Livelihood Approaches emphasise the understanding of the setting within which people live. The Livelihood Approach takes into

account the following:

1. Assets accessible to the households;
2. Livelihood strategies households pursue in light of the prevailing policies and institutions; and
3. Livelihood outcomes households intend to achieve (Department for International Development 2000).

The significant elements of analysis of the Sustainable Livelihood Framework are:

> "i) vulnerability context; ii) livelihood assets of households consisting of five categories of livelihood capital; iii) transforming structures and mediating processes which influence access to livelihood assets; iv) livelihood strategies adopted by households comprising of activities facilitated by the interaction of assets and opportunities; and v) livelihood outcomes" (Adato & Meinzen-Dick 2002:21).

2.5.1.1 Vulnerability context

The vulnerability context encompasses the seasonal implications and shocks that influence families' livelihoods in households that are not controlled in the short and medium term by the inhabitants (Department for International Development 1999). In this research, the vulnerability context that includes the effects of climate change, such as drought, floods, crop pests, etc., affects the vulnerable, but viable, small-scale farmers in Mpulungu district.

In reference to Figure 2.1 below, Soussan, Blaike, Springate-Baginoki and Chadwick (2000) explain that it is the unpredictable effects of climate change, such as droughts, floods, crop pests, et cetera, that affect livelihoods. These shocks, mentioned above, can destroy the assets of the poor farmers. Ellis (2000:290) argues that they also deplete assets as a result of sales and disposals made to cushion consumption in times of disasters.

Figure 2.1 below shows the Sustainable Livelihood Framework indicating the connections of the elements mentioned above.

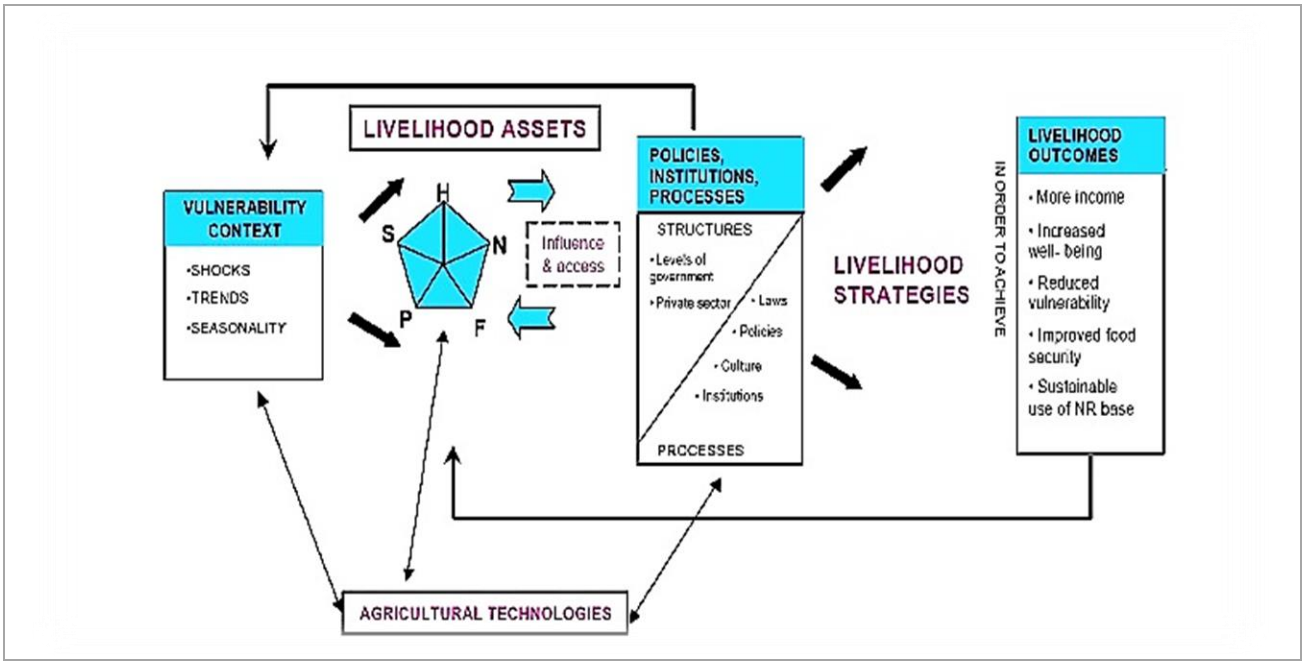

Figure 2.1: The Sustainable Livelihood Framework

(Source: Department for International Development 2001)

2.5.1.2 Livelihood assets

The household assets named by the Pentagon in the Sustainable Livelihood Framework are essential components of a household's livelihood resources needed for livelihood strategies (Jansen, Pender, Damon & Schipper 2004). Ashley and Chancy (1999) observe that agricultural intensification can combine access to natural capital, such as land, with economic capital, such as technology or credit, and social capital, for example, social networks connected to labour sharing. The Livelihood Approach is primarily concerned with people therefore an understanding of their assets or capital endowments is critical to analysing how they can transform their assets into livelihood outcomes (Bezemer & Lerman 2002). Scoones (1998) argues that the institutional processes entrenched in formal and informal institutions, which facilitate such strategies, can affect their outcomes.

Livelihood assets are resources that people utilise to fulfil their livelihood strategies (Farrington & Ramasut 2002; Messer & Townsley2003). The household members combine their skills, knowledge and capabilities with the different resources at their disposal to make

activities that will permit them to realise the most favourable livelihood for themselves. As an example, Demeke, Keil, and Zeller (2011:198) mention that most small-scale farmers use livestock, such as cattle, goats, pigs and chickens as their livelihood assets in rural areas. Livestock rearing and income realised from the sales assist in reducing household food insecurity among small-scale farmers. Demeke et al (2011:199) assessed the factors that determined household food security in rural parts of Ethiopia, employing the food security index. Their study results show that households that had ownership of livestock were less prone to household food insecurity than households that had no livestock.

Similarly, Mango, Zamasiya, Makate, Kefasi and Siziba (2014:651) investigated the factors that influenced the household food security of small-scale farmers in Zimbabwe. They discovered that livestock ownership and income enhanced household food security. The outcome of the two studies mentioned above is supported by the study conducted in sub-Saharan Africa by Hetherington, Wiethoelter, Negin and Mor (2017:9) whose results revealed that livestock ownership is linked with improved food consumption. In contrast to the findings of this study, Silvia, Douxchamps, Kristjanson, Förch, Radeny, Mutie, Quiros, Herrero, Ndungu and Ndiwa (2015:23), who examined the determinants of food security at farm household level in Tanzania, Uganda and Kenya, established that livestock ownership did not influence the improvement of household food security.

Chambers and Conway (1992:61) categorise livelihood assets into tangible, which are stores and resources, and intangible, which are material, moral or practical support and opportunities to access them. The Department for International Development (2000) classifies livelihood assets into six groups, namely, human, social, natural, physical, economic and political, as explained below.

Human capital (H)

A household's human capital consists of those individual characteristics of its members, both quantitative and qualitative, that support them to bring about their much-needed income. These include skills, knowledge, ability to labour and good health, which are important to achieve households' livelihood objectives (Department for International Development 2000;

Scoones 1998). Bezemer and Lerman (2002:43) point out that the most important "characteristics of human capital are: age, education, gender, health status, household size, dependency ratio, and leadership potential". This study examines some of these vital human capital characteristics in Chapter Four.

Physical capital (P)

Physical capital is made up of the basic infrastructure and production of goods that promote livelihood (Department for International Development 1999). These entail adjustments to the physical environment that assists households to fulfil their basic needs and be more productive. Bezemer and Lerman (2002:44) identify the following elements of infrastructure for sustainable livelihood: "affordable transport, secure shelter and buildings, adequate water supply and sanitation, irrigation machinery, affordable energy and access to information (communications)".

Social capital (S)

Social capital in the context of the Livelihood Framework denotes the social resources which households use to meet livelihood objectives (Messer & Townsley 2003). These are exploited through networks and connectedness, either vertical (patron/client) or horizontal (among individuals with shared pursuits) that encourages people to do work collectively and broaden their right of entry to vital institutions. Some examples of social networks and connectedness are membership of political or civic bodies that have mutually agreed or recognised norms, rules, sanctions and relationships of trust, and mutual benefit (Department for International Development 2000).

Financial capital (F)

Financial capital represents the financial resources that households make use of to realise their livelihood objectives (Department for International Development 1999). It consists of the availability of cash or its equivalent that allows households to adopt various livelihood strategies (Kollmair & Gamper 2002). Bezemer and Lerman (2002) stress that sources of financial capital comprise household savings, credit (borrowing) and remittances received from family members working outside the home. Financial capital is key to the agricultural

productivity of the vulnerable, but viable, small-scale farmers, as this allows them to acquire goods and services, such as fertilisers, crop seeds, pesticides, the hiring of farm labour, transportation of surplus produce to markets, among others.

Natural capital (N)

Natural capital in the confines of the Sustainable Livelihood Framework is taken to be those "natural resource stocks, from which resources and services that are helpful for livelihood are stemmed" (Department for International Development 1999:23). Bezemer and Lerman (2002) point out that there is an extensive variation in the resources that constitute natural capital. This variation ranges "from intangible public goods such as the atmosphere and biodiversity to divisible assets exploited directly for production", such as trees, land, rivers, lakes and wildlife, among others (Department for International Development 1999:25). Natural resources are found in every environment, including where small-scale farmers live and conduct their agricultural activities.

Political capital (P)

Kollmair and Gamper (2002) believe that poor households' access to rights is through the concept of political capital which is the ability to use influence in supporting political or economic standpoints to augment livelihoods. It is argued that political capital represents both the lawful dissemination of rights and power, as well as the illegal operation of power, which frustrates efforts by poorer households to access and safeguard entitlements and make use of them to accumulate capital assets (Bezemer & Lerman 2002).

2.5.1.3 Policies, institutions, and processes

These are arbitrating components. Institutions, policies and processes arbitrate rural households' access to resources (Department for International Development 1999). Scoones (1998) postulates that institutions are the social adhesive that provides linkages between stakeholders and various forms of capital to be used as the means of exercising power to define the entry onto the path of positive or negative livelihood adaptation.

2.5.1.4 Livelihood strategies

The concept of livelihood strategy has rapidly developed in recent years (Brown, Dillabough & Halsey 2006:51). Researchers, policymakers and other development practitioners study the range of activities engaged in by underprivileged households as a way of engaging in productive poverty reduction strategies that take into account the diversity of these activities (Jansen et al 2004). Lovendal et al (2004:39) believe that the framework can be used in a variety of different scales, such as individual, "household, cluster, extended kin grouping, village, region or even nation, with sustainable livelihood outcomes measured" at various levels.

According to the Department for International Development (1999) report, the terminology "livelihood strategies" is explained as the collection and amalgamation of activities and choices that households craft to realise their livelihood aspirations. These, among others, include: investment strategies, reproductive choices and productive activities. These choices are the ways that households utilise their assets, and as such, they are part of household behaviour. Ellis (2000:301) further explains that livelihood strategies are made up of "activities that produce the means of household survival, and are planned activities that households undertake to shape their livelihood". Livelihood strategies embrace how households put together the following:

> "1) their income-generating activities; 2) the system they employ to make use of their assets; 3) types of assets they choose to invest in, and 4) how they manage to maintain existing assets and income" (Department for International Development 2001:18).

Livelihood strategies are understood as the strategies that households ordinarily use to acquire basic needs that contribute to future human comfort (Ellis 2000:301). Livelihood strategies are also the result of a household's objectives and choices. Farrington and Ramasut (2002) stress that livelihood strategies are influenced by individual and cultural preferences. For instance, some households rely on remittances as a strategy to enhance their livelihood. In this context, a remittance is money sent by a worker in another country to an individual or family in their homeland. Thow, Fanzo and Negin (2016:55) explain that remittances solve an array of household demands, such as enhanced household food security, as observed from previous

studies conducted in developing countries. For example, Generoso (2015:192) conducted a study on the effects of remittances on household food security in rural areas in Mali. The results of this study showed that households that received remittances had improved household food security in the Saharan zone compared to those with no remittances even though the benefit was impermanent. Similarly, Fransen and Mazzucato (2014:63) carried out a study in Burundi with a focus on remittances and household wealth for post-conflict households. The outcome of the study showed that remittances improved poor households' finances and ultimately the household food security status. On the other hand, it was established that remittances did not affect household food security to households that belonged to wealthier groups.

Likewise, the study by Thow et al (2016:57) focusing on the effects of remittances on nutrition and diets discovered that households that received remittances had reduced vulnerability, improved food consumption, and enhanced food security.

2.5.1.5 Livelihood outcomes

Livelihood outcomes are the achievements of livelihood strategies, such as "more income, increased well-being, reduced vulnerability, improved food security and more sustainable use of natural resources" (Scoones 1998:23). Singh and Gilman (1999:101) argue that outcomes explain the outputs of the existing configuration of factors contained in the livelihood framework. Outcomes demonstrate the motivation and show the priorities that stakeholders have as they do their work. They give policymakers, researchers and planners ideas on how households are expected to react to new opportunities and which performance indicators must be used to access support activities. These outcomes directly impact on the assets (Department for International Development 2000).

2.5.1.6 Livelihood strategies and food security linkages

In the context of food security analysis, the most significant facets of livelihood are the ways by which households produce food for themselves and the channels by which they earn income to purchase food from others. Figure 2.1 presented above takes into consideration the livelihood assets available for the households and policies and institutions that direct their

decisions towards what are the most suitable livelihood strategies to take for livelihood outcomes, such as food security, which is the subject of this study.

Food insecurity is the outcome of poor livelihood strategies (Messer & Townsley 2003). Devereux, Baulch, Hussein, Hoham, Sida and Wilcock (2004:19) indicate that the livelihood analytical framework has great potential to "generate improved approaches to understanding poverty and food security". As illustrated in Figure 2.1 of the analytical framework, links "between livelihood strategies and improved food security are what scholars call livelihood strategies the rural households" engage in (Scoones 1998:25).

An analysis of the food security of a livelihood group will identify possible interventions for that group to secure needs or well-being (Tesfaye 2003). The nutritional status captures factors such as access to food, healthcare, and education (Ellis 2000:301). As a result, a Livelihood Approach to food security assessments has caused a widening of horizons. Young, Jasper, Brown, Frize and Khogati (2001) ascertain that a Livelihood Approach recognises the existence of various risks and the need for dealing with life-threatening situations.

A Livelihood Approach to the analysis of food security has several benefits. It offers a practical and effective means for the measurement and management of Rights-Centred Approaches to lessen food insecurity (Department for International Development 1999). It also focuses on a wide range of interventions to encourage diversified non-agricultural livelihood strategies and the sharing of an assortment of resources that intensify food security (Young et al 2001). It needs to, firstly, understand households' experiences of hunger and its connection to food insecurity and, secondly, the constraints and opportunities of their livelihoods before coming up with interventions (Hussein 2002).

Carney, Drinkwater, Rusinow, Neefjes and Singh (1998) state that Livelihood Approaches understand the multifaceted interrelationships that inspire livelihood strategies, and ultimately provide food security. They investigate the access to food, its nutritional value, the amount of food utilised and sources of extra income. Livelihood Approaches stress the need to understand the factors affecting livelihoods in order to bolster the availability, access and utilisation of food (Devereux et al 2004).

Rural households' livelihoods depend on various factors, such as level of education and local knowledge, ethnicity, stage in the household life cycle and social-economic status (May, Brown, Cooper & Brill 2009). Even within the same locality, there are differences between the strategies of households due to their social-economical backgrounds that include their access and size of their land (Bagchi et al 1998:559). The analysis of livelihood diversification opportunities existing in the rural areas involves their productivity and the returns from these undertakings, especially for poor households. Additionally, it includes ways to increase productivity and returns or to change to activities that provide higher returns (Devereux 2000).

The choice of livelihood strategies influences food insecurity among rural households (Brock 1999). The choices of livelihood strategies can include households that engage in similar livelihood strategies grouping together permitting policymakers to target households with specific shared characteristics (Murray 2000:121).

To analyse food security as an outcome of livelihood strategies in the Sustainable Livelihood Framework adopted in this study, the study supplemented it with the Food Security Learning Framework explained in detail below.

2.5.1.7 Strengths and weaknesses of the Sustainable Livelihood Framework

The Sustainable Livelihoods Framework adopted in this study to investigate the effect, capacity and challenges of the food security pack programme in Mpulungu district had some advantages but also raised some methodological and practical issues. This implies that the framework had its strengths and weaknesses in usage, though the strengths outweighed the weaknesses, hence, its adoption.

Strengths

In this study, the Sustainable Livelihoods Framework identified the variety of activities that beneficiaries of the food security pack programme undertook in addition to the agricultural activities they carried out with the support from the programme to enhance household food security. This proved the argument that vulnerable small-scale farmers rely on the combined effects of many different types of economic activities for their livelihoods.

The Livelihood Approach drew attention to the multiplicity of assets that vulnerable small-scale farmers made use of when constructing their livelihoods thereby producing a more holistic view on the combination of resources that were important to them, including physical and natural resources, and social and human capital. It also facilitated an understanding of the underlying causes of poor and good harvests by focusing on a variety of factors, at different levels, that directly or indirectly determined or constrained the food security pack beneficiaries' access to different resources/services.

By focusing on how the vulnerable small-scale farmers develop their livelihood strategies to achieve certain outcomes in response to a particular "vulnerability context", the Sustainable Livelihood approach made it possible for the researcher to see how the poor were active decision-makers, not passive victims, in shaping their livelihoods. This was important for designing support activities that would build on the strengths of the vulnerable small-scale farmers. Also, the approach allowed for a more dynamic perspective on livelihoods, since the vulnerable small-scale farmers' strengths may have changed over time as their strategies changed in response to either personal or external circumstances. The Livelihood approach facilitated an understanding of the linkages between the vulnerable small-scale farmers' livelihood strategies, and their household food security status to understand both the problem and the scope for promoting household food security at the local level.

Lastly, the Sustainable Livelihood Framework offered an appropriate basis for investigating the socio-economic effect of the food security pack programme whose overall objective was the enhancement of household food security. The approach provided a more realistic framework for assessing the direct and indirect effects of the food security pack programme on the households of vulnerable small-scale farmers.

Weaknesses

The adoption of a Sustainable Livelihood approach raised some difficult methodological and practical issues that showed its weaknesses that included the identification of the poor, analysing the social relations of poverty, the reality of programme planning and sectoral biases, capacity requirements and the risk of donor dominance (Serrat 2008).

Weakness in the identification of the poor

The rationale behind the Sustainable Livelihood approach is to deal with poverty alleviation through food security. Food security is a multi-faceted phenomenon that cannot simply be reduced to the availability of food without taking into consideration other ingredients such as nutritional value, among others.

Communities usually do not represent homogeneous collective social units as most food security programmes tend to assume. In every community, some people are better off than others, and it is this social or economic difference that is not clear to an outsider. The poor are living side by side with more affluent households but none of the Sustainable Livelihoods Approaches tackle the issue of how to identify the poor as a necessary prerequisite for targeting interventions (Jansen, Pender, Damon & Schipper 2004). Usually, in the Sustainable Livelihood approaches, what constitutes poverty and who the poor are in a locality are established in advance, instead of emerging in the process of analysing livelihoods according to the framework.

Scrutinising the social relations of poverty

There is a problem in scrutinising the social relations of poverty using the Sustainable Livelihood approach, that is, where relations of inequality and power maintain and reproduce poverty at the local level. There is no emphasis on transforming the structures and processes that can "transform" livelihoods in ways that provide better opportunities for the poor. The process is complicated because informal structures of social dominance and power within communities influence people's access to resources and livelihood opportunities and these inequities are often invisible to outsiders (Kanji, Macgregor & Taco 2005). Also, the participatory approaches are not a suitable method in this context because they are inevitably carried out in a "public event" where people are usually reluctant to discuss sensitive matters such as power and influence in their community. Besides, such participatory exercises often involve the community leaders who form part of the local communities.

The reality of programme planning and sectoral biases

The basic idea of the Sustainable Livelihood approach is to start with a broad and open-ended analysis of the constraints in poor people's livelihoods, to identify the most relevant and effective entry points for interventions, independent of sectors or levels of action (Kanji et al 2005). However, this is often not the case, as the planning of developmental programmes seldom starts from a "blank sheet"; more often they build upon earlier support to a sector. Mostly, the Sustainable Livelihood approaches are shaped by strategic priorities and detailed sector plans developed by the counterpart ministries of the recipient country which, in most cases, set limits to the kind of issues or areas of activity that the prospective funder might support (Serrat 2008). Besides this, donor agencies, as well as government ministries, are usually organised by sector, and the planning process is biased by whichever donor or ministry is responsible for administering the programme.

These and many more are some of the weaknesses of the Sustainable Livelihood approaches. However, despite the weaknesses attributed to the Sustainable Livelihood approaches associated with the methodological and practical issues, there has been substantial progress in applying the approaches in various developmental contexts. The approaches have been used in a variety of ways and circumstances to enhance the focus on the priorities of the poor. This is because they offer a practical way of bringing together existing concepts and lessons with new ideas about the nature of poverty and how best to address vulnerabilities at the large scale required for the achievement of poverty alleviation. Many users have expressed the view that the livelihood approaches represent a useful contribution to their work, a way of reinforcing best practice and focusing on core development issues.

2.5.2 The Food Security Learning Framework

Along with the Sustainable Livelihood Framework explained in detail in section 2.5, sub-section 2.5.1, this study also uses the Food Security Learning Framework (FSLF). The M&E Harmonization Group of Food Security Partners (2013:11) explains that the FSLF deals with the different approaches of fostering food security and the improvement of food security around the world by determining priorities for aligning resources (Valters 2015).

The M&E Harmonization Group of Food Security Partners (2013:13) outlines eight themes under the Food Security Learning Framework that are vital to the attainment of food security. The FAO (2012:12) summarises these themes as:

1. Improved livelihood, with a focus on agricultural productivity;
2. Increased resilience of susceptible populations;
3. Enhanced research, agricultural innovation, and commercialisation of nutrition;
4. Expanded value chains and marketplaces;
5. Improved policies and institutions for food security;
6. Enhanced nutrition and dietary quality;
7. Augmented controlling of natural resources and adaptation to climate change; and
8. Improved gender equality and women's empowerment.

The relationship of the themes outlined above with food security is causal in the Food Security Learning Framework. Valters (2015:27) argues that, besides the above themes, other themes have been identified to deal with "the evidence gaps or questions under each dimension". They are:

1. Inclusive agricultural growth;
2. Social, economic and environmental sustainability;
3. Employment generation;
4. Local capacity-building; and
5. Empowerment and equality.

The Food Security Learning Framework recognises that a lack of evidence is not the only impediment to improved development planning and implementation. Decision-makers should position their decisions that relate to policies and funding of food security programmes/projects to guarantee the "promotion of the best possible development practices known to the sector" (M&E Harmonization Group of Food Security Partners 2013:14). Hence, this study was done using the Food Security Learning Framework by asking the following compound primary research questions:

> "Does the government-financed agricultural food security pack programme improve household food security among the vulnerable, but viable, small-scale farmers in

Mpulungu district of Zambia? If it does, to what extent? If it does not, what are the challenges and how can they be addressed?"

To ensure the realisation of food security, researchers and organisations can build on the "design and management of agriculture, economic growth and nutrition" using the Food Security Learning Framework (Valters 2015:31). This relates to the last part of the general research question which is dealt with in the recommendations in Chapter Five.

2.5.2.1 The theoretical foundation of the Food Security Learning Framework (FSLF)

The Food Security Learning Framework draws its strength from the "theories of change that work towards improving food security" (M&E Harmonization Group of Food Security Partners 2013:16). The FSLF "shares a common understanding of the broader connotation of food security" (M&E Harmonization Group of Food Security Partners (2013:17). Swanson (2013) explains that a feasible framework requires that researchers or organisations share a mutual understanding of the overall significance of food security and strategies to enhance it.

The Food Security Learning Framework uses the definition of the "food security" concept adopted in this research as advanced by the FAO (2002:3) that states that "food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". The FSLF also endorses the four critical elements of food security defined by USAID (2002:8). The food security elements are explained in detail in sub-section 2.2.1.3 of section 2.2. They are:

- Food availability: Adequate food quantities being produced by household, output from other domestic fields, food aid or food imports;
- Food access: Sufficient means to acquire suitable foods for a nourishing diet, which relies on available income to the family and the sharing of income within the family of the food costs;
- Food utilisation: Appropriate natural food use, needing a diet that provides enough energy and vital nutrients, drinkable water and sufficient sanitation, coupled with knowledge within the household for the storage of food and handling techniques,

elementary principles of diet and appropriate care of children and management of sickness; and

- Food stability: This implies household or individual access to decent and enough food all the time.

The components of food security mentioned above "cut across all areas of food security programming and undergird the adopted Theory of Change", in which the Food Security Learning Framework is rooted (Valters 2014:14).

The M&E Harmonization Group of Food Security Partners (2013:33) elucidate that the Food Security Learning Framework acknowledges "the work of the Global Donor Platform for Rural Development, which indicates that the agricultural transformation that can stand the test of time can be accomplished through the following three options for small-scale farming: stepping up, stepping out, and hanging in". According to Valters (2014), "stepping up" involves putting the fundamentals in place, boosting innovation and inspiring farmers to focus on demand and market systems. "Stepping out" stresses the rural, non-farm economy and migration as a source of income through remittances while "hanging in" emphasises advice-giving services for small-scale farmers to minimise risks.

2.5.2.2 Strengths and weaknesses of the Food Security Learning Framework

The Sustainable Livelihood Framework used in this study had some inspirational strengths that the researcher focussed on to conduct this study but there were also some weaknesses that were associated with this framework. Below are highlights of some strengths and weaknesses of the Sustainable Livelihood Framework.

Strengths

The Food Security Learning Framework draws much strength from the eight dimensions outlined in section 2.5.2 that are important for the attainment of food security as advanced by the M&E Harmonization Group of Food Security Partners (2013:13). From these eight dimensions, the study adopted four of them that are directly linked to this study, namely, 1) Improved livelihood, with a focus on agricultural productivity; 2) increased resilience of susceptible populations; 3) enhanced research, agricultural innovation, and commercialisation

of nutrition; and 4) improved policies and institutions for food security.

- The first dimension aspires to show how best to plan and execute projects/programmes that can support the enhancement of availability of food and subsequent access to it through agricultural production and productivity. This dimension was found to be in line with the purpose of this study. Through this dimension, the study engaged with the food security pack beneficiaries to solicit their views on how best they thought the programme could be effectively administered and managed.

- The second dimension, which cuts across other dimensions, looks at ways in which households, communities, and nations can become resilient to shocks. Of interest to this study from this dimension was the "household" which was the unit of study in this research. Using this dimension, the study established what the food security pack beneficiaries perceived to be the challenges of the food security pack programme, as well as their perceived solutions to the challenges. Also, the study established other economic activities that the beneficiaries of the food security pack programme were engaged in other than those supported under the programme in case of shocks.

- The third dimension advocates for agricultural research and innovation which is critical to the enhancement and sustenance of agricultural production and productivity that have a direct bearing on household food security. In light of the effects of climate change revealed by research participants, this dimension was useful to make recommendations on agricultural research and innovations.

- The fourth dimension used in this study calls for improved policies and institutions to enhance household food security. This dimension showed that the recommendations made by this study may improve upon already existing government policies on food security programmes aimed at enhancing household food security in the future.

In addition to the above four dimensions of the Food Security Learning Framework, the study also found strengths in the following area of the framework:

- The compatibility of the Food Security Learning Framework used side by side with other frameworks was an advantage for this study as the focus of the Food Security Learning Framework is on the attainment of sustainable food security which is an outcome in the Sustainable Livelihood Framework also used in this study. Also, the Food Security Learning Framework draws its strength from the "theory of change" that works towards improving food security, which was adopted in this study.

- The use of the definition of the "food security" concept by the Food Security Learning Framework, as advanced by the Food Agriculture Organization (2018:159), that was adopted in this study which states that "food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" was advantageous for the adoption of the framework in this study.

- The endorsement of the four critical elements of food security by the Food Security Learning Framework, namely, food availability, food stability, food access, and food utilisation, strengthened the framework used in this study because these elements are part of the literature review component of this study.

Weaknesses

In contrast to the advantages of the Food Security Learning Framework presented above, the researcher also acknowledges some weaknesses. These dimensions are 1) improved livelihood, with a focus on agricultural productivity; 2) increased resilience of susceptible populations; 3) enhanced research, agricultural innovation, and commercialisation of nutrition; and 4) improved policies and institutions for food security.

- In the first dimension, the disincentives in the agricultural sector hamper the acceptance of better practices and the use of modern technology aimed at enhancing agricultural productivity (Valters 2015:27). Valters (2015:28) explains that these disincentives comprise weak institutions and market failures vis-à-vis access to finance, and poor market infrastructure.

- For the second dimension, there is an inherent tension between efforts to enhance productivity, on one hand, and efforts to lessen risks, on the other. Agricultural investments in risk mitigation, such as index-based insurance for crops or livestock and productive safety nets that permit vulnerable people and households that are food-insecure to adopt greater risks are mostly untested (FAO 2012:115).

- The third dimension is that there is insufficient research done to generate and develop information flows between researchers and communities as users to make clear research objectives and inform research design and validation (Valters 2015:26). Several unanswered queries linger around innovations that are most efficient and effective at enhancing agricultural productivity whilst mitigating some negative effects on the resource base (Valters 2014:14).

- The fourth dimension advocates for improved policies and institutions for the enhancement of food security. The disproportionate influence of a class of stakeholders on institutions and public policies in the agricultural sector point to the weakness of institutions and institutional arrangements that assist in efficient policymaking and execution. The M&E Harmonization Group of Food Security Partners (2013:33) explains that mutual consensus is required on the suitable institutional architecture vis-à-vis the rules and frameworks that govern how policies are made and who participates in the policy process (FAO 2012:114). Also, issues such as gaining access to "public resources and services, control over productive assets, regulation and market failure, and the nature of the institutions that govern the agricultural sector are contentious under this dimension" (M&E Harmonization Group of Food Security Partners 2013:22).

2.6 Theory of Change

This study used the Theory of Change that supports the two theoretical frameworks adopted in this research, namely, the Sustainable Livelihood Framework and the Food Security Learning Framework which are explained in section 2.5. Therefore, this segment explains the

Theory of Change, the evolution of the theory, existing debates around it and how the Theory of Change is used in this study.

2.6.1 The definition of a Theory of Change

Weiss (1995:51) defined the Theory of Change as "a theory of how and why an initiative works". James (2011:23) explains a Theory of Change as "an ongoing process of reflection to explore change and how it happens – and what that means for the part we play in a particular context, sector, and group of people." Vogel (2012) adds that a Theory of Change is premised on both how a change in a given set-up takes place, and what ongoing task individuals and organisations can perform.

The definitions advanced above by Weiss (1995:51), James (2011:23) and Vogel (2012) are appropriate to answer the research questions of this study. The study explored changes that had taken place in the lives of the household members of the food security pack beneficiaries and how those changes happened. Also, it examined the roles that stakeholders played in the execution of the programme to realise the goal of the food security pack programme.

2.6.2 Evolution of the Theory of Change

The evolution of the Theory of Change involved evaluation and determination of the linkage between practice and the environment in which the programme operates (Weiss 1997). As regards the evaluation viewpoint, the Theory of Change embraces programme analysis or programme theory which brings together presented evidence about a programme, and clarifies areas of agreement and disagreement on how the programme is perceived to work, and the associated gaps to be addressed (Valters 2014). "Programme analysis" is precisely what this study aimed at as evidenced by its title: "Analysis of government agricultural food security pack programme: The case of Mpulungu district, Northern Province, Zambia". In the area of development, the Theory of Change also produced the tradition of rational planning paradigms, such as the Logical Framework Approach initiated from the 1970s onwards (Valters 2015).

Theories of Change started with the United Kingdom's Department for International Development, are now becoming obligatory for implementing agencies to present to donors in the relief sector/industry as a standard constituent of programme design (Wigboldus & Brouwers 2011). The system's purpose is to question assumptions about how change happens. In this regard, there is a difference between a Theory of Change as an official document and as a broader approach to development work. Stein and Valters (2012) believe that a Theory of Change is an accurate planning tool.

2.6.3 Theory of Change: Current debates

Retolaza (2011:37) argues that "Theories of Change helped the Asia Foundation think more critically about how power shapes aid and maintains the status quo." A study by CARE International on a selection of peacebuilding established that Theories of Change could shed light on project logic and address unsatisfactory assumptions, detect the disparities between domestic and national level changes, put emphasis on the necessity for conflict analysis and heighten conflict sensitivity (CARE International UK 2012). Vogel (2012) explains that Theories of Change offer a flexible option for working with log-frames for multifaceted programmes and contexts. However, a concern is that many development practitioners feel they have witnessed many kinds of problems associated with project/programme before, and apply a casual approach to tackling some development challenges that the programmes present, and they are quick to go back to the planning table for review if things are not in their favour.

There are lessons to be learned in the practical concern stated above about the Theories of Change approach. Continuously changing approaches to analysing change can generate lethargy in development practitioners. This viewpoint highlights the manner in which many of the difficulties with Theories of Change are viewed to be not unique to the tool but are found throughout development policy and practice and often linked to the pressures brought on by the intersecting power relations among project/programme administrators. While there are thought-provoking studies, very little exists regarding how organisations use Theories of Change and the results of development processes, policies and practice. As demonstrated by

the World Bank (2015:37) “understanding the dynamics of their use in a particular organisational context may allow us to reframe artefacts, or guide (more) intelligent adoption of the results/evidence of agenda”.

Stein and Valters (2012) further stress that the Theory of Change has become a discourse – an acceptable development practice to ask what the Theory of Change is for a particular line of thought in meetings and seminars. The wide acceptance of the Theory of Change in development practice hinges on how and why a particular intervention is going to work in a particular setting. Stein and Valters (2012) argue that a Theory of Change approach includes the use of a tool in some form, but is more extensive, mirroring a desire to entrench a critical and adaptive approach to development thinking and practice in organisational practice. As Stein and Valters (2012) point out, Theories of Change accomplish, among others, learning, accountability, communication, and strategic planning. An organisation, for instance, might make use of a Theory of Change as a means to relay their ambitions to funders, but also foster internal learning on programme strategy, which this study accomplished.

The confusion that surrounds Theories of Change is on how they relate to log-frames. Some programme administrators use both of them at the same time without harmonizing the content (Independent Commission for Aid Impact 2015). In theory, there is no justification as to why these two processes cannot be used at the same time. Nevertheless, Booth (2015:41) and Therkildsen (1988) argue that, realistically speaking, log-frames often reveal a plan or “control-oriented” project planning approach, while many Theories of Change advocate support for a more process-centred system.

Log-frames can be established on firmly well-defined inputs and outputs that reveal what is implementable. These need to be frequently reviewed (Booth & Chambers 2014). Substantial upfront investment in a Theory of Change approach through research is essential to ensuring that the approach is updated to fit in the contemporary world. The investment in the research mentioned above can be of help in guiding the completion of a flexible and simple log-frame (Retolaza 2011).

Irrespective of how Theories of Change are described and for what reason they are made use of, debates exist on how they ought to be visualised. Whereas most development practitioners accept that Theories of Change must be kept on record (documented) in some way, others question whether generating detailed diagrams is helpful. The risk here is that the spotlight lies on creating a Theory of Change instead of using it as a continuous process (Center for Theory of Change 2015). Complex diagrams might yield meaning to those involved, conceivably even a sense of accomplishment, but may be misleading to those who were not part of the process of formulating them because of lacking background and technical knowledge. In the end, if actors find drafting a diagram is helpful to guide thinking, there is no excuse not to make use of one. However, this procedure must be seen as a part of a broader Theory of Change approach embracing ongoing critical thought.

2.6.4 Importance of the Theory of Change

A Theory of Change, if used properly, can be useful in two linked ways. First, as a tool, it can offer development practitioners the "choice to unwrap the black box of assumptions concerning the change that is every so often put on the back burner" (Center for Theory of Change 2015:14). There is often much that development practitioners do not know concerning the contexts they work in, as such, Theories of Change influence them to solidly craft these knowledge gaps for reviewing (Wild, Booth, Cummings, Foresti & Wales 2015). Second, as an approach to development thinking and practice, it emboldens "ongoing critical reflection on both the specific (changing) context and how programme rationales and strategies fit into this" (Korten 1980:490). This resonates with present explanations in academic and policy circles that development work ought to be adaptive and take account of the political framework (Wild et al 2015). According to Rondinelli (1983), notions about an adaptive or process-oriented approach remain relevant particularly because these ideas grow into the mainstream in contemporary discourse. Discussed below are the Theory of Change key principles that guide and shape this study.

2.6.5 Key Principles of the Theory of Change

As development practitioners are making more use of Theories of Change in practice (Rowland & Smith 2014), the following four core principles have been developed to guide the

Theories of Change approaches (Funnel & Rogers 2011; Rogers 2008:33):

2.6.5.1 The principle of focusing on the process

Mosse (1998:6) argues that conventional programme management tools ignore "process elements" and handle projects as "closed, controllable and unchanging systems". Theories of Change challenge this notion, firstly, by drawing awareness to the often disregarded assumptions connecting project activities and outcomes and, secondly, by taking a more comprehensive "learning process" approach that is flexible and adaptive (Korten 1980:501).

A Theory of Change can record learning and adjust for it accordingly. For this to happen, documentation must not be erased (as in the case of log-frames) (Vowles 2013). To focus on processes, in the first place, external players can initiate a Theory of Change process and facilitate it in the longer term. The facilitation does not need an external consultant to put an institution's Theory of Change in writing; it requires an experienced person who can work with an organisation "through an action research approach to help co-produce a longer-term strategy that works with the Theory of Change in the organisation" as in this study (Mosse 1998:21). Secondly, the introduction of various flexible systems can inspire regular in-house engagement amongst programme staff. For instance, programme diaries encourage staff to write down changes in local settings, difficulties encountered, engagements with the main players, and potential plans for the programme, regularly. The information generated can then be fed into the programme strategy.

2.6.5.2 The principle of prioritising learning

Theories of Change can be used in line with what Pritchett, Samji and Hammer (2012:31) term "structured experiential learning" which build "learning objectives into the cycle of project design, implementation, completion, and evaluation". The process of formulating Theories of Change is used in "opening up the black box of causation between inputs and outcomes" (Valters 2014:18). If Theories of Change are to encourage learning, they must produce an evidence-based policy that overlooks donor narratives while searching for best practices that suit local settings (Pritchett et al 2012). A more comprehensive Theory of Change approach demands a resolute institutional commitment to thinking and learning

approaches, and strategic accountability.

Guijt (2010:66) argues that although learning and accountability are not necessarily in synchrony, official policies that recognise the significance of learning are often dismissed by bureaucracy and accounting systems that ask for evidence of results against predetermined targets. Maclay (2015:47) explains that for a "reflective and adaptive approach to become mainstream in Theory of Change approaches and indeed in development, more broadly understandings of what accountability and learning mean need to shift substantially". In other trades, administrators are praised for accepting changing circumstances, however, in development circles, this is presently not the case. Including accountability for learning may be a promising path but programmes should be held responsible for how much has been learnt over time, "how they have adapted to the latest information and why this adaption has been important for improved development outcomes" (Guijt 2015:53).

2.6.5.3 The principle of local-driven

Development tools and approaches are usually criticised for taking a top-down approach. Therefore, the Theory of Change, as a development tool, should offer something different.

Given that the use of the Theory of Change approach is growing in the area of development, there are prospects for introducing sound participatory principles to ensure that the local players are not left out of the monitoring and evaluation processes as is the case in other development tools (Aradau, Huysmans, Neal & Voelkner 2014). As Groves (2015:43) points out, by engaging local groups and beneficiaries in the process, the Theories of Change can be managed as "a stick with which to beat donors or funders, rather than the other way around". Even though it remains vital not to be naive about the transformational capability of a Theory of Change approach, it can be a resource for local players who can anticipate having their voices heard by the programme financier(s) that can be the government or the donor community.

Green (2015) adds that the inclusion of local players' voices shows a willingness to pay attention to real existing debate and discussion with partners and communities to bring the desired change. On a different level, there is now a well-recognised need to progress beyond

identification of gaps to obtain the feedback of beneficiaries "on the explicit and systematic application of that feedback throughout monitoring, learning and evaluation processes" (Cheng 1998:49). As such, the beneficiaries of the programme need to be consulted, at the beginning and during the Theory of Change process. Using this principle, the researcher consulted the beneficiaries of the food security pack and the key informants on issues in line with the research objectives and research questions through a researcher-administered questionnaire, interviews and focus group discussions, with outcomes presented in Chapter Four of this research report.

The process mentioned above was significant for two reasons. Firstly, when local views are excluded, Theories of Change risk falling into the trap of using externally driven narratives over changing the internal narratives (Stein 2013; Valters 2013). Secondly, the process ensures that a Theory of Change approach plays a part in locally-based development programmes, which is a significant factor in their success. Therefore, a consultative process from the onset can guarantee a programme and make sure that Theories of Change focus on local issues while, at the same time, "giving priority to local capacity and local leadership in the search for solutions to contextually identified problems" (Booth 2012:3-4). Cheng (1998:14) notes that "development programmes solve problems, but not those that are the priority of local communities". Valters (2013:37) asserts that there is no clear "relationship between bottom-up analysis and improved programming, but a genuinely participatory approach is a good springboard for realistic programming with associated Theories of Change".

2.6.5.4 The principle of think like a compass, not a map

Green (2015:16) explains that what more helpful than a roadmap is the concept of a "compass" that assists development practitioners to find their "way through the fog of complex systems, discovering a path as they go along". The concept of a "compass" is essential since the Theory of Change approach has to recognise that "social contexts and processes always change, with emergent issues, unforeseen risks and surprises arising throughout" (McGee & Gaventa 2010:15). This argument means that development practitioners do not know everything regarding development processes.

2.6.6 Strengths and weaknesses of the Theory of Change

Even though the study took advantage of some positive aspects of the Theory of Change in terms of what it means and how it is used, some concerns were raised against the theory used. The strengths and weaknesses associated with the Theory of Change are discussed below.

Strengths of the Theory of Change

The study took advantage of some positive aspects of the four principles of the Theory of Change that make it functional as outlined below.

- Through the principle of "focusing on the process", Theories of Change draw awareness to the often disregarded assumptions connecting project/programme activities and outcomes and take a more comprehensive "learning process" approach that is flexible and adaptive. Using this principle, the researcher established the changes brought about by the food security pack programme in the lives of the family members of the benefiting households as well as problems encountered in the process of the administration of the programme. All this was done through engagement with various stakeholders in the programme.

- Using the principle of "local-driven" advocates for engaging the local players in a given community about the issue at hand, the researcher interacted with the various players in the food security pack programme about how they thought the programme could be implemented effectively. This meant that a participatory and inclusive approach centred on unveiling local realities gave priority to the beneficiaries and non-beneficiaries as well as the key informants to provide solutions to contextually identified challenges of the food security pack programme. Therefore, the Theory of Change was used as a resource for the food security pack beneficiaries and non-beneficiaries that may not have expected to have their voices heard by the stakeholders.

  Drawing strength from the "principal of local-driven" that advocates for a sound participatory approach, the researcher used a bottom-up approach where participants voluntarily communicated their understanding of pertinent issues raised during the

interactions through questionnaire sessions, interviews, and focus group discussions. The researcher took the role of a learner and facilitator during the process and not the top-down approach to collect information from research participants regarding the food security pack programme. This it gave research participants the opportunity to have their voices heard on the implementation of the programme in the district. The research participants' voices showed their willingness to pay attention to real existing debate and discussions on the food security pack programme to bring the desired change.

From the onset, the consultative process ensured that giving priority to local capacity and leadership to discuss local issues in search of solutions to contextually identified issues was addressed. To this end, the researcher established changes brought about by the food security pack programme, problems encountered in the process of programme administration as well as suggested solutions to the problems.

- The principle of "prioritising learning" through structured experiential learning helped the researcher to collect responses on beneficiaries' perceived challenges of the food security pack. The study used this principle as a tool in line with what Pritchett et al (2012:31) term as "structured experiential learning", which builds "learning objectives into the cycle of project design, implementation, completion, and evaluation". Therefore, this principle was effective in soliciting views from the food security pack beneficiaries and focus group participants on their perceived challenges of the programme through the researcher's stance on taking a role of a facilitator and learner. For example, the researcher posed topics for discussion to the focus group and let the group members discuss and agree on the way forward.

- The principle of "think like a compass not a map" helped the researcher to navigate through complex social contexts/issues that could derail the processes of soliciting information from the participants. This principle assisted the researcher to find his "way through the fog of complex systems, discovering a path during interactions with the research participants" (Green 2015:16). For example, the researcher had pre-

structured questions but changed the framing of questions depending on emergent issues and unforeseen risks that might have come with posing such questions in a pre-structured format. Since the researcher did not know everything regarding development processes and the local environment, this helped to avoid conflicts of interest. Hummelbrunner and Jones (2013) describe this process as adaptive, reflective, and iterative because plans usually reflect best guesses about the future/past that will possibly change sooner or later.

Weaknesses of the Theory of Change

While acknowledging the positive aspects of the Theory of Change, it is also important to reveal some of the associated weaknesses of the theory as presented below.

- Certain supporters of the Theory of Change concentrate on developing a roadmap that goes from one point to the other disregarding the fact that the roadmap may lead to the deceptive concept of linearity mostly used in log frames (Center for Theory of Change 2015). Linearity takes for granted that inputs generate outputs and that outputs produce outcomes. However, a linear explication, such as this, particularly where complicated social phenomena such as food security or poverty are involved, may not be sufficient. If linearity is tolerated it might be well to recognise the Theory of Change as an appendage of the assumptions column of the log frame. This is what makes it confusing to understand what the Theory of Change and the Log frame mean and how they relate (Valters, 2015). Nevertheless, Theories of Change are usually used by institutions to mean that change revolves around them and their programmes.

- Due to the flexible option in working with log-frames for complex programmes and environments that the Theories of Change offer, a worry is raised on development practitioners who think that they have encountered numerous problems linked to the project/programme before, and employ a casual approach to tackling some perceived development challenges that the programmes present (Center for Theory of Change 2015). With this casual approach, if things do not work out in their favour, development practitioners hastily return to the drawing board for review.

- Theories of change can also be censured for denying space for learning. Allan (2014) argues that critical reflection, which is fundamental to double-loop learning, may be diminished by the over-prescription of approaches, like the utilisation of Theories of Change. On this, technical hitches can develop as a result of the friction between being answerable to outsiders on one hand and learning from the local settings on the other hand. The tension between learning and results accountability may work as a stumbling block to reflection and adaptive learning.

2.7 Summary of the Chapter

In this chapter, an extensive background and theoretical literature review is presented. The chapter explained the geographical locations, some demographic features and significant economic activities of Zambia as a country, and Mpulungu district as a case study. Key concepts in the study, namely, food security, household, agriculture, livelihood, small-scale farmer, vulnerable, but viable, farmer, food security pack, and the food security pack programme are explained in the context in which they are applied in this study. The theoretical literature presented discusses debates on the key concepts in detail, namely, food security, household, and agriculture in light of global, international and local theoretical debates. Conceptual issues on poverty, food security and agriculture in Zambia are also discussed. The experiences in the implementation of the food security programmes from the four selected African countries namely; Malawi, Rwanda, Ethiopia and Zambia are reviewed. This chapter also has explained the theoretical frameworks, namely, the Sustainable Livelihood Framework and the Food Security Learning Framework adopted in this study, as well as the Theory of Change that supports the two theoretical frameworks.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter introduces the methodological approach to solving the research problem (Bogdan & Bilken 1992). It begins by introducing the study site and then discusses the mixed-method research design adopted for this study, which uses a combination of both qualitative and quantitative approaches. It also discusses the target population and explains the non-probability and probability sampling techniques used in selecting the samples. The chapter also presents the sample size of the key informants and the targeted vulnerable, but viable, small-scale farmers as respondents.

The chapter explains research instruments/methods for data collection, i.e., questionnaires, interviews, focus group discussions and observations as well as pre-testing of data-gathering instruments aimed at ensuring the validity and reliability of the data. It also presents data analysis strategies that employ both quantitative and qualitative procedures. The chapter closes by presenting ethical issues and limitations considered during the research process.

3.2 Study site

The study site for this research was Mpulungu district, which is situated in the Northern Province of the Republic of Zambia, as shown in Appendix 2. This research used a case study approach. Mpulungu district has a port of entry and exit through Mpulungu Harbour to neighbouring countries, such as Tanzania and Burundi (CSO 2013b). It was selected because of its accessibility, and fertile land suitable for crop production, which, in an ideal situation, should ensure household food security among the small-scale farmers in the district. The Central Statistics Office explains that the northern region of Zambia experiences a prolonged rainy season every year from early October to late April the following year (CSO 2001).

In this research, a case study approach was chosen because of the need to use multiple sources of data to analyse the food security pack programme that targets the vulnerable, but viable, small-scale farmers in Mpulungu district. The use of a case study approach is in line with

Robson's (1993:146) explanation that "a case study is a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real-life context using multiple sources of evidence". In this case, specific evidence-based information was sourced from research participants who were the beneficiaries and non-beneficiaries of the food security pack programme as indicated in Appendix 3. Hence, the case study method enabled the researcher to carry out a thorough analysis of the respondents' perceptions of the food security pack programme.

3.3 Research design

This study combined both quantitative and qualitative approaches. This research design allowed the researcher to solicit both descriptive and numerical data from the questionnaire respondents, focus group discussions, interviews and observations to realise objectivity and get diverse views on the subject of study. Bryman (2012:21) explains that a quantitative approach "sees reality as objective, simple and fixed" while qualitative approaches "perceive reality as subjective, constructed, multiple and diverse".

3.4 The population of the study

The population under this study were the food security pack programme beneficiaries and registered non-beneficiaries of the food security pack programme. The other research participants were the key informants that included the District Agriculture Co-coordinator (DACO) and the District Community Development Officer (DCDO) who were purposely selected because of their direct involvement in the implementation of the programme, as well as a combined group of agro-dealers and NGO representatives who were purposely selected for a focus group discussion because of their involvement in dealing with farming inputs and the community, respectively, as shown in Appendix 10. The other category was the four (4) Area Food Security Pack Committees that were also purposely selected for focus group discussions because of their involvement in the distribution of the food security packs. Only four (4) out of the eight (8) Area Food Security Pack Committees were selected because of their accessibility. Also, a traditional leader was purposely selected as a key informant

because of his enlightened status and involvement in government programmes in the district.

By using multiple sources of information, the study minimised distortions. Sarantakos (1998) justifies the utilisation of multiple sources of information. He explains that a case study permits researchers to use several techniques, mainly to avoid mistakes and distortions and not rely on the question-answer style of data collection. Also, using multiple sources enabled multiple analyses which lead to multiple results for the same outcome through the following; analysis of population, participants eligible to be included in the analysis, handling missing data, methods to account for missing data, including missing items and missing cases.

3.4.1 Sampling techniques

The study used both non-probability and probability sampling techniques.

3.4.1.1 Non-probability sampling technique

Non-probability sampling, employing purposive techniques, was used to select Mpulungu district as the area of study taking into account the number of small-scale farming households that participated in the government-financed agricultural food security pack programme and the availability of the registered non-beneficiaries of the programme. This sampling technique was relevant for selecting Mpulungu district as a case study, as well as selecting key informants because it does not claim representativeness and therefore the samples were chosen for a purpose.

Yin (2003) explains that a case study is appropriate when research questions are inquiring "how" and "why" a phenomenon happens. The researcher adopted the Theory of Change as these questions are embraced in its definition as presented in sub-section 2.5.1 of Chapter Two. Yin (2003:2) explains that a case study is well matched to research that focuses entirely or partially on the process as it "allows investigators to retain the holistic and meaningful characteristics of real-life events".

The adoption of a case study approach allowed the researcher to gather place-specific information "that may then be tested for wider applicability" (Beeton 2005:39). Stake (2000 cited in Beeton 2005:39) referring to the use of case studies in tourism research, argues that a

case study approach can be useful because it has "the capability to take into consideration the effects of numerous study foci". Therefore, in this research, a case study of Mpulungu district enabled the researcher to conduct a thorough analysis of the respondents' perceptions of the food security pack programme. The adoption of a case study also helped the researcher to consider other economic activities that the vulnerable, but viable, farmers that participated in the food security pack programme were involved in as presented and explained in section 4.3 in Chapter Four.

3.4.1.2 Probability sampling technique

Probability sampling strategies, using a simple random sampling technique were used to select the vulnerable, but viable, small-scale farming household heads aged eighteen (18) years and above as respondents. This sampling strategy and technique made it possible for all the beneficiaries and the registered non-beneficiaries vulnerable, but viable, small-scale farming households within the stipulated age range in Mpulungu district to have an equal chance of being picked. The provision of an equal chance for the food security pack beneficiaries and the registered non-beneficiaries to be picked warrants the generalisation of the findings in Mpulungu district. Sarantakos (1993:126) explains that the "majority of social researchers employ probability sampling for several reasons, but mainly due to its high reliability, the degree of representativeness and high generalisability of the results".

3.4.2 Sample size

This study drew respondents for questionnaires, key informants for interviews, four (4) Area Food Security Pack Committees and one combined group of agro-dealers and non-governmental organisations for the focus group discussions. Both beneficiary and non-beneficiary households were sampled as explained in detail below and shown in Appendix 3.
To determine the sample size, the researcher used Slovin's Formula quoted in Glen (2020) which provides the sample size (n) using the known population size (N) and the acceptable error value (e) by fitting the N and e values into the formula: $n = N \div (1+Ne^2)$. The resulting value of n equals the sample size used (Glen 2020).

- The sample size for the food security pack beneficiaries was arrived at as follows:

  N = 300, e^2 = 5%, n =?

  Then, n = N/ (1 + Ne^2)

  n = 300/ (1 + (300 * (0.05) ^2)

  n = 172 households as the sample size of FSPP beneficiaries as shown in Appendix 3.

- The sample size for the non-beneficiary households was arrived at as follows:

  N = 2690, e^2 = 5%, n =?

  Then, n = N/ (1+Ne^2)

  n = 2690/ (1 + (2690 * (0.05) ^2)

  n = 348 correct proportional Random Sample as shown in Appendix 3.

However, since this was a control group, the sample size was reduced by 50% to lower the variance with the sample for the food security pack beneficiaries to a negligible level or bring them to almost the same figure. Therefore, *sample size = ½ * sample size of the non-beneficiaries households;*

Sample size= ½ *348

Sample size = 174 households of the non-beneficiaries households.

3.4.2.1 Respondents

As indicated in Table 1.3 in Chapter One, 300 vulnerable, but viable, small-scale farming household heads participated in the government-financed agricultural food security pack programme in Mpulungu district at the time the study was conducted. From the number mentioned above, the study sampled 172 household heads aged 18 and above as respondents for the study. Meanwhile, 174 non-beneficiaries households were also sampled as a control group. The non-beneficiaries sampled are those that were on the waiting list for possible inclusion on the food security pack programme. Both the beneficiary and non-beneficiary household representatives were selected using a simple random sampling technique. To do this, a rotary method was used following the three steps described by Sarantakos (1998:141) as:

1. Constructing a sampling frame, that is, a list of units of the target population;

2. Substituting names listed in the sampling frame for numbered marbles (or discs) so that each marble corresponds to a name on the sampling frame; and

3. Placing all marbles in an urn, mixing well and removing one marble from the urn. The number of this marble is registered, and the corresponding name in the sampling frame is ascertained. This marble represents the first respondent.

This simple random sampling using the rotary method ensured that each unit on the sampling frame had the same chance to be picked. In this way, the sample drawn was representative of the targeted population for this study. One of the attributes of simple random sampling is that "the sampling units, apart from having an equal chance of being selected, are independent of each other" (Henry 1990:27).

3.4.2.2 Key informants

The key informants were used in this research to facilitate the collection of comprehensive data regarding the topic studied (Kumar 1999). In this research, the District Community Development Officer (DCDO), District Agricultural Coordinator (DACO), a traditional leader, four (4) Area Food Security Pack Committees, a combined group of agro-dealers and non-governmental organisations were selected using non-probability sampling, employing a purposive technique. The employment of a purposive sampling technique was appropriate for selecting the key informants in this study because it does not claim representativeness and because these key informants had knowledge and information about the food security pack programme in their localities. The purposive sampling explained above is in line with Sarantakos' (2005) explanation that non-probability sampling using purposive sampling methods do not use the rules of probability theory, do not ensure representativeness, and samples are chosen for a purpose.

3.5 Data-gathering instruments/methods

In gathering the data, the following methods/tools were used:

3.5.1 Questionnaires

Questionnaires were used as tools that enabled the researcher to gather data directly on a one-on-one basis from the beneficiary household heads and registered non-beneficiary household heads of the vulnerable, but viable, small-scale farming households that were sampled as respondents. The use of questionnaires was done through the administration of a written list of questions administered by the researcher as indicated in Appendices 4 and 5. Researcher-administered questionnaires were appropriate for this study due to the relatively high illiteracy levels in the rural district of Mpulungu district of the Republic of Zambia. The latest census of population and housing detailed tables for Northern Province shows that more people in rural areas have not attended school than in the townships (CSO 2013b).

Using questionnaires as tools for data collection was suitable for this study because of the reasonably large sample that the study targeted. The use of questionnaires is justified by Robson's (1993) argument that questionnaires are an essential tool when a researcher wants to gather information from a large sample. This argument is supported by Laws, Harper and Marcus (2003:307) who explain that questionnaires are of particular value when the researchers require information from "a large number of respondents".

The questionnaires were semi-structured, implying that their structure comprised a blend of both open-ended and closed questions as shown in Appendix 4 and 5. Sarantakos (2005:240) explains that semi-standardised questionnaires combine a fair degree of structure and standardisation which is embedded in both qualitative and quantitative approaches, though they may "seem to appeal more to the latter". In light of this explanation, these types of questionnaires were appropriate for this study because they were designed to solicit both quantitative and qualitative data regarding the research topic from the 172 FSPP beneficiary household heads and the 174 non-beneficiary household heads sampled.

In other words, both fixed-alternative (pre-coded or closed) and open-ended (free-answer) types of questions were used in the questionnaires (Sarantakos 2005). Open-ended questions were necessary to allow both the beneficiary and non-beneficiary sampled household heads to express their feelings and thoughts about complex issues, while fixed-alternative questions

were used for sensitive questions. This allowed the researcher to gather sufficient information, as Bryman (2012) explains that fixed-alternative and open-ended questions are used in the questionnaires to get ample information and classify responses or respondents, respectively.

3.5.2 Focus group discussions

Focus group discussions were used for the group of key informants. To settle on the use of the focus group discussions, "the principle of focusing on the process" that the Theory of Change advocates, which hinges on a more comprehensive "learning process" approach that is flexible and adaptive, was used for this study. Hence, these focus group discussions were held with the four (4) Area Food Security Pack Committees (AFSPCs) and a combined group of agro-dealers and non-governmental organisations that were purposely selected in Mpulungu district. Appendices 8, 9, 10 and 11 show information regarding the focus group discussions that were conducted. The use of the focus group discussions in this study was significant because of the sizeable number of people handled that ranged between 10 and 12 people in a targeted group who had full knowledge and interest in the research topic (Bryman 2008).

In interacting with the focus group participants, the researcher used the principle of "think like a compass not a map" embraced by the Theory of Change. This principle holds that development practitioners do not know everything regarding development processes. As such, it guided the researcher to facilitate the discussions and unearth pertinent responses to the focus group guiding questions. Green (2015:16) explains that the concept of a "compass" that assists development practitioners to find their "way through the fog of complex systems, discovering a path as they go along" is more helpful than a roadmap. Using this principle, the researcher posed questions to the participants for discussion to get group consensus on responses. The focus group discussions were fora that were used to get deeper and divergent views on the focus group discussion guiding questions shown in Appendix 9 and 11. This understanding is echoed by Blumer (1989 cited in Flick 2002:114) who argues that the importance of a group discussion is that:

> "a small number of individuals brought together as a discussion or resource group are more valuable many times over than any representative sample … Such a group,

> discussing collectively their sphere of life and probing into it as they meet one another's disagreements, will do more to lift the veils covering the sphere of life than any other device that I know."

Sarantakos (1993) and Laws et al (2003) also support the above view and explain that focus group discussions help in getting information within a reasonably short time, about different opinions and establishing a system of opinion formation. Just as Denzin and Lincoln (1998) justify, focus group discussions were used to complement and validate information gathered through questionnaires, interviews and observations.

3.5.3 Semi-structured interviews

In-depth semi-structured interviews were one of the primary data collection methods used in this research. Semi-structured interviews were used on the key informants, namely, the District Community Development Officer, District Agricultural Coordinator, and the traditional leader that were purposely sampled. The study intentionally selected a traditional leader for an interview in line with the "principle of local driven" embedded in the Theory of Change approach which supports a consultative process that prioritises local capacity and local leadership in the search for solutions to contextually identified challenges. This enabled the researcher to focus on local issues for the interviews.

This interview method was used because of its flexibility in which questions were asked and interviewees allowed to respond. Appendices 6 and 7 show the interview guiding questions. The use of the semi-structured interviews is supported by Sarantakos (1998:247) whose viewpoint states that the "structure of these interviews is flexible and the restrictions minimal, being presented in most cases in the form of guidance rather than rules". Robson (1993:237) also adds that "as a matter of technique they have greater freedom in the sequence of questions, in their exact wording, and in the amount of time and attention that is given to different topics".

The general relevance of this method is the fact that different types of questions allowed the researcher to deal more openly with the respondents (Flick 2007). The method was

appropriate for the group of key informants mentioned above because it does not call for standardised questions, but a simple guide. Gilbert (1993:138) explains that "the non-standard approach is also valuable where the subject matter is sensitive or complicated and allows the researchers to fine-tune the explanation and to satisfy themselves that the respondent has sufficient understanding to reach a considered view". Semi-structured interviews use open-ended questions and are conducted predominantly with individuals.

3.5.4 Observation

The observation method was another technique that was used in data-gathering in this research. It is a technique "of recording conditions, events, and activities through the non-inquisitorial involvement of the researcher" (William 2005:10). Observations can record, whether the actions or appearances of people or the environment appear differently from what they say or intend (McNiff 1992).

In this study, the researcher used physical observation to establish how food secure or insecure both the FSPP beneficiary and non-beneficiary households were. The observation method was passively conducted during visitations to questionnaire respondents. The type of observation used was semi-structured. Semi-structured observation is structured in approach however it is amorphous in scenery (Pierce 2008). The flexibility of the observation method entails that a fixed, outlined observation category is formulated as an observation guide in advance, and recording is done in a researcher's notepad, as well as with photographs. Appendix 12 shows the observation category guide.

3.6 Testing of data-gathering instruments

Testing of the questionnaires and interview guides before the fully-fledged data-gathering task commenced was taken into consideration in this research. Sarantakos (2005:255) describes this as "small tests of single elements of research instruments that are predominantly used to check their 'mechanical' structures". Other authors, such as Flick (2014a), call this process pre-testing and explain that this is the only way to evaluate in advance whether questionnaires or interview guides cause problems for interviewers, interviewees or questionnaire

respondents.

3.6.1 Pilot study

In this pilot study, fifteen (15) questionnaires designed for the food security pack beneficiaries and non-beneficiaries were administered to the fifteen (15) randomly selected beneficiaries and non-beneficiaries in Mpulungu district. The fifteen (15) FSPP beneficiaries and non-beneficiaries on which the questionnaires were tested were not part of the 172 and 174 beneficiaries and non-beneficiaries, respectively, that were sampled for the study. Also, interviews using interview guides were conducted with deputies of key informants, as well as one trial focus group discussion.

Reactions to these pilots established, in some cases, the need to re-phrase and re-organise the questions and response categories, respectively. Some questions in the questionnaire and interview guide were amended by deleting repetitions and clarifying vague questions, dropping irrelevant questions and refining the questionnaire and interview guide in line with the respondents and interviewees' understanding. Creswell (2014) explains that this process aids the researcher in differentiating which questions to be put to key informants, which ones to include in the household questionnaire, and what data to get from focus group discussions. This pilot study was conducted with the consent of respondents and key informants, and the research was carried out with the necessary permissions from the concerned.

3.7 Data analysis and presentation

The data collected in this research was analysed and presented both quantitatively and qualitatively. Data presentation which refers to how researchers display information related to research in a condensed and succinct style is presented using both statistical and graphical techniques as explained below.

3.7.1 Quantitative data analysis

The quantitative analysis method was used to analyse the data that were captured from the closed-ended questions to generate statistics. Codes were assigned to responses that were used

for data entry. The use of quantitative analysis was done in line with Betts, Hayward and Garnham's (2001:102) explanation that, in quantitative analysis, "the researcher assigns codes to each likely answer, and specifies how other responses are to be handled".

For data entry and analysis, and for the computation of statistical data, electronic data analysis using the Statistical Package for Social Sciences version 20 (SPSS version 20) software was employed. The statistical software package allowed a wide range of conventional summary of statistics and offered graphical presentations of the results of the analysis. Kombo and Tromp (2006:134) explain that using electronic data analysis making use of statistical software packages, such as the SPSS, is one of the quickest methods to "discover what the data seem to be saying by using simple arithmetic and easy-to-draw" pictorial summaries of information gathered. It is further explained that the electronic processing of data using SPSS is user-friendly, fast, highly reliable and accurate in the computation of data analyses with huge amounts of data (Kombo & Tromp 2006).

Using the SPSS version 20 statistical programme, descriptive data analyses were generated on selected variables/thematic areas and groups. Descriptive statistical procedures that included frequency distributions, percentages, arithmetic mean, standard deviations, et cetera, were generated to provide comparisons between the food security pack programme beneficiaries and non-beneficiaries regarding the "amount of land cultivated" and "maize productivity". Also, descriptive data on beneficiaries only, regarding the amount of land cultivated before and after they accessed the programme, were generated. The descriptive statistics generated from the *t*-test compared the mean for the experiment sample (beneficiaries) whose sample size was 147 and the control sample (non-beneficiaries) whose sample size was 152 to assess whether the mean of the aforementioned two groups were statistically different from each other. Furthermore, paired/dependent sample *t*-tests were done to determine whether there was statistical evidence that the mean difference in the amount of land cultivated and maize crop productivity before and after beneficiaries' access to the food security pack programme was significantly different.

3.7.1.1 Quantitative data presentation

In this study, quantitative data are presented through a combination of statistical tables and graphs. Tables of statistics reflecting frequency distributions, percentages, arithmetic mean, standard deviations and standard error mean in line with selected variables/thematic areas are presented. Also, tables of descriptive statistics derived from the independent *t*-tests that helped in the interpretation of the differences between the mean for the experiment sample (beneficiaries) and control sample (non-beneficiaries), as well as paired samples *t*-tests for the beneficiaries only are presented and explained in the next chapter.

Graphical presentation of descriptive data, in the form of bar and pie charts that were generated using a Microsoft Excel spreadsheet from the data produced from the SPSS, are also presented to give visual representations of statistics. Kombo and Tromp (2006) explain that statistics are a set of mathematical methods used to extract and clarify information from observed data. They generate simple numbers to describe distribution either grouped or ungrouped (Boniface 1995). Argyrous (1996:97) further explains that statistics add to our understanding of the data that make up the distribution, and they "can substitute for (be used instead of) the distribution".

3.7.2 Qualitative data analysis

The qualitative analysis method was used to capture information from open-ended questions of the researcher-administered questionnaires, interviews, focus group discussions and observation guides. The information captured from the open-ended questions was classified for analysis. Kombo and Tromp (2006) explain that, although qualitative data, such as the views of respondents, are not always computable by arithmetic relations, basic figures can be computed after categorising common responses into various classes called categorical variables.

The SPSS statistical package software was used to analyse the categorical variables. The SPSS statistical package software allowed the researcher to review the data in a way parallel to that of quantitative analysis (Potter & Wetherell 1994:31). With this attribute, figures were generated in line with common responses that were used to create simple tables for visual

summaries. Since qualitative data were also collected using the researcher-administered questionnaires, interviews, focus group discussions and observations where responses were written down, a fixed qualitative analysis model was used. This is a model where data analysis occurs after data collection and entails a method of content analysis or text analysis (Sarantakos 2005). The fixed qualitative analysis model which follows a fixed research design deals primarily with written records and transcripts which the researcher reads and analyses (Flick 2014b). The content analysis method was used because it examined the intensity with which certain words were used in responses and systematically described the form or content of written and spoken material (Ezzy 2002). In content analysis, a classification system is developed to record the information and, in interpreting results, the frequency with which an expression, opinion, comment or idea appears may be interpreted as a measure of importance, attention, or emphasis (Teddlie & Tashakkori 2009).

3.7.2.1 Qualitative data presentation

Qualitative data in this study are presented in matrices. Matrices are a form of summary tables (Sarantakos 2005). In this study, matrices have been developed that contain summarised text and data integrated around central themes that came out prominently from the responses. Robson (2002) explains that matrices can be ordered according to central themes. In Chapter Four, figures in matrices are shown to display the rate of recurrence of responses. The use of qualitative data presentation using matrices is in line with Gilbert's (1993:169) argument that, although this type of data presentation is of a qualitative nature, it has some "quantitative overtones, which might not be accepted by traditionally oriented qualitative researchers".

3.8 Validity and reliability of data collection methods

In the process of research, issues of reliability and validity of data were addressed in several ways. Ensuring the validity and reliability of data gathered in this research was of paramount importance because it was "about the appropriateness of the indicators to measure the intended" objectives of the research (Bryman 2008:61). Ensuring the validity and reliability of data was done through the use of the relevant methods, approaches, and techniques that were employed to address the objectives and research questions.

In a bid to guarantee the validity of the findings of the research, the purpose of the study was discussed with the respondents and key informants who were told, from the onset, that the research was for educational purposes and that their feedback would not warrant any material aid or any other direct rewards. Confidentiality, which helps in soliciting valid data from the respondents without fearing identification, was also guaranteed as shown in appendices 4, 5, 6 and 7 (Blaxter, Hughes & Tight 2008; O'Leary 2010).

Reliability, which is defined by Miller and Salkind (2002) as the consistency of a measure of concepts and outcomes under replicated trials, was guaranteed in several ways. The researcher conducted the questionnaire dispensation, interviews and focus group discussions in person to ensure the reliability of the data. The researcher took time to engage respondents, interviewees and focus group discussion participants so that the real meaning of the questions in the questionnaires, interview guides, and focus group discussion guide was clear. The researcher also requested a suitable time to administer questionnaires, conduct focus group discussions and conduct interviews. The request for a suitable time allowed the target groups to provide the required information in their own time, a situation that provided calmness and an enabling environment (Gillham 2000).

Triangulation was used to ensure both validity and reliability of findings. Triangulation is a tactic applied to ensure the validity of primary data and is part of the process towards ensuring the overall quality of the research (William 2005). Miller and Brewer (2003:19) define triangulation as "the combination of different methods, methodological perspectives or theoretical viewpoints to achieve a net gain where the strength of each contrasting approach cancels out the weaknesses of others". Hence, triangulation took care of Denzin and Lincoln's (1998:31) argument that "only a partially objective account of the world can be produced because all methods are flawed". Sarantakos (1993) explains that, through triangulation and combining methods it may, however, be possible to enhance accuracy to an extent, as was done in this study.

In light of the above, the researcher used triangulation in examining and linking the findings of the methodologies and approaches used to reduce bias. Thus, this research used the

triangulation method to correlate the data collected through the various methods/tools used for data-gathering, namely, questionnaires, interviews, observations and focus group discussions. This involved testing responses to related questions probed under diverse conditions, for example, how distinctive was the "response to a question posed to a group from the answer to the same question posed to an individual in an interview" (Babbie 2013).

3.9 Ethical considerations

In carrying out the study, the researcher gave a detailed explanation to all the participants about the nature of the research and how its findings were intended to be used, a situation that made the research participants decide on participation. Stake (2000:51) refers to this as "informed consent". After giving them information concerning the nature and purpose of the research, all participants were free to either participate or withdraw at any stage of the research before or during interviews, administration of questionnaires and focus group discussions without advancing reasons. All participants consented to participate and none of them withdrew at any stage of the research process.

The non-withdrawals from participation were as a result of the researcher's assurance of participants' anonymity, privacy and confidentiality throughout the entire research process. The assurance was done in several ways, including not attaching names of participants to the information they shared, particularly sensitive information that was deemed harmful to their character, integrity and personal security. The above strategy was in line with Silverman's (2005:29) explanation that "when you are studying people's behaviour or asking them questions, not only the values of the researcher, but the researcher's responsibilities to those studied have to be upheld".

Permission to use a voice recorder, particularly in interviews and focus group discussions, was sought and all of the discussions took place at the convenience of the research participants. Gillham (2000) explains that electronic recording in a group discussion has an advantage in that it helps the researcher to concentrate on listening to the discussions and go back to the recordings later for transcription.

To take into account all the above-explained ethical considerations, the researcher obtained Ethical clearance from UNISA, Department of Development Studies.

3.10 Limitations of the study

The study had its limitations, which Delva, Kirty, Knapper and Birthwhistle (2002:1220) describe as "matters and circumstances" that come up in a study that the researcher has little or no control over. These limitations were both methodological and researcher-centred. Delva et al (2002) explain that methodological and researcher-centred limitations can restrict the extent to which a study can go and affect the results and conclusion to be drawn.

- **Methodological-centred limitations**

  The following were the limitations related to the methodology and research process that were encountered in this study:

  - With the purposive sampling method used to select Mpulungu district as the case study, the researcher acknowledged that the research findings could not be generalised beyond the district as the area of study. However, generalisation within Mpulungu district was guaranteed because the selected food security pack beneficiary and non-beneficiary household heads were picked using a simple random sampling method which ensured representativeness of the total targeted population of the food security pack programme in the district.

    This implied that the reason for simple random sampling in this research was to study a representative sub-section of a precisely defined population (in this case, the beneficiary and non-beneficiary household heads of the food security pack programme in Mpulungu district). The employment of simple random sampling enabled the researcher to make a deduction about the whole population within the area of study but not outside the area of study (Denzin & Lincoln 1998).

  - The second methodological limitation was that the pre-structured and standardised

nature of questions that were used in the questionnaires limited the researcher from penetrating issues of great interest. The limitation to probe deep into issues of interest confirmed the concern by social scientists who say that "questionnaires do not allow probing and prompting of questions" (Sarantakos 2005:263). However, the researcher took advantage of other data-gathering methods employed, i.e., interviews and focus group discussions to penetrate matters of interest.

- **Researcher-centred limitations**

Since the researcher planned to use the researcher-administered questionnaires, among other data-gathering instruments, to collect primary information from the sampled 172 and 174 food security pack programme beneficiary and non-beneficiary household heads, respectively, the researcher did not reach all the sampled respondents as intended. Long distances and impassable roads/pathways to cover respondents living in remote areas posed a significant challenge. However, the researcher successfully administered questionnaires to the 147 respondents representing 85 percent of the sampled 172 beneficiary household heads of the food security pack programme. Likewise, the researcher managed to reach out to the 152 respondents representing 87 percent of the sampled 174 registered non-beneficiary household heads of the food security pack programme.

The above experience proved Chilisa's (2012) argument which explains that, in utilising researcher-administered questionnaires, distances to cover all sampled respondents may limit a study, as some respondents may be in hard-to-reach areas. He further mentions that it is challenging working with hard-to-reach people, as was the case with the above-explained two scenarios (Chilisa 2012). Although this could affect the generalisation of the findings within a case study, the percentage of the targeted respondents not reached by the researcher was negligible to affect the generalisation of the findings within the case study, i.e., Mpulungu district.

- Due to the relatively high illiteracy levels in Mpulungu district, the questionnaires were administered by the researcher. The method above enabled the translation of questions from English to the local language that the respondents understood. However, the strategy of translating English to the local language posed some challenges as some English words could not be expressed precisely in the native language and vice-versa, a situation that risked distortion in the conveyance of the original meanings of the questions and responses on both sides (the respondents and the researcher). Nevertheless, the researcher endeavoured to counteract this by paying close attention to the body language and facial expressions of the respondents to clear up any areas of confusion. Also, close attention was given to the responses and the researcher requested clarification where there was a need.

- The researcher was constrained by time to capture all the information through the observation method from each household visited during the administration of questionnaires to the respondents, as earlier intended, because the number of researcher-administered questionnaires did not give much room for that. Sarantakos (2005:263) explains that "questionnaires do not provide an opportunity to collect additional information, for instance, through observation while they are being completed or administered". However, the researcher was able to capture vital information from the households of the majority of respondents using a notebook and a camera (with permission) as can be seen in the pictures in Chapter Four.

- Just as Eade (2002) explains that some cultural values in traditional communities inhibit specific categories of people, especially women and the marginalised, to speak freely in public gatherings, focus group discussions in this rural district of Mpulungu had its limitations, as cultural values sometimes affected discussions. In some instances, participants could not speak freely due to perceived cultural norms. Consequently, focus group participants could be physically present, but passive during discussions. To counteract the outcome of the passive participation by those who could not speak freely due to cultural barriers, the researcher had to form small groups of three people within the main focus group by separating men

from women to collect their responses. The strategy mentioned above was only applied to communities that had strong cultural beliefs.

3.11 Summary of the Chapter

This chapter introduced Mpulungu district as the study site and explained the research design that the study adopted which combined both quantitative and qualitative approaches to solicit answers to the research questions. The data-gathering instruments/methods, namely, questionnaires, focus group discussions interviews and observations that the study used on the respondents and key informants are discussed in detail with the corresponding explanations for using them. To ensure the validity and reliability of the data-gathering instruments, the process of testing the instruments via a pilot study before embarking on fully-fledged research is explained. Thereafter, an explanation of how both quantitative and qualitative data gathered from the respondents and key informants in the main study was analysed is given. Also, discussed is the t-test performed to compare the mean difference in the amount of land cultivated and maize crop produced by the food security pack programme beneficiaries and non-beneficiaries. Further, both methodological and researcher-centred limitations are highlighted while the presentation and discussion of the results are presented in the next chapter.

CHAPTER FOUR: RESEARCH RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussions on the analysis of the effects, capacity and challenges of Zambia's agricultural food security pack programme implemented in Mpulungu district in Zambia. The chapter begins by presenting the biographic and demographic data for the beneficiaries and non-beneficiaries, then analyses the household food security status of the food security pack beneficiaries and non-beneficiaries focusing on the amount of land cultivated, maize crop productivity, surplus maize crop and access to food using the independent and paired sample tests. Also, the chapter analyses and discusses other economic activities that the beneficiaries pursued to foster household food security in the district as well as the beneficiaries' perceptions of the food security pack programme and the effects of the programme on the benefiting households.

The chapter also examines the challenges that the food security pack programme encountered in meeting its goal of enhancing household food security in Mpulungu district. Furthermore, it presents and discusses solicited recommendations from the food security pack beneficiaries on the strategy implementation of the food security pack programme. In all the above discussions, the data are presented both quantitatively and qualitatively.

4.2 Biographic/Demographic data: beneficiaries and non-beneficiaries

The central elements of the study were the food security pack beneficiaries and non-beneficiaries. As such, the study sought to understand the human characteristics of the household heads as respondents, in line with what the Sustainable Livelihood Framework calls "human capital" under the livelihood assets. Scoones (1998) explains that a household human capital consists of the individual characteristics of household members, both quantitative and qualitative, that support them to generate income. According to Bezemer and Lerman (2002:43), the most important characteristics of human capital, as espoused by the Sustainable Livelihood Framework, are "gender, age, education, health status, household size,

dependency ratio, and leadership potential". Arising from the above argument derived from the Sustainable Livelihoods Framework, the study analysed data on the following variables regarding the food security pack beneficiaries and non-beneficiaries: 1) Sex; 2) Age range; 3) marital status; 4) education levels; and 5) family size; as presented below.

4.2.1 Sex of the food security pack beneficiaries that accessed the programme

The study found that 51 percent of the 147 food security pack beneficiary household heads were males, while 49 percent were females as shown in Table 4.1 below.

Table 4.1: Sex of the food security pack beneficiaries that accessed the programme

	Sex of the respondents	Number of respondents	Percentage
	Male	75	51.0
	Female	72	49.0
	Total	**147**	**100.0**

(Source: Survey result by the researcher 2017)

The findings in Table 4.1 above were supported by the outcome of the interviews with key informants. All the three key informants interviewed that included the District Community Development Officer, District Agricultural Coordinator and a traditional leader explained that the food security pack programme had almost equal representation but slightly more male-headed households that were said to be imposed by politicians. Using a Theory of Change approach to development thinking and practice that encourages critical reflection on context, programme rationales and strategies, an explanation was sought regarding the imposition of beneficiaries by politicians. This was in accordance with the tenets of the Theory of Change that encourages development workers to take account of the political scenario in academic, policy circles and development work (Wild et al 2015). Applying this approach, it was further established from the interviews that males were favoured by the politicians because of the role they play during political campaigns when it was time for elections. The above explanation was also reiterated in focus group discussions, with one female participant giving a statement that was representative of the comments of many focus group participants to

which the majority of the participants agreed:

> *It is like this programme was deliberately designed to take on a little more males than females. If this was the case, then the government is implored to put up a deliberate measure to allow more women than males to have access to the programme because it is the women in rural areas who suffer when there is food insecurity in their homes. Most men go about their usual business. It is a known fact that males find their way on the programme due to political connections.*

The undeserved entry of most men on the food security pack programme through political connections explained above is what is called "biased political capital" in the context of the Livelihood Framework. The biased political capital is exploited through networks and connectedness, either vertical (patron/client) or horizontal (among individuals with shared pursuits) that encourages people to do work collectively and broaden their right of entry to vital programmes and institutions (Messer & Townsley). The explanation above is supported by Kollmair and Gamper's (2002) argument that poor households' access to rights is through the concept of political capital which is the ability to use influence in supporting political or economic standpoints to augment livelihoods. It is argued that political capital represents both the lawful dissemination of rights and power, as well as the illegal operation of power, which frustrates efforts by poorer households to access and safeguard entitlements and make use of them to accumulate capital assets as the findings presented above (Bezemer & Lerman 2002).

4.2.2 Age range of the food security pack programme beneficiaries

The age range was also a factor that distinguished household characteristics in this study. It contributed to understanding the dominant age group that participated in the food security pack programme in Mpulungu district. Since this study was dealing with small-scale farmers that mostly employ traditional practices of farming, the age range of participants, as beneficiary household heads of the food security pack programme, was a factor in establishing farmer participation.

The findings in Figure 4.1 below show that 36.7 percent of the total respondents were between the ages of 21 and 30 years, and 12.9 percent were between the ages of 31 and 40

years, while 18.4 percent were between the ages of 41 and 50 years. The other 13.6 percent were between the ages of 51 and 60 years, and 12.2 percent were between the ages of 61 and 70, while the minority of 6.1 percent were above 71 years. Therefore, the participants that fell within the age group 21 to 30 years were the majority, while those that were 71 years and above were the minority as shown in Figure 4.1 below.

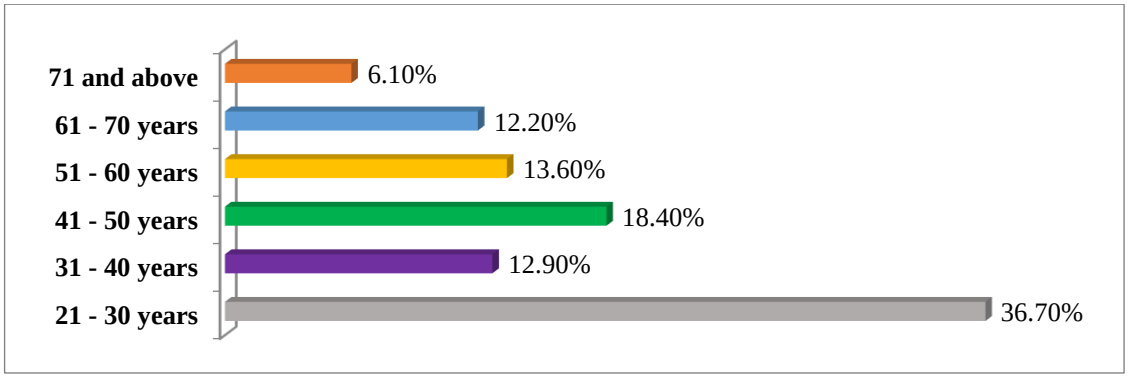

Figure 4.1: Age-range of the FSPP beneficiary household heads

(Source: Survey result by the researcher 2017)

The statistics in the bar chart above show that the majority of the participating household heads fell within the age group that was energetic enough to implement the agricultural food security pack programmes under study, while the minority fell within the age group where strength and energy are lower. This analysis is in agreement with Carney and Gale's (2001:141) explanation that the active population that can work tirelessly and withstand harsh conditions in most rural communities in sub-Saharan Africa are young adults. In the same vein, Stloukal (2000) argues that the rise and fall in efficiency as a farmer age has ramifications for the continued existence of new farmers and effective succession planning.

The above interpretation implies that the majority of the vulnerable households that participated in the food security pack programmes are those that had the energy and the ability to put into practice the application of free farming inputs received. Carney and Gale (2001:141) explain that the active population that can work tirelessly and withstand harsh condition in most rural communities in sub-Saharan Africa is made up of young adults, as established in the findings above. However, it is important to note that the youths formed the majority of

the participants in the food security pack programme in Mpulungu district not by design of the programme, but due to high illiteracy levels as established by the results of this study presented in subsection 4.2.4 below. The high illiteracy levels disadvantaged the youths from being absorbed into the scarce formal employment opportunities. CSO (2013b) statistical projections show continued illiteracy levels in Mpulungu district for the projected 2015 to 2021 period.

Figure 4.1 above shows that the age group of 41-50 years was second to the age group of 21-30 years in number. Morris, Kelly, Kopicki and Byerlee (2007) explain that, in agricultural production, the productivity of small-scale farmers in crop production improves and then declines with advancing age in communities that have not adopted high farm mechanisation.

4.2.3 Marital status of the food security pack beneficiaries

The marital status which is described as whether "one is single, married, separated, divorced, or widowed" was considered in this study because of its influence on the household incomes and livelihood strategies that families pursue (Garfinkel & McLanahan 1986:17). The findings show that the research study was dominated by married household heads, with the lowest number being those households whose family heads were separated as indicated in Figure 4.2 below.

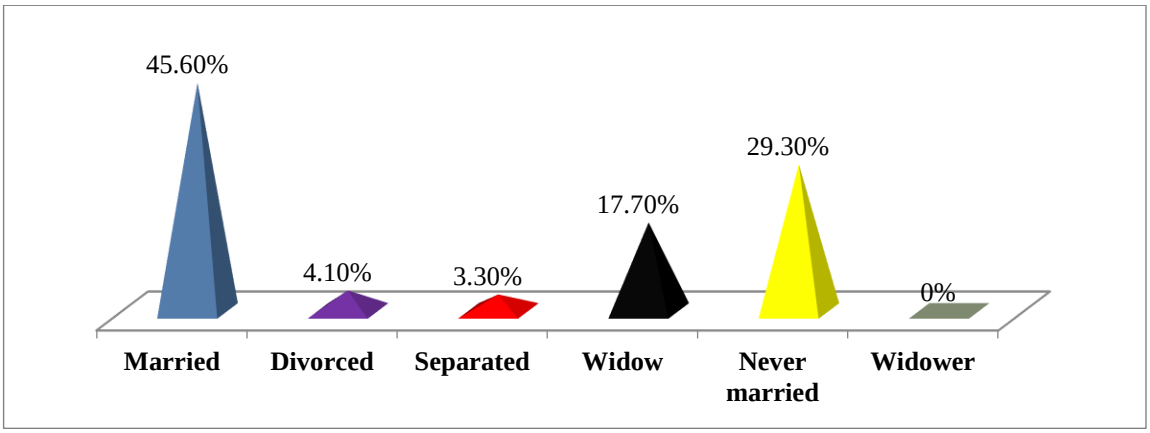

Figure 4.2: Marital status of the food security pack beneficiary household heads

(Source: Survey result by the researcher 2017)

With the highest percentage of married household heads participating in the food security pack programme as shown in the Figure above, this contradicts Hirschl, Altobelli and Rank's (2003:929) explanation that marriage reduces the risks that come with poverty, and is associated with a higher probability "of attaining influence over the life course when compared with non-marriage". The risks mentioned above that small-scale farmers experience fall under the "vulnerability context" in the Sustainable Livelihood Framework adopted in this study. These risks are influenced by shocks, trends and seasonality, among others (Department for International Development 2001).

Waite and Gallagher (2000) argue that although both married and unmarried low-income small-scale farming households can save from what they may realise from the programmes they are participating in, married people seem to save more than unmarried due to combined efforts. As can be seen in Figure 4.2 above, those that were never married were second to the married in terms of percentages, followed by widows and divorcees. There were no widowers as respondents in this study.

The divorced, separated, widowed and never-married groups shown in Figure 4.2 above who fell in the bracket of the unmarried individual household heads, were more likely to be food-insecure and with fewer assets to turn to in times of stress than those who were married. This is in line with the findings of studies that were conducted by Blank (1997), Furstenberg (1990:381) and Garfinkel and McLanahan (1986) that indicate that single-parents and unmarried persons are prone to poverty compared to those who are married. Positive discrimination in favour of unmarried persons would increase their participation in the food security pack programme, thereby preventing them from falling into high poverty levels

Households that have the status of "married" which, in this study, dominated the food security pack programme, should be considered to participate in programmes for subsidised farming input systems instead of the free supply because previous study results indicate that marriage lowers poverty rates and is associated with a higher prospect "of attaining influence over the life course when compared with non-marriage" (Hirschl et al 2003:929). In support of this, Becker (1981), Schoeni (1995:356) and Wilmoth and Koso (2002:261) explain that marriage,

from an economic viewpoint, heightens wealth accumulation because marriage, as an institution, involves a long-term commitment in which the division of labour enables each spouse to focus on specific skills and duties. Waite and Gallagher (2000:1041) mention that this specialisation enhances the efficiency and productivity of the household.

4.2.4 Education levels of the food security pack beneficiaries and non-beneficiaries

Under the livelihood asset component of the Sustainable Livelihood Framework, education is one of the resources that people utilise to fulfil their livelihood strategies (Farrington & Ramasut 2002). The household members combine their skills, knowledge and capabilities with the different resources at their disposal to undertake activities to realise their most favourable livelihood. Education was considered because it influences an array of human activities such as comprehending modern farming practices and nature, among others.

The study established that the majority, 59 percent of the 147 food security pack beneficiaries, did not go beyond primary school education compared to the majority, 53 percent of the 152 non-beneficiaries, who also did not go beyond primary schooling as shown in Figure 4.3 below. The second highest education level attained by both food security pack beneficiaries and non-beneficiaries was secondary school. Under this, it was revealed that 19 percent of the non-beneficiaries reached secondary school level compared to 17 percent of the food security pack beneficiaries that reached the same level.

The non-beneficiaries had a higher percent (22 percent) of household heads who had never been to school compared to the food security pack beneficiaries that had 15 percent of household heads that never went to school. On those that reached tertiary education, the food security pack beneficiaries had 9 percent while the non-beneficiaries 6 percent. Therefore, it can be said that there were no major differences within education levels between the food security pack programme beneficiaries and non-beneficiaries as the trends were similar. Generally, the data show that there were low literacy levels among both the food security pack beneficiaries and non-beneficiaries as indicated in Figure 4.3 below.

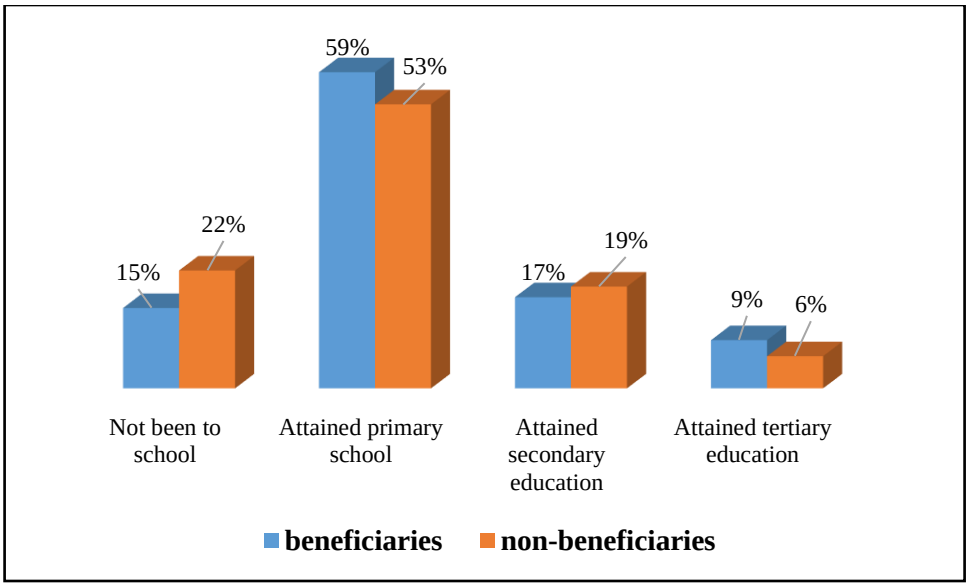

Figure 4.3: Education levels: FSPP beneficiary and non-beneficiary household heads

(Source: Survey result by the researcher 2017)

The findings in Figure 4.3 above confirm Zambian (CSO 2013b) statistical projections that show continued illiteracy levels in Mpulungu district for the projected 2015 to 2021 period. With little or no education, households can hardly comprehend the latest agricultural technologies thereby reducing the potential for agricultural production and productivity that ultimately affect household food security. This statement is supported by studies conducted in various parts of developing counties. For instance, the study that was conducted by De Cock et al (2013) to examine the household food security situation in rural South Africa concluded that, the higher the education level of a household head, the more food-secure the household was. This conclusion matches the work of Mason et al (2015) conducted in Tanzania that used food consumption as an indicator of food security to establish factors influencing household food security. They discovered that households with family heads with higher education levels had an improved household food security status than those with none or lower education levels (Mason et al 2015).

The information above shows that education levels have effects on agricultural production and productivity and ultimately household food security. This conclusion is supported by the livelihood strategies and food security linkages component of the Sustainable Livelihood

Framework that argues that the rural households' livelihoods depend on various factors, such as levels of education and local knowledge (May et al 2009). This is the reason that, even within the same locality, there are differences in the livelihood strategies that households undertake as a result of variances in educational backgrounds.

4.2.5 Family size of the FSPP beneficiaries and non-beneficiaries

Family size was considered under this section because of its effect on household food security. Regarding the food security pack beneficiary households, the study results revealed that 25.9 percent of the 147 households reached out had a family size in the range of 1 to 5 family members, while 33.3 percent and 40.8 percent had a family size ranging from 6 to 10, and above 10, respectively, as shown in Figure 4.4 below.

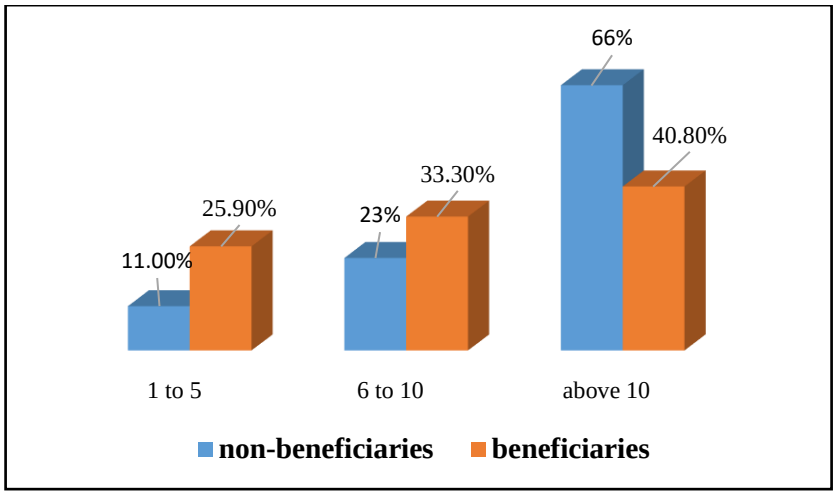

Figure 4.4: Family size of the beneficiary and non-beneficiary households

(Source: Survey result by the researcher 2017)

The findings in Figure 4.4 above show that the majority of the households of the food security pack beneficiaries had a family size of more than ten (10) family members in a household, while the least had between 1 to 5 family members.

The pattern of the results was similar to the results obtained from the food security pack non-beneficiary households that also showed to have the majority of the households having more than ten (10) family members with the least having around 1 to 5 members as in shown in

Figure 4.4 above.

A high number of family members is seen as an advantage among small-scale farmers in rural communities as a labour force that can help to achieve high agricultural productivity. The aforesaid explanation confirms Feder's (1985:299) argument that small-scale farmers who have more family labour realise greater yields per hectare because family labour has more incentives than hired labour to work. The bigger the family size, the more comfortable the household heads are as productivity is enhanced in rural areas. Blank (1997) explains that, to realise a significant family size, many men in rural farming communities resort to polygamy and embrace extended family ties. The above explanation confirms the outcome of the study by Maitra and Rao (2015) in India which revealed that a larger household size is less likely to be food-insecure, on the understanding that there is a higher number of bread-winners for the provision of household needs.

The results of this study show that the majority of the respondents had large family sizes because of the assumption that the bigger the family size, the higher the productivity and comfort experienced by the families of the small-scale farmers regarding household food security.

4.3 Food security status: FSPP beneficiaries and non-beneficiaries

To establish the household food security status of the food security pack beneficiaries and non-beneficiaries in Mpulungu district of Zambia, the "principle of prioritising learning" that the Theory of Change advocates for was used in this study. This principle holds that programmes should be held responsible for how they have performed in and adapted to local settings and why this adaptation has been important for improved development outcomes (Guijt 2015:53). Applying this principle, the study analysed four variables, namely, land cultivated, maize crop harvested, surplus maize crop harvested and access to food to establish the household food security status for the food security pack beneficiaries and non-beneficiaries as presented in detail below.

4.3.1 Land cultivated by the FSPP beneficiaries and non-beneficiaries

The Livelihoods Approach embraced by the Sustainable Livelihood Framework is primarily concerned with understanding people, assets or capital endowments, such as land, which can be analysed critically to establish how it can contribute to livelihood outcomes (Bezemer & Lerman 2002). Land, which is a natural capital under the Sustainable Livelihood Framework, is said to be a resource that can be exploited directly for production (Department for International Development 1999:23). Using the Livelihood Approach that recognises land as a vital natural resource, the study sought to analyse the amount of land cultivated by the food security pack programme beneficiaries and non-beneficiaries for maize crop production to establish the effect of the programme for the three farming seasons reviewed. The two groups were examined to compare the mean using a *t*-test to establish the group that cultivated more land than the other. The *t*-test generated vital group descriptive statistics shown in Table 4.2 below.

Table 4.2: Group descriptive statistics on land cultivated for maize crop production

	Group	N	Mean	Std. Deviation	Std. Error Mean
Amount of land cultivated for maize crop production	Beneficiaries	147	2.00	.585	.048
	Non-beneficiaries	152	1.59	.848	.069

(Source: Survey result by the researcher 2017)

The statistics in Table 4.2 above show that the mean land cultivated for the food security pack beneficiaries group (N = 147) was 2.00, and 1.59 for the non-beneficiaries group (N = 152). The mean difference between the two groups was 0.41. There is a difference in mean regarding the amount of land cultivated between the beneficiaries and the non-beneficiaries where the mean score for the beneficiaries is higher than that of the non-beneficiaries as indicated in the descriptive statistics in Table 4.2 above.

Cohen's *d* $(M_2 - M_1) \div SD_{Pooled}$ was estimated at 0.6 which is a large effect based on Cohen's (1992:157) guidelines. Therefore, there is very strong evidence that there was a statistically significant difference between the amount of land cultivated for agricultural purposes between

the food security pack programme beneficiaries and non-beneficiaries, where the former cultivated more land than the latter as supported in Figure 4.5 below.

As shown in Figure 4.5 below, it was established that 66.0 percent of the 147 food security pack programme beneficiaries cultivated between a quarter hectare to half a hectare, while 17.0 percent managed to cultivate more than half a hectare. The other 17.0 percent cultivated less than a quarter of a hectare. Thus, the findings show that the majority of the food security pack beneficiary households were able to cultivate between a quarter to half a hectare compared to the non-beneficiaries whose majority 61 percent of the 152 respondents handled cultivated less than a quarter hectare as indicated in Figure 4.5 below.

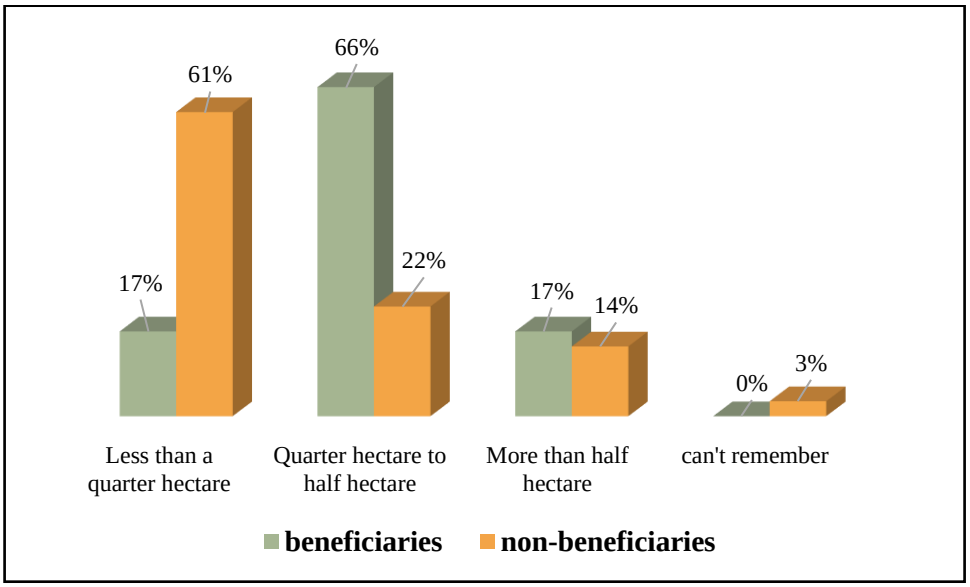

Figure 4.5: Amount of land cultivated by the beneficiary and non-beneficiary households

(Source: Survey results by the researcher 2017)

The study results in Figure 4.5 above revealed low land cultivation among the non-beneficiaries of the food security pack programme suggesting that the food security pack programme had a significant effect on land cultivation during the three (3) farming seasons reviewed.

The cultivation of big amounts of land by the food security pack programme beneficiaries compared to the non-beneficiaries confirms McPherson's (2004) argument that, depending on agro-climatic conditions, small-scale farmers participating in the government subsidised farming inputs would farm between a quarter of hectare to five hectares. With the favourable weather conditions and adherence to good farming practices, the small-scale farming households cultivating large amounts of land were likely to increase their yields compared to those cultivating small amounts of land. The aforesaid argument is supported by a study conducted by Koirala et al (2016) in the Philippines that examined the role of proprietorship of land on productivity amongst the farmers involved in rice farming which established that an increase of 1.0 percent in farm size improved the yield of rice by 0.40 percent.

4.3.1.1 Reasons for cultivating large and small land: beneficiaries and non-beneficiaries

For the majority 83 percent of the 147 food security pack beneficiary who cultivated a quarter hectare and more when asked what could have led to that achievement, the majority 63.1 percent attributed the increase in the cultivation of the amount of land to the free farming inputs received from the food security pack programme as shown in Table 4.3 below.

Table 4.3: Reasons from the FSPP beneficiaries for cultivating large portions of land

	Reasons for cultivating significant portions of land	Number of respondents	Percentage
	Free farming inputs from the FSPP	77	63.1
	Drought resistant seeds received from the FSPP	25	20.5
	Good technical farming knowledge	13	10.7
	The prolonged rainy season in this part of the region	7	5.7
	Total	**122**	**100.0**

(Source: Survey result by the researcher 2017)

The other 20.5 percent and 10.7 percent of the respondents explained that the increase in land utilisation was due to the drought-resistant seeds they received and planted that were supplied under the food security pack programme, and the appropriate technical farming knowledge imparted to them by the Agricultural Extension Officers, respectively. The minority 5.7 percent cited prolonged rainy season in Mpulungu district. Therefore, the study established

that the majority of the food security pack beneficiary households cultivated reasonable portions of land due to free farming inputs received under the programme. The cultivation of big portions of land by the food security pack beneficiaries is supported by Weiss' (1995:51) definition of a theory of change that explains it as "a theory of how and why an initiative works".

The opposite was the case when the majority 61 percent of the 152 food security pack non-beneficiary households who cultivated less than a quarter hectare as indicated in Figure 4.5 above were asked to give the reason for less utilisation of the land. The majority 44.1 percent complained of lack of purchasing power to acquire farming inputs for their field, while the minority 13.9 percent cited the use of local seed varieties that have low yield properties. The other 23.6 percent and 19.3 percent attributed the less utilisation of land to the unpredictable negative effects of climate and lack of agricultural extension services, respectively, as shown in Table 4.4 below.

Table 4.4: Reasons from the FSPP non-beneficiaries for cultivating small portions of land

	Reasons for cultivating small portions of land	**Number of respondents**	**Percentage**
	Effect of climate change	21	23.6
	Lack of extension services	18	19.3
	Lack of purchasing power to buy farming inputs	41	44.1
	Use of local indigenous seeds that yield little	13	13.9
	Total	**93**	**100.0**

(Source: Survey result by the researcher 2017)

It is evident from the results in both cases presented above that the provision of free farming input under the food security pack programme was the leading factor that helped in cultivating more land by the beneficiaries of the programme. The food security pack programme proved to be a useful social protection measure aimed at increasing agricultural productivity through increased land use. The reasons given by the majority of the respondents in both cases confirm the Forum for Food Security in Southern Africa (2004:33) report that explains that a complete view of social protection intervention in supporting food security includes production using "free agricultural farming inputs in addition to employment (food

for work), and trade (food-price interventions such as consumer subsidies)".

However, even though there was good utilisation of land by way of cultivation by the food pack beneficiaries attributed to the free farming inputs received compared to the non-beneficiaries, the question is whether the provision of free farming inputs on the part of the Zambian government is sustainable or not. Undoubtedly, the reason given by the food security pack beneficiaries for good utilisation of land may encourage an over-dependency on the Zambian government for the continued provision of these free farming inputs under the programme. Hence, the need for more robust agricultural reforms that would transform the agriculture sector to be able to contribute to the national treasury rather than just taking from it.

The provision of drought-resistant seeds under the food security pack programme as a compelling factor to cultivating more land also came out strongly from a big number of the food security pack beneficiaries as can be seen from Table 4.4 above. The perception is that, with drought-resistant seeds, respondents were able to cultivate more land with the understanding that, regardless of the anticipated drought, they were guaranteed a good yield from the new seed varieties they accessed from the food security pack programme. The use of drought-resistance seeds is in tandem with Tsafack and Degrande (2015) emphasis on making drought-resistant farming inputs accessible to small-scale farmers, with the accompaniment of indigenous-specific knowledge regarding new seed varieties and technologies through intensified extension services. Liao and Brown (2018:49) mention that, in addition to the agricultural-related information, extension services are used as a channel to spread the latest agricultural technology in developing countries.

The reason advanced by some food security pack beneficiaries on technical farming knowledge through extension services as one of the leading factors that helped to cultivate more land also came out during focus group discussions. When focus group participants were asked the type of extension services that were available for the recipients of the food security pack programme, nearly all participants, except a representative from the Church, described the works of Agricultural Extension Officers as a significant force behind the motivation for

small-scale farmers to cultivate more land in anticipation of realising a good yield. However, the participant acknowledged the challenges that extension officers face, such as the big gap in the staff-farmer ratio. One of the focus group participants singled out some of the unique good practices of the extension services, which the majority were agreeable to, that included hands-on technical assistance, efficient market information, periodic and timely weather forecast information, among others, that help to improve production and productivity. This outcome of the focus group discussions conforms to the study conducted in rural Nigeria by Wossena et al (2017:231) regarding the influence of extension services and cooperative membership on the welfare of households which revealed that access to extension services had a positive correlation with agricultural productivity.

Another focus group participant explained that such types of robust agricultural extension services were not there before the introduction of the food security pack programme as the majority of the participants applauded her, a sign that they consented. She added:

> *"It is like that is when Zambia has discovered the importance of agriculture because I wonder where these Extension Officers were in the past? Is it because the Zambian government has pumped in much money in the food security pack programme, and it does not want it to go to waste? Whichever the case, we are now awakened."*

Similar explanations were received during the interviews from the key informants who included technocrats and the traditional leader. One technocrat mentioned that, in the past, agricultural extension services were completely neglected, though even presently, a lack of investment in this area regarding the human, operation, financial, and automobile resources to facilitate movements between farmers is still a challenge to some extent.

It was further heard during interviews that the food security pack programme came with a package of intensified agricultural extension services to cope with the growth in agricultural technology and to boost agriculture production and productivity in light of the effects of climate change.

4.3.2 Land cultivated by the beneficiaries before and after accessing FSPP

To substantiate the results explained in section 4.3.1 that indicated there was a significant difference in the amount of land cultivated between the food security pack programme beneficiaries and non-beneficiaries where the former cultivated more land than the latter. The study also analysed the beneficiaries' group mean alone focusing on the period before and after accessing the programme using a paired sample *t*-test whose results are shown in Table 4.5 below.

Table 4.5: Paired samples statistics on land cultivated before and after access to the FSPP

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Amount of land cultivated for maize crop production before beneficiaries' access to the FSPP	1.18	147	.464	.038
	Amount of land cultivated for maize crop production after beneficiaries' access to the FSPP	2.00	147	.585	.048

(Source: Survey result by the researcher 2017)

The paired samples statistics in Table 4.5 above show that the land cultivated before beneficiaries access to the food security pack programme had a lower mean (M = 1.18) than the land cultivated after beneficiaries' access to the programme (M = 2.00). The mean difference was (M_1 - M_2) = -0.82. Also, the variation of the standard deviation in the data (i.e., dispersion of scores) was wider for the land cultivated after the programme (SD = 0.59) than the land cultivated before the programme (SD = 0.46).

The mean for the amount of land cultivated after beneficiaries' access to the food security pack programme was statistically significantly higher than the mean for the amount of land cultivated before beneficiaries' access to the programme. Using Cohen's d (M_2 - M_1) ÷ SD_{Pooled}, the effect of the food security pack programme on the amount of land cultivated was high as per Cohen's d that was estimated at 1.2.

To support the above findings, Table 4.6 below presents percentages of the amount of land cultivated before and after beneficiaries' access to the food security pack programme in Mpulungu district. The statistics in the table below show that the majority of the respondents cultivated less than a quarter of a hectare before accessing the food security pack programme while, after accessing the programme, the majority of the respondents were able to cultivate between a quarter to half a hectare as shown in Table 4.6 below.

Table 4.6: Land cultivated before and after FSPP beneficiaries' access to the FSPP

Amount of land cultivated	Period	Number of respondents	Percentage
Less than a quarter of a hectare	Before	126	85.7
	After	25	17
Quarter hectare to half-hectare	Before	16	10.9
	After	97	66
More than half a hectare	Before	5	3.4
	After	25	17

(Source: Survey result by the researcher 2017)

Thus, the study results revealed that the respondents cultivated more land after accessing the food security pack programme than before, suggesting that the food security pack programme had a significant effect on land cultivation as established by the mean results of the paired samples *t*-test shown in Table 4.5 above.

4.3.2.1 Period of receipt of the farming inputs by the FSPP beneficiaries

Regarding the period of delivery and receipt of the farming inputs, the study sought to ascertain when farming inputs were delivered to the individual localities of the food security pack beneficiaries and distributed to them for use in their fields. The results show that the majority, 81.6 percent of the total respondents, indicated that the farming inputs were delivered late, and out of the 147 respondents, 12.9 percent felt they received them in a reasonable period, while the remaining 5.4 percent admitted that they had them in good time, as indicated in Figure 4.6 below.

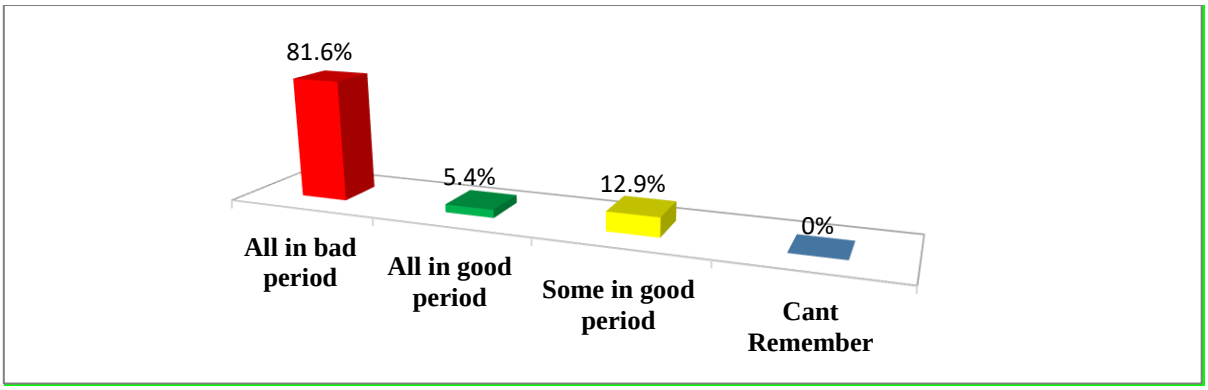

Figure 4.6: Period of delivery and receipt of the farming inputs by the FSPP beneficiaries

(Source: Survey result by the researcher 2017)

In support of the responses in Figure 4.6 above, outcomes of interviews with the Zambian government officials, a traditional leader, and focus group discussions confirmed the responses of the respondents. Both the interviews and the focus group discussions revealed that the beneficiaries of the food security pack programme, more often than not, received the farming inputs slightly after the recommended period for planting, which is the first week of November (MA 2016). The Zambian government officials ascertained that the late distribution was a result of the failure by the Zambian government to release resources to suppliers in time for ordering the farming inputs. The late distribution was compounded by a lack of storage sheds and space for keeping the farming inputs in most of the designated receiving areas.

One interviewee whose statement summarised what came out from all the interviewees mentioned that there was a need for private sector participation in the management of the distribution of farming inputs:

> *"The same few storage sheds that we store maize in for strategic food reserves after harvests are the same storage sheds that we are supposed to use for storage of farming input for the following farming season. If there is no clearance of stocks in these few sheds, then there will be no space to keep the anticipated incoming inputs. If we are to tackle the problem of late delivery of inputs that is as a result of a limited number of storage sheds or space, then there is a need for the private sector participation that can take up the challenge of storage facilities."*

Figure 4.7 below shows bags of maize grain piled unprotected in the open in Mpulungu Central Business District.

Bags of fertiliser stored in open air space **Bags of maize stored in open air space**

Figure 4.7: Open-air storage space in Mpulungu Central Business District

(Source: The researcher 2017)

The statement by the interviewee cited above was shared by the focus group participants. The participants also called for the Zambian government to engage local agro-dealers closer to their localities to be suppliers of specified farming inputs. Focus group participants argued that empowering local agro-dealers would help in boosting the local economy, unlike where suppliers and distributors were from the capital city of Lusaka.

The feelings of frustration, anxiety and tension to which the majority of the focus group participants from some Area Food Security Pack Committees are summed up in the words of one participant:

> *"Local agro-dealers have in stock all the farming inputs that the government of Zambia has prescribed under the food security pack programme. Why not contracting them? Should we continue receiving farming inputs from suppliers from Lusaka? How can poverty be alleviated if the government does not empower local dealers? Besides, local agro-dealers have storage facilities. We are crying that there is poverty in rural areas, it*

is because of such type of manoeuvres by the central government."

Figure 4.8 below shows a session of focus group discussion in Mweenda area, Mpulungu district.

Figure 4.8: Focus group discussions with Mweenda AFSPC

(Source: The researcher 2017)

There were calls for engaging local agro-dealers under the food security pack programme as opposed to supplying the farming inputs centrally. The study discovered from the focus group discussions that engaging local agro-dealers by entering into binding contracts for supplying farming inputs has several benefits for the programme, among others:

1. timely access to the farming inputs by the vulnerable, but viable, small-scale farmers on the food security pack programme;
2. easy return of damaged and unfit farming inputs for use in the fields;
3. allowing choices of varieties for the farmers;
4. provision of valuable information on the handling of farming inputs by agro-dealers at the point of collection;
5. readily available storage facilities owned by agro-dealers; and

6. circulation of money in the local economy.

The sentiments from the focus group discussion with the combined group of agro-dealers and non-governmental organisations were agreeing with those agreed upon by the Area Food Security Pack Committees quoted above. The majority of the agro-dealers during the focus group discussion supported by the majority of the non-governmental organisations wondered why the supply of the farming inputs to the local food security pack beneficiaries could be done directly from the Ministry of Community Development and Social Services Headquarters when they were capable to supply. One participant whose explanation was agreed by the majority said:

> *"If, as agro-dealers, we are allowed to be engaged locally by the Ministry, prompt delivery of farming inputs to the door-steps of the FSPP beneficiaries would be done on time because we have stocks of inputs all year round in our warehouses. Our stocking of the readily available farming inputs only benefits those farmers that can afford to buy."*

The above submission was supported by the majority of representatives of the non-government organisations that were part of the focus group discussion. The majority of the representatives of the NGOs mentioned that if the government of Zambia would decide to decentralise the supply of farming inputs under the food security pack programme to the beneficiaries, a lot of economic and social benefits would be experienced in the communities and the district as a whole.

Likewise, in trying to probe more, the study also wanted to establish whether or not the food security pack beneficiaries planted the crop seeds they received late contrary to the strategy and implementation guidelines. Figure 4.9 below shows that 81.6 percent of the total respondents indicated that they planted all the crop seeds received, while 12.3 percent admitted having planted some and 6.1 percent did not plant any crop seeds.

As clearly depicted in Figure 4.9 below, the majority of respondents, even though they received farming inputs late, planted the seeds.

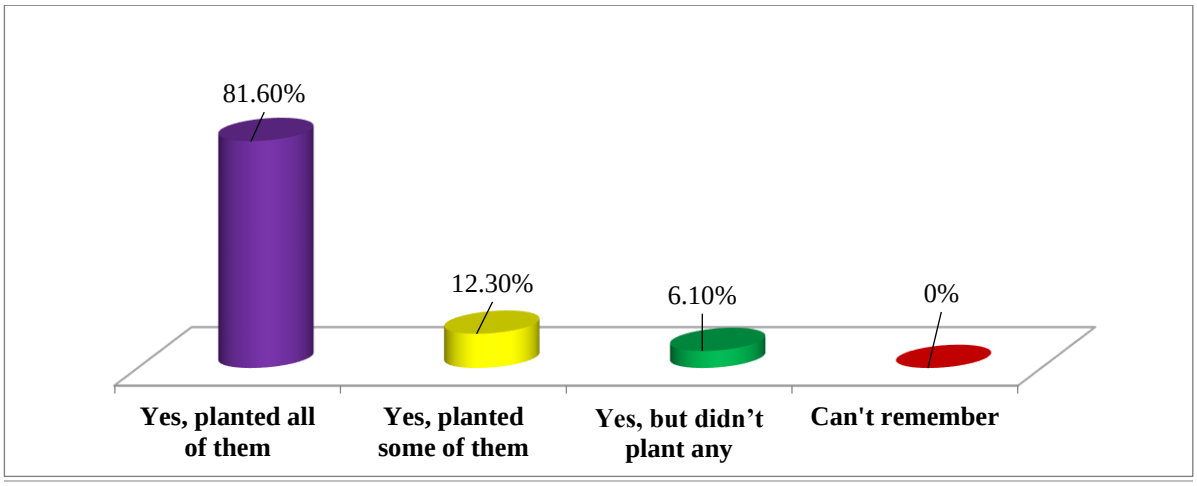

Figure 4.9: Crop seeds received and planted by the FSPP beneficiaries

(Source: Survey result by the researcher 2017)

The outcome mentioned above of planting seed crops outside the recommended period came out as an important concern in all the focus group discussions conducted, with the majority of the participants claiming poor yields due to this. However, on the contrary, long-term research by agricultural institutions and seed companies indicates that late planting does not necessarily translate to reduced yields (ARI 2017). Christiaensen and Demery (2007:31) explain that, with favourable weather conditions, small-scale farmers can record good yields even with late planting provided there are no other factors that hinder the yields. These factors may include: "threats of the shorter growing season, disease and insect pressure, and a high risk of hot/dry conditions during pollination", among others (Christiaensen & Demery 2007:31).

When those respondents who indicated that they did not plant all the maize crop seeds received as indicated in Figure 4.9 above, were further asked to give reasons, they gave various reasons as shown in Table 4.7 below.

Table 4.7: Reasons from the beneficiaries for not planting all the crop seeds received

	Reasons for not planting all the crop seeds	Number of respondents	Percentage
	Thought it was too late to have a good yield	15	55.6
	Only received fertilisers, and no seed.	8	29.6
	Received bad seeds	4	14.8
	Total	27	100.0

(Source: Survey result by the researcher 2017)

Table 4.7 above shows that 55.6 percent of the 27 food security pack beneficiaries that did not plant all the maize crop seeds received explained that they could not make use of the farming inputs that they received late because they thought that it was too late to plant to realise a good yield, hence, they decided to reserve them for the following season. The other 29.6 percent of the total respondents explained that they could not plant because they did not receive any seeds, but only fertiliser, while the minority, 14.8 percent, complained that they received bad seeds, which could not germinate. All the above-cited reasons advanced by the respondents for not planting all the crop seeds received, indicated in Table 4.7 above, point to the administrative challenges that the food security pack programme is experiencing.

The supply of incomplete packs and bad seeds could be avoided if the Zambian government involved the local supplier or agro-dealers, as individual farmers could return them and get the correct quantities of the right quality farming inputs. In most cases, when people get free commodities, they may not ask for the correct quantities or types because they have not paid for them. The solution for the poor yields experienced among the vulnerable, but viable, small-scale farmers that come as a result of late planting, due to the reasons cited above, equally lies in the engagement of the local agro-dealers by the Zambian government. Since local agro-dealers are business-oriented, they always have readily available stocks of farming inputs in good time for the planting season. Hence, their participation in the distribution chain of farming inputs would benefit the programme, individual small-scale farmers, and the local economy.

4.3.3 Maize crop harvested: FSPP beneficiaries and non-beneficiaries

For the three farming seasons reviewed, the study sought to investigate the amount of maize crop harvested by the food security pack beneficiaries and non-beneficiaries per 0.25 hectares of land to establish the effect of the food security pack programme. The descriptive statistics generated from the independent *t*-test revealed that the food security pack beneficiaries ($N = 147$) had a larger mean in relation to maize crop productivity ($M = 4.25$: $SD = 1.27$) than the non-beneficiaries ($N = 152$) that had $M = 2.45$ with $SD = 1.13$ as shown in Table 4.8 below.

Table 4.8: Group descriptive statistics on maize crop productivity

	Group	N	Mean	Std. Deviation	Std. Error Mean
Maize crop productivity	Beneficiaries	147	4.25	1.265	.104
	Non-beneficiaries	152	2.45	1.127	.091

(Source: Survey result by the researcher 2017)

The statistics in Table 4.8 above show that there was a difference in mean concerning maize crop productivity between the beneficiaries ($M = 4.25$) and non-beneficiaries ($M = 2.45$) with the former having a higher mean score than the latter. Therefore, the independent *t*-test was associated with a statistically significant higher mean for beneficiaries in relation to maize crop productivity than the non-beneficiaries. However, to determine the effect size of the food security pack programme (treatment), Cohen's *d* $(M_2 - M_1) \div SD_{Pooled}$ was calculated and estimated at 1.5, which is a large effect based on Cohen's (1992) parameters. In this regard, there was very solid proof that a statistically significant difference in maize crop productivity between the food security pack programme beneficiaries and non-beneficiaries existed, with the former having a higher maize crop productivity than the latter as confirmed by results shown in Figure 4.10 below.

Figure 4.10 below shows that 70.1 percent of the 147 beneficiary households harvested more than 20 (50kg) bags of maize grain on average, per 0.25 hectares of land compared to the 8 percent of the 152 non-beneficiary households that harvested the same amount of maize crop

on the same size of a piece of land. The majority of the non-beneficiaries harvested between 5 and 10 (50kg) bags of maize grain per 0.25 hectares of land while the minority 15 percent harvested less than 5 (50kg) compared to the minority 5.4 percent of the food security pack beneficiaries that harvested the same amount of maize grain on the same size piece of land as shown in Figure 4.10 below.

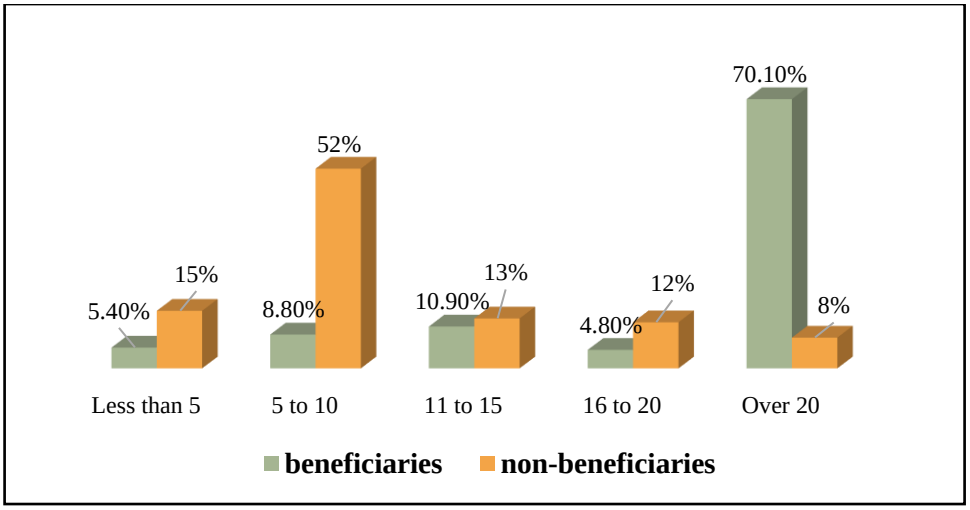

Figure 4.10: 50kg bags of maize grain harvested (beneficiaries and non-beneficiaries)

(Source: Survey result by the researcher 2017)

Therefore, the study results, as shown in Figure 4.10 above, revealed higher maize crop productivity among the food security pack beneficiaries than the non-beneficiaries insinuating that the food security pack programme significantly contributed to high maize crop productivity during the three (3) farming seasons reviewed as proved by the mean difference for the independent samples *t*-test results shown in Table 4.8 above.

The study results shown in Figure 4.10 above are supported by some arguments from some focus group discussions where participants agreeably described the harvests of the non-beneficiaries of the food security pack programme as “pathetic”, “a deathtrap” and “a disaster”. The food security pack programme was commended for enhancing agricultural productivity to the extent of having some household beneficiaries yielding surplus crops for sale.

Consistent with the explanations given by the majority of participants in all the focus group discussions, one participant from one Area Food Security Pack Committee issued a statement that was emblematic of the remarks of several focus group participants. This statement sums up the household agricultural productivity of the food security pack beneficiaries:

> *"In most situations, people think that it is the laziness of farmers that contributes to poor agricultural production and productivity; while others are quick to point at the effects of climate change and other natural forces, which they cleverly term as 'beyond human control'. Yes, this could be taken to be true by a typical villager, but with the advent of agricultural technological innovations and appropriate interventions by responsible governments, this can be proved to be wrong, as is the case with the introduction of the foods security pack programme."*

The participant's statement above which the majority of the focus group discussions were agreeable to; was echoed by responses from the interviews with all the key informants. In the interview, the traditional leader reiterated that the idea by the Zambian government to introduce free farming inputs for the vulnerable small-scale farming households was "brilliant", if well implemented and managed.

The traditional leader further explained that the majority of food security pack beneficiaries were able to contribute to the national food strategic reserve through selling surplus produce to the Food Reserve Agency of Zambia than was the case before the introduction of the food security pack programme. Also, the traditional leader explained that his subjects enthusiastically received the food security pack programme as it provided solutions to the many challenges that small-scale farmers faced in the past that led to low agricultural production and productivity in his chiefdom.

Responses from interviews with technocrats directly involved in the implementation of the food security pack programme were in agreement with the comments solicited from the focus group discussions and interview with the traditional leader. However, technocrats went further to explain that, although there were some challenges in the administrative component, the programme was moving towards meeting the objectives for which it was established indicated in sub-section 1.2.4 of Chapter One. One technocrat acknowledged that, though

there could be challenges with varying degrees in any programme that repeatedly require being addressed and redressed, these challenges might only be known through monitoring and evaluation. He said:

> *"Like in the case of the food security pack programme, I admit that it has its lacunas. However, our concentration should not be singing about these omissions, instead let's look at the bigger picture that shows whether we are driving towards meeting the objective of the programme or not, and amend what might be obstacles. In the case of the food security pack programme, I can safely mention that we are moving towards fulfilling its objectives; every step counts in tying up loose ends."*

As established in Figure 4.5 in the previous subsection that there was higher land utilisation among the food security pack beneficiaries than non-beneficiaries which was linked to the likelihood of an increase in yields, the argument is proved under this subsection. The aforementioned argument confirms the findings of the study conducted by Koirala et al (2016) in the Philippines that examined the role of proprietorship of land on productivity amongst the farmers involved in rice farming, which found that an increase of 1.0 percent in farm size improved the yield of rice by 0.40 percent. However, the findings were contrary to Khonje et al's (2015) study on the relationship of farm size with productivity in the Eastern Province of Zambia. Their findings revealed that, with a small farm ranging from 0.1 to 3.5 hectares, productivity levels were higher than those farming households with a farm size of more than 3.5 hectares.

The results of this study on the amount of maize crop harvested by the food security pack beneficiaries and non-beneficiaries are in agreement with the Food Security Task Force's (2008:11) argument that agricultural productivity improvement is attained with the usage of adequate agricultural inputs as beneficiaries will have the ability to extend their farming horizons. The above argument resonates well with the study by Frelat et al (2016) in sub-Saharan Africa which revealed that the size of the farm is a determining factor of high agricultural productivity.

4.3.3.1 Reasons for high and low maize production: beneficiaries and non-beneficiaries

Apart from establishing the agricultural production and productivity levels of the food security pack beneficiaries and non-beneficiaries shown in Figure 4.10 above, this study also obtained reasons for the justification of their performance.

For the majority 70.1 percent of the 147 food security pack beneficiaries that harvested more than 20 (50kg) bags of maize grain per 0.25 hectares when asked what could have led to those achievements, several reasons were advanced as shown in Table 4.9 below. The majority 30.1 percent attributed the high maize crop productivity to the free farming inputs they received under the food security pack programme, followed by 18.4 percent and 16.5 percent that mentioned the use of improved maize seed varieties and application of fertilisers, respectively. The minority 9.7 percent considered the agricultural extension services as the main force to their realisation of high maize crop yields as indicated in Table 4.9 below.

Table 4.9: Reasons for high maize crop productivity by FSPP beneficiaries

	Reasons for improved harvests	Number of respondents	Percentage
	Supply of free farming inputs	31	30.1
	Drought resistant maize seeds	15	14.6
	Application of fertiliser	17	16.5
	Agricultural extension services	10	9.7
	The prolonged rainy season	11	10.7
	Hybrid maize seeds	19	18.4
	Total	**103**	**100.0**

(Source: Survey result by the researcher 2017)

The empowering of the vulnerable, but viable small-scale farmers with farming inputs under the food security pack programme which they previously lacked in Mpulungu district contributed to high maize crop productivity which improved household food security among the majority of the beneficiary households. The above finding is supported by the results of the assessment of the Integrated Food Security Programme introduced in 2011 by the Malawi Red Cross Society in Mwanza district in Malawi whose aim was to lessen food-insecurity of

the vulnerable households and communities through the implementation of the diversified agricultural production of food and cash crops. Through this programme, the vulnerable households were given start-up agricultural input packages which included a range of utilities such as suitable seeds, beehives, goats and pigs, tools, irrigation equipment, fertilisers and chemicals (MRCS 2012). The assessment of the programme after two years of implementation revealed that it increased the availability of food and access to it by the family members of the benefiting households beyond expectation. The aim of this programme was to improve household food security by 25 percent; however, information obtained from the field assessment revealed that most of the households' food availability reached as high as 100 percent (MRCS 2012).

Similarly, the Ethiopian Red Cross Society (ERCS), in partnership with the International Federation of Red Cross and the Swedish Red Cross, implemented the Integrated Food Security Development Programme in the Tigray region that ran from 2009 to 2012. Its purpose was to improve the food security status of 2,259 vulnerable households through the provision of crossbreed cows, beehives and poultry, training in cattle fattening, and fruit and vegetable production (ERCS 2012). Four years after the implementation of the programme, the assessment of the project revealed that there were improvements in the livelihoods of the targeted communities that subsequently improved both household food security and the prowess of income-generating activities. The programme impacted positively on the lives of the beneficiary households as most of them gained the benefits of the programme and met their needs. Further, the assessment revealed that support in kind was more successful than the allotment of seed money to the beneficiaries in cash due to the high chances of being used for unintended purposes.

Regarding the reasons for low maize crop productivity, when the majority 92 percent of the 152 non-beneficiaries that harvested fewer than 20 (50kg) bags of maize grain per 0.25 hectares were asked what could have led to their poor agricultural performance, various explanations were given as shown in Table 4.10 below.

Table 4.10: Reasons for low maize crop productivity by FSPP non-beneficiaries

	Reasons for poor harvests	Number of respondents	Percentage
	Lack of fertilisers (both compound "D" and Urea)	53	37.9
	Effect of climate change	23	16.4
	Poor quality of indigenous maize seeds	38	27.1
	Lack of agricultural technical knowledge	26	18.8
	Total	**140**	**100.0**

(Source: Survey result by the researcher 2017)

The majority 37.9 percent cited lack of both basal and top-dressing fertilisers as the reason for their low maize crop productivity, followed by 27.1 percent who complained of using poor local quality indigenous maize seed varieties that yield little as shown in Table 4.10 above. The other 18.8 percent and 16.4 percent mentioned the lack of agricultural extension services and the negative effects of climate change, respectively, as their hindrances for improved agricultural productivity.

Some of the reasons advanced by the food security pack beneficiaries for high maize crop productivity include the utilisation of free fertiliser, intensified agricultural technical assistance services and planting of hybrid maize seeds, mentioned in Table 4.10 above, also surfaced during focus group discussions and interviews with the key informants.

Unfortunately, the application of chemical fertiliser which some of the respondents mentioned as the contributing factor to achieving high maize crop productivity is regarded by some scholars to be the cause of soil degradation. Mwale et al (2007) explain that the dwindling agricultural productivity is a consequence of numerous factors that include low usage of input technologies, high reliance on rain-fed production and soil degradation resulting from long-term practices of subsistence agriculture linked to the adoption of maize mono-cropping and application of chemical fertilisers which cause the loss of soil organic matter, fertility and structure, among others. The use of fertiliser is good for improved agricultural productivity in the short term but soils begin to lose fertility with consistent applications of chemical fertiliser in the long term.

4.3.4 Maize crop harvested by the beneficiaries before and after the FSPP

To validate the results generated from the analysis of the data suggesting that the food security pack programme significantly contributed to high maize crop productivity for the programme beneficiaries as explained in Subsection 4.3.3 above, a paired samples *t*-test was performed with a focus on the period before and after beneficiaries' access to the programme, whose results are shown in Table 4.11 below.

Table 4.11: Paired samples statistics on maize crop productivity before and after FSPP

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Maize crop productivity before beneficiaries' access to the FSPP	1.71	147	1.234	.102
	Maize crop productivity after beneficiaries access to the FSPP	4.25	147	1.265	.104

(Source: Survey result by the researcher 2017)

The paired samples statistics in Table 4.11 above revealed that the maize crop productivity before beneficiaries' access to the food security pack programme (N = 147) had a lower mean (M = 1.71) than the maize crop productivity after beneficiaries' access to the programme (M = 4.25). The mean difference was (M_1 - M_2) = -2.54. The variation of the standard deviation in the data was wider for the maize crop productivity after access to the programme (SD = 1.27) than the maize crop productivity before (SD = 1.23).

The maize crop productivity mean after beneficiaries' access to the food security pack programme was statistically significantly higher than the maize crop productivity mean before beneficiaries' access to the programme, signifying that respondent produced more maize crops after accessing the programme than before. To determine the effect that the size of the food security pack programme had on maize crop productivity, Cohen's *d* was calculated and

projected at 1.6. Therefore, Cohen's *d* indicated a large effect based on Cohen's (1992) rule of thumb.

To support the above findings, Figure 4.11 below portrays a graphical presentation of the average amount of maize crop harvested before and after beneficiaries' access to the food security pack programme.

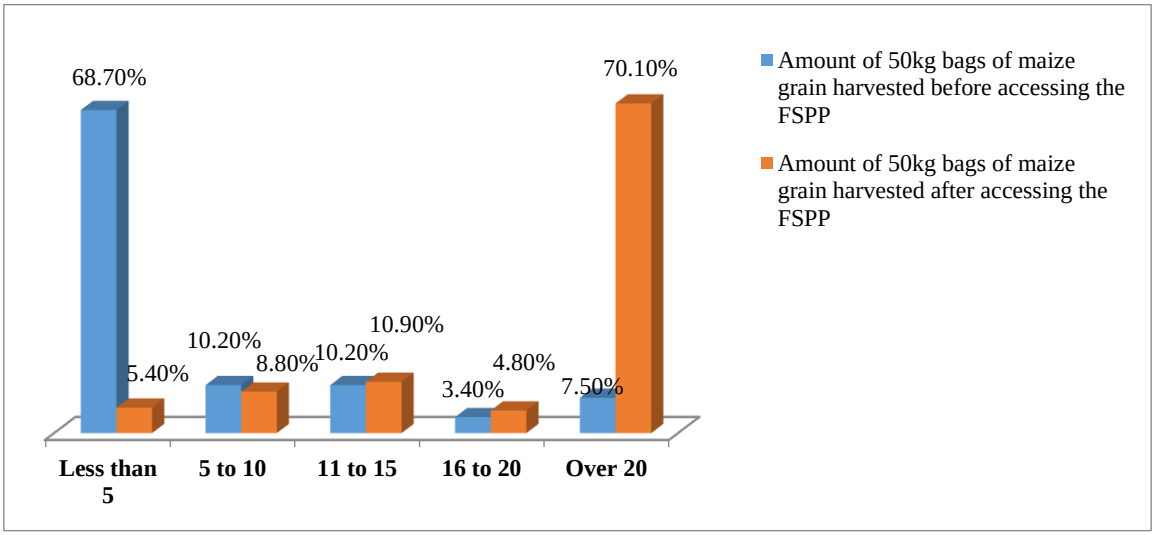

Figure 4.11: Maize crop harvested before and after beneficiaries access to FSPP

(Source: Survey results by the researcher 2017)

Figure 4.11 above, shows that 68.7 percent of the 147 respondents harvested less than five 50kg bags of maize grain on average per 0.25 hectares of land before accessing the food security pack programme compared to 5.4 percent who harvested the same number of bags of maize grain on the same size of the land after accessing the programme. However, after accessing the programme, 70.1 percent of the 147 respondents harvested more than 20 (50kg) bags of maize grain on average, per 0.25 hectares of land compared to 7.5 percent that harvested the same amount of maize crop on the same size of a piece of land before accessing the food security pack programme. Therefore, the study results revealed higher maize crop productivity after respondents' access to the food security pack programme than before accessing the programme implying that the food security pack programme significantly

contributed to high maize crop productivity as demonstrated by the paired samples *t*-test mean results shown in Table 4.11 above.

4.3.5 Surplus maize crop harvested: beneficiaries and non-beneficiaries

Surplus harvests are determinants of improved household food security as presented in the livelihood outcomes of the Sustainable Livelihood Framework. They are the achievements of livelihood strategies, such as the implementation of the food security pack programme, which is the subject of this study. In a bid to further understand the food security status of the food security pack beneficiary and non-beneficiary households, the study sought to establish, on average, the respondents' levels of surplus maize crop realised in the past three (3) farming seasons reviewed.

To this end, the study found that 59.9 percent of the 147 food security pack beneficiaries, which was the majority, agreed that they produced surplus maize crops, compared to 22 percent of the 152 non-beneficiaries that realised surplus maize crop. The majority 76 percent of the non-beneficiaries did not produce surplus maize crops, compared to 40.1 percent of the food security pack beneficiaries as shown in Figure 4.12 below.

Therefore, it is evident from the outcomes of the study that the food security pack beneficiaries yielded more surplus maize crops than the non-beneficiaries, suggesting that the food security pack programme contributed to the realisation of surplus harvests. The above explanation reflected in Figure 4.12 below is supported by the outcome of the interview results from one of the technocrats who appreciated the multi-positive effects of the programme. The interviewee explained:

> *"The food security pack programme has given a relief to the benefiting households in that many can produce surplus crops and afford to eat two to three meals a day, while others can afford to pay school fees for their children and purchase other households necessities through the realisation of income from the sales of surplus agricultural products such as maize, beans and groundnuts."*

The above interviewee's explanation regarding the yielding of more surplus maize crops by the food security pack beneficiaries than the non-beneficiaries is reflected in Figure 4.12 below.

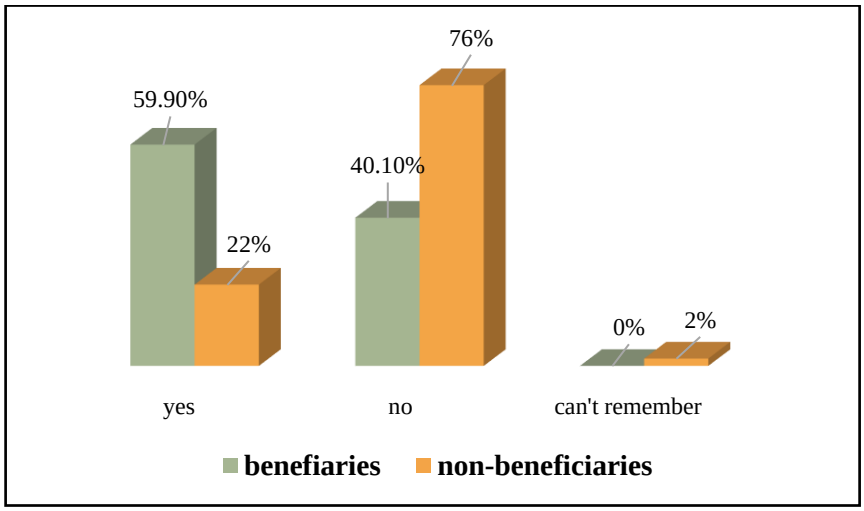

Figure 4.12: Surplus maize crop harvested by the FSPP beneficiaries and non-beneficiaries

(Source: Survey result by the researcher 2017)

The finding on the harvesting of surplus maize crop by the majority of the food security pack beneficiaries presented above is in agreement with the evaluation result of the Livestock Rotation Initiative Programme implemented by the Rwanda Red Cross Society (RRCS) in 2008 in Rwanda. As one component of the food security and livelihoods programme targeted at some communities throughout Rwanda, the programme was aimed at making vulnerable households and communities resilient to shocks (RRCS 2013). It provided herds of cattle, pigs, goats, rabbits and other livestock to targeted communities. To guarantee that every household received livestock in the community, the firstborn heifer, pig, goat or rabbit was passed on to another household, which reproduced new-borns for new households (World Food Programme 2014).

The rotation continued until each household in the community had livestock that it could raise. The assessment of the programme revealed that the benefiting households were able to

produce surplus livestock products and sell some at local markets to realise income (money) which they put aside for other household requirements, such as payments of school fees and health insurance, et cetera. Therefore, the majority of beneficiary communities' livelihoods were made stronger than before they had access to the programme.

Worth noting in the findings in Figure 4.12 above is that, even if the 40.1 percent and 76 percent of the food security pack beneficiaries and non-beneficiaries, respectively, did not produce surplus maize crops for the period reviewed, the researcher believes that they harvested and stored enough for home consumption as depicted in Figure 4.13 below.

Groundnuts storage in Mpulungu Central	**Maize storage in Mweenda Area**
	

Figure 4.13: Traditional crop storage facilities in Chitimbwa

(Source: The researcher 2017)

The researcher's statement above is supported by the information gathered from some households through the observation method employed during the administration of the questionnaires to households reached out shown.

The surplus of harvested maize crops plays an important role in a farming household because it does "not only meet the food and fibre deficit, but it can also contribute to the capital

formation and provides the basic wage goods, supplying raw materials, and foreign exchange to the non-agricultural sector" (Shamsul & Siren 2002:115).

4.3.5.1 Sale of the surplus maize crop by the FSPP beneficiaries and non-beneficiaries

Sales of surplus products are the livelihood outcome achievements of livelihood strategies that give a household more income, increase well-being, reduce vulnerability and improve food security. With this understanding emanating from the Sustainable Livelihood Framework, the study wanted to find out whether the 59.9 percent of the food security pack beneficiaries and 22 percent of the non-beneficiaries who indicated that they had realised surplus maize crops sold their surpluses. This was necessary because, at the national level, the Zambian government realises that small-scale farmers can play a significant role in reducing hunger and poverty through agricultural production and the realisation of surplus maize crops for sale to meet other household necessities and ultimately contribute to national development.

The study established that 70.5 percent of the food security pack beneficiaries who harvested surplus maize crops sold their surpluses, while 29.5 percent did not as shown in Table 4.12 below.

Table 4.12: Sale of the surplus maize crop by the FSPP beneficiaries

	Any surplus maize crop sold?	**Number of respondents**	**Percentage**
	Yes	62	70.5
	No	26	29.5
	Total	**88**	100.0

(Source: Survey result by the researcher 2017)

The majority of the food security pack beneficiaries who harvested surplus maize crop sold their surpluses to realise income (money) for other household necessities. The assessment of the Integrated Food Security Programme implemented in 2011 by the Malawi Red Cross Society (MRCS) in Mwanza district in Malawi agrees with the findings of this study. The programme was aimed at alleviating food insecurity of the vulnerable households by

providing agricultural input packages, namely, suitable seeds, beehives, goats and pigs, tools, irrigation equipment, fertilisers and chemicals (MRCS 2012). After two years, the evaluation of the programme revealed that the income base for the beneficiary households increased because of the sale of the surplus of their agricultural products which enabled them to take care of their other household requirements. For instance, those who ventured into fish farming were able to harvest enough fish for feeding their families and for selling. What they realised from the sales was channelled to other household requirements, such as paying school fees for their children and investing in new ponds to multiply their income, while others bought cattle (MRCS 2012).

Regarding the non-beneficiaries, the pattern was similar to that of the beneficiaries in relation to the sale of surplus maize crop, though only 22 percent (33) of the 152 non-beneficiaries compared to 59.9 percent (88) of the 147 beneficiaries harvested surplus maize crop. The study found that 75.8 percent of the non-beneficiaries that harvested surplus maize crop sold their surplus crops, while 24.2 percent did not as indicated in Table 4.13 below.

Table 4.13: Sale of the surplus maize crop by the FSPP non-beneficiaries

	Any surplus maize crop sold?	**Number of respondents**	**Percentage**
	Yes	25	75.8
	No	8	24.2
	Total	**33**	100.0

(Source: Survey result by the researcher 2017)

The scenario depicted in Tables 4.12 and 4.13 above where the majority of the food security pack beneficiaries and non-beneficiaries sold their surplus maize crop is in tandem with Baffes and Gardner's (2003:161) view that the acquisition of income from farm sales is the surest strategy to cope with income risk, where suitable insurance markets are non-existent.
The above-mentioned risks are what are called seasonality complications and shocks in the "Vulnerability Context" compartment of the Sustainable Livelihood Framework that influences families' livelihoods in households and are not controlled by inhabitants.

The majority of the food security pack beneficiaries and non-beneficiaries that sold their surplus maize crop to meet other household needs had other sources of food and support, such as petty-trading, remittances from relatives, and also grew other food crops and vegetables as the study results revealed in subsections 4.4.1 and 4.4.2.

Figure: 4.14 below shows bags of a variety of beans and maize grains produced by some food security pack beneficiaries ready for sale at the open market in Mpulungu Central Business District.

Bags of a variety of beans at the open-market

Bags of maize grain at the Food Reserve Agency depot

Figure 4.14: Open-market sales of crops in Mpulungu Central

(Source: The researcher 2017)

The sales of surplus crops by households to realise money is what the livelihood assets component of the Sustainable Livelihood Framework call “financial capital”. Financial capital represents the financial resources that households make use of to realise their livelihood objectives and consists of the availability of cash or its equivalent that allows households to adopt various livelihood strategies (Kollmair & Gamper 2002). Financial capital is key to the agricultural productivity of the vulnerable, but viable, small-scale farmers, as this allows them to acquire goods and services, such as fertilisers, crop seeds, pesticides, the hiring of farm labour, transportation of surplus produce to markets, among others.

4.3.6 Access to food: families of FSPP beneficiaries and non-beneficiaries

As is the case in most of the relevant areas of discussion in this study, a comparison of various trends in different areas of investigations formed a basis for discussions. As such, it was found necessary in this study to also get the views of the FSPP beneficiaries and non-beneficiaries regarding the feeding pattern, with a focus on the number of full meals eaten per day, on average, by household members for the past three (3) farming seasons reviewed to determine household food security levels. This was in line with James' (2011:23) definition of a Theory of Change that is said to be "an ongoing process of reflection to explore change [and] how it happens and what that means for the part we play in a particular context and group of people."

In this study, what constituted a full meal was a cornmeal product called Nshima that is made from ground maize (corn) flour known locally as "mealie-meal". Nshima is eaten along with relish which is a spicy sauce made from fruits and vegetables that have been boiled and is served with beans, meat, fish, etcetera, in the Zambian context. Nshima with relish is a staple food in Zambia and very similar to fufu of West Africa, posho or ugali of East Africa, pap of South Africa, and sadza of Zimbabwe (Mukuka, Simwanza & Tembo 2009). In the Zambian context, it may be eaten two or three times a day (morning, afternoon, and evening).

Figure 4.15 below shows a full meal constituting a white paste-like substance called nshima and relish.

Figure 4.15: Typical Zambian full meal

(Source: Zambian Traditional foods 2018)

The study results on family members' access to food revealed that 30 percent of the 147 food security pack beneficiaries had an average of three (3) full meals per day compared to 6 percent of the 152 non-beneficiary households, while 31 percent of the beneficiaries compared to 69 percent of non-beneficiaries had two (2) full meals per day. Only 5 percent of the food security pack beneficiaries had more than three (3) meals per day compared to none for the non-beneficiaries as shown in Figure 4.16 below.

In an ideal situation, a family should have three full meals a day in the Zambian context. Suffice to also mention that the 2 percent of the 152 non-beneficiaries who did not have any full meals per day had meals in a day, but not enough to qualify as full meals in line with the description of a full meal explained in section 4.3.6 above.

Figure 4.16 below shows the statistical presentation on the number of full meals eaten per day by the food security pack beneficiary and non-beneficiary households.

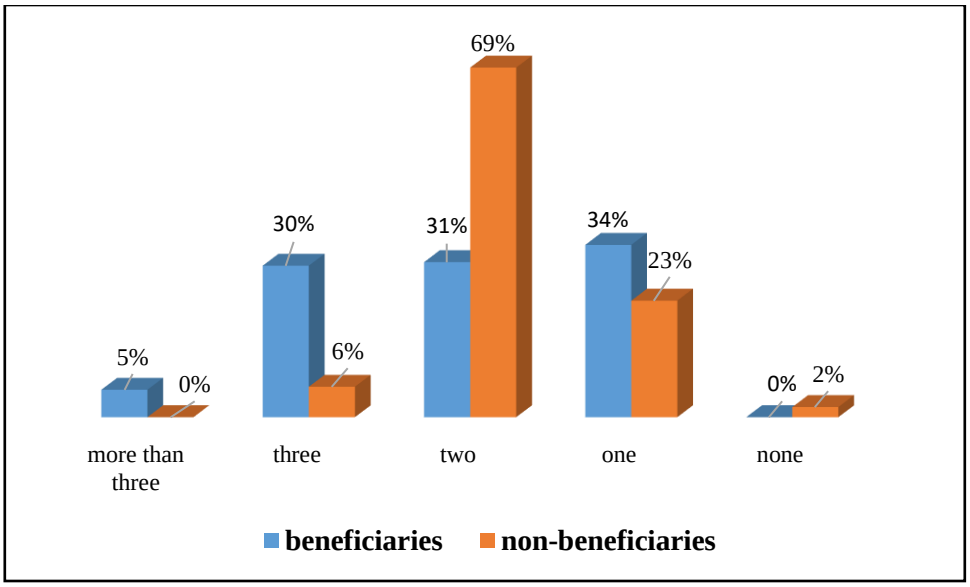

Figure 4.16: Number of full meals- beneficiary and non-beneficiary households

(Source: Survey result by the researcher 2017)

In an interview with one of the agricultural technocrat, it was clarified that the majority of the non-beneficiaries had two (2) full meals per day because they could not afford three (3) full meals due to insufficient food arising from household food insecurity. In the same vein, it was explained that some beneficiaries had one (1) full meal per day not because they were food insecure, but because they could afford to eat other agricultural food products such as pumpkins, sweet potatoes, cassava and other agricultural byproducts for other main meals.

Generally, the results show that the food security pack programme contributed to improved feeding pattern of the beneficiary households through an increased number of meals per day. The evaluation results of the Zambezi River Basin Initiative (ZRBI) implemented in Sesheke and Kazungula districts in 2012 in Zambia by the International Federation of Red Cross (IFRC), Red Crescent Societies (RCS) and the Zambia Red Cross Society (ZRCS), aimed at addressing the livelihoods of the 22,000 households susceptible to floods and drought along the Zambezi basin, support the above argument. The programme provided the beneficiaries with agricultural inputs, such as maize seed and cowpeas, for upper-land crop production and vegetable seeds like cabbage, tomato, rape and Chinese cabbage as well as insecticides, herbicides and water pumps after capacity building (World Bank 2013). Additionally, goats

and chickens were given to beneficiary farmers as starter packs. The programme evaluation results showed that most beneficiaries adopted the use of organic manure to improve their soil and enhance its fertility which made their crops grow well and ultimately increased their yields significantly. As a result of the increased yields and harvests, families of the benefiting households were able to eat two (2) to three (3) meals a day (ZRCS 2016).

Similarly, the Integrated Food Security Programme, implemented by the Malawi Red Cross Society in Mwanza district in 2011 in Malawi, whose aim was to lessen food insecurity of the vulnerable households and communities through the implementation of the diversified agricultural production of food and cash crops, revealed results similar to the findings of this study. The programme provided the vulnerable households with start-up agricultural input packages which included suitable seeds, beehives, goats and pigs, tools, irrigation equipment, fertilisers and chemicals (MRCS 2012). The assessment of the programme after two years of implementation established that the feeding patterns for most of the benefiting households had significantly improved. Also, awareness of the need for a balanced diet amongst the beneficiary households was amplified and the availability of fish, mushrooms, vegetables and meat made it possible for the families of the majority of benefiting households to eat a balanced diet.

The study results in Figure 4.16 above revealed that the food security pack beneficiaries were more food-secure than the non-beneficiaries who had little access to enough food. This statement is supported by Clover (2003:13) argument that "food insecurity is no longer seen simply as a failure of agriculture to produce sufficient food at the national level, but instead, as a failure of livelihood to guarantee access to sufficient food at the household level."

The above findings confirm Maxwell's (2001) explanation that the problem of food shortage among small-scale farmers has been seen as the gap between production and consumption. Also, Gollin's (2010) argument that low agriculture food production and productivity among the small-scale farmers in rural Zambia is due to a lack of resources for them to purchase agricultural inputs supports the claim made above.

The findings regarding the positive trends on the feeding pattern in favour of the food security pack beneficiaries resonate with Maxwell's (2001:24) understanding of the fundamental shift in thinking about food security from the global and national to the household and individual levels. Maxwell further explains that this shift in thinking has caused a breakthrough to efforts aimed at eliminating hunger and poverty at lower levels, such as community, household, and individual levels (Maxwell 2001).

Figure 4.17 below shows plates of full meals witnessed by the researcher in Isoko and Kasimango catchment areas in Mpulungu district.

Figure 4.17: Meals witnessed by the researcher in Isoko and Kasimango

(Source: The researcher 2017)

Following the explanation of Vogel (2012) that a Theory of Change is premised on both how a change in a given set-up takes place, and what ongoing task individuals perform, both the food security pack beneficiaries and non-beneficiaries were asked a follow-up question that required them to indicate the family member who had the authority to decide when the family should have meals each day. Figure 4.18 below shows the responses given.

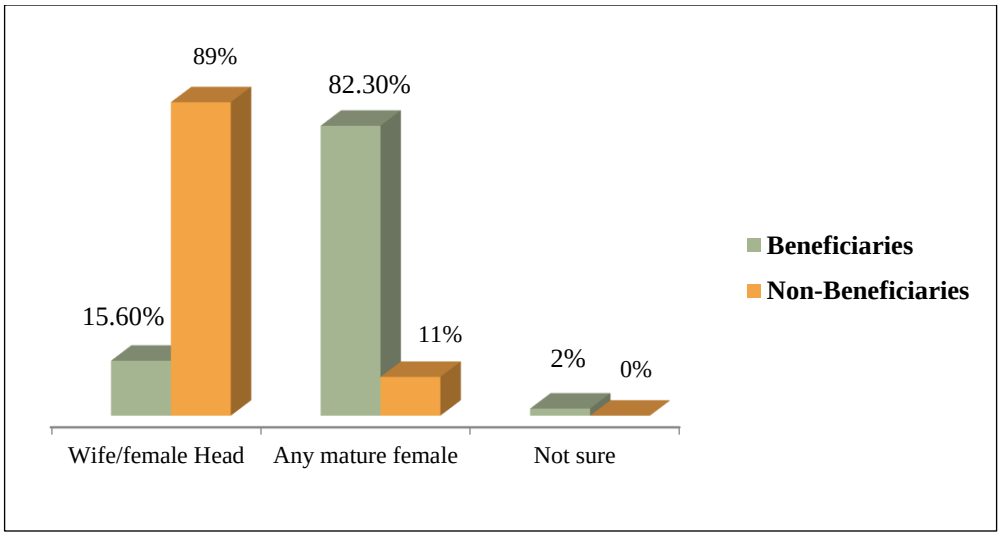

Figure 4.18: Decision making on meals: FSPP beneficiary and non-beneficiary households

(Source: Survey result by the researcher 2017)

The study found that 82.3 percent of the 147 food security pack beneficiaries, which was the majority, indicated that any mature female in a household could decide when to have a meal, compared to 11 percent of the 152 non-beneficiaries that said the same. On the other hand, the majority 89 percent of the non-beneficiaries indicated that the decision on when to have meals was the preserve of a female who may either be the wife of the household head or the head herself, compared to 15.6 percent of the food security pack beneficiaries that indicated the same as shown in Figure 4.18 above. Therefore, the study established that, in the majority of households of the food security pack beneficiaries, any mature female in a household had the right to decide when to prepare and have meals taking into account the interests of the children. As for the majority of households of the non-beneficiaries, the decision when to prepare meals was the preserve of a female who may be the wife of the household or the head herself.

The understanding on the findings above is that the majority of the food security pack programme did not have restrictions on the feeding decisions like the majority of the non-beneficiary households as they were more food-secure than the non-beneficiaries.

The results of the study favouring the food security pack beneficiaries confirm Donnison's (1982) argument that food utilisation is concerned with intra-household distribution and the right to adequate meals for household members. This positive trend also moves closer to the World Bank's (1986:1) definition of food security which is: "access by all people at all times to enough food for an active life".

While there were positive trends in feeding patterns for the majority of the food security pack beneficiaries compared to the non-beneficiaries, like in other sections discussed above, there are some questions from the researcher's perspective that beg answers: 1) for how long would the vulnerable, but viable, small-scale farmers rely on the free farming inputs to sustain their household food security? 2) In case of an economic meltdown, what would the Zambian government do for the vulnerable, but viable, small-scale farmers whose livelihoods are dependent on the government for the provision of free farming inputs? 3) How can the Zambian government discourage small-scale farmers' dependency syndrome?

Question two (2) above requires attention to avoid a repeat of what happened during the 2017/18 farming season when the Zambian government did not give out the food security packs to the potential beneficiaries countrywide as shown in Table 1.2 in Chapter One. During this farming season, the Zambian government was unable to distribute the food security packs due to financial constraints and this sparked a general public outcry countrywide from the beneficiaries who were dependent on the free farming inputs.

The answers to all the questions above lie in removing the dependency of the vulnerable, but viable, small-scale farmers on the Zambian government for the provision of free farming inputs for the foreseeable future. The removal of the dependency syndrome could be done through a change in agriculture policy direction that should be tailored to designing pro-poor self-sustaining empowerment programmes that demand to be paid back.

4.4 FSPP beneficiaries' engagement in other economic activities

Apart from the food security pack programme that the vulnerable, but viable, small-scale farmers participated in to foster household food security in Mpulungu district, the study sought to understand other economic ventures the beneficiaries were undertaking to enhance household food security. This is in line with the livelihood diversification opportunities component of the Livelihood Approaches that encourage poor households to engage in other livelihood opportunities to increase productivity and returns or to change to activities that provide higher returns (Devereux 2000). To this end, the study wanted to establish whether the food security pack beneficiaries grew other varieties of crops that contributed to the enhancement of household food security, other than those they grew under the food security pack programme. Also, whether there were sources of income that contributed to household food security other than those that were agriculture-oriented.

4.4.1 Growing of additional crops by the food security pack beneficiaries

In a bid to establish whether the respondents grew other varieties of crops apart from what they were provided with under the food security pack programme, the study sought responses to establish the linkages between other livelihood strategies and food security as enshrined in the Sustainable Livelihoods Framework discussed in sub-section 2.5.1 of Chapter Two.

As shown in Figure 4.19 below, 59.2 percent of the 147 food security pack beneficiaries when asked whether they grew additional crops, admitted that they grew other crop varieties in addition to what was received under the programme. The other 40.8 percent of the food security pack beneficiaries denied having grown other crops other than what they were given under the programme as shown in Figure 4.19 below.

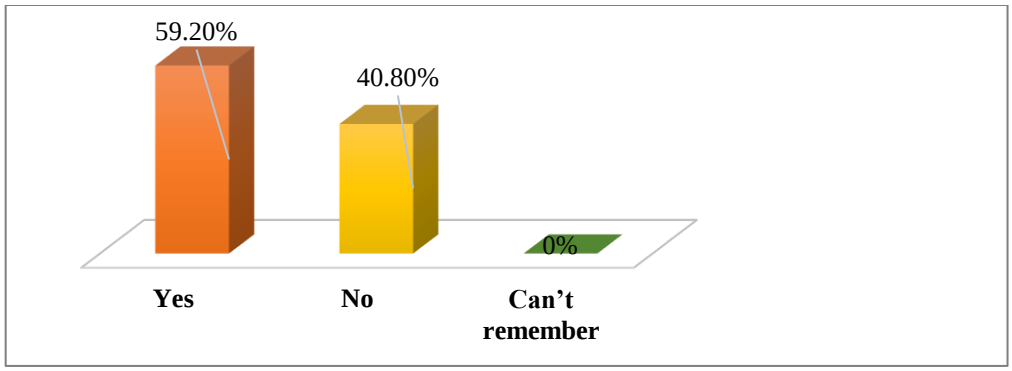

Figure 4.19: Growing of additional crops by the food security pack beneficiaries

(Source: Survey result by the researcher 2017)

Therefore, the research findings reveal that the majority of the respondents also grew other crops in addition to what was provided under the food security pack programme. Through observations, it was ascertained that a number of the food security pack beneficiaries also grew crops other than those provided under the food security pack programme, which they said were grown through the proceeds realised from the sales of surplus crops from the food security pack programme, as can be seen in Figure 4.20 below.

The majority of the food security pack beneficiaries in Mpulungu district opted to grow other food crops in addition to what they received under the programme because of the limited choice of crop seeds the programme offered. This justifies Kodamaya's (2011) argument that the food security pack programme, in its current state, does not give small-scale farmers options on what to grow. In its current state, the food security pack programme enhances maize cultivation with fertiliser use, rather than encouraging crop diversification and conservation farming. This situation denies the vulnerable, but viable, small-scale farmers the choice of what to grow. The findings, as shown in Figure 4.20 below captured through observations agree with Estudillo and Otsuka's (2010:3451) explanation that small-scale farmers cultivate various types of crops throughout the year for their livelihood.

Figure 4.20 below shows pictures of crops other than those provided under the food security pack programme, grown in the backyards of some food security pack beneficiaries'

households captured during observations.

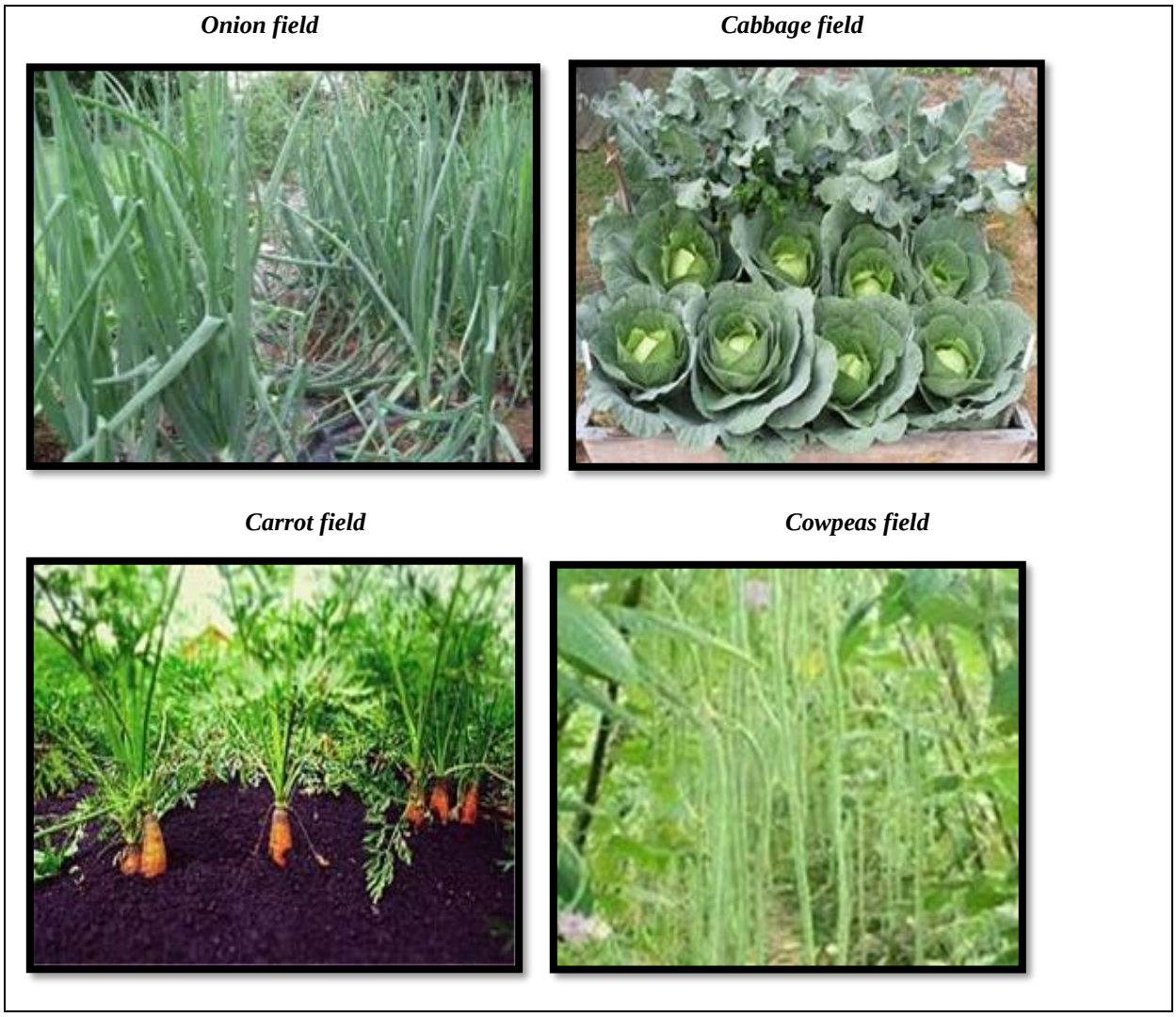

Figure 4.20: Some additional crops grown by the FSPP beneficiaries

(Source: The researcher 2017)

The cultivation of various crops is in addition to income from non-farm rural activities that enable them to meet their daily needs. These are livelihood strategies that positively contribute to desired livelihood outcomes of improved household food security as supported by the Sustainable Livelihood Framework adopted in this study. They are choices that households craft to realise their livelihood aspirations.

Some food security pack beneficiaries sell some of their crops to meet other household needs. The idea of selling is useful only when they leave enough for their consumption, and can save with financial institutions. These savings can be used as sources of income during times of shock, trends and seasonality changes that may impact negatively on household food security.

4.4.2 Sources of other family support: FSPP beneficiaries and non-beneficiaries

Apart from the agricultural-related activities that the food security pack beneficiaries and non-beneficiaries undertook, the study sought to establish non-farm activities that they pursued to mitigate anticipated economic shocks, such as those shown under the vulnerability context in the Sustainable Livelihood Framework in Figure 2.1 of Chapter Two. These vulnerabilities include changes in seasonality, trends and shocks that can devastate households, if household heads are not well prepared.

The study revealed that the majority 38 percent of the 147 food security pack beneficiaries had support for other family needs, such as education support, health services, and other essential household goods and services, from remittances; compared to the majority 66 percent of the 152 non-beneficiaries that got support from the same. In the second-highest category, it was established that 18 percent of the food security pack beneficiaries did petty trading as a source of other income compared to 14 percent of the non-beneficiaries that pursued the same business venture as shown in Figure 4.21 below. Other sources of income mentioned were safety-nets and piece work, however, the researcher's interest for discussion was in the first two categories that had the highest score in percentage points.

Therefore, the study established that there were fewer food security pack beneficiaries getting support from remittances than the non-beneficiaries and more food security pack beneficiaries in petty-trading business than the non-beneficiaries.

Figure 4.21 below shows sources of other family support for the food security pack programme beneficiaries and non-beneficiaries in Mpulungu district.

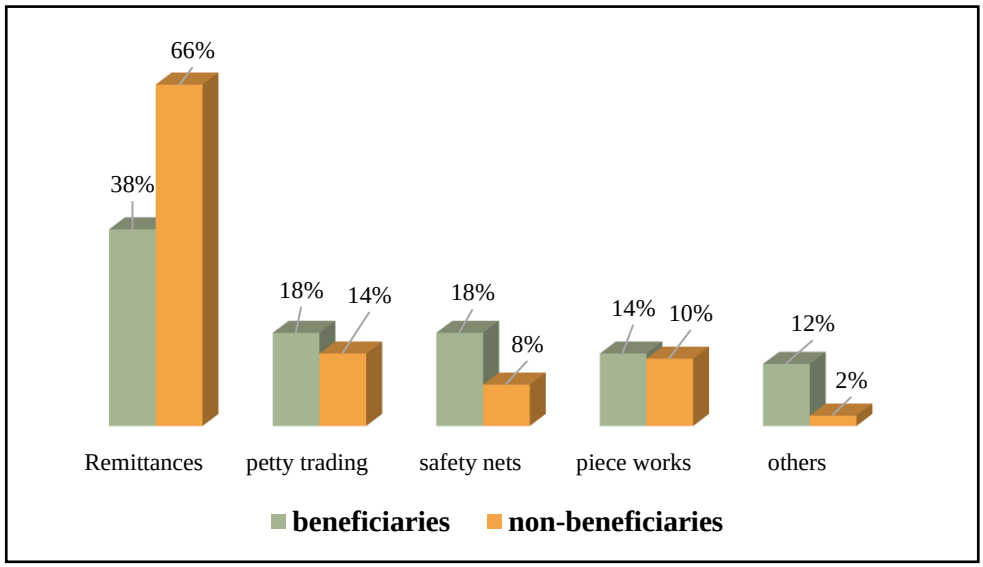

Figure 4.21: Sources of other family support: FSPP beneficiaries and non-beneficiaries

(Source: Survey result by the researcher 2017)

Going by the findings in the previous sections, it can be argued that there were fewer food security pack beneficiaries receiving support from remittances compared to non-beneficiaries because most of them were food-secure as a result of the support from the food security pack programme. On the other hand, it can be argued that non-beneficiaries of the food security pack programme received more remittances compared to the beneficiaries as a cushion to household food insecurity.

It can also be said that there were more food security beneficiaries than non-beneficiaries engaged in petty trading than the non-beneficiaries because most remittances they received might have been channelled to petty trading as they were food-secure, whereas the non-beneficiaries may have channelled most remittances received to food because of household food insecurity.

Over and above, it was established that remittances, as a source of livelihood, were key to supporting the households of both the food security pack beneficiaries and non-beneficiaries. This confirms Hoddinott's (1999:47) statement that remittances play a significant role in helping small-scale farmers to access other vital goods and services that require purchasing

power. Also, Estudillo and Otsuka (2010:3451) add that remittances from migrant members of households help a great deal in raising the standards of living of the recipient households.

The findings of this study on remittances are in line with the study conducted by Generoso (2015) in Mali on the effects of remittances on household food security in rural areas. The results of this study in Mali showed that households that receive remittances had an improved status of household food security in the Saharan zone compared to those with no remittances, but that the benefit was impermanent. Similarly, Fransen and Mazzucato (2014) carried out a study in Burundi with a focus on remittances and household wealth for post-conflict households. The outcome of the study showed that in households that belong to the category of poor wealth, remittances improved their finances and ultimately household food security status. Likewise, the study by Thow, Fanzo and Negin (2016), focusing on the effects of remittances on nutrition and diets, discovered that households that receive remittances had reduced vulnerability, improved food consumption and enhanced food security in comparison to those households without remittances.

Remittances, petty trading, safety nets, and piece work presented in Figure 4.21 above are what is called "sources of financial capital" under the livelihood assets component of the Sustainable Livelihood Framework. Financial capital is key to cushioning household food insecurity of the vulnerable, but viable, small-scale farmers, as it allows them to acquire goods and services, such as fertilisers, crop seeds, pesticides, transportation of surplus produce to markets, and foodstuffs.

4.5 Perceptions of the FSPP beneficiaries on the effects of the programme

The study sought to understand the effects of the food security pack programme on the lives of the members of the households from the beneficiaries' perspective and the responses from them were categorised as tabulated in Table 4.14 below.

Table 4.14: Beneficiaries' perspective on the effects of the FSPP

	Effects of the FSPP	Number of respondents	Percentage
	Improved health status of family members	28	19.0
	Improved feeding patterns	33	22.4
	Increased school enrolment of children	21	14.3
	Improved household food security	46	31.4
	Reduced malnutrition among the under-five children	19	12.9
	Total	**147**	**100.0**

(Source: Survey result by the researcher 2017)

As shown in Table 4.14 above, 19.0 percent of the 147 food security pack programme beneficiaries explained that the programme contributed to the improvement of the health status of family members. The other 22.4 percent of the respondents said the programme played a vital role in improving feeding patterns, while 31.4 percent praised the programme for improved household food security. The minority, 12.9 percent and 14.3 percent of the respondents explained that food security played a more significant role in reducing malnutrition, and increasing school enrolment of the children, respectively. The majority of the food security pack beneficiaries explained that the programme improved household food security in the beneficiaries' households.

The achievement in improved household food security explained above is one of the accomplishments of the livelihood strategies explained in the Sustainable Livelihood Framework used in this study as explained in sub-section 2.5.1 and illustrated in Figure 2.1 of Chapter Two. The findings of the study are in line with Scoones' (1998:23) analysis of the Sustainable Livelihood Framework that states that the accomplishment of the livelihood strategies includes livelihood outcomes such as "more income, increased well-being, reduced vulnerability, improved food security, and more sustainable use of natural resources".

Similar responses mentioned above were recorded from the focus group discussions and interviews with the Zambian government officials and a traditional leader as key informants. The key informants described the positive effect of the food security pack programme for the

three farming seasons reviewed as beneficial to the vulnerable, but viable, small-scale farmers.

According to the participants in the focus group discussions, the food security pack programme brought positive changes to the lives of the family members of the benefiting households due to improved feeding patterns and health status of individual family members that reduced malnutrition, especially among children and the elderly.

The above findings of the study are in agreement with Ellis's (2000:301) analysis of the livelihood strategies and food security linkages which point to the fact that nutritional status is one of the best outcome indicators for overall livelihood security because it captures many dimensions such as access to food, healthcare, and education. Ellis's (2003:301) analysis resonates with the focus group participants' explanations that the positive change in the lives of the family members of the benefiting households was as a result of enhanced household food security that was lacking before the inception of the programme. One focus group participant gave a statement that summed up the outcomes of the deliberations of all discussions in different focus groups:

> *"If the food security pack programme was to be withdrawn today, God forbid – not wishing that for the period one to two years from now, there will be disasters in many homes of the benefiting households because of hunger-related illnesses; health posts and clinics will be overwhelmed with sick people. All these will be a result of farmers' incapacity to purchase farming inputs that are too expensive to afford for an ordinary villager."*

In agreement with the above assertion, one Zambian government official mentioned:

> *"The food security pack programme in Mpulungu district pulled many small-scale farming households from what seemingly was the bottomless pit of poverty onto the land of happiness."*

The same government official also mentioned that small-scale farmers in the district should become independent once they graduate from the programme because of the positive effects posted by the food security pack programme, in general.

4.6 Challenges of the FSPP from the beneficiaries' perspectives

Employing the "principle of local-driven" as espoused by the Theory of Change, which encourages a bottom-up approach using participatory principles to ensure that the local players are not left out of the consultation and evaluation processes in development programmes, the researcher asked for the challenges that the food security pack programme was facing from the beneficiaries' perspectives. Table 4.15 below shows that the majority, 40.1 percent of the 147 food security pack beneficiaries, contended that unpredictable rainfall was the major challenge that the food security pack programme faced.

Table 4.15: Beneficiaries' perspectives on factors that presented challenges to the FSPP

	Factors that presented challenges	**Number of respondents**	**Percentage**
	Unpredictable rainfall	59	40.1
	Lack of market for surplus produce	7	4.8
	Limited choice of crops seeds to plant	17	11.6
	Inadequate farming inputs	24	16.3
	Late delivery of farming inputs	35	23.8
	Political interference	5	3.4
	Total	**147**	**100.0**

(Source: Survey result by the researcher 2017)

The minority, 3.4 percent and 4.8 percent of the respondents, cited political interference and the lack of a readily available market respectively to sell their surplus crops as major challenges. Eleven point six (11.6) percent of the respondents alluded to the limited choice of crop seeds that the programme offered in the package as a challenge as indicated in Table 4.15 above.

The submission by the majority of the respondents that unpredictable rainfall, a result of climate variability, was the major challenge resonates with Weatherspark's (2019) explanation that Mpulungu district is usually hot with average daily temperatures above 93°F from September to November and the possibility of rainy days are unpredictable and vary considerably during the year. The district is said to encounter intense seasonal variations in

rainfall on a monthly basis with the period of rains yearly anticipated to last for seven months with a sliding 31-day rainfall of about 0.5 inches, from October to May, though unreliable. The rainless period of the year lasts for six months, from May to October. The least rain falls around July, with an average total accumulation of 0.0 inches (Weatherspark 2019).

The limited choice of crops mentioned in Table 4.15 above is in agreement with the Ministry of Agriculture and Cooperatives' publication which states that the food security pack programme enhances maize cultivation with fertiliser use rather than encouraging crop diversification and conservation farming (Zambia. Ministry of Agriculture & Cooperatives [MAC] 2009). In a repeat of the earlier outcomes, 16.3 percent and 23.8 percent of the beneficiaries quoted inadequate farming inputs, and late delivery of farming inputs as challenges, respectively.

Also, during interviews with the Zambian government officials and the traditional leader as key informants, challenges of unpredictable rainfall, late delivery of farming inputs, inadequate farming inputs and political interference, among others, were highlighted. In response to the question asked during interviews about obstacles that hindered the implementation of the food security pack programme in Mpulungu district, one Zambian government official said:

> *"We, civil servants, are overwhelmed with pressure from some high ranking politicians, who include the area member of parliament, councillors, and even cabinet ministers, who want to have their preferred villagers included on the programme even if they do not meet the criteria … all this political interference is done for political appeasement and aggrandisement, and we are nothing to refuse to bend the guidelines, lest we lose our jobs."*

The above statement from the Zambian government official corresponds with Kodamaya's (2011:19) argument that "a substantial number of food security packs have been allocated on a patronage bias, which diverts resources away from intended beneficiaries". This is in total disregard of the selection criteria laid down. RuralNet Associates (2004:19) mention that the selection criteria should embrace the vulnerable, but viable, farmers that satisfy a range of criteria regarding vulnerability while, at the same time, having an adequate able-bodied

workforce to take advantage of the agricultural inputs package. The above practice is what the Food Security Learning Framework adopted in this study recognises as an impediment to the improvement of development planning and implementation on the part of decision-makers. These decision-makers are duty-bound to make decisions about policies and funding of programmes/projects to guarantee the promotion of the best possible development practices for the vulnerable communities (M&E Harmonization Group of Food Security Partners 2013:14).

The traditional leader agreed with some challenges that the beneficiaries and the Zambian government officials stated that the programme faced. However, he mentioned that, in his chiefdom, he does not allow lawlessness:

> *"In my chiefdom, I do not tolerate such things as political interference. If my subjects that do not deserve to be on the food security pack programme, by way of not meeting the laid down criteria find themselves on the programme and it comes to my attention, I immediately demand their removal and mete out punishment to them."*

The political interference that was repeatedly mentioned in this study is what Bezemer and Lerman (2002) term "the illegal operation of power" that frustrates efforts of the poor households to access entitlements and make use of them to accumulate capital assets.

4.6.1 Factors that influenced the FSPP performance: Beneficiaries' perceptions

The study sought to learn from the beneficiaries' viewpoints the factors that contributed to the positive results of the programme using the "principle of prioritising learning" embraced by the Theories of Change that encourages learning to produce evidence-based results that emanate from the local people (Pritchett et al 2012). The study revealed that the majority 67.3 percent of the 147 food security pack beneficiaries were of the view that the political will of the government was a factor, while 21.1 percent cited field monitoring of the programme by the central government. The minority, 11.6 percent of the respondents, argued that NGOs partnering with the Zambian government to offer training in appropriate farming methods/practices improved the performance of the food security pack programme. Table 4.16 below shows responses on beneficiaries' perceptions on factors that helped in the

performance of the food security pack programme.

Table 4.16: Factors that helped in the performance of the FSPP: beneficiaries' perspective

	Factors that helped	Number of respondents	Percentage
	Political-will	99	67.3
	Monitoring by the central government	31	21.1
	Training in appropriate farming methods	17	11.6
	Total	**147**	**100.0**

(Source: Survey result by the researcher 2017)

The indication by the majority of the food security pack beneficiaries that political will was one of the major factors that helped in the performance of the programme agrees with Kollmair and Gamper's (2002) explanation that the power behind the successful design and implementation of poverty alleviation programmes hinges on the political commitment of the sitting government. This political commitment is called "political capital" under the Sustainable Livelihood Framework and can influence social protection interventions positively or negatively. Political capital represents both the lawful and illegal operation of power, which may frustrate efforts by poor households to access and safeguard entitlements and make use of them to accumulate capital assets (Bezemer & Lerman 2002).

4.7 Solutions to the FSPP challenges: Beneficiaries' perspectives

With the understanding that the Theory of Change can be a resource for local players who can anticipate having their voices heard by the programme financier(s) that can be either the government or the donor community, the study sought recommendations to challenges that the food security pack programme faced from the beneficiaries' perspectives. This was per the "principle of local driven" under the Theory of Change that supports the inclusion of local players' voices to show a willingness to pay attention to real existing challenges in programme implementation to foster the desired change (Green 2015). As such, the beneficiaries of the programme were consulted and the responses are shown in Table 4.17

below.

Table 4.17 below shows that the majority, 30.6 percent of the 147 food security pack beneficiaries, recommended timely delivery of farming inputs, followed by 27.2 percent who argued that there was a need for the Zambian government to increase the package of farming inputs particularly the number of seed and fertiliser bags. The other 10.9 percent of the respondents submitted that there was a need for the Zambian government to give a more extensive choice of crops from which the beneficiaries could select as can be seen in Table 4.17 below.

Table 4.17: FSPP solutions to the challenges: beneficiaries' perspectives

	Respondents' recommendations	**Number of respondents**	**Percentage**
	Timely delivery of farming inputs	45	30.6
	Impartation of entrepreneurship skills	9	6.1
	Increase in seed quantities and fertiliser	40	27.2
	Decentralisation of the supply of farming inputs	11	7.5
	Incentives for FSPP local implementing committees	14	9.5
	Creation of a wider choice of crops under the FSPP	16	10.9
	Creation of a ready market for surplus crops	12	8.2
	Total	**147**	**100.0**

(Source: Survey result by the researcher 2017)

Nine point five (9.5) percent of the respondents mentioned incentives in the form of a token of appreciation or allowance for the members of the local implementing committees, i.e., the Community Food Security Pack Committees and the Area Food Security Pack Committees. The members of these committees worked voluntarily. The other 8.2 percent called for the creation of a grain market for selling surplus crops, while 7.5 percent argued that there was an urgent need for decentralising the supply of farming inputs to local agro-dealers for the timely supply of farming inputs to empower the local economy. The minority, 6.1 percent of the respondents, submitted that there was a need for training in entrepreneurship skills for the beneficiaries of the food security pack programme to pursue business ventures.

However, the recommendation on the need for the Zambian government to increase the package of farming inputs, particularly the number of seed and fertiliser bags, was disputed during a focus group discussion with a combined group of agro-dealers and non-governmental organisations. The focus group discussants unanimously agreed that the prescribed farming input package outlined in subsection 1.2.4 in Chapter One was adequate for the targeted 0.25 hectares of land to yield enough given the favourable weather conditions coupled with adherence to the good farming methods.

The focus group discussants agreed with the submission of one of the participants representing a non-governmental organisation who said:

> *"The purpose of the issuance of the free farming inputs by the government under the food security pack programme is not to take over what the vulnerable farming households are capable of doing, but to help enhance agricultural production to cushion household food insecurity."*

Figure 4.22 below shows a session of focus group discussion in Mpulungu Central Business District with a combined group of agro-dealers and non-governmental organisations.

Figure 4.22: Focus group discussions with agro-dealers and NGOs

(Source: The researcher 2017)

The submissions by the food security pack beneficiaries as solutions to some administrative challenges of the programme are what Valters (2015:27) terms "cross-cutting" themes that are embedded in the Food Security Learning Framework that was used along with the Sustainable Livelihood Framework in this study. Valters (2015:27) explains that cross-cutting themes are "evidence gaps" or questions under the dimensions called local capacity-building, empowerment and equality.

All the solutions suggested by the food security pack beneficiaries in Table 4.17 above have policy connotations that require government attention. The suggested solutions are in agreement with the Food Security Learning Framework as espoused by the "stepping up" option for agricultural transformation which advocates for putting fundamentals in place to

strengthen the agricultural production systems and to motivate farmers' commitment to agricultural production and productivity (Valters 2014). To actualise the solutions shown in Table 4.17 above, there is a need for government policy interventions that can benefit the vulnerable, but viable, small-scale farmers, as suggested in section 5.4 in the following chapter.

4.8 Summary of the Chapter

This chapter presented and discussed the findings of the study conducted in Mpulungu district of Zambia on the food security pack programme and its relation to household food security. The chapter presented and discussed the biographic and demographic data for the beneficiaries and non-beneficiaries. It also gave an analysis of the household food security status of the food security pack beneficiaries and non-beneficiaries concentrating on the amount of land cultivated, maize crop production, surplus maize crop harvested and access to food employing the independent and paired samples tests. Similarly, the chapter analysed and discussed other economic activities that the beneficiaries pursued to promote food security at the household level in the district. Furthermore, the chapter analysed and discussed the beneficiaries' perceptions of the food security pack programme vis-à-vis the effects of the programme on the benefiting households.

The chapter, also, examined and discussed the challenges that the food security pack programme faced in enhancing household food security in Mpulungu district. Further, the chapter presented and discussed recommendations gathered from the beneficiaries on the strategy implementation of the food security pack programme.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the results of the study that was conducted to analyse the agricultural food security pack programme in Mpulungu district in the Northern Province of Zambia. Also, presented are; conclusion of the study, recommendations and areas for future research.

5.2 Summary of the research results

The summary of the research results is presented under the thematic areas derived from the five specific objectives of the study outlined in subsection 1.4.1.

5.2.1 Biographic/Demographic data: beneficiaries and non-beneficiaries

Under this section, the study analyses data on the following variables regarding the food security pack beneficiaries and non-beneficiaries: 1) Age-range; 2) marital status; 3) education levels; and 4) family size.

Age-range of the food security pack beneficiary household heads

The majority of participants in the food security pack programme, representing 36.7 percent of the total respondents (147), fell within the age group of 21 to 30 years. The lowest, representing 6.1 percent of the total respondents, fell within the age group 71 years and above. The age group 21 to 30 years is regarded as active and energetic, while the age group 71 years and above is deemed less active. Therefore, the majority of the participating household heads fell within the age group that was energetic enough to implement the agricultural food security pack programmes, while the minority fell within the age group where strength and energy are increasingly deteriorating.

Marital status of the food security pack beneficiary household heads

The participants in the food security pack programme were mostly married household heads accounting for 45.6 percent of the total respondents, with the smallest group being those households whose family heads were separated, scoring 3.3 percent. Those that were never married were second, representing 29.3 percent. Therefore, the study was dominated by married household heads as respondents. With the highest percentage of married household heads dominating the study, going by numerous studies, they are expected to be amongst the least to be considered to participate in welfare programmes because marriage lowers the levels of threats that come with impoverishment when compared with other categories. Nonetheless, the selection criterion for the beneficiaries of the food security pack programme is based on the assumption that both married and non-married can be vulnerable to conditions of poverty and food insecurity.

Education levels: food security pack beneficiary and non-beneficiary household heads

Since education influences life, food security inclusive, it was key in this study to assess household food security status for the food security pack beneficiaries and non-beneficiaries. There were low literacy levels among both the food security pack beneficiaries and non-beneficiaries. The majority 59 percent of the 147 food security pack beneficiaries never went beyond primary school education compared to the majority 53 percent of the 152 non-beneficiaries that also did not go beyond primary schooling. On those that reached tertiary education, the food security pack beneficiaries had 9 percent while the non-beneficiaries had 6 percent. Therefore, it can be said that there were no much differences in education levels between the food security pack programme beneficiaries and non-beneficiaries as the trends were similar. With little or no education, households can hardly comprehend the latest agricultural technologies thereby reducing the potential for agricultural production and productivity.

Family size of the food security pack beneficiary household heads

The majority of the respondents, both from the food security pack beneficiaries and non-beneficiaries, had large family sizes of more than ten (10) family members, while the least

had between 1 to 5 family members for both, though the percentages scored were different. While the majority of the 147 food security pack beneficiaries had 40.8 percent of households that had more than ten (10) family member, the majority 66 percent of the 152 non-beneficiary households were at 66 percent. However, non-beneficiaries had more households with more than ten (10) family members than the beneficiaries. The assumption in having a large family is that it stands as a labour force that can help to achieve high agricultural productivity. The bigger the family size, the more comfortable the household heads are as productivity is assumed to be guaranteed.

5.2.2 Food security status of the beneficiaries and non-beneficiaries

This section summarises the food security status of both the beneficiaries and non-beneficiaries in relation to the land cultivated, maize crop harvested and family members' access to food.

Land cultivated by the FSPP beneficiaries and non-beneficiaries

The majority 66 percent of the 147 food security pack beneficiary households cultivated a quarter hectare to half a hectare, compared to the non-beneficiaries, whose majority 61 percent of the 152 households cultivated less than a quarter hectare. The independent samples test carried out was associated with a significantly larger mean for the beneficiaries ($N = 147$: $M = 2.00$) than the non-beneficiaries ($N = 152$: $M = 1.59$). This meant that the majority of the food security pack programme beneficiaries cultivated more land than the non-beneficiaries for the three farming seasons reviewed. The food security pack programme had a significant effect on land cultivation as established by Cohen's d $(M_2 - M_1) \div SD_{Pooled}$ that was estimated at 0.6. Therefore, there is very strong evidence that there was a statistically significant difference in land cultivation for agricultural purposes between the food security pack programme beneficiaries and non-beneficiaries, where the former cultivated more land than the latter.

Land cultivated by the beneficiaries before and after accessing FSPP

The majority of the respondents who were on the food security pack programme cultivated

less land before accessing the programme than after. Before accessing the programme, the majority (85.7 percent) of the respondents cultivated less than a quarter of a hectare while, after accessing the programme, the majority (66 percent) were able to cultivate between a quarter and half a hectare. The paired samples test results established that the agricultural land cultivation mean after beneficiaries' access to the food security pack programme (N = 147) was statistically significantly higher (M = 2.00) than the agricultural land use mean before beneficiaries' access to the programme (M = 1.18). The above scenario indicates that the respondents cultivated more land after access to the food security pack programme than before. Therefore, the food security pack programme had a very significant effect on land cultivation as established by Cohen's *d* that was estimated at 1.2 which entails a large effect.

Timing of distribution of the farming inputs to the FSPP beneficiaries

The majority, 81.6 percent of the respondents, received the farming inputs after the recommended period for planting seeds, which is the first week of November. Therefore, it was established that farming inputs under the food security pack programme were received late and outside the planting period by the majority of the beneficiaries.

The late receipt of farming inputs by the respondents was a result of the failure by the Zambian government to release resources to suppliers for ordering farming inputs timeously, coupled with a lack of storage sheds and space for keeping the late ordered farming inputs in most of the designated receiving areas. It was also established that the majority of respondents, even though they received farming inputs late, planted them outside the recommended period. This was a concern mentioned in all the focus group discussions, with the majority of participants feeling that this practice contributed to low yields among some beneficiaries of the food security pack programme. However, results from long-term research by the Zambia Agriculture Research Institute indicate that, with favourable weather conditions, late planting does not necessarily translate to reduced yields as was with the findings in this study. Nevertheless, the researcher believes that the late delivery of farming inputs to a group that is already vulnerable points to the administrative hitches on the part of the programme implementation.

Maize crop harvested by the FSPP beneficiaries and non-beneficiaries

Seventy point one (70.1) percent of the 147 beneficiary households of the food security pack harvested more than 20 (50kg) bags of maize grain on average per 0.25 hectares of land, compared to the eight percent of the 152 non-beneficiary households that harvested the same amount of crop on the same size of a piece of land. The majority of the non-beneficiaries harvested between five and 10 (50kg) bags of maize grain. The independent samples test performed calculated a significantly larger mean for the beneficiaries ($N = 147$: $M = 4.25$) than the non-beneficiaries ($N = 152$: $M = 2.45$).

The above statistics indicate that the majority of the food security pack programme beneficiaries harvested a larger maize crop than the non-beneficiaries. Cohen's d $(M_2 - M_1) \div SD_{Pooled}$ that was estimated at 1.5 denotes that the food security pack programme had a significant effect on maize crop harvested by the beneficiaries. Therefore, there is solid proof that there was a statistically significant difference in maize crop harvested between the food security pack programme beneficiaries *(*$M = 4.25$) and non-beneficiaries *(*$M = 2.45$), showing that the former harvested more than the latter.

Maize crop harvested by the beneficiaries before and after the FSPP

Before accessing the food security pack programme, the majority (68.7 percent) of the 147 respondents harvested less than 20 50kg bags of maize grain on average per 0.25 hectares of land compared to 5.4 percent of the respondents who harvested the same number of bags of maize grain on the same size of the land after accessing the programme. However, after accessing the programme, 70.1 percent of the 147 respondents harvested more than 20 (50kg) bags of maize grain on average, per 0.25 hectares of land compared to 7.5 percent that harvested the same amount of maize crop on the same size of a piece of land before they had access to the programme.

The paired samples test results showed that the maize crop productivity mean after beneficiaries' access to the food security pack programme ($N = 147$) was higher ($M = 4.25$) than the maize crop productivity mean before beneficiaries' access to the programme ($N =$

147: $M = 1.71$). This meant that the respondents harvested a larger maize crop after they had access to the food security pack programme than before. Therefore, the food security pack programme had a significant effect on maize crop productivity as established by Cohen's *d* calculation that was projected at 1.6.

Access to food: families of the FSPP beneficiaries and non-beneficiaries

The food security pack beneficiary households' family members had more access to food than those of the non-beneficiaries. In an ideal situation, a family should have three full meals a day in the Zambian context. However, it was established that 30 percent of the 147 food security pack beneficiaries had three (3) full meals compared to only 6 percent of the 152 non-beneficiaries that had the same number of meals per day. Therefore, the food security pack beneficiaries were more food-secure than non-beneficiaries.

Regarding the decision when to have meals, any mature lady in a household in the majority (82.3 percent) households of the 147 food security pack beneficiaries had the right to decide when to prepare and have meals as opposed to the majority (89 percent) households of the 152 non-beneficiaries whose decision when to have meals was a preserve for a female who may either be the wife of the household head or the head herself. Therefore, the majority of the food security pack beneficiaries did not have restrictions on the feeding decisions like the majority of the non-beneficiary households as they were more food-secure than the other.

5.2.3 FSPP beneficiaries' engagement in other economic activities

Additional crops grown

The food security pack beneficiaries also grew other crops in addition to what was provided under the food security pack programme as explained by the majority 59.2 percent of the 147 respondents, though the minority 40.8 percent denied having grown other crops other than what they were given under the programme. Through observations by the researcher, it was ascertained that a number of the food security pack beneficiaries also grew crops other than those provided under the food security pack programme, which they said were grown through

the proceeds realised from the sales of surplus crops from the food security pack programme. They opted to grow other food crops in addition to what they received under the programme because of the limited choice of crop seeds the programme offered.

Sources of other family support

Apart from the agricultural-related activities that the food security pack beneficiaries and non-beneficiaries undertook, there were non-farm activities that they pursued to meet some needs of family members. Remittances from family members living outside the households played a vital role for both the food security pack beneficiaries and non-beneficiaries as sources of support for other family needs such as; education, health services, and other essential household goods and services. However, the food security pack beneficiaries received fewer remittances (38 percent of the 147 respondents) than the non-beneficiaries (66 percent of the 152 respondents). The other sources of family support were petty-trading where 18 percent of the food security pack beneficiaries ventured into it compared to the 14 percent of the non-beneficiaries that pursued the same business venture.

Therefore, there were fewer food security pack beneficiaries getting support from remittances than the non-beneficiaries and more food security pack beneficiaries in petty-trading business than the non-beneficiaries. It can also be argued that there were more food security beneficiaries than non-beneficiaries engaged in petty trading than the non-beneficiaries because most remittances they received might have been channelled to petty trading as they were food-secure, whereas the non-beneficiaries may have channelled most remittances received to food because of household food insecurity. Over and above, remittances as a source of livelihood were key to supporting the households of both the food security pack beneficiaries and non-beneficiaries.

5.2.4 FSPP beneficiaries' perceptions of the effects of the programme

The food security pack programme was said to have contributed to the improvement of the household food security in the beneficiaries' households as mentioned by the majority, 31.4 percent, of the 147 respondents. The programme was also appreciated for improving the

feeding patterns of the beneficiary households as explained by 22.4 percent of the respondents. The others commended the programme for improving the health status of family members, increasing school enrolment of the children, and reducing malnutrition, in that order.

Similar responses mentioned above were recorded from the focus group discussions and interviews with the majority of the key informants describing the positive effect of the food security pack programme for the three farming seasons reviewed as beneficial to the vulnerable, but viable, small-scale farmers.

5.2.5 FSPP beneficiaries' perceived challenges of the programme

Unpredictable rainfall was the major challenge that the food security pack beneficiaries faced under the food security pack programme as mentioned by the majority, 40.1 percent of the 147 respondents. Other challenges in order of magnitude from the beneficiaries' perspective were; inadequate farming inputs, late delivery of farming inputs, limited choice of crop seeds, lack of a readily available market to sell their surplus crops, and political interference in the selection of beneficiaries. All the challenges mentioned by the respondents, apart from inadequate farming inputs and lack of a market to sell surplus crops were also cited during interviews with the Zambian government officials and the traditional leader as key informants.

On factors that influenced the performance of the food security pack programme, there was political-will from the Zambian government to continue implementing and scaling up the programme in Mpulungu district as mentioned by the majority 67.3 percent of the 147 respondents. The other factors that were mentioned as influencing the performance of the programme in the district were; consistent field monitoring by the central government (21.1 percent) and NGOs partnership with the Zambian government in offering training in good farming methods/practices (11.6 percent).

5.2.6 FSPP beneficiaries' recommendations on challenges of the programme

Timely delivery of farming inputs was the top-most recommended intervention mentioned by 30.6 percent of the 147 food security pack beneficiary household heads, followed by 27.2 percent who submitted that there was a need for the Zambian government to increase the package of farming inputs particularly the number of seed and fertiliser bags. Others that represented 10.9 percent recommended a more extensive choice of seed crops from which the beneficiaries could select. While others with marginal percentages proposed; incentives for the members of the local implementing committees, creation of a grain market for selling surplus crops, decentralising the supply of farming inputs to local agro-dealers for the timely distribution of the inputs, and lastly; training in entrepreneurship skills for the FSPP beneficiaries to efficiently and effectively pursue business ventures, in that order.

The proposal on the need to increase the package of farming inputs by the FSPP beneficiaries, particularly the number of seed and fertiliser bags, was challenged by the majority of the focus group discussants arguing that, with favourable weather conditions and good farming methods, the prescribed package was adequate for the targeted 0.25 hectares of land to yield enough. On the other hand, the majority of focus group discussants were agreeable with the proposal for decentralising the supply of farming inputs to the local agro-dealers mentioning the benefits that may come with the intervention such as; timely delivery of inputs and circulation of money in the local economy.

5.3 Conclusion

Household food security is a significant topic of discussion world-over but particularly in sub-Saharan Africa, including Zambia, as it relates to hunger and poverty as indicated in the Sustainable Development Goals numbers 1 and 2. Food security is synonymous with food production and one of the most important factors to increase food production is farmers' access to agricultural inputs. Every responsible government must design sustainable programmes that target those farmers who cannot afford to purchase farming inputs to enable them to realise household food security. However, these programmes should be feasible,

results-oriented and sustainable to deal with household food insecurity effectively, if food insecure households are to meaningfully contribute to economic development at all societal levels.

In line with the statement above, the study's main focus was to analyse the effects, capacity and challenges of Zambia's agricultural food security pack programme in fostering household food security among the vulnerable, but viable, small-scale farmers in Mpulungu district of Zambia.

The findings of the study show that the food security pack programme is a channel through which the poor in Mpulungu district can be helped to live a decent life. However, it is not sustainable due to the nature of the programme design that only allows the flow of resources in one direction, i.e., from the Zambian government to the beneficiaries. Even though this study recognised the challenges and weaknesses in the design and implementation of the programme that included; political interference, late receipt of farming inputs, unpredictable rainfall and dependency on the programme by the beneficiaries, among others, the programme remains a force in combating household food insecurity.

From this study, it was evident that the food security pack programme went beyond addressing household food security to the extent of affording the majority of the benefiting households to meet more household requirements than the non-benefiting households. This was achieved through the proceeds from the sales of surplus maize crops realised because of the utilisation of the free farming inputs that they received under the programme. More surplus maize crops were realised by the benefiting households than the non-benefiting households due to factors such as supply and utilisation of free government-financed farming inputs, use of drought-resistant crop seeds, intensified technical farming knowledge received from Agricultural Extension Officers, the use of hybrid seeds and application of fertiliser.

With the improvement in maize crop production and realisation of surplus crops among the benefiting vulnerable, but viable, small-scale farmers in Mpulungu district, there was an improvement in the number of full meals per day that household members of the beneficiaries

of the programme had compared to the non-beneficiaries. The positive trend was because of the increased production of maize crops by the use of the subsidised farming inputs from the Zambian government, coupled with the ability to sell the surplus crops to realise income to help broaden choices of the dietary needs of the family members. This positive trend moves closer to the World Bank's (1986:1) definition of food security which looks at it as "access by all people at all times to enough food for an active life".

However, the above positive trend fails to meet the widely accepted definition of the "food security" concept adopted in this research that defines it as being in existence "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO 2002:3). The failure comes in as a result of the study concentrating on maize crop leaving out other dietary parameters.

Even though the household food security status of the beneficiary households was enhanced through utilisation of free farming inputs from the programme compared to the non-beneficiaries, the researcher believes that it might be difficult for the Zambian government to sustain the programme when farming inputs are given freely to potential beneficiaries who meet the laid down criteria without any form of pay-backs. The above scenario creates dependency by the beneficiaries on the Zambian government which has limited resources with financial pressure from other social and economic sectors. Therefore, a drastic agriculture policy change is inevitable. Undoubtedly, the food security pack programme is one of the many social protection programmes that promotes and protects the vulnerable, but viable, small-scale farmers as it responds to the sources of vulnerability, risk and deprivation that poor farmers face.

5.4 Recommendations

The overall conclusion of the research findings in this study reveals that the programme has had positive effects on the lives of benefiting households. However, this was not without the challenges and weaknesses in the programme design and implementation processes. Although

the positive effects outweighed the challenges and weaknesses in the opinions of the beneficiaries, more needs to be done to address them if the Zambian government wants to realise the full potential of the programme in Mpulungu district. In light of the challenges and weaknesses associated with the food security pack programme established by this study, the following recommendations are made:

- The majority of the participating household heads in the food security pack programme fell within the age group of 21 to 30 years which is regarded as active and energetic enough, while the minority fell within the age group of 71 years and above where strength and energy are increasingly deteriorating. It is, therefore, recommended that those who fell into the group that is active and energetic should be linked to other government empowerment programmes that demand pay-backs, while the age group with little strength and energy be linked to social welfare programmes to create room for more vulnerable age groups that fall between the age groups 21 to 30 years and 71 years and above.

- The participants in the food security pack programme were mostly married household heads. Going by numerous studies that reveal that marriage lowers the levels of threats that come with impoverishment when compared with other categories, the study recommends positive discrimination in favour of other categories, such as widows, separatees, never-married, widowers, and the divorced, by way of considering the married to be participating in programmes for subsidised farming inputs system instead of the free supply.

- Most of the food security pack beneficiaries received the farming inputs late, i.e., after the recommended period for planting seeds, which is the first week of November. It is recommended that farming inputs be at distribution points in the district three weeks before the period for planting to give enough time for administrative works before the week for issuing.

- The late receipt of farming inputs by the respondents was attributed to the failure by the Zambian government to release resources to suppliers for ordering farming inputs timeously. Therefore, the study recommends that budget profiling by the Ministry of Community Development and Social Services, the anchor of the programme, should be done in the first quarter of the year to give ample time to the Ministry of Finance to mobilise resources.

- The study established that there was a lack of government storage sheds for storing the ordered farming inputs before distribution to the food security pack beneficiaries. Therefore, there is an urgent need for the government to construct storage sheds in all eight Zones where there are Area Food Security Pack Committees so that the sheds can be as close as possible to the beneficiaries to expedite collection.

- There were low literacy levels among both the food security pack beneficiaries and the registered non-beneficiaries waiting to be put on the programme. Consequently, it is recommended that the government, through line ministries, should intensify adult learning through literacy classes to provide basic learning to rural communities in the district.

- Both the food security pack beneficiary and non-beneficiary households had large family sizes of more than ten (10) family members due to the assumption that large family helps as a labour force to achieve high agricultural productivity, contrary to the findings of numerous studies. It is, therefore, recommended that the government, through line ministries, embarks on massive sensitisations on family planning to change the mindsets of the rural communities in the district.

- The food security pack beneficiary households had a higher maize crop productivity, yielded more surplus maize crop, and had more access to food than the non-beneficiaries. In short, they were more food-secure than non-beneficiaries. With these positive results, it is recommended that the government, resources allowing, should

increase the ceiling of the beneficiaries from the current 300 households to what resources can allow bearing in mind that the total population of the small-scale farming households in Mpulungu district is 27,314.

- Many food security pack beneficiary and non-beneficiary households engaged in non-farm ventures such as petty-trading, goat rearing, growing of the additional crop, et cetera to provide for other household needs. It is therefore recommended that the government, through line ministries, should provide basic entrepreneurship knowledge in bookkeeping and other areas of interest to those with business interests.

- It was established that there were some political interferences in the selection processes of the potential beneficiaries at lower levels by politicians that led to having slightly more male beneficiaries than females. Males were more favoured than females because of the roles they played during political campaigns. Since it was also revealed that there was the political will of the Zambian government to continue implementing and scaling up the food security pack programme in the district, it is recommended that the area members of parliament take an interest in the programme to curb interference in the selection process from councillors who are the politicians at lower levels.

- Unpredictable rainfall was one of the major challenges that the food security pack beneficiaries faced under the food security pack programme. It is therefore recommended that the Zambian government should intensify investment in agricultural research and development to find drought-resistant crop varieties which are pro-poor that can benefit districts like Mpulungu.

- There was a centralised supply system of farming inputs to the district for onward distribution to the beneficiary households. The study recommends the decentralisation of the supply of input from Ministry headquarters to the district level where local agro-dealers should be contracted to supply inputs to the implementing ministry at the

local level. This will enable the timely delivery of inputs and circulation of money in the local economy.

- The limited choice of crops offered under the food security pack programme was a challenge among the beneficiaries of the programme which compelled them to grow other crops not offered under the programme. With this scenario, it is recommended that the food security pack programme should provide the vulnerable, but viable, small-scale farmers with a more extensive choice of crops and other agricultural ventures, such as livestock rearing, in the spirit of embracing diversification.

- Inconsistent monitoring of the food security pack programme by the local committees was a major challenge that arose due to a lack of logistics to enable the committee members to visit crop fields for the beneficiaries. To this end, it is recommended that the food security pack programme should provide incentives to the local committees by way of a token of appreciation in the form of an allowance, as well as bicycles or motorcycles for the committee members to monitor the beneficiaries' agricultural fields efficiently and effectively.

- Due to the unpredictable rainfall in Mpulungu district, which is caused by climate variability, it is recommended that the Zambian government should invest in irrigation systems in Mpulungu district so that crop planting can be done all year round to ensure that the small-scale farmers are food secure. An investment in irrigation is recommended because Mpulungu district has access to water bodies that include Lake Tanganyika and many tributaries.

5.5 Areas for future research

In line with Wild et al's (2015) argument that there is often much that development practitioners do not know concerning the contexts they work in, the Theories of Change can influence them to solidly craft knowledge gaps as recommended below:

- The study used Mpulungu district as a case study to analyse the effect, capacity and challenges of Zambia's agricultural food security pack programme in fostering household food security among the vulnerable, but viable, small-scale farmers. With this purposive sampling, it is acknowledged that the research findings could not be generalised beyond Mpulungu district as a case study. Therefore, to get results that apply to other areas of the country, in line with the general objective of the study, it is recommended that research that would draw a representative sample of the districts in Zambia be conducted. The study would provide a solution with a national character on the impact, capacity and challenges of Zambia's agricultural food security pack programme.

- The study concentrated on food crops to analyse the household food security status of the food security pack beneficiaries and non-beneficiaries. To get a comprehensive understanding of household food security status of the food security pack beneficiaries, a study that will not only look at household agricultural production and productivity but go beyond to look at nutritional, dietary needs and food preferences should be conducted in Mpulungu district because it is these that determine the activity levels and the health of the people.

- The study looked at the amount of land that was put to production by the food security pack beneficiaries and non-beneficiaries, as well as the beneficiaries before and after access to the programme, among others. To establish the relation of land to productivity, it is recommended that a study that will establish the relationship between farm size of the small-scale farmers and poverty be conducted.

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ZRCS, see Zambia Red Cross Society.

APPENDICES

Appendix 1: Map of Africa showing the location of Zambia

Source: (Worldatlas.com)

Appendix 2: Map of Northern Province showing the location of Mpulungu district

Key:

Mpulungu district boundary

Map of Northern Province (Insert)

Lakes

Map of Northern Province showing district boundaries

(Source: DPPH 2017)

Appendix 3: Sampling frameworks: FSPP beneficiaries and non-beneficiaries

a) FSPP beneficiaries

S/N	Name of Beneficiary Areas	Small-scale farming households	Registered vulnerable small-scale farming households	Vulnerable small-scale farming households on the FSPP	Sampled beneficiary households using Slovin's formula at 5% error
1	Mpulungu Central	4,060	406	46	26
2	Chitimbwa	2,859	286	30	17
3	Chibote	4,134	412	34	19
4	Muswilo	3,646	399	44	25
5	Kaizya	2,613	277	28	16
6	Mweenda	4,175	456	56	32
7	Isoko	2,859	317	32	18
8	Kasimango	2,968	437	30	17
	TOTALS	**27,314**	**2,990**	**300**	**172**

b) FSPP non-beneficiaries

S/N	Name of Beneficiary Areas	Small-scale farming households	Registered vulnerable small-scale farming households	Vulnerable small-scale farming households on the FSPP	Registered non-beneficiary households	Sampled non-beneficiary households using Slovin's formula at 5% error	50% reduction of the sample as sample dealt with
1	Mpulungu Central	4,060	406	46	360	47	24
2	Chitimbwa	2,859	286	30	256	33	16
3	Chibote	4,134	412	34	378	49	25
4	Muswilo	3,646	399	44	355	46	23
5	Kaizya	2,613	277	28	249	31	15
6	Mweenda	4,175	456	56	400	52	26
7	Isoko	2,859	317	32	285	37	18
8	Kasimango	2,968	437	30	407	53	27
	TOTALS	**27,314**	**2,990**	**300**	**2,690**	**348**	**174**

Appendix 4: Questionnaire for FSPP beneficiaries

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RESEARCHER ADMINISTERED QUESTIONNAIRE

This research entitled **"Analysis of Government agricultural food security pack programme: the case of Mpulungu District, Northern Province, Zambia"**, is part of the fulfilment of my Doctoral degree. This questionnaire is an instrument designed to collect information about this study for academic purposes only. I would be very grateful if you could kindly provide answers to the questions listed herein, as honestly as you can. The administration and answering of questions are expected not to take more than an hour. All the information provided, including your name, will be treated with the highest confidentiality.

In answering the questions below, please stop me at any point for more clarity, if the need arises.

Instructions:
(i) Please tick √ in the appropriate box ☐ corresponding to your answer.
(ii) Express your opinion wherever there are dotted lines (.....).

QUESTIONS

SECTION A

Profile of questionnaire respondents

1. Sex of the respondents:
(a) Male ☐ (b) Female ☐

2. Age range of respondent:

(a) 21 to 30 ☐
(b) 31 to 40 ☐
(c) 41 to 50 ☐
(d) 51 to 60 ☐
(e) 61 to 70 ☐
(f) 71 and above ☐

3. Marital status of respondent:

(a) Married ☐
(b) Divorced ☐
(c) Separated ☐
(d) Widow ☐
(e) Widower ☐
(f) Never married ☐

4. Classifications of respondent

(a) Single mother headed household ☐
(b) Elderly headed household ☐
(c) Widow headed household ☐
(d) Disabled headed household ☐
(e) Terminally-ill headed household ☐
(f) Any other..... ☐

5. Number of household members, including the household head;

(a) 1 to 5 ☐ (b) 5 to 10 ☐ (c) above 10 ☐

6. How far did you go with your education?

(a) Not been to school ☐ (b) Primary ☐ (c) Secondary ☐ (d) Tertiary ☐

SECTION B

Access to the farming inputs

7. How many farming seasons have you had access to the food security pack programme?

(a) One ☐

(b) Two ☐

(c) More than two ☐

8. What type of farming inputs were you given during the farming seasons indicated above?

.....

9. In what period of the farming season did you receive these inputs?

(a) All in the bad period ☐ (b) All in the good period ☐ (c) Some in the good period ☐

(d) Can't remember ☐

10. If the answer to quest. 9 is 'All in bad period', did you plant the seed crops given to you?

(a) Yes, all of them ☐ go to quest. '10' (b) Yes, some of them go to the quest. '12' ☐

(c) No, not even one ☐ go to quest. '11 (d) Can't remember ☐

'

11. If the answer to question '10' is 'Yes, all of them', what type of seed crops did you plant?

.....

12. If the answer to question '10' is 'No, not even one', what could be the reason?

.....

.....

13. If the answer to the question '10' is 'Yes, some of them' what could be the reason?

.....

14. Were the quantities of inputs you received adequate to guarantee good productivity for a quarter of a hectare targeted as prescribed in the programme guidelines?

(a) Yes ☐ (b) No ☐ (c) Some, yes ☐ (d) Can't remember ☐

15. If the answer is 'No' to question 14, what do you think should be the right quantity to

guarantee good productivity?

.....

16. In addition to the farming inputs received from the Government-financed food security pack programme, were you able to grow other crops of your own?

(a) Yes ☐ No ☐ Can't remember ☐

SECTION C

Crop production

17. For the past three (3) farming seasons, on average, how big was the land that you been cultivating before you started receiving Government-financed agricultural farming inputs?

(a) Less than a quarter of a hectare ☐
(b) Quarter hectare to half-hectare ☐
(c) More than half hectare ☐
(d) Can't remember ☐

18. If you cultivated less than a quarter of a hectare concerning question '17' above, give reasons;……

19. For the past three (3) farming seasons, on average, how big was the land that you have been cultivating after you started receiving Government-financed agricultural farming inputs?

(a) Less than a quarter of a hectare ☐
(b) Quarter hectare to half-hectare ☐
(c) More than half hectare ☐
(d) Can't remember ☐

20. Give reasons for cultivating more than half a hectare as indicated in your answer to Question '19'……..

21. For the past three (3) farming seasons, on average, how many 50kg bags of maize crops did you harvest per farming season before you started receiving Government-financed agricultural farming inputs?

(a) Less than 5 ☐
(b) 5 to 10 ☐
(c) 11 to 15 ☐
(d) 16 to 20 ☐
(e) 21 and above ☐

22. If your answer to question '21' above is (less than 5) 50 Kg) bags of maize crops before accessing the FSPP, give reasons.....

23. For the three (3) farming seasons mentioned above, on average, how many 50Kg bags of maize crops did you yield per farming season after using the Government-financed agricultural farming input you received?

(a) Less than 5 ☐
(b) 5 to 10 ☐
(c) 11 to 15 ☐
(d) 16 to 20 ☐
(e) 21 and above ☐

24. If your answer to question '23' above is (Over 20) 50 Kg bags of maize crops after accessing the FSPP, give reason.....

25. For the past three (3) farming seasons mentioned above, on average, how many 50Kg bags of beans did you harvest per farming season before you started receiving Government-financed agricultural farming input?

(a) Less than 5 ☐
(b) 5 to 10 ☐
(c) 11 to 15 ☐
(d) 16 to 20 ☐
(e) 21 and above ☐

26. Give reasons for your answer to question '25' above.....

27. For the past three (3) farming seasons mentioned above, on average, how many 50Kg bags of

beans did you harvest per farming season after you started receiving Government-financed agricultural farming input?

(a) Less than 5 ☐
(b) 5 to 10 ☐
(c) 11 to 15 ☐
(d) 16 to 20 ☐
(e) 21 and above ☐

28. Give reasons for your answer to question '27' above.....

SECTION D

Surplus crop production

29. Before you started receiving Government-financed agricultural farming inputs, did you have surplus produce?

(a) Yes ☐ If 'Yes', go to quest. '30' (b) No ☐ (c) Can't remember ☐

30. If your answer is 'yes' to question 29, did you sell the surplus?

(a) Yes ☐, (b) No ☐ (c) Some ☐ (d) Can't remember ☐
(e) Not applicable ☐

31. If your answer is 'yes' to question 30, what did you use the money for?

.....

32. If the answer to question 30 does not apply to your household, how did you acquire other household needs such as education support for school children, health services and other essential household needs?

(a) Remittances ☐
(b) Petty trading ☐
(c) Safety nets ☐
(d) Piecework ☐
(e) Other ☐ (specify).....

(f) Not applicable ☐

33. After accessing Government-financed agricultural farming inputs, did you have surplus produce?

(a) Yes ☐ If 'Yes', go to quest. '34' (b) No ☐ If 'No' go to quest. '35'

(c) Can't remember ☐ If 'Can't remember' go to quest.35

34. If your answer to question 33 is 'yes' did you sell the surplus?

(a) Yes ☐, go to quest. '35' (b) No ☐ (c) Not applicable ☐

35. If your answer to question 34 is 'yes', what did you use the money for?

.....

36. If your answer to quest. 34 is 'No', or 'Not applicable' how do you obtain other household wants such as education support for school children, health services and other essential household goods?

(a) Remittances ☐

(b) Petty trading ☐

(c) Safety nets ☐

(d) Piecework ☐

(e) Other ☐ (specify).....

(f) Not applicable ☐

SECTION E

Access to food

37. Before you started receiving Government-financed farming inputs, how many full meals did your household members have per day?

(a) None ☐

(b) One ☐

(c) Two ☐

(d) Three ☐

(e) More than three ☐

38. In your household, who decided when to have meals before access to the FSPP?

(a) Wife/female head ☐ (b) Any mature female member ☐

(c) Not sure ☐

39. After you started receiving Government-financed farming inputs, how many full meals do your household members have per day?

(a) None ☐

(b) One ☐

(c) Two ☐

(d) Three ☐

(e) More than three ☐

40. During which period of the year do you have an adequate number of meals/day after access to the FSPP?

(a) Throughout the year ☐

(b) After harvesting ☐

(c) Before harvesting ☐

(d) After Planting ☐

(e) Before Planting ☐

(f) Other ☐ Specify.....

41. After you started receiving Government-financed farming inputs, who decides when to have meals in your household?

(a) Wife/female head ☐ (b) Any mature female member ☐

(c) Not sure ☐

SECTION F

Respondents' general views

42. Does the FSP programme have effects on the lives of your household members?
Explain your answer.....

43. How do the other household members view the FSP programme?
.....
44. Have you encountered some problems in terms of how the FSP programme is administered? Explain your answer;
.....

45. Are there external factors that have presented challenges to the FSP programme to meet its objective of ensuring household food security? Explain your answer;
.....

46. Are there internal factors that have presented challenges to the FSP programme to meet its objective of ensuring household food security? Explain your answer;
.....
47. Are there external factors that have helped in any way in the performance of the FSP programme you are participating in? Explain your answer;
.....
48. Are there internal factors that have helped in any way in the performance of the FSP programme you are participating in? Explain your answer;
.....
49. What recommendation(s) would you put forward for policymakers to consider in order to effectively manage the FSP programme?
.....

END OF QUESTIONNAIRE
THANK YOU FOR YOUR PARTICIPATION!

Appendix 5: Questionnaire for non-FSPP beneficiaries

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RESEARCHER ADMINISTERED QUESTIONNAIRE

This research entitled **"Analysis of Government agricultural food security pack programme: the case of Mpulungu District, Northern Province, Zambia"**, is part of the fulfilment of my Doctoral degree. This questionnaire is an instrument designed to collect information about this study for academic purposes only. I would be very grateful if you could kindly provide answers to the questions listed herein, as honestly as you can. The administration and answering of questions are expected not to take more than an hour. All the information provided, including your name, will be treated with the highest confidentiality.

In answering the questions below, please stop me at any point for more clarity, if the need arises.

Instructions:

(i) Please tick √ in the appropriate space provided [ ] corresponding to your answer.

(ii) Express your opinion wherever there are dotted lines (.....).

SECTION I: PROFILE OF QUESTIONNAIRE RESPONDENTS

Q. NO.	QUESTION FILTERS	CODING CATEGORIES
1	Sex of the respondent	1. Male [ ] 2. Female [ ]
2	In what age arrange are you?	1. 21 to 30 [ ] 2. 31 to 40 [ ] 3. 41 to 50 [ ] 4. 51 to 60 [ ] 5. 61 to 70 [ ] 6. 71 and above [ ]
3	What is your marital status?	1. Married [ ] 2. Divorced [ ] 3. Separated [ ] 4. Widow [ ] 5. Widower [ ] 6. Never married [ ]
4	In what range is the size of your household members, including you?	1. 1 to 5 [ ] 2. 5 to 10 [ ] 3. above 10 [ ]
5	Classifications of the respondent;	1. Single mother headed household [ ] 2. Elderly headed household [ ] 3. Widow headed household [ ] 4. Disabled headed household [ ] 5. Terminally-ill headed household [ ] 6. Any other.....
6	What level of education have you attained?	1. Not been to school [ ] 2. Primary education [ ] 3. Secondary education [ ] 4. Tertiary education [ ]

SECTION II: ACCESS TO THE FARMING INPUTS

7	Do you know what the food security pack programme is?	1. Yes [ ] 2. No [ ]
8	If your answer is 'Yes' to Q7 Which target group does the food security pack programme target?	1. The vulnerable groups [ ] 2. Everyone [ ] 3. Other (Specify)……
9	Why you are not on the food security pack programme?	1. Am not eligible [ ] 2. I did not register [ ] 3. I don't need the support [ ] 4. I am on the shortlist waiting [ ] 5. Other specify…….

10	Did you purchase inputs with your own money?	1. Yes [ ] 2. No [ ]
11	If your answer to Q10 is 'No', where did you get the farming inputs from?	1. Other farmer support programs e.g IFAD, World Vision etc. [ ] 2. Ministry of agriculture e.g FISP [ ] 3. Friends and relatives [ ] 4. Other specify…….

SECTION III: CROP PRODUCTION

12	For the past three farming seasons, on average, how big was the amount of land that you have been cultivating?	1. Less than a quarter of a hectare [ ] 2. Quarter hectare to half-hectare [ ] 3. More than a half hectare [ ] 4. Can't remember [ ]
13	If your answer to Q12 is 'less than a quarter of a hectare' please give reason(s).	…… … …… …
14	If your answer to Q12 is 'more than half a hectare' please give reason(s).	…… …
15	For the past three years, what is the major crop that you have been planting?	1. Beans [ ] 2. Cassava [ ] 3. Maize [ ] 4. Groundnuts [ ] 5. Other, specify……
16	If the answer to Q15 is maize, how many 50kg bags of maize crop did you harvest for the past three farming seasons, on average, per farming season?	1. Less than 5 [ ] 2. 5 to 10 [ ] 3. 11 to 15 [ ] 4. 16 to 20 [ ] 5. Over 20 [ ]
17	If your answer to Q16 is 'less than (5) 50 Kg bags of maize crop', please, give reason (s)	……. …….
18	If your answer to Q16 is 'Over (20) 50 Kg bags of maize crop, please give reason(s)	…….. …….. .

SECTION IV: SURPLUS CROP PRODUCTION

19	Did you harvest the surplus maize crop during the past 3 years?	1. Yes [ ] if, 'Yes go to Q20 2. No [ ] 3. Can't remember [ ]
20	If your answer is 'yes' to question 19, did you sell the surplus?	1. Yes [ ] 2. No [ ] 3. Some [ ] 4. Can't remember [ ] 5. Not applicable [ ]
21	If your answer is 'yes' to question 20, what did you use the money for?	……..
22	If the answer to question 20 is 'No', or 'Can't remember' or does not apply to your household, how did you acquire other household needs such as education support for school children, health services and other essential household needs?	1. Remittances [ ] 2. Petty trading [ ] 3. Safety nets [ ] 4. Piecework[ ] 5. Other (specify)..... 6. Not applicable [ ]

SECTION V: ACCESS TO FOOD

23	How many full meals does your household members have per day?	1. None [ ] 2. One [ ] 3. Two [ ] 4. Three [ ] 5. More than three [ ]
24	In your household, who decides when to have meals?	1. Wife/female head [ ] 2. Any mature female [ ] 3. Not sure [ ]
25	During which period of the year do you have an adequate number of meals per day?	1. Throughout the year [ ] 2. After harvesting [ ] 3. Before harvesting [ ] 4. After Planting [ ] 5. Before Planting [ ] 6. Other Specify.....
26	What is your perception of the food security pack programme?	…….

END OF QUESTIONNAIRE
THANK YOU FOR YOUR PARTICIPATION!

Appendix 6: Interview guide for the government officials (DACO and DCDO)

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INTERVIEW GUIDE FOR GOVERNMENT OFFICIALS - THE DISTRICT COMMUNITY DEVELOPMENT OFFICER AND THE DISTRICT AGRICULTURAL CO-ORDINATOR

This research entitled **"Analysis of Government agricultural food security pack programme: the case of Mpulungu District, Northern Province, Zambia"**, is part of the fulfilment of my Doctoral degree. This interview is necessitated to collect information about this study for academic purposes only. I would be very grateful if you could kindly provide answers to the questions as honestly as you can. This interview is not expected to take more than an hour. All the information provided, including your name, will be treated with the highest confidentiality.

In answering the questions, please feel free to seek clarifications where need be.

PART A: Background information

1. Sex:

Male ☐ Female ☐

2. Age: ☐

3. Education level:_____

4. Name of the office:_____

5. Occupation/Title:_____

6. Overall job description_____

7. Work experience_____

PART B: Interview guiding questions

1. The Government of the Republic of Zambia introduced the Food Security Pack program in all the districts in Zambia, Mpulungu district inclusive, does the program meet its objectives in Mpulungu district?
2. How would you describe the household food security status of the recipient households of the Food Security Pack program, before and after its inception in Mpulungu district?
3. For the past three years, how would you generally describe the impact of the Food Security Pack program on the recipient households of vulnerable but viable small-scale farmers in Mpulungu district?
4. How is the distribution of farming inputs done to the participating households? Is it done on time?
5. What extension services are available for the recipient households?
6. How do you monitor the recipient households of the farming inputs?
7. From your monitoring of the implementation of the program, how do you explain the utilization of the agricultural produce by the recipient households for the Food Security Pack program?
8. Who are the larger recipients of the farming inputs, by sex, under the Food Security Pack program in your district?
9. Are there external factors that have presented challenges to the implementation of the program to meet its objective of ensuring household food security?
10. Are there internal factors that have presented challenges to this program to meet its objective of ensuring household food security?
11. Are there external factors that have helped in any way in the performance of the program to meet its objective of ensuring household food security?
12. Are there internal factors that have helped in any way in the performance of this program to meet its objective of ensuring household food security?
13. Given a chance, are there any recommendations you would make to the program to ensure smooth service delivery to recipient households?

END OF INTERVIEW

Appendix 7: Interview guide for the traditional leader

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INTERVIEW GUIDE FOR THE SENIOR CHIEF

This research entitled **"Analysis of Government agricultural food security pack programme: the case of Mpulungu District, Northern Province, Zambia"**, is part of the fulfilment of my Doctoral degree. This interview is necessitated to collect information about this study for academic purposes only. I would be very grateful if you could kindly provide answers to the questions as honestly as you can. This interview is not expected to take more than an hour. All the information provided, including your name, will be treated with the highest confidentiality.

In answering the questions, please feel free to seek clarifications where need be.

PART A: Background information

1. Gender dynamics:

Male ☐ Female ☐

2. Age: ☐

3. Education level:_____

4. Name of village:_____

PART B: Interview guiding questions

1. What role do you play in the implementation of the FSP program in your village?

2. How have your subjects received the FSP program in your village?

3. How would you describe the household food security status of the recipient households of

the FSP program, before and after its inception in your village?

4. For the past three years, how would you generally describe the impact of the FSP program on the recipient households of vulnerable but viable small-scale farmers in your village?

5. How is the distribution of farming inputs done to the participating households in the FSP program in your village? Is it done on time?

6. What are extension services available for the recipient households of the FSP in your village?

7. How is the monitoring of the recipient households of the farming inputs under the FSP program done in your village?

8. How do recipient households of the FSP utilise their agricultural produce in your village?

9. Who are the larger recipients of the farming inputs, by sex, under the FSP program in your village?

10. Are there external factors that have presented challenges to the implementation of the FSP program to meet its objective of ensuring household food security in your village?

11. Are there internal factors that have presented challenges to the FSP program to meet its objective of ensuring household food security in your village?

12. Are there external factors that have helped in any way in the performance of the FSP program to meet its objective of ensuring household food security in your village?

13. Are there internal factors that have helped in any way in the performance of the FSP program to meet its objective of ensuring household food security in your village?

14. Given a chance, are there any recommendations you would make to the FSP programme to ensure smooth service delivery to recipient households?

END OF INTERVIEW
Thank you for your participation!

Appendix 8: Composition of the AFSPCs focus group discussants

List of participants:

1. One representative from the traditional leadership;
2. One representative from the health sector;
3. One representative from the education sector;
4. One representative from faith-based organisations;
5. Two representatives from the department of community development;
6. Two representatives from the department of agriculture (camp level);
7. Two representatives from NGOs; and
8. Two representatives from the local community.

Appendix 9: AFSPCs Focus group discussion guiding questions

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FOCUS GROUP DISCUSSION GUIDING QUESTIONS FOR THE FOOD SECURITY PACK COMMITTEES

1. Under the FSP programme, what type of farming inputs do you give to the participating households?

2. Who distributes farming inputs to the participating households under the FSP programme? Is it done on time or not?

3. Can you describe the household food security status of the recipient households of the FSP programme, ***before*** and ***after*** its inception in your district?

4. How would you generally describe the impact of the FSP programme on the recipient households of vulnerable but viable small-scale farmers in your district for the past three years?

5. What are extension services available for the recipient households of the FSP?

6. Who monitors the recipient households of the farming inputs under the FSP programme?

7. How do the beneficiaries of the FSP programme use the proceeds from the sale of surplus crops?

8. Which is the dominant gender participant in the FSP programme in your district?

9. Mention and explain the factors that have helped in any way in the performance of the FSP program to meet its objective of ensuring household food security which are;

    a) External in nature; and

    b) Internal in nature.

10. Mention and explain the factors that have presented as challenges to the implementation of the FSP program to meet its objective of ensuring household food security which are;

    a) External in nature; and

    b) Internal in nature.

11. What recommendations would you make to the FSP program to ensure smooth service delivery to recipient households?

END OF FGD
Thank you for your participation!

Appendix 10: Composition: Agro-dealers and NGOs focus group discussants

S/N	Agro-dealers' Name	Agro-Dealer Code
1.	Kamano Seed Company	800708016
2.	Munobe Tasulwa Seed Company	800708012
3.	Mumocha Agro Enterprises	800708011
4.	Power Times Agro Enterprises	800708008
5.	Musekelelwa Inputs Distributors	800708006
Non-Government Organisations (NGOs)		
6.	Action Aid- Zambia	
7.	World Vision- Zambia	
8.	SNV-Zambia	
9.	Campaign for Girl Education (CAMFED)	
10.	Kwampana Community Response (KCR)	

Appendix 11: Agro-dealers and NGOs: guiding questions for FGD

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FOCUS GROUP DISCUSSION GUIDING QUESTIONS FOR THE AGRO-DEALERS AND NGOs

1. Are you aware of the FSP programme implemented by the Ministry of Community Development & Social Services in conjunction with the Ministry of Agriculture?
2. What role as Agro-dealers and NGOs play in this programme?
3. Who distributes farming inputs to the participating households under the FSP programme? Is it done on time or not?
4. Do the FSPP beneficiaries receive farming inputs in time?
5. Is the package for the food security pack enough for the targeted 0.25 hectares?
6. How would you generally describe the effects of the FSP programme on the recipient households of the food security pack for the past three years?
7. How do you describe the household food security status of the FSPP beneficiaries and non-beneficiaries?
8. Who are the supplies of the farming inputs to the beneficiary households under the FSP?
9. Are there challenges that you think the FSPP is facing? If there are, how do you think they can be resolved?
10. Who monitors the recipient households of the farming inputs under the FSP programme?
11. What programmes do you have that benefit the community? Do they target the same groups of people as the FSPP?

END OF FGD
Thank you for your participation!

Appendix 12: Observations category guide

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OBSERVATIONS CATEGORY GUIDE

1. Agricultural food storages;
2. Livestock (Chickens, goats, sheep, cattle, etc.);
3. The physical health of respondents and nearby family members, if any;
4. The activeness of respondents and nearby family members, if any;
5. The physical health of livestock, if any; and
6. Surrounding crop fields.