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Qualitative research  
on impacts of the  
Zambia Home Grown  
School Feeding and  
Conservation  
Agriculture Scale Up  
programmes



# Qualitative research on impacts of the Zambia Home Grown School Feeding and Conservation Agriculture Scale Up programmes

Zahrah Nesbitt-Ahmed  
Consultant  
and  
Pamela Pozarny

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## Abstract

This in-depth qualitative study in Zambia is integral to a mixed method impact evaluation of the Home Grown School Feeding (HGSF) and the Conservation Agriculture Scale Up (CASU) programmes. Zambia's HGSF (launched in 2011, and institutionalized in 2012, by the Government of Zambia in collaboration with the World Food Programme, WFP) provides nutritious cooked meals to almost one million schoolchildren and WFP's Purchase for Progress (P4P) programme procures the commodities that make up the school meals provided by HGSF. Purchase for Progress aims to improve livelihoods and address food insecurity by expanding local market opportunities for smallholder farmers in rural areas. The CASU programme (implemented between 2013 and late 2017 by FAO) aimed to provide solutions to declining crop production among small- and medium-scale farmers, strengthen partnership and networking between the Zambian government and cooperating partners, non-governmental organizations (NGOs) and the private sector, and reduce hunger, improve food security and income by increasing crop production, diversification and productivity.

The aim of the qualitative study is to contextualise the findings of a quantitative impact evaluation conducted between October 2017 and January 2018 and deepen understanding of how and why specific findings and impacts transpired. The three main areas of focus for this study include: 1) household productive/farming systems, income generation and expenditure decisions in response to programme interventions; 2) food and nutrition security impacts; and 3) design, operational processes and institutional arrangements of HGSF at central and local levels – and how these features led to particular effects on household productive and consumption decisions – including the wider marketing context (e.g. prices, income generating activities).

The study approach is based on a comparative analysis, exploring dynamics affecting those participating in the HGSF programme compared to households participating in both the HGSF and the CASU programmes. The aim is to explore the effects of each programme in isolation and in combination with one another to gain greater insights into impacts of the implementation processes of the HGSF, and into the effects and impacts of implementing combined programmes. The study intends to crystallize understanding of successful programme modalities to improve impacts in promoting rural livelihoods and poverty reduction. The overall objective of the impact evaluation is to inform and contribute to evidence-based policy and programme decision-making of nutrition-sensitive social protection programmes to enhance food and nutrition security, and economic outcomes.

The study findings indicate the added value of implementing CASU jointly with HGSF for farmers in all focus areas of the research. Main findings on synergies generated by both HGSF and CASU programmes include changes in farming and crop systems, increased income due to improved yields, and improvements in food security and diet diversity. These impacts of HGSF and CASU combined, however, are short-lived and not based on deliberate linkages between both programmes. These findings, to some extent, parallel the quantitative study, which found positive impacts on a wide number of farming and Food Nutrition and Security (FNS) outcomes where both the HGSF and CASU programmes operated, including increased use of crop inputs, higher revenues from crop sales and

improved women's and children's dietary diversity. The study provides evidence of a potential missed opportunity to increase farmer incomes and livelihoods through more intentionally combined programmes.

The report ends with a set of recommendations to support strengthening the coherence of social protection and agricultural interventions, such as HGSF and CASU. These include: promoting multisectoral arrangements and planning in regards to programme design and implementation, to enhance the impact of social protection and agricultural intervention benefits for small-scale farmers; and building farmers' production capacity to meet the public food procurement market requirements of WFPs P4P intervention.

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## Abbreviations and acronyms

CA	Conservation Agriculture
CARPA	Centre for Applied Research and Policy Analysis
CASU	Conservation Agriculture Scale Up
CDD	Child Dietary Diversity
CWAC	Committee Welfare Assistance Committee
FAO	Food and Agriculture Organisation of the United Nations
FGD	Focus Group Discussion
FIES	Food Insecurity Experience Scale
FISP	Farmer Input Support Programme
FNS	Food Nutrition and Security
FRA	Food Reserve Agency
FTC	Farmers Training Centre
HGSF	Home Grown School Feeding
KII	Key Informant Interviews
MA	Market access
MoA	Ministry of Agriculture
MoE	Ministry of Education
NFP	Non-Farm Business
NRC	National Registration Card
P4P	Purchase for Progress
SF	School Feeding
WDD	Women's Dietary Diversity
WFP	World Food Programme
ZMW	Zambian Kwacha



## Executive summary

### 1.1. Background

This qualitative study is designed as an in-depth process evaluation focusing on contextualising findings of a quantitative impact evaluation of the Home Grown School Feeding (HGSF) and the Conservation Agriculture Scale Up (CASU) programmes in Zambia conducted between October 2017 and January 2018 (Prifti, 2017; Prifti and Grinspun, 2019). Zambia's HGSF (launched in 2011, and institutionalized in 2012, by Government of Zambia in collaboration with the World Food Programme, WFP) provides nutritious cooked meals to almost one million schoolchildren and WFP's Purchase for Progress (P4P) programme procures the commodities that make up the school meals provided by HGSF. Purchase for Progress aims to improve livelihoods and address food insecurity by expanding local market opportunities for smallholder farmers in rural areas. The CASU programme was implemented between 2013 and late 2017 by FAO. It aimed to provide solutions to declining crop production among small- and medium-scale farmers, strengthen partnership and networking between the Zambian government and cooperating partners, non-governmental organizations (NGOs) and the private sector. It also focused on reducing hunger, improving food security and income by increasing crop production, diversification and productivity.

The study aims to gain in-depth understanding of how and why specific impacts transpired as a result of programme interventions. The three main areas of focus for this study include: 1) household productive/farming systems, income generation and expenditure decisions in response to programme interventions; 2) food and nutrition security impacts; and 3) design, operational processes and institutional arrangements of HGSF at central and local levels and how these features led to particular effects on household productive and consumption decisions, including the wider marketing context (e.g. prices, income generating activities). The study explores dynamics affecting those participating in the HGSF programme compared to households participating in both the HGSF and the CASU programmes. The aim is to explore the effects of each programme in isolation and in combination with one another to gain greater insights on impacts regarding implementation processes of the HGSF, and effects of implementing combined programmes. The study intends to crystallize understanding of successful programme modalities to improve impacts in improving rural livelihoods and poverty reduction.

This study is integral to a mixed method impact evaluation, with a central aim to complement, and provide greater insight into, the findings and lessons gained from the quantitative research and analysis. This study contributes to supporting policymakers and relevant stakeholders in strengthening nutrition-sensitive social protection programmes for enhanced food and nutrition security, and economic outcomes. Based on the findings, the study provides conclusions and recommendations regarding HGSF implementation processes and scale up, as well as how to optimize complementarities, linking HGSF with other agricultural support programmes.

## 1.2. Research sites, methods and key qualitative findings

The study was conducted in two sites: a HGSF-only site in Luwingu district and a CASU and HGSF site in Katete district. These overlapped with the quantitative study. In each site, two blocks were randomly selected as sample sites, and in each, camps were selected randomly.

The main qualitative methods used to obtain views, experiences, perceptions and opinions around the areas of inquiry included Focus Group Discussions (FGDs) with participatory tools, Key Informant Interviews (KIIs), and in-depth household case studies. The study adopted an open-ended, iterative and inductive approach. This is central to qualitative analysis – in order to broaden the understanding of impacts on different actors, both intended, unintended and unexpected, and capture the types and complexity of processes leading to decisions and impacts (Pozarny, 2017; see also Garbarino and Holland, 2009; Pozarny and Barrington, 2016 on advantages of qualitative methods). Daily research team debriefings were conducted after each day's fieldwork, facilitating in-depth systematic review of findings to capture key conclusions and identify gaps. Two synthesis-day sessions were held at the conclusion of each research site to consolidate evidence and develop research conclusions. Community feedback sessions were conducted to validate findings and preliminary conclusions, offering community members an opportunity to add last observations. These meetings also enabled ownership and sharing of the findings with communities.

## 1.3. Research findings

The research leads to the following conclusions:

### 1. Changes around income generating and farming systems

The WFP, through its P4P initiative to support the HGSF programme, has promoted the production of legumes by smallholder farmers in cooperatives, specifically beans in Luwingu (HGSF alone) and cowpeas in Katete (HGSF + CASU), without an impact on maize production. In Katete (HGSF + CASU), there has also been a sharp increase in the spread of groundnuts, soyabeans and sunflower, and in livestock production and agroforestry, due to the impacts of both the CASU and HGSF programmes. P4P has also played a role in farmers increasing use of inputs, albeit small, to produce beans (HGSF alone). In Katete, due to CASU, the research found a higher uptake in the use of improved seeds, and an increased use of herbicides, pesticides and fertilisers. Findings further reveal an increase in crop diversification, with a wider variety of crops (i.e. maize, cowpeas, soyabeans, sunflower, groundnuts and sweet potatoes) in Katete linked to the production support provided through CASU, including access to improved seeds through vouchers and improved weed management with the introduction of herbicides.

Across both sites, households have changed their use of harvests. In the past, households mostly kept products for household consumption. Now, while a significant portion is sold (mainly to WFP, FRA and traders), households also reserve enough for consumption. The impact has been increased incomes from sale of harvests. The CASU, both alone and in combination with the HGSF, stimulates the adoption of conservation technologies. Through this, farm production and market participation increase. This boosts incomes and reduces the amount of piecework farmers do on others' farms. The P4P initiative grants a secure access to the market for legumes to a selected group of

smallholders organized in cooperatives, which leads to an increase in their production and sales of legumes. By setting legume prices in advance, and offering a higher price, P4P also provided stability and boosted incomes. However, the stimulus for increased beans and cowpeas production came with challenges, including delayed payments from WFP (see programme operations findings).

## 2. Generated changes in food and nutrition security

Combined with improved marketing opportunities, the increase in production of legumes and resultant increased incomes from sale of maize (both sites), beans (Luwingu) and cowpeas (Katete) and higher yields and production support from CASU in Katete has had an important impact on the food and nutrition security of farmers' households. Across both sites there was a reported improvement in food and nutrition security, diet patterns and diet practices within households. This suggests that P4P efforts to enhance smallholder farmers' involvement in agricultural markets generated additional benefits for farmers and their communities through improved nutrition. By improving and diversifying agricultural production, from solely maize to legumes, there were improvements in nutritional status due to households' increased access to nutritious foods.

The programme also encouraged the production and consumption of legumes (cowpeas and beans) which are rich in protein, while also providing households with additional income to spend on improving their families' diets. A more positive impact on food and nutrition is observed in Katete – this could be due to increased incomes from the presence of both HGSP and CASU. There has also been an increase in food expenditure in both sites. While the programme demands – such as quality standards (e.g. legumes with no stones), pre-defined quantities (e.g. 2 000 50 kg bags of beans) and timing – of P4P were difficult to meet for the majority of farmers in the cooperatives in both Luwingu (HGSP alone) and Katete (HGSP + CASU), impacting the ability of cooperatives to meet the procurement demands, this did not lead to a compromise on food and nutrition security, as households would still keep food for their own consumption, including maize, of which production had increased.

## 3. Programme operations/implementation process impacts

WFP's P4P intervention met its objective of providing market access to farmers for beans in Luwingu and cowpeas in Katete. It worked directly with smallholder farmers and built their capacity to engage and sell their produce in competitive markets through aggregators – either cooperatives (in Luwingu) or agro-dealers (in Katete), in order to raise their income from agricultural markets, albeit in the short-term, and address food and nutrition insecurity. Through the P4P, legumes are now widely cultivated by smallholder farmers, where prior to the P4P they did not reach a large formal market. This also had a broader impact on the price of legumes in the market and benefits for rural communities, including improving nutrition, boosting local economies and improving smallholders' livelihoods. However, challenges to implementation included delays in the timing of WFP's arrivals for collecting the beans, often leading to farmers selling their produce at lower rates to traders. This, coupled with farmers struggling to meet procurement demands with the often poor quality of legumes produced and the cooperatives already limited aggregation capacity, often led to defaults on contracted quantities. Synergies between WFP's local purchases and FAO's CASU envisaged at the programmatic stage were only partly achieved by concrete coordination at the implementation stage. Overlap of the two programmes at the household level was not systematically pursued. In both sites, there has been a change in perception of risks, as farmers are more willing to take risks,

specifically with regards to planting more crops. This illustrates the ability of P4P to stimulate production and sales by motivating farmers to produce more. There has also been an increase in having a positive outlook for the future, particularly around education and owning property.

The study provides evidence of positive synergies from the overlap in the operations, but also a potential missed opportunity to increase farmer incomes and livelihoods through a more intentional combination of the two programmes.

## 1.4. Policy recommendations

The study has several important lessons and recommendations for consideration for the Government of Zambia, Ministry of General Education (MoGE), Ministry of Agriculture (MoA), including extension workers, FAO, WFP, and other key stakeholders. The findings and conclusions contain a number of key lessons in support of a potential HGSF and CASU combined intervention model. This is particularly important considering that, from June 2019, WFP planned to hand over procurement of legumes to MoGE and provide technical support for the new phase of the programme. The recommendations, in order of priority and importance, are:

### 1. Improving small-holder farmers capacity to meet procurement demands.

Farmers struggle to meet the public food procurement market requirements of WFP's P4P intervention in terms of quality and quantity. At the same time, WFP purchases of legumes occur after harvest, which meant farmers often had to sell at lower prices to traders. Payment delays from WFP also added to smallholder farmers' challenges.

As the credibility of the programme for smallholder farmers will largely depend on the perceived reliability of the services offered at the aggregation centres, such as the product grading and farmer payment systems improved, institutional arrangements could be achieved by providing specific, and additional, support to farmers to ensure that they can meet procurement demands and participate fully, as well as further developing their marketing capacities. This could include:

- Addressing physical infrastructure constraints experienced by cooperatives and farmers, including supplying the bags farmers use for their initial harvest to transport to aggregation centres;
- Addressing transportation costs borne by farmers to collection points, some of which were too distant;
- Providing support for storage capacity costs to prevent excessive moisture, infestation and rot as a result of delays by WFP;
- Continuing to support cooperative organizational capacities, to improve cooperative performance in meeting demands. **This can be addressed by WFP, MoGE and MoA.**

### 2. Continue to promote conservation agriculture activities.

CASU interventions led to crop diversification, while in HGSF-alone farmers also adopted some conservation agriculture practices, such as crop rotation. With the benefits of conservation agriculture, including supporting increases in sustainable agricultural production and meeting food security needs, such practices should continue to be promoted. This will be achieved through joint efforts between MoA, FAO and WFP. This includes:



- Continuing to provide regular training on conservation agriculture practices to smallholder farmers. **This can be addressed by MoA and FAO.**
- Continuing to support the provision of accessible inputs by providing vouchers to purchase seed and fertilizers. **This can be addressed by FAO, in consultation with MoA.**

### 3. Promote multisectoral arrangements and planning on programme design and implementation to enhance the impact of synergies between social protection and agricultural interventions.

HGSF through P4P achieved a number of goals, including increasing crop diversification and increasing market access. At the same time, CASU interventions led to crop diversification and increases in production, for example through access to legume seeds to expand legume cultivation. WFP was intended to partner with the CASU programme to link up farmers, traders and markets with services, notably improved market linkages through synergies with P4P (WFP, 2014). As overlap of the two programmes at the household level was not systematically pursued, the programmes did not meet this objective and would benefit from a stronger multisectoral approach. This will require coordinated and joint planning and implementation between key stakeholders, including MoGE, MoA, FAO and WFP. This includes:

- Supporting coordination among key actors in the design, planning, targeting and implementation of field operations – namely, procurement and agricultural interventions – across all stages to enhance impact and strengthen sustainability. This includes ensuring effective market access programmes, such as P4P, providing better communication, and targeting selected farmers and cooperatives to benefit from production support, market access and school feeding interventions. **This can be addressed by MoGE, MoA, FAO and WFP.**
- Improving coordination in procurement processes, including by:
  - Addressing payment delays by ensuring the timing of collection is consistent and takes into consideration harvest to ensure farmers do not sell produce to traders at lower prices. This can be through establishing agreements between cooperatives and programme implementers, with conditions for defaults or delays. **This can be addressed by WFP, in consultation with MoA.**
  - Addressing the timing of payments through part payment to farmers upon signature to facilitate aggregation, address the uncertain wait for full payment and risk of price volatility while awaiting payment, and ensure high-quality standards requiring additional costs and effort. **This can be addressed by MoGE and WFP in consultation with the cooperatives.**



## 1. Introduction

This qualitative study is designed as a process evaluation that aims to contextualise the findings of a quantitative impact evaluation of the Home Grown School Feeding (HGSF) and the Conservation Agriculture Scale Up (CASU) programmes in Zambia conducted between October 2017 and January 2018 (Prifti, 2017; Prifti and Grinspun, 2019). It also aims to understand how and why specific impacts transpired (e.g. household productive and expenditure decisions and responses to programme interventions). Specifically, it explains how institutional arrangements, design and operational processes of HGSF at central and local levels led to particular effects on household productive and consumption decisions and consequent impacts, including a focus on the wider marketing context and prices, income generating activities, and cooperative contracts and their management and distribution processes, among others. It also reviews impacts of participating in the HGSF programme compared to households in places where both the HGSF and CASU programmes were running. The objective is to explore the effects of each programme, in isolation and where both were operating, to gain greater insights on the extent to which their implementation may have contributed to the impacts observed in the quantitative evaluation.

This study is integral to a mixed method impact evaluation, with a central aim to complement, and provide greater insight into the findings and lessons gained from the quantitative research and analysis. This study contributes to supporting policymakers and relevant stakeholders in strengthening nutrition-sensitive social protection programmes for enhanced food and nutrition security, and economic outcomes. Based on its findings, the study provides conclusions and recommendations regarding HGSF implementation processes and scale up, particularly focusing on overcoming unintended negative effects, as well as how to optimize linking HGSF with other agricultural support programmes.

### 1.1. The programmes: Zambia's Home-Grown School Feeding (HGSF) and the Conservation Agriculture Scale-Up (CASU)

The last ten years have seen a growing global consensus that school feeding programmes generate a lasting impact that can shape the future of a nation (WFP, 2019). School feeding (SF) programmes are social protection interventions aimed at alleviating hunger while supporting critical areas of education and gender equality, food security and nutrition and health<sup>1</sup>. As noted in Prifti and Grinspun (2019), SF programmes exist in almost all high- and middle-income countries and are present in some 70 of 108 low- and lower- middle-income countries, typically with support from the World Food Programme (WFP). In its broadest sense, HGSF is a school feeding programme that provides food produced and purchased within a country, to the extent possible (WFP).

Zambia is an emerging lower-middle income country, which over the years has been emerging as a fast-growing economy. However, this economic success has not resulted uniformly in improved nutrition and food security or equitable social development. Zambia's 2018 Vulnerability Assessment Committee Results indicate there are 954 000 food insecure people in the country (FAO, IFAD,

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<sup>1</sup> See: <http://www.fao.org/school-food/en/>

UNICEF, WFP and WHO, 2018). Furthermore, in 2018 stunting was prevalent in 40 percent of children aged under five nationally, 6 percent of children are wasted, and 14.8 percent of children are underweight (UN OHCA, 2018). Zambia is also experiencing a double burden of malnutrition, with 23 percent of women and 6 percent of children under five years old suffering from overweight and obesity (Nutrition Country Profile: Zambia, 2018). To this end, a range of overarching measures have been instituted. This includes Zambia's HGSF programme implemented by the Government via the Ministry of Education (MoE) in collaboration with WFP.

#### 1.1.1. Zambia's Home-Grown School Feeding and Purchase for Progress (P4P)

Zambia's HGSF, which was launched in 2011 and institutionalized in 2012, provides nutritious cooked meals to almost one million schoolchildren (Prifti and Grinspun, 2019). In addition to the school feeding component, the procurement of the commodities that make up the school meals provided by HGSF (i.e. the public food procurement component) is done through WFP's Purchase for Progress (P4P) programme, which aims to improve livelihoods and address food insecurity by expanding local market opportunities for smallholder farmers in rural areas. The P4P programme consists of purchasing staple food commodities (cereals, pulses and blended foods) from smallholders, including women farmers. These are later distributed as food assistance in the country of purchase or worldwide to promote the development of agricultural markets so that smallholders are given the chance to sell food surpluses at a fair price and to increase their incomes (Prifti and Grinspun, 2019).

To meet the quantity requirements of large-scale buyers, smallholder farmers must aggregate their crops and sell collectively (Prifti, 2017; Prifti and Grinspun, 2019). Aggregators – either cooperatives or agro-dealers – connected smallholders to the HGSF purchases. As noted by Miranda (2018), the nature of public procurement processes – characterised by high levels of competition and formal requirements – can create significant barriers to entry to smaller suppliers and disadvantaged social groups. Significant market failures in developing economies often mean that smallholders and farmer organisations are unable to compete with larger suppliers. Many governments have, therefore, devised preferential treatment schemes to facilitate access to public food markets by addressing issues related to competition. There is evidence from P4P programme evaluations that targeted agricultural support strategies played a significant role in enabling farmer organisations to access WFP food markets (WFP, 2014).

In Zambia, P4P was initiated in 2009 and focuses on promoting and facilitating group marketing to strengthen the capacity of smallholder farmers in farmers' organizations or cooperatives to market their produce. Smallholder farmers engaged in the P4P initiative are among the food insecure in Zambia (although they are not among the most vulnerable). Furthermore, by procuring pulses, a crop traditionally planted and managed by women, P4P was intended to directly support women farmers and female-headed households, who are among the most vulnerable (WFP, 2014). P4P has supported smallholder farmers with the necessary skills, information and training on topics such as best agricultural practices, post-harvest handling and business management and technology to transform the way they market their produce, directly access commercial markets and sell aggregated quantities of high-quality crops to increase income. This aimed to increase market

access, create price transparency for farmers, reduce the cost of doing business, and develop the value chain of rural agriculture markets.<sup>2</sup>

In 2011, to help fill the gap of available food to pupils in schools within HGFS and source more food locally, WFP in Zambia expanded the P4P pilot that started in 2009. The geographic coverage was determined by three considerations: WFP's food requirements for school meals, the potential for a surplus production, and the availability of partners for capacity building and other services (WFP, 2014). To build the capacity of smallholder farmers and their cooperatives to profitably engage in agricultural markets, WFP adapted its procurement requirements to the smallholder farmers' capacities and needs (e.g. adapted its schedule to fit the local legume seasons), while maintaining strict food safety and quality standards and price competitiveness (WFP, 2013).

### 1.1.2. P4P Procurement Modalities

In Zambia, contracts are directly negotiated with the aggregators – either cooperatives or agro-dealers – and are usually signed prior to the expected delivery to allow vendors to bulk and grade the commodities according to WFP standards, which include good quality legumes with no stones. Key informant interviews (KIIs) with national-level WFP staff working on HGFS explained that contracts were set up either with cooperatives or agro-dealers, depending on the location, and not individual farmers. With reference to the current study sites it was explained that contracts were set up with cooperatives in the Northern Province as they “were fairly organised around the bean value chain”, while in Katete, “it was more convenient to use agro-dealers” as they were more organised and had a stronger presence than cooperatives in the District.

Contracts are said to be done in collaboration with the aggregators:

...terms and conditions were explained – we can set the price together. In terms of quantities, we [WFP] would explain what the programme needs. For example, 200 mt. to cover 20 000 children in Northern region, and exchange that information with the [WFP] procurement team, who passes on to the aggregators. So we give a quota – around 20 tonnes, 30 tonnes. How much can you [aggregators] supply? (KII, WFP Staff, Lusaka).

To ensure legumes procured by WFP are provided on time at the district level, WFP also adapted its schedule to fit in with the local legume seasons (WFP, 2014). As will be detailed in section 3, prior to WFP, most farmers had to rely on often-unscrupulous middlemen to procure the product, due to the informal nature of the legume trade. With the advent of WFP, prices became higher and more stable, as WFP offered a guaranteed price for the legumes to cooperatives.

The prices are determined once a year, prior to signing of contracts and at the start of the marketing season, by a pricing committee comprising members from MoA, FAO and WFP. Prices for beans offered by WFP in Luwingu (HGFS alone) ranged between ZMW 300–350 per 50 kg bag with traders selling at ZMW 15–20 per gallon<sup>1</sup> based on bean type.<sup>1</sup> In Katete (HGFS + CASU) prices offered by

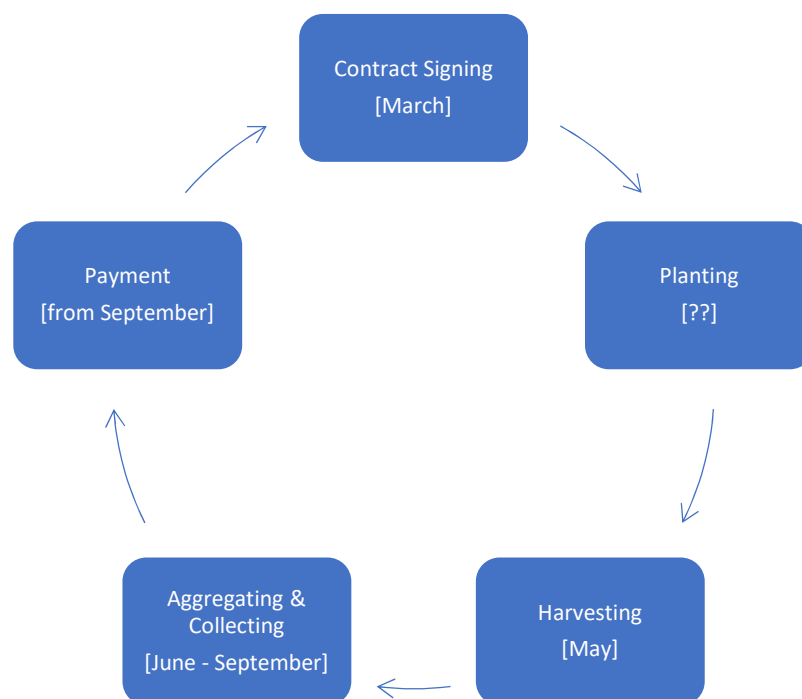
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<sup>2</sup> Data analysis for P4P activities is limited due to a corporate decision made in 2013 to have all P4P pilot data (including Zambia's) sent to the African Economic Research Council (AERC) in Nairobi, a data hub for quality control. No report had been received back at the time of the Mission. Information available on procurement prices that the small-holder farmer gets are based on data collected during fieldwork interviews.

WFP for cowpeas were ZMW 3–3.50 per kg, with commodity agents – buyers different from WFP – selling at ZMW 2.50 per kg and traders from DRC paying as little as ZMW 1.20 per kg (see section 3). Once these are all confirmed between the aggregators and WFP’s procurement team, the contracts would then include information on quantities, prices, date of delivery of produce and where the produce will be collected. During the KII, it was further explained that the “[marketing] season opens around June to September, and there’s only one buying period. And aggregators are told, we require this [produce] by x date.” Additionally, “co-ops aren’t bound when they are being contracted” and are “free to choose” where and who to supply to, as “it isn’t a targeted project”, and that:

If they fall short, we can revise the contract and reduce the quantities, but they are only paid for quantities they supplied (e.g if season isn’t good and so low protection)” (KII)

**Figure 1. Sequence and timing for bean production, according to interviews in Luwingu.**



As explained above, one of the adaptations made by WFP was to fit their schedule with the local legume season. However, according to interviews in Luwingu, the harvest for beans, for example, occurs in May, while WFP crop marketing runs between July and September. This could help explain why farmers often had to sell their beans while waiting for WFP arrival (see Section 3). The commodities are purchased and paid for by WFP only once the commodities are uplifted – although interviews with cooperatives could not provide accurate timelines from taking their beans to the cooperatives and the cooperatives paying them as these were not consistent – after the clearance from the independent superintendent company contracted by WFP to certify the quality of the commodity, and all documents are received by WFP to process payment, with the payment authorization system currently quite complicated due to the need for verification.

Within this landscape, aggregators have a central role in connecting smallholders to the HGSF purchases. While in some districts, pulse procurement was implemented through farmers' cooperatives who act as aggregators buying the produce from their members, in other districts agro-dealers buy the produce from local farmers (Prifti and Grinspun, 2019). Both types of aggregators sell the collected produce in different markets, one of which is WFP's P4P platform. P4P in turn uses the purchased produce partly for HGSF and partly for in-kind assistance either in Zambia or abroad. In the districts where cooperatives act as aggregators, a minimum eligibility criterion for the smallholders to benefit from the HGSF purchases is membership in a farmers' cooperative. Cooperatives that apply for the programme are further selected by WFP based on the cooperative's self-reported storage capacity, size, services offered to members, assets owned and financial aspects (Prifti, 2017; Prifti and Grinspun, 2019).

As noted by Marina (2018), public food procurement can also lead to positive outcomes on health and nutrition, particularly among children and other vulnerable groups. Some pilot experiences in Malawi, Mozambique and Ethiopia have been successful at using food procurement strategies to introduce locally sourced fruits, vegetables and pulses to school menus, diversifying children's diets and increasing access to nutrient-rich foods (Gyori *et al.*, 2016). There can also be spillover effects from the presence of public food procurement – by addressing the food and nutrition needs for vulnerable populations in the communities and expanding access to more diverse foods (Marina, 2018). This link can deliver benefits in terms of income to producers, as well as better nutrition at the household and community levels through increases in the availability of and access to healthier and diverse foods (Marina, 2018).

As will be indicated later in this report, interviews with participating farmers and partners reveal there were mixed reports on increased sales to WFP itself, as farmers were sometimes forced to use alternative buyers offering lower prices and, occasionally, because of delays in collection of the legumes and payment from WFP. Moreover, challenges linked to cooperatives limited capacity to aggregate contracted quantities and meet the conditions of WFP contracts were also raised (see section 3).

### 1.1.3. Conservation Agriculture Scale Up

The CASU programme, implemented by the Ministry of Agriculture (MoA) with the support of the Food and Agriculture Organization of the United Nations (FAO), ran from 2013 to late 2017. CASU was implemented in 48 districts in nine provinces of Zambia, with the greatest concentration of CASU farmers found in Eastern and Southern Province, where CA has been practiced for many years, following its promotion by various organizations (FAO, 2018).

The CASU programme aimed to provide solutions to declining crop production among small- and medium-scale farmers, and to strengthen partnership and networking between the Zambian government and cooperating partners, non-governmental organizations (NGOs) and the private sector. This included improving conservation agricultural capacities by training lead and follow farmers on conservation agriculture practices, mechanization and business management. Extension officers of the MoA were trained in these three areas and transferred the training to the lead farmers, who in turn cascaded it down to follow farmers. The final objective was to reduce hunger

and improve food security and income by increasing crop production, diversification and productivity. Additionally, during the 2016 to 2017 agricultural season the lead farmers were given inputs based on three voucher categories: input voucher with legume seeds targeted mostly to female farmers; transport voucher composed of bicycles and targeted to farmers with more than one hectare of land; credit voucher composed of inputs for seed production and targeted to farmers under legume seed production (Prifti, 2017; Prifti and Grinspun, 2019).

Based on a 2018 evaluation, in practice the project reached 20 396 conservation agriculture (CA) Lead Farmers (8 200 women and 12 196 men and 247 741 Follower Farmers (123 068 women and 124 673 men) (FAO, 2018). In addition to these farmers, MoA staff, agro-dealers, financial institutions, research institutions, agro-entrepreneurs and other CA stakeholders were among the direct and indirect beneficiaries of the project activities.

WFP partnered with CASU to link up farmers, traders and markets complementing them with such services as improved market linkages through synergies with P4P (WFP, 2014). Unfortunately, as will be detailed in this report, there are mixed results on the synergies and linkages between CASU and P4P, which did not function as anticipated.

#### 1.1.4. Quantitative Findings

The quantitative evaluation, which had a total sample size of 3 639 households and included 72 community interviews, focused on three groups of outcomes: 1) farm production and income generating activities, 2) food and nutrition security and 3) education (Prifti and Grinspun, 2019). This qualitative study will follow these foci, except for analysis of education.

A detailed report of the evaluation is presented in Prifti and Grinspun (2019), which concluded that “the CASU meets its own stated objectives of stimulating adoption of conservation technologies and, through this, boosting farm income and improving the food security situation in the household” (Prifti and Grinspun, 2019, p. 94). Specifically, the programme increases harvest for virtually all crops (except for beans), as well as livestock accumulation and production of livestock by-products. The CASU also raised revenues from crop sales and market participation of beneficiaries. The programme had no effect on school attendance or drop-out rates. In terms of time allocation of children, it increased the time dedicated to on- and off-farm activities, but also time spent in schooling and studying activities. As to the food nutrition and security (FNS) indicators, the CASU is associated with improved children’s and women’s dietary diversity, as well as consumption – both from purchases and from own production – of maize and other crops.

The school meals in Zambia’s HGSF programme also:

...meet their objective of improving the dietary diversity of school-going children, while also improving the diet of other household members through probable spill over effects, as shown by the increase in the dietary diversity scores for women. (Prifti, 2017)

Additionally, there is an increase in school attendance rates and reduction of drop-out rates, as well as improvements in literacy and grade progression induced by the school meals. As noted in the report, these improvements in food security, nutrition and educational have “the potential of



triggering long term development processes through human capital improvements, specifically in health and education.” Findings from the public food procurement component of HGSF indicates that “providing market access for legumes to farmers does lead to an increase in their production and sales”. On the surface, this suggests that the HGSF programme meets its strictly defined objectives of creating a market for legumes and increasing revenues from these crops. However, the evidence of the HGSF’s local purchases on the broader farm-household economy suggests that the stimulus for increased bean production came with a number of unintended consequences.

For example, the impact evaluation results reveal that within the HGSF arm, food insecurity, as proxied by children’s and women’s dietary diversity scores and Food Insecurity Experience Scale (FIES), worsens, as do schooling indicators to some extent. Importantly, and surprising, expenditures on food consumption have shown a decrease, as well as consumption of own production, resulting in reduced food and nutrition security and diet diversity. According to the quantitative findings, apart from groundnuts, HGSF farmers chose to specialise in bean production at the expense of maize cultivation – further compromising their own diets and food security, livestock raising and wage labour. HGSF households also reduce their non-food and educational expenses, their consumption and purchase of many food items, as well as their spending, purchase and use of productive inputs and assets. The quantitative findings also indicated, among HGSF households, a decline in wage and livestock income, as well as total gross household income. Income from livestock and non-wage work decreased, as did the ownership of durable goods and productive assets. Other negative results concerned use of inputs, ownership of agricultural assets and durable goods, expenditures on food and non-food items, reliance on consumption loans, engagement in reciprocity exchanges, engagement in paid work, and attitudes toward risk and aspirations.

Finally, there were positive impacts on a wide number of farming and FNS outcomes where both the HGSF and CASU programmes operated. In particular, combining the conservation agriculture training and productive support with the HGSF led to increased crop production and sales. The beneficiaries of the combined treatment accumulated more livestock and produced more by-products, sometimes more than the CASU-only arm. Farm households in the combined HGSF and CASU programmes had higher revenues from crop sales than households in the standalone HGSF programme. As a result, total gross income also increased considerably more in the combined group. The more intense farming activity is also reflected in the increased use of crop inputs and other services. In term of crop diversification, the combined programmes show better results than the HGSF programme alone. The quantitative study also found evidence of increased adoption of CA techniques. Combining CASU with the HGSF programmes also led to improved women’s and children’s dietary diversity and increased consumption of maize (and sweet potatoes).

As CASU operated in 48 districts – 11 of which were also HGSF districts – the expectation was that in some areas, HGSF beneficiary farmers could benefit from productive support through the CASU programme. At the same time, the CASU beneficiaries could benefit from the market access offered by HGSF. As indicated in the quantitative report, programme implementers on both sides tried to coordinate and target the same areas, as further down as the block level, to trigger the envisaged complementarities between the two programmes. According to CASU’s project document, one of the aims of the project was to establish partnerships with aggregators and other partners, such as WFP, in off taking of marketable surplus commodities, particularly legumes. CASU aimed to facilitate

access to legume seeds to expand legume cultivation. The market access offered through the P4P programme further provides an opportunity to develop the agricultural value chain. On the supply side, local smallholder farmers could benefit from such an initiative by having a secure market to sell to. In addition, by providing a market for legumes – one of the main leguminous crops promoted of the conservation agriculture project – the incentive provided by the P4P programme by purchasing locally for the HGSF school meals and other uses was expected to increase the adoption of these practices and, at the same time, smallholder farmers were more likely to meet the extra demand from the P4P when benefiting from CASU’s productive support.

As indicated in this qualitative study, synergies between WFP’s local purchases and FAO’s CASU envisaged at the programmatic stage were only partly achieved by concrete coordination at the implementation stage. Overlap of the two programmes at the household level was not systematically pursued. As a result, some but not all farmers who benefit from HGSF also benefit from CASU in a given farming block (Prifti, 2017; Prifti and Grinspun, 2019). To understand why, this study examines how the programmes were designed, planned and implemented, what each of the programme objectives were, how these were operationalized in practice, which incentives were generated, and how and why farm households responded to the incentives the ways they did, examining the various resultant consequences and impacts.

## 1.2. Research hypothesis

The qualitative study covers three areas: 1) changes around income generating and farming systems; 2) changes in food and nutrition security; and 3) programme operations and implementation. These are presented below:

### 1. The programmes generated changes in income generating and farming systems: crop/livestock – technology adoption, yields, use/destination of harvests, markets and revenues.

- Changes, and causes if any, in cropping/farming systems and production yields (crop and livestock).
- Changes in use of agricultural inputs.
- Changes in production practices/technologies.
- Changes in household revenues and gross income (crop, livestock, wage and non-farm business revenues, sharing/remittances).
- Reallocation of land and other factors of production (farm size, labour supply (hiring in and paid work)).
- Changes in use of harvests – proportion sold/consumed.
- Changes in market access/dynamics and effects/impacts on households, including marketing strategy for sales, prices, purchasing of food in markets.

**2. The programmes generated changes in food and nutrition security: dietary practices, food security and diet diversity (quantity/quality/stability), sources and expenditures of food.**

- Household members' changes in food and nutrition security (stability and regularity, meal frequency/day, quantity, access, preparation), diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).
- Changes and causes concerning diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).
- Changes in food expenditure.
- HGSF beneficiaries' ability to meet HGSF procurement demand and consequential effects on own household food security?

**3. Programme operations and implementation processes.**

- Experiences, perceptions and impacts of beneficiaries in HGSF and in combined HGSF and CASU concerning implementation processes: programme selection and targeting criteria, programme messaging, and incentives, selection and roles of cooperatives, length of engagement, types of training/inputs, marketing.
- Procurement procedures: is HGSF implementation as planned/intended (i.e. timely purchases, agreed upon rates of payment, benefit distribution, etc.) and what are the effects?
- HGSF impacts on products available and prices on local market and effects on food and nutrition security.
- Changes in perceptions and behaviours around risk-adversity and aspirations.

## 2. Methodology

This section provides a summary of the qualitative research methodology including key principles underlying the qualitative approach. Detail on the overall research roadmap, methods and tools applied during the research are presented in Annex Two. The sampling strategy for the selection of research sites is then outlined.

### 2.1. Qualitative approach

The qualitative research method is an approach eliciting greater depth and breadth of understanding as to how and why specific decisions and results transpire. It analyses the context and enabling environment in which activities/programmes operate, with consideration of mediating factors including sociocultural norms and beliefs, existing institutions, socioeconomic factors etc. which influence decisions, results and outcomes (Pozarny and Barrington, 2016).

Qualitative analysis typically includes a triangulation of methods – notably focus group discussions (FGDs), key informant interviews, probing and “snowballing”, in-depth household case studies and visual tools – to obtain views, experiences, perceptions and opinions of main areas of inquiry. Through open-ended, iterative and inductive approaches, qualitative analysis complements quantitative research by broadening the understanding of impacts on different actors, both intended, unintended and unexpected, and capturing the types and complexity of processes leading to decisions and impacts (see Garbarino and Holland, 2009; Pozarny and Barrington, 2016, on advantages of qualitative methods).

### 2.2. The research methodology

The study was conducted in two sites: a HGSF-only site in Luwingu district and a CASU and HGSF site in Katete district. These overlapped with the quantitative study. In each site, two blocks were randomly selected as sample sites, and in each, camps were selected randomly. The fieldwork “roadmap” (see Annex Three) outlines the phases and steps of the overall field research process, conducted between March and April 2019 in Zambia. Annex Five provides a brief overview of profiles of the sampled sites in Katete and Luwingu District, as well as the blocks. The descriptions summarize characteristics and features specifically relevant to this study context and are not comprehensive profiles. Key agro-ecological, livelihoods and socio-cultural characteristics are presented.

**Table 1. Fieldwork sampling strategy**

Districts	Type of Site	Block	Camp
Katete	HGSF + CASU	Eastern	Kamphambe
		Southern	Chilembwe
Luwingu	HGSF alone	Chungu	Mufili
		Chulungoma	Kapisha

Figure 2. Zambian Districts and Location of Research Districts



Source: Map No. 3731 Rev. 4 January 2004, United Nations  
 (<https://www.un.org/Depts/Cartographic/map/profile/zambia.pdf>)

The main qualitative methods used to obtain views, experiences, perceptions and opinions around the areas of inquiry of this research included FGDs with participatory tools, KIIs and in-depth household case studies. The study adopted an open-ended, iterative and inductive approach. This is central to qualitative analysis, in order to broaden the understanding of impacts on different actors, both intended, unintended and unexpected, and capture the types and complexity of processes leading to decisions and impacts (Pozarny, 2017; see also Garbarino and Holland, 2009; Pozarny and Barrington, 2016, on advantages of qualitative methods).

Research team debriefings were conducted after each day’s fieldwork, facilitating in-depth systematic review of findings to capture key conclusions and identify gaps. Two synthesis-day sessions were held at the conclusion of each research site to consolidate evidence and develop research conclusions. Community feedback sessions were conducted to validate findings and preliminary conclusions, offering community members an opportunity to add last observations. These meetings also enabled ownership and sharing of the findings with communities.

### 2.3. Challenges of research

In alignment with the norms of qualitative research, evidence and findings reported cannot be systematically generalised for the wider population but aim to be indicative of study findings. Findings present a rich and contextualised understanding of the views and experiences of people interviewed. To strengthen the probability of replicability of findings, sampling was designed through a highly systematic and rigorous approach to avoid bias as much as possible and capture a triangulation of sources of data (see above). Moreover, findings presented here will complement that of the broader mixed methods impact evaluation.

Another challenge of the study centred on embedding the qualitative study directly in the quantitative study sampling frame. In Katete district, while the list was meant to contain only farmers in cooperatives supplying to HGSF and engaging in CASU, a few farmers on the list and in the randomly selected blocks and camps were in both programmes. This often meant that FGD numbers were smaller than planned for, to factor in the criteria of only interviewing farmers in cooperatives supplying to HGSF and engaging in CASU. This could be due to time as the CASU programme had been completed during the period of the qualitative study. Similarly, in Luwingu, while the list was meant to contain only farmers in cooperatives supplying to HGSF, while all farmers were in cooperatives, not all farmers on the list supplied to HGSF via cooperatives. As will be indicated in later sections, this could be due to farmers being unable to provide the full quantity of legumes to WFP. This meant that the research team had an even smaller number of farmers on the wider list to interview.

It is important to note that the qualitative and quantitative studies occurred at different periods (between October 2017 and January 2018 for the quantitative and between April and May 2019 for the qualitative). Participants for this current study were asked to discuss their experiences based on 2017/18 – when the quantitative study was undertaken. However, the findings of the qualitative study are based on a summary of subjective assessments of changes over time (before and after programme) without comparing them with changes over time for a control group. The quantitative study used control districts where neither programme was implemented. It is important to bear these methodological challenges in mind.





Community debriefing session in Chulungoma Block, Luwingu District

### 3. Research findings

This section presents the main findings from the fieldwork in the two research sites. The findings are presented according to the three main areas of research enquiry: 1) changes around income generating and farming systems; 2) changes in food and nutrition security; and 3) programme operations/implementation.

Each sub-section is organised as follows: 1) a focus on the impacts of HGSF alone from the qualitative findings; 2) a focus on the impacts of HGSF and CASU from the qualitative findings. Boxes are provided throughout with a summary of the quantitative findings and similarities and differences of the qualitative findings with the quantitative findings.

#### 3.1. Changes around income generating and farming systems

This research theme explores the reasons for the effects of the HGSF and CASU interventions for households that received support in conservation farming and which lived in farming blocks covered by the HGSF, versus the HGSF intervention alone, on income generation and farming systems. Specifically, the hypothesis is: design and implementation of the programmes and their linkages have generated changes around income generating and farming systems (i.e. crop/livestock – technology adoption, yields, use/destination of harvests, markets and resultant revenues).

### 3.1.1. Changes in cropping/farming systems, production yields and livestock production

WFP, through its P4P initiative, has promoted the production of legumes by smallholder farmers in cooperatives to support the HGSF programme. Through the programme, Luwingu (the HGSF-alone site) has seen an increase in the production of beans, while Katete (the HGSF + CASU site), has seen an increase in cowpeas.

#### **Quantitative findings for HGSF**

- Beans are the most widely grown crops, and maize is the second most grown crop, with an increase also in the spread and production of groundnuts (**similar to qualitative findings**).
- Reduction in the spread of livestock activities and in the average number of animals owned (**different to qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- Maize is the most widespread crop. CASU was associated with improvements (in production, value of harvests and sales revenues) for maize, groundnuts, seed cotton, soyabeans, sunflower and sweet potatoes (**similar to qualitative findings**).
- HGSF alone had no impact on cowpeas, although CASU did (**different to qualitative findings**).
- An increase in the share of farmers raising livestock, as well as considerable increases in the share of farmers dealing with by-products (**similar to qualitative findings**).

In Luwingu, the findings indicate changes in crop production with the increase in the spread of beans (due to P4P), maize (due to the Food Reserve Agency (FRA) and the Farmer Input Support Programme (FISP), and groundnuts (due to interventions from NGOs). Farmers have also experienced increased hectareage and improved yields. Crops traditionally grown in the district were reported to be maize, cassava, groundnuts, sorghum, beans and finger millet. Beans are now widely grown through P4P due to the available market provided by WFP. There is evidence that there was already a robust trade in beans, but these were mostly traded with neighbouring countries via informal means. Moreover, the absence of formal pricing of the beans exposed farmers to exploitative trading practices. As such, in the past “beans were being produced, but not a lot, due to little market and not well-developed value chain” (KII, co-op chairperson, Kapisha camp, Chulungoma Block). In addition to selling to WFP, beans are still sold to traders from the Copperbelt and the Democratic Republic of Congo, but as will be detailed later in this section, there are now more secure and higher prices of beans due to pricing mechanisms put in place by WFP.

Maize has always been a major crop and is still widely grown as a staple crop for production and consumption. There is already a national system for purchase of maize from smallholder farmers, supplied by the Government through FRA providing a guaranteed market for maize. Through the FISP, farmers can access farm inputs such as maize seed and fertilizer from agro-dealers registered under the programme. The increase in the spread of groundnuts was not attributed to HGSF, but due to “improved seeds and more players like Self Help Africa, World Vision, Afriseed and MoA extension officers and of course FISP” (FGD, District Level, Luwingu). Farmers have also experienced increased hectareage and improved yields.

The qualitative findings further indicate that livestock is limited in Luwingu district as they are not traditionally raised in the district. This could help explain the quantitative findings of the lower number of animals owned.



A limited number of participants perceived an increase, albeit small, in the number of livestock in their households, particularly cows. There was also a perception of increased knowledge around agroforestry, with farmers planting different types of trees, such as ububa trees that improve soils nutritional value, or changing the practice of the Chitemene system<sup>3</sup>. While those farmers describe being more able to afford vaccines against diseases, such as Newcastle disease in chickens, these changes were not linked to HGSF, but actions of other programmes and actors. Specifically, livestock increase was linked to government intervention through supply of animals and knowledge and training from vet services on caring livestock.

Increased knowledge around agroforestry has been due to organisations such as World Vision (introducing windbreakers), the Ministry of Forestry (managing a programme centred on planting orange and lemon trees), and the MoA (holding demos at its Farmers Training Centre (FTC) on trees that improve soils nutritional value).

In Katete, where both programmes were being implemented, cowpeas were the major crop produced and sold to WFP by cooperatives in the district. These findings contrast the quantitative findings (see box). Unlike Luwingu, beans are not a major crop planted in this area, due to the Northern Provinces being one of the country's corridors; instead, production of cowpeas increased as a result of HGSF's P4P initiative. As explained during a KII with the former chairperson of a co-op in Eastern Block, Kamphambe camp:

...once HGSF came, we now concentrated on cowpeas because it was giving us something - we found market. Cowpeas generally doesn't have market, but it came [with HGSF] and we have ready market.

Maize is also widely produced, being the staple food. Other crops traditionally grown include groundnuts, soya beans, sunflowers (mostly for oil), a bit of cotton and some sweet potatoes.

During district level interviews, it was perceived that due to CASU:

...the district saw an increase in hectarage of cowpeas and soya beans. For maize, hectarage has been the same, but productivity improved as farmers were able to use better farming methods.

As further detailed during the FGDs at district level, "CASU introduced crop rotation and hybrid cowpea seeds, but demand [of cowpeas] was because of WFP." This indicates the added value of the presence of both programmes in Katete for increasing crop production. The productivity gains are due to better farming methods induced by CASU (see next section).

The study also found an increase in livestock, notably cattle and goats, broiler and village chickens, as well as pigs. While, as explained during the district level interviews, there was "no deliberate focus on livestock in CASU", they did observe that "farmers could afford vaccination". They link this to the increased productivity from CASU. This was echoed during male FGDs in Southern Block,

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<sup>3</sup> Chitemene (also spelled citemene), from the ciBemba word meaning "place where branches have been cut for a garden", is a system of slash and burn agriculture practiced throughout northern Zambia.

Chilembwe camps where they explained how animals would die from diseases in the past, but with training from extension officers, they know how to care for animals and with increased income from the combined programmes, they “can buy chemicals and treat animals”. Finally, during FGDs with female HGSF co-op members and CASU farmers in Southern Block, Chilembwe camp, they explained that trees, such as moringa, are being planted due to training from the agriculture extension officer on how to plant trees.

In sum, there has been an increase in the spread of beans in Luwingu and cowpeas in Katete as a result of WFP through its P4P initiative which has promoted and incentivized the production of legumes by smallholder farmers. The presence of CASU in Katete led to further crop diversification. This has not impacted maize production; maize inputs are provided under FISP, and the FRA provides a guaranteed market for maize. Livestock and agroforestry has seen an increase, albeit small, in Luwingu district due to efforts from a range of actors including Ministries, while in Katete there has been a sharp increase in livestock production and agroforestry due to the combined impacts of the CASU and HGSF programmes.

### 3.1.2. Changes in use of agricultural inputs

While WFP did not provide inputs, in promoting the production of legumes by smallholder farmers in cooperatives to support the HGSF programme, P4P has also played a role in farmers’ increasing use of inputs. Additionally, as explained in the previous section, maize inputs and fertilisers supplied by FISP have helped to maintain the production of maize, which is a staple product in both Luwingu and Katete.

#### **Quantitative findings for HGSF**

- Low use of chemical fertilizers, organic fertilizers and pesticides (**similar to qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- Increase in the share of users of chemical and organic fertilizers, and the share of users of manufactured feed is higher, and an increase in almost all livestock inputs (**similar to qualitative findings**).

In Luwingu – the HGSF alone site – farmers did not traditionally use fertilisers and used recycled seeds. However, informants observed a slight change among some farmers using more fertilisers. These perceived changes cannot be attributed to HGSF, although it did have a small contribution. District Level staff stressed the importance of P4P, as it gave farmers an “awareness on the need for quality (not rotten beans) and quantity”, or as one district level official said, “If you are to sell to HGSF, you have to reach the parameters”, which, as will be discussed in section 3.3, includes producing good quality legumes. Thus, one motivating factor to increase the use of inputs for beans, to some extent, is linked to the presence of HGSF. Farmers, through supplying to WFP via cooperatives, have experienced increased production and have higher yields (of beans); they are therefore incentivised to invest in inputs for beans. This indicates that WFP helped, albeit in a limited way, to promote access to and use of inputs, as it was only for the production of those specific crops being sold to WFP.

However, similar to the findings on farming practices and livestock, any change is linked to actions from other actors. For the District Level FGDs, the motivating factor included “deliberate policies by

the government” and “agro-dealers coming into the district and seed companies now delivering seeds to farmers”. Beyond beans and maize, the use of improved seeds, such as soya beans, sorghum and groundnuts, which are also leading to higher yields are due more broadly to “more players like Self Help Africa, World Vision, Afriseed and MoA extension officers”. The knowledge on how to use agricultural inputs, as explained during FGDS with women in Chungu Block, Mufili camp, comes from agricultural extension officers. Medicines and vaccines for livestock from vets are not widely used, but there are more broiler keepers who buy or make their own feed (from soya beans). Low use of vet medicine is due to the timing of receiving money and when livestock diseases hit (competing priorities with crop inputs).

In Katete, due to CASU, the research found an uptake in the use of improved seeds, and an increased use of herbicides, pesticides and fertilisers. As detailed during a KII with the Co-op inspector at the Ministry of Commerce:

We have a traditional way of input supply by the government – FISP. CASU came and farmers started using different inputs, especially with legumes. Before, they used local variety, but CASU brought local hybrid supply of legume seeds, groundnuts, soya beans and cowpeas. CASU brought in improved varieties and increased yield and supply increased.

This was reiterated throughout the interviews. In Eastern Block, Kamphambe camp, opinion leaders mentioned improved cowpeas seeds and use of hybrid maize seeds. Male leaders of co-ops also raised the greater use of herbicides and the decline in use of local maize seeds. This suggests that while P4P stimulates use of inputs for cowpeas due to providing market access for the crops to be sold, CASU plays a critical role in the uptake of herbicides, fertilisers, pesticides and improved seeds for a wider variety of crops.

In summary, in Luwingu, while WFP’s P4P initiative provided an incentive for the use of inputs for beans, the increase, albeit small, in the uptake of improved seeds and in the use of fertilisers, is linked to different actors in the district. Specifically, maize is largely due to provision of seeds and fertilisers through FISP, and other crops due to NGOs. Training from the agriculture extension officers and NGOs have also played a role. In Katete, where both CASU and HGSF operated, the study found there was an increased used of hybrid seeds, fertilisers, herbicides and pesticides, which contributes to the higher yields and increased income. Although FISP is present, this is largely due to the CASU interventions, which supported farmers’ increasing yields, notably cowpeas and hybrid maize.

### 3.1.3. Changes in production practices and technologies

Findings from Luwingu and Katete reveal an increase in crop diversification (i.e. the quantity produced of each crop and the number of crops).

#### **Quantitative findings for HGSF**

- Increase in crop diversification (**similar to qualitative findings**).
- Crop rotations and mulch use are used, with positive impacts, albeit small. Those adopting some CA have learned the practice through other farmers (**similar to qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- Increase in crop diversification (**similar to qualitative findings**).
- Increased use of CA practices for virtually all crops, and positive impacts on the adoption rate of all CA practice and an increased use of scotch carts and of hired pack animals HGSF alone had no impact on cowpeas, although CASU did (**similar to qualitative findings**).
- Learning from another CASU farmer, specifically the lead farmer, is the most common way that CA knowledge spreads (**similar to qualitative findings**).

In Luwingu, due to the increase in production of beans for sale to WFP, there has been an increase in beans produced by smallholder farmers in cooperatives. This is in addition to maize, groundnuts and other crops mentioned in section 3.1.1. Regarding farming practices, FGDs at the district level reveal that farmers “still use the old way of cultivating hoes and planting”, as well as “old practices”, such as Fundikila<sup>4</sup> and Chitemene. There is no change in the use of equipment, but tiller tractors were donated to the cooperatives by Ministry of Gender, but they were not being used due to lack of proper training. As explained during FGDs with farmers, “they are too expensive to hire the two tractors in Luwingu”.

New practices are being adopted. However, these changes are not linked to HGSF, but to activities from the Government and NGOs. As explained during a KII with an agro-dealer, these are “from the Ministry of Agriculture extension officer – sensitising on need for certified and not recycled seeds”. For example, Fundikila was done on a small scale, but support from FISP encouraged people to farm on a larger scale. There also seemed to be take-up, albeit small, of CA practices, with the most widely used method being crop rotation, with training provided by the Ministry of Agriculture and other NGOs.

In Katete, there is a greater use of CA farming techniques and technology adoption. There is increased use of CA for all crops, including cowpeas, including more crop rotation. There was also minimum tillage (referred to as *gampani*) in practice, and the use of reapers and chaka hoes for *gampani*. In terms of knowledge of these practices, informants explained that camp officers trained CASU lead farmers, who trained follower farmers. This indicates a significant role of agricultural support strategies from CASU in enabling farmers engaged in farmer organisations to sufficiently produce and access WFP food markets and markets more broadly. As explained by opinion leaders in Eastern Block, Kamphambe camp, “a lot more people were using reapers and also borrowing from those who have reapers”, as reapers were not only seen to be better than hoes, but also it was

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<sup>4</sup> The process involves the formation of mounds of grass covered by earth on a previously fallowed site, towards the end of the rainy season.

cheaper to reap than to plough: “One hectare for reaping is ZMW 150. One hectare for ploughing is ZMW 300” (opinion leaders in Eastern Block, Kamphambe camp). As further explained during a KII with a chairperson of a co-op also engaged in HGSP, since joining CASU he “started using minimum tillage and CA methods hoes and reapers in the fields as reapers were more efficient than hoes. Now I am using an animal drawn plough reaper and oxen.” The farmer was able to cover more land in a short space of time, which has made his work easier.



FGDs with male HGSP + CASU farmers in Southern Block, Katete District

In summary, in Luwingu, there has been some crop diversification with increase in production of beans due to HGSP, but a slower adoption to using new farming techniques – even though training is being provided through MoA and NGOs. This resulted in overall lower yields in this site, as compared with those where both programmes were running. In Katete, CASU brought crop diversification, access to improved seeds through vouchers, improved the challenge of weed management with the introduction of herbicides, used crop rotation (as one of the challenges was micro-cropping) and a focus on maize, improved fallow, control of drainage, better tillaging, and also introduced animal draft plough using reapers.

#### 3.1.4. Changes in household revenues and gross income

In Luwingu, farming is the main livelihood source, with maize (bought from FRA) and beans (bought from WFP and other traders) being the main source of income. Livestock, as explained during a KII with the owner of an agro-dealer “are only a top-up used during times of need”. The selling of beans



to WFP, especially, has also meant that farmers do not need to wait for FRA to sell their produce, particularly as there are often delays in maize procurement. As explained during FGDs with male farmers in Chungu Block, Mufili camp, income from sale of beans has increased due to the improved prices of legumes (see 3.1.7 on market access). Another added value of the available market from HGSF for the sale of beans was that farmers were now able to sell crops “when the price is good, at the right season” (HGSF co-op leaders, Chulungoma block, Kapisha camp).

As will be explained in section 3.3, harvesting season for beans occurs between May and July, with WFP scheduled to arrive for beans collection between July and September, while prices increase and peak immediately after harvesting season (see 3.1.7). However, farmers explain that WFP would often show up between September and October when prices were lower and farmers had sold most of their beans to other traders (see 3.3), which had an impact over time on increased incomes.

Overall, from the qualitative findings there is a perception of an increase in incomes (though short-lived), but only for those farmers who were able to sell their beans to WFP: “harvest is more, they are selling more, but the purchasing power of the money is less” (see 3.1.7 on market access and “briefcase buyers”). A small number of farmers were also able to set up small businesses and other income-generating activities due to time freed up from labour on their own farms and increased incomes from selling beans. However, in addition to unpredictable collection time from WFP, not all farmers sold regularly to WFP due to the quality of their produce, further indicating the short duration of increased incomes (see 3.1.7).

In Katete, both crops and livestock are important income sources – although livestock is normally only sold during times of distress. For example, as explained at District Level FGDs, “during the rainy season, money is needed to buy crop inputs, so normally livestock is sold”. Regarding non-farm business engagement, there was a diversity in income streams generated by improved production from CASU intervention (see 3.1.1 and 3.1.2). There was also an observed increase in owning small businesses, groceries, taxis for hire, and mushrooming of Saving and Internal Lending Communities. Overall, there is a perception of an increase in gross income<sup>5</sup> due in part to the improved production from CASU interventions, as mentioned earlier, leading to increase in incomes from sale of produce and livestock, as well as from new income-generating activities. While HGSF provided a new source of income through the sale of cowpeas, this was limited. As indicated during interviews, very few households engaged in the P4P intervention, and as such only a few farmers would have benefited from the sale of cowpeas to WFP. Additionally, WFP was not around long enough in the district to make a sustainable impact; some households did not sell more than three times to WFP (see also 3.3).

In summary, in both sites the qualitative study found an increase in incomes, with a higher increase in Katete due to the increased yields from the CASU interventions leading to diversified income streams. However, these changes were not long term, as households sold beans or cowpeas no more than a few times to cooperatives that supplied WFP under the P4P programme.

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<sup>5</sup> Gross income being the sum of the market value of all crops, the income from wage labour and the revenues from sales of livestock and livestock by-products as well as sales from non-farm businesses.

### 3.1.5. Reallocation of land and labour supply

In Luwingu, the qualitative study found that due to increased incomes from their higher yields from beans (as a result of WFP), maize (as a result of inputs from FISP), and to a lesser extent groundnuts due to the inputs and activities from NGOs, farmers in co-ops selling to WFP were able to reduce the amount of piecework they do themselves on others' farms and now hire labour as piecework to work on their own fields. As explained during FGDs with men in Chungu Block, Mufili camp, "bean sales gave us enough money to hire labour", with some farmers also putting money aside for piecework as explained during a KII with the CAC chairperson in Chulungoma Block, Kapisha camp. This was reiterated by a farmer who normally hires people to help with planting, weeding and harvesting, especially groundnuts:

By January, we need to start preparing land for beans and by February start planting and by March finished. I normally pay piece labour using seed or cash, and they charge me ZMW 150 on one lima for planting. Before, I never needed help, but due to increase on my field, I now need to hire labour, but labour is becoming short in supply and farmers are fighting for labour. If another farmer offers a higher rate, he will get most of the labour and this affects cost of production negatively.

HGSF farmers therefore reduced their own time spent on the farm (especially on cultivating) because they were able to afford to hire in labour to undertake the work on their farms.

#### **Quantitative findings for HGSF**

- Time spent on the farm shrinks (**similar to qualitative findings**).
- Considerable increase in the share of land dedicated to beans (**similar to qualitative findings**), at the expense of maize (i.e. land is reallocated from maize and other crops to beans production) (**different from qualitative findings**).
- Average amount of maize harvested drops, and the harvest of other crops also reduces (**different from qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- Time spent on the farm shrinks (**similar to qualitative findings**).
- Reduction in the area of land dedicated to maize and beans and increased allocations for soybeans and sunflowers (**similar to qualitative findings**).

On land holdings and use, in Luwingu, the qualitative study found there was a considerable increase in the share of land dedicated to beans production, with farmers able to access more land as "land is not an issue in Luwingu" (KII owner of agro-dealer, Luwingu). As further explained during FGDs with HGSF co-op leaders in Chulungoma Block, Kapisha camp:

...it is easy to find land as the headman allocates it depending on one's capacity [as] each person will be given land as a family, which is usually more than enough to subdivide among children.

Importantly, unlike findings from the quantitative study, overall the qualitative study found that despite increased land allocation to both beans and maize, there is a greater increase in the land allocated to beans compared to maize, as indicated from informants in Chungu Block, Mufili camp:

Fields have expanded. Before, they only used to have one lima for maize, two limas of beans. After the programme [HGSF], the maize expanded to two limas and beans to four limas (KII, community health worker).

[in the past we used] two lima for maize, and after we counted two ha of maize and with beans before we used one lima or a half, and after we expanded to two to three lima (Participant in Male FGD).

To further confirm the changes in land allocation for crops, during a KII with a co-op chairperson in Chulungoma Block, Kapisha camp, more detail was provided, which also revealed that increase in land allocation for crops was not solely due to WFP, but to a range of actors including FRA:

Before one lima [of land] would have cassava and millet (bigger portions), groundnuts, maize and beans (smaller portions) and maize was intercropped with groundnuts. Now, one ha for beans, two ha for maize, cassava on a small-scale. These decisions are made now because there's market – even for cassava, which FRA is now buying. Also, improved farming systems. Before farmers do their own work, and if you're lucky you find people who want to work, and you pay them with food. Now we still do work, but we also have in mind that we can hire people for piecework, and we pay in cash or in food like maize. The problem with labour is that we cannot always pay those that come for piecework and if they travel far and have no accommodation, we can't accommodate them.

From the qualitative findings, in Katete, overall there is a reduction in the amount of piecework that farmers perform on their own or others' farms and time spent on their own farms (by men and women engaged in both programmes, which is in parallel to the quantitative study findings). This, however, was mostly due to herbicides being provided by CASU. As explained during a KII with the Co-op inspector at Ministry of Commerce, "CASU came in with introduction of herbicide, which reduced labour [requirements]. So, no more weeding needed. And ploughing which was so tiring was substituted for reaping." This was echoed during district level FGDs, where it was raised that less labour is needed, "weeding created so much labour demand, but because of herbicides, now the labour needed is less, as well as having tillers and animal traction." FGDs with female HGFS and CASU farmers in Eastern block, Kamphambe camp, also discussed using less paid labour as "the now cultivate for themselves" and "because of new farming methods, like using herbicides and reapers". During a KII with a female CASU lead farmer also engaged in HGFS, a more detailed explanation was provided:

Before, it was me, my husband and children with a plough from 6–11am. My husband would plough and me and my children would plant and make the ridges with hoes. We would weed by hoes from about 6–11am. We would do it for about three weeks – the weeding. Harvesting was from 6–11am. Another day we would go with my husband and children, for about a month of harvesting. After, my husband, children and me go at 7 and come back at 10. We use a reaper now, and it takes three days – before cultivating used to take 7 days. For weeding we use herbicides, and only my husband does this. Now he goes 6–8am for two days. Harvest is still the same as in the past, nothing has changed. But with the free time we just sit, but we are also involved in these other businesses – we would go to the shop or sell the chickens. It's the CASU people who taught us.

With reference to land, unlike Luwingu, "land is a constraint, there is not enough land" (District Level FGDs). As was explained during district level FGDs in Katete, land in the district is not available for all



to use, and most land that appears vacant is usually already owned by someone else. In the past, a larger share of land was allocated to maize. However, once farmers began to receive hybrid maize and adopted CA farming techniques, which resulted in higher yields, they were able to diversify their crops (see 3.1.3) without having to increase their land allocation. In addition to the maize they traditionally grew, farmers were able to re-allocate land for soya beans, cowpeas, groundnuts and sunflower. As explained during FGDs with women in both programmes in Eastern block, Kamphambe camp, in the past they would use their entire field for maize, but now they have different crops. One participant explained they have three acres, and now use two acres for maize and the rest for cowpeas, sunflowers and groundnuts. Participants in the FGD also note that “now cowpeas has its own land portion”. Previously, it would be intercropped with maize or cotton – which was the traditional way of cropping and often led to little or no yield when intercropped with maize, and required pesticides when intercropped with cotton.

In summary, in Luwingu, according to the qualitative study, while farmers supplying to co-ops selling to WFP are able to reduce the amount of piecework they do themselves on others’ farms, they are also more likely to hire in labour to take on the work on their own farms due to still practicing traditional farming techniques. This is possible due to increased incomes from the sale of beans. This contrasts with the quantitative study, where HGSF is associated with reduced hiring in of labour. With regards to land, farmers are also diversifying crops grown on their land, and are able to expand their portion of land, if needed. In Katete, there is an overall reduction in hiring in labour for piecework on farms due to the increased use of herbicides. This finding clearly differs from the quantitative study, finding an increase in hiring in labour. There has not been an increase in the size of land used as a result of limited constraints on access to land, but due to improved seeds, higher yields and crop rotation, farmers are able to diversify crops on their existing pieces of land and improve productivity (harvests).

### 3.1.6. Changes in use of harvested quantities, consumption and sales

In Luwingu, FGDs at district level reported that farmers used to harvest less maize, but now, due to improved seeds and fertilizer from FISP, they are not only harvesting more, but changing the use of their harvest. As explained by one official:

...before, they would have ten 50 kg bags per lima<sup>6</sup> and forty 50 kg bags per hectare of maize, now they have fifteen to twenty 50 kg bags per lima and sixty to eighty 50 kg bags per hectare of maize.

#### **Quantitative findings for HGSF**

- Average amounts of maize harvested drops, and the harvest of other crops also reduces (**different from qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- With the presence of CASU, harvest of maize, peas and groundnuts increase. With exception of peas (did not come up in the qualitative study), there is an increase in maize and groundnuts harvest (**similar to qualitative findings**).

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<sup>6</sup> There are four lima in one hectare.

In the past, if farmers produced 20 50 kg bags of maize on two limas, they would consume all of it. Now, they are able to produce 30 to 40 50 kg bags of maize on two limas, and they would consume 18 bags and sell the rest. This was due to having a wider variety of crops, including beans and groundnuts, to enable them to diversify their production and consumption patterns. This was reiterated across all FGDs. In Chungu Block, Mufili Camp, informants from FGDs with HGSF Co-op Leaders explained how prior to HGSF they consumed all they harvested (e.g. harvested 10 50 kg bags of maize on one lima, and now on the same lima, they harvest 15 50 kg bags, and sell 5 bags). For groundnuts, in the past on one lima they would produce 10 50 kg bags and keep all for household consumption. Now, on two lima, they are able to harvest 15 to 20 50 kg bags of unshelled groundnuts, and keep 5 bags for household consumption.

Similarly, with beans, before if three 50 kg bags were harvested, two bags would be sold, and one would be kept for household consumption. Now, if 15 50 kg bags are harvested, 12 would be sold and 3 kept for household consumption. This indicates that farmers supplying to HGSF were not only selling more produce, due to higher yields, but also had more for consumption – as they were now not only getting income from FRA through the sale of maize, but also from WFP and other traders through the sale of beans.

In Katete, a change in use of harvests was also observed. Here, opinion leaders in Eastern Block, Kamphambe camp explained how “now only one-tenth of harvest is kept and is enough for the family and the rest is sold. That is for maize”. Similarly, male leaders of co-ops in the same site discussed how they used to sell less of their harvest and never used to sell in bulk, but due to CASU resulting in higher yields, they are now able to sell in bulk. They are also able to calculate how much harvest is needed for household consumption, and how much they would sell. Moreover, while in the past cowpeas were strictly for household consumption, due to the market access created by P4P they are now selling more cowpeas.

In summary, across both sites, households have changed their use of harvests, from mostly keeping products for household consumption, to now being able to keep harvests for household consumption, and also to sell harvests. As such, while a significant portion is sold to WFP, FRA and traders, households also reserve a sufficient amount for consumption. The impact has been increased incomes from sale of harvests.

### 3.1.7. Changes in market access

#### **Quantitative findings for HGSF**

- Overall, less impacts in terms of market engagement (**different from qualitative findings**) – even though the share of beans sellers almost doubles, and the number of maize sellers also increases.
- Positive impacts in the share of farmers selling groundnuts (**similar to qualitative findings**).
- Reduction in the sale of animals and reduction in revenues from livestock sales (cattle, duck, geese) (**similar to qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- Mixed signals on market engagement – the programmes combined led to an expansion of the share of maize sellers and to a shrinkage in the share of beans sellers (**different from qualitative findings**).
- Significant reduction in the revenues from beans sales, and an increase in the sales revenues from groundnuts, while crop revenues overall almost double in value (**different from qualitative findings**).

As explained earlier, in Luwingu, major sources of income from crop sales include beans (sold largely through WFP and traders), maize (sold mostly through FRA) and groundnuts (sold through traders from Copperbelt). Market access via sale of livestock is minimal, and only for a small number of farmers. This could be linked to livestock not being a priority activity for farmers, who keep livestock mainly for self-consumption (see also 3.1.4).

Research participants revealed that the supply of beans was largely seasonal and supplies became difficult towards the harvest season. Prior to WFP, most farmers lamented the fact that they had to rely on often-unscrupulous middlemen to procure the product, due to the informal nature of the bean trade. With the advent of WFP, prices became more stable.

Market access, to a large extent, was stimulated by WFP through the P4P initiative. By working directly with smallholder farmers to engage and sell their produce in competitive markets through aggregators, P4P helped to increase smallholder farmers' capacities for agricultural production and their market access. As explained during FGDs with male farmers in Chungu Block, Mufili camp, the increased income mentioned in earlier sections is due also to the improved prices provided through the P4P initiative. However, as stated above WFP was not the only (or even largest buyer) of beans, as not all farmers sold to WFP; the main buyers of beans included WFP and traders.

Though WFP crop marketing runs between July and September, much of the crop is usually mopped up from smallholder farmers within four to six weeks of harvest. The price is often higher at the start of the season (between ZMW 300–350 per 50 kg bag) with traders selling at ZMW 15–20 per gallon based on bean type.<sup>7</sup> As WFP often arrives late, this means farmers are sometimes forced to sell to traders at the lower rates. Most farmers will be under pressure to sell and meet various domestic needs, and so are not able to hold back to wait for the better price from WFP.

Moreover, as discussed during KIIs with WFP staff at national level, with time, supply outstripped demand. Specifically, when the programme started, WFP did not receive enough supply, but after two years farmers produced more than the programme could take. After a while, the programme shrank and farmers that were supplying did not find a ready market. A demand was created, but farmers could not connect to other markets. It was made clear that the programme was an alternative market, i.e. one of the markets to sell in.

One of the key constraints for bean marketing is that smallholder farmers would have had the benefit of a confirmed market for their produce at the time of production, but delays from WFP can create uncertainty and affect levels of investment into production and/or aggregation/marketing. Quite often smaller aggregators also struggle with accessing finance to enable them to buy the crop from smallholder farmers while waiting for WFP to arrive. There are also unethical practices among small aggregators/marketers. This includes cases where some traders use incorrectly calibrated weighing scales to cheat smallholder farmers, or buy using gallon tins to fill up a 50 kg bag (by volume), which then actually weigh 60 kg.

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<sup>7</sup> For the few that sold livestock, the prices of goat prior to the programme was ZMW 150 and after was ZMW 350–400 depending on the size of the goat, while sheep were sold for ZMW 150–170 before and after it was ZMW 200–600. Finally, chickens before were sold for ZMW 10, and then ZMW 15–20 and now ZMW 40–50 for a cockerel.

In Katete, HGSF did lead to improved market access for cowpeas. The significant reduction in the revenues from beans sales found in the quantitative study could be explained by increased cowpeas production due to the market access made available by P4P. However, the market for those farmers in co-ops that sold cowpeas to WFP directly was infrequent. Cooperatives stated it only happened once or twice in a few cases. For example, during FGDs with women farmers in in Southern Block, Chilembwe camp, one participant discussed selling eight 50 kg bags of cowpeas for ZMW 3 per kg only once to WFP. In some cases, as in Southern Block, Chilembwe camp, opinion leaders explain that this was not done directly through their co-ops but with an agro-dealer named Kudu that supplied to WFP on behalf of the co-ops. Farmers who harvested more cowpeas with the hope of selling to WFP, but were unable to do so, either sold to each other, at the boma or to South Asian traders in the district at lower prices. This indicates that an unfavourable market outside of WFP also existed. Over time NWK Agri Services, a large agro-dealer, became a major player in supplying cowpeas to WFP (see section 3.3).

In terms of prices, as explained during a KII with the co-op inspector at the Ministry of Commerce, there were two prices in the process with WFP, both of which were determined by WFP and higher than the market price:

WFP at first engaged with co-ops directly and here, co-op buys from farmers at ZMW 6 per kg of cowpeas (in 2014), They were also charges (holding charges), commission of ZMW 5 per bag and transport charges to given to the co-ops by WFP. The second price was that WFP involved a buyer in between – as they faced some challenges in direct dealing with co-ops – couldn’t work out due to trust issues as farmers couldn’t trust co-ops – so they introduced Kudu and then after Tiembe and this price was at ZMW 5 per kg.

Further discussions during FGDs and KIIs indicate that by 2017, the price of cowpeas sold to WFP had reduced to ZMW 3–3.50 per kg – although other commodity agents were paying ZMW 2.50 per kg, with those from DRC paying as little as ZMW 1.20 per kg. While WFP offered farmers better prices, the demotivator for selling to WFP was the time in which they arrived, usually too long after the harvests are ready to be sold, or delayed payments. Currently, NWK Agri Services buys cowpeas at ZMW 3.20 per kg.

In Eastern Block, Kamphambe camp, opinion leaders further explained that sometimes the price for maize fluctuates, as it is tied to the season, with prices being lower when there is a lot of maize and higher when there is less maize. The possibility of selling cowpeas at a fixed price to WFP meant that these fluctuations in maize prices did not have as strong an impact, as farmers felt there was an available market for their legumes. KIIs with the former chairperson and current chairperson of HGSF co-op detailed prices of crops during high and low seasons.

**Table 2. Crop prices**

	Low season	High season
Maize	ZMW 0.50 per kg	ZMW 1.80–2 per kg
Groundnut	ZMW 30 per 50 kg	ZMW 80 per 50 kg
Sunflower	ZMW 40-45 per 50 kg	ZMW 100–120 per 50 kg

In summary, WFP's P4P initiative did lead to an increase in market access for beans (in Luwingu) and cowpeas (in Katete) leading to increased income for farmers, but this was not regular or consistent – even though WFP's prices were better.

## 3.2. Impacts on household nutrition, dietary knowledge and practices

This research theme explores effects of the HGSF and CASU interventions for households that received support in conservation farming and that lived in farming blocks covered by the HGSF versus the HGSF intervention alone regarding food nutrition and security. Specifically, the hypothesis is: design and implementation of the programmes has generated changes in food and nutrition security (stability/regularity, meal frequency/day, quantity, access, preparation), diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).

### 3.2.1. Changes in food and nutrition security, diet patterns, diet practices and food expenditure.

#### **Quantitative findings for HGSF (all different from qualitative findings)**

- A negative impact on the children's dietary diversity (CDD) score, which contrasts with the positive impact of the meals alone on the same indicator and points to a possible detrimental impact of the public food procurement component.
- Decreased consumption of cereals and legumes and milk.
- Reduce the women's dietary diversity (WDD) score linked to the reduced consumption of cereals, orange roots and tubers, legumes, of milk products and of oil and fats, and a lower share of women who have an adequate intake of micronutrients.
- Using FIES the food insecurity situation was also more severe in the HGSF group, which leads to increased food insecurity in the household across all severity levels.

#### **Quantitative findings for HGSF + CASU (all similar to qualitative findings)**

- Strongly improves the children diversity situation
- The combination of the CASU and the HGSF leads to consumption of less cereals and fish and more orange roots and fruits, of meat and legume.
- Associated with improvements in the women dietary diversity scores (WDDS), but reduced consumption of cereals, of fish and oil and fats and increased consumption of white roots and

From the qualitative findings, across both sites there was a reported improvement in food and nutrition security, diet patterns and diet practices. These improvements were even more pronounced for HGSF and CASU. This at least suggests that P4P efforts to enhance smallholder farmers' involvement in agricultural markets generated additional benefits for farmers and their communities, namely through improved nutrition. Improving and diversifying agricultural production from solely maize to legumes generated improvements in nutritional status by increasing households' access to nutritious foods. P4P also encouraged the production and consumption of the legumes (cowpeas and beans) which are rich in protein. As such, the programme also generated nutrition benefits by encouraging households' consumption of legumes and providing households with additional income to spend on improving their families' diets. Findings from both sites further indicate that more money is spent monthly on food, especially on meat, kapenta, salt, sugar, tea and buns.

In Luwingu, the HGSF-alone site, dietary patterns were perceived to have improved overall for households in all FGDs in both quantity and quality, with households eating up to three times (sometimes four times) a day. As mentioned during an FGD with women farmers in Chulungoma Block, Kapisha Camp, “Now they don’t eat only beans, beans, beans alone and everyday, as there’s also more variety in their diet.” As further discussed during FGDs at the district level, “Now you are able to be served vegetable when you’re having a meal, and fish and vegetables, while in the past you would just have fish.”

This was reiterated during a KII with a community health worker in Chungu Block, Mufili Camp, who stated that “before mainly people had one meal or sometimes two a day: lunch - sweet potatoes and supper nshima with veg or beans or groundnuts or cassava leaves”, and with HGSF co-op leaders also in Chungu Block, Mufili Camp. They explained how in the past, they would have two meals: lunch and supper, comprised of nshima, beans, groundnuts and vegetables (namely leaves from beans or cassava). Now, due in part to the increased income from the programme, they were able to afford breakfast, rice, teas and sweet potatoes, in addition to the nshima and groundnuts.

As explained earlier, HGSF played a role in enabling farmers to have a higher income due to market access. With the increased incomes, in Chungu Block, Mufili camp, HGSF co-op leaders discuss how they are now able to buy meat, fish and eggs, indicating an increase in food expenditure. Similarly, a KII with a community health worker in the same site noted that farmers are now able to buy fish, cooking oil, sugar, rice and other items (e.g. clothes, soap, shoes). On average, around ZMW 100–250 is spent per month on food, but high prices of commodities in the country could also contribute to higher monthly expenditures on food. Information on improved nutrition and dietary patterns was available through a variety of sources, including providing nutrition education at clinics on the importance of a balanced diet, which has generated improvements by increasing their knowledge of good nutrition practices. There was also a reduction in diseases from malnutrition.

This finding seems to contradict the quantitative results, as involvement in agricultural markets and increased incomes through P4P has led to improvements in nutritional status by increasing households’ access to nutritious foods. Moreover, while meeting the procurement requirements was challenging for some cooperatives (see section 3), farmers did not compromise their food and nutrition security.

It is not completely clear why there are such discrepancies between the qualitative and quantitative findings for HGSF. For example, it could reveal that nutritional status has improved over time (from when the quantitative study was conducted), revealing the longer-term impacts of the programme. Regardless, the contradictions in the findings related to food and nutrition security illustrate a complexity of influences that are necessary in order to portray all aspects of food and nutrition security within the programme and reveal that the impacts may influence farmers differently – even if they are supplying beans to WFP. More generally, findings also reveal the way in which more nuanced responses can be elicited from qualitative methods than through strictly quantitative methodologies and illustrate the contextual aspects of an issue that are not apparent in quantitative data alone. It also indicates the way qualitative questions provided the “room” needed by participants to sufficiently express or explain their responses.

In Katete, similar to Luwingu, during FGDs farmers mentioned a change over the course of engaging in HGSF and CASU, from eating once or twice a day to three or four times a day: for example, from eating only nshima and pumpkin leaves to now having porridge, buns, tea with sugar for breakfast, and lunch and supper consisting of nshima with beans, tomatoes and meat/chicken. They also ate more fruits (oranges), increased their legume consumption, had sweet potatoes between meals, used sunflower (processing for cooking oil), and still consumed maize. In Katete, in Southern Block, Chilembwe camp, opinion leaders explained, however, that farmers spend less on food purchases as they grow more produce, and only spend on items such as fish, milk sat and sugar, spending up to ZMW 250 a month. In Eastern Block, Kamphambe camp, more money is also spent on groceries: chicken, soap, sugar, salt, buns, rice, fish and mackerel. Opinion leaders mention households could spend ZMW 5 on a piece of pig meat, and ZMW 20 kwacha for a meal for a family in a day. Male leaders of co-ops explain that money is spent on beef, broiler chicken, fish, beans: “In a month for relish and other foodstuff, ZMW 200–250 for a family is spent.”

The improvements from CASU, especially, are clear, expanding beyond legumes to also include other produce, such as soya beans, chicken, goats, and groundnuts, and having a wider range of crop/livestock products: a key nutrition-sensitive activity that can promote diet diversity in the general population. Lower agriculture demands from CASU would also increase the time households have to attend to their nutritional needs.

In summary, in both sites, the increase in production of legumes, higher yields and resultant increased incomes from sale of maize (both sites), beans (Luwingu) and cowpeas (Katete), combined with improved marketing opportunities, has had an important impact on the food and nutrition security of farmers’ households. This has led to an improvement in dietary diversity and food security within households. There has also been an increase in food expenditure in both sites.

### **Box 1. Household case study (Southern Block, Chilembwe camp), Lead farmer, female, Home-Grown School Feeding + Conservation Agriculture Scale-Up**

Born in 1984, this lead farmer engaged in HGSF and CASU is 35 years old with six children, aged between 3 and 17. She gave voice to the ways her, and her household’s, lives were improved by their participation in P4P and CASU. A farmer of maize, sunflower and groundnuts, in the past she depended mostly on maize for food and income, and now she sells maize as well as cowpeas, groundnuts and soybeans. She learned about selling cowpeas for WFP through the chairperson of her co-op, Kasambandola co-op, and only sold once, in 2014.

For her, being part of CASU led to her increasing the number of crops she grew: “we used to only grow maize, sunflower and groundnuts. We just increased from what we used to and added soybeans, and cowpeas and pigeon peas.” Moreover, following the CASU intervention, she explains a change in livestock production: “before CASU, I didn’t have anything. But now, I managed to buy two cows and started keeping village chicken.” She also attributes this to learnings from CASU:

...when we were taught about reaping through CASU we realise even when we plant on a small piece of land, we can have a high yield. So, they taught also us to sell, and when sell and make money I decided to invest in livestock.

WFP brought “availability of markets”. Through CASU, she also discusses how she now uses pesticides and herbicides “though we can’t use herbicides on all fields”, as well as hybrid seeds,



including maize and cowpeas: “In 2014, we were given 5 kg of hybrid cowpeas and planted using reapers. Before the programme, we would plant a very big portion land of maize, but harvest would be minimal because of the seeds we used to use.”

She mentions having an increased income, and also a change in how she views planting and selling of crops:

Things changed with the programmes. As before we didn’t have the education, we didn’t know, we only sell when we have a crisis. So, sell 5 kg of maize to buy salt or for grinding at the maize mill, and now we’ve been educated in planting different types of crops.

We now consume foods differently. We budget, from harvest to next harvest (June to June). For maize, after harvest, we reserve ten bags for consumption and sell whatever we have left. We keep according to our needs. Cowpeas, I harvested seven gallons, kept five gallons and sell two gallons at 3.50 kwacha per kg. Because we learned that cowpeas can be a source of income.

Food and nutrition security have also changed, as her household is now eating “three times a day and in between meals”, instead of twice a day. She goes on to say:

The children are now well-fed and are brighter, can think better and concentrate in schools. We are now having beans, kapenta, fruits like oranges, beef, sweet potatoes. We have more emphasis on sweet potatoes, as we can eat as porridge and add peanut butter which is very nutritious for a child.

### 3.2.2. Home-Grown School Feeding beneficiaries’ ability to meet Home-Grown School Feeding procurement demand and effects on household food security

#### **Quantitative findings for HGSF**

- Current HGSF beneficiaries do not seem in a good position to meet the extra demand for legumes from HGSF (**similar to qualitative findings**)
- Only able to meet the demands by reallocating resources or compromising their welfare – with results showing cereal and maize consumption declining among HGSF households, including from own production (**different from qualitative findings**).

#### **Quantitative findings for HGSF + CASU (all similar to qualitative findings)**

- Almost half of the sample encountered no major challenges with how the pulses procurement was applied (**different from qualitative findings**).

As discussed in Section 1.1.1, WFP adapted its procurement requirements to the smallholder farmers’ capacities and needs, with contract types selected based on cooperatives’ capacity to supply required amounts of legumes. In the study sites, the contracts were usually signed prior to the expected delivery to allow aggregators to bulk and grade the commodities according to WFP standards. The commodities are purchased and paid for by WFP only once the commodities are uplifted, after clearance from the independent superintendent company contracted by WFP to certify the quality of the commodity, and all documents are received by WFP to process payment. As described earlier, aggregators – either cooperatives or agro-dealers – connected smallholders to the HGSF purchases. The farmers are paid via cooperatives chairpersons, and not from WFP .

In Luwingu (HGSF alone), procurement of pulses was initially implemented through farmers’ cooperatives who acted as aggregators by buying the produce from their members. Here, seven co-

ops were initially selected in 2014 to supply to WFP. Annex Five indicates the co-ops and the quantities provided. According to the district level FGDs, cooperatives pledged to sell 600–2000 50 kg bags of beans per season. However, as the Annex further reveals, cooperatives failed to meet this target. Over time this led to only one co-op being able to supply the requested quantities to WFP.

According to FGDs, farmers in Chulungoma block, Kapisha camp, were the only group able to meet the demands, as they were able to provide the quantities of “clean beans” (referring to the quality of beans requested by WFP, which also need to be inspected before they are accepted, which in turn impacts on payments). As explained during a KII with WFP programme staff at the national level, quality included legumes “without stones, no foreign objects, no split, not weevilled”. This suggests the other six co-ops could have been supplying low quality produce. As will be discussed in section 3.2.3, one reason for this challenge is delays in payment from WFP. As further explained during a KII with a camp extension officer in Chungu Block, Mufili camp, farmers in Mufili camp were unable to meet the targets as:

sometimes WFP would arrive to buy the beans much later after harvest time – June or July, by which time farmers would have already sold their beans to traders at a lower rate to be able to generate income.

It was mentioned in section 1 that to ensure legumes procured by WFP are provided on time, WFP adapted its schedule to fit in with the local legume seasons (WFP, 2014). During KIIs and FGDs it was raised that WFP determined the timing when they would purchase the beans for each farming season. Harvesting season for beans occurs between May and July, with WFP scheduled to arrive for beans collection between July and September. Yet, farmers explain they would often show up between September and October when prices were lower and farmers had sold most of their beans to other traders.

While most farmers were not meeting the WFP targets, according to FGDs, food security was not compromised by the sale of beans. As noted during a KII with the same camp extension officer in Chulungoma Block, Mufili camp, “compromises weren’t made even when targets weren’t met, as households would still keep food for consumption” (see 3.2.3). Specifically, many of the FGD participants discussed how households left enough maize for household consumption. Evidence from the FGDs where participants repeatedly mentioned “keeping” or “leaving” something (taken here to mean crops) for themselves suggests that small-scale producers are not adopting the demands of the programme to their detriment, and are instead defining their own needs and preferences on their own agendas, which in this case is their own agendas on their food security.

In Katete, as detailed during a KII with the co-op inspector at Ministry of Commerce, “there were more than 25 co-ops in the area that were recruited, but we found 13<sup>8</sup> would be able to do HGSP, but not every year these 13 participated.” Due to the higher number of co-ops and the quantities demanded from WFP, only a few co-ops would be selected to supply cowpeas in a farming season.

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<sup>8</sup>13 from Southern and Eastern and 3 from Sinda, where the growing of cowpeas was favourable.

As in Luwingu, farmers were unable to meet their targets, which meant the co-ops, in turn, were unable to meet the procurement demands.

As will be discussed in section 3.3.2, reasons for this challenge link to cooperatives' limited capacity to aggregate the contracted quantities and meet the conditions of WFP contracts, particularly as co-ops in the district were not as established as in Luwingu. As such, over time commercial aggregators (including small-scale agro-dealers and larger agricultural commodity companies) were also contracted to supply to WFP. While it was said that communicating with the agro-dealers is easier than with the cooperatives, as explained during a KII with the co-op inspector, there are trade-offs with both forms of aggregation:

It was difficult to handle contracts because co-op members quantities were very low. The other problem was that there was a delay in payments [from WFP], affecting their selling – which led to people withdrawing their cowpeas and because of this, in came NWK. When NWK came in, it was not a very good move as it didn't protect the farmers. The intention was to just make profit.

Findings suggest that while cooperatives received a higher price from selling their cowpeas to WFP, P4P had a number of “hidden” costs for farmers which made it difficult for them to bring their produce to the cooperatives and other aggregators. Other challenges faced included finding the appropriate sacks to store the harvested cowpeas before transferring to the certified WFP bags, supplying good quality cowpeas and difficulties experienced in transporting the harvest, as farmers often had to book an oxcart to travel distances of up to 25 km and usually had to pay the transporters cash immediately. There were also difficulties with storage of cowpeas, which are prone to infestation. This suggests that, to fully seize the market opportunity made available, farmers have to address the demands of WFP's procurement systems and respond to requirements, particularly quality standards, pre-defined quantities and timing.

Farmers also discussed the benefits gained from CASU in meeting some of the procurement demands, including enabling them to deliver better quality cowpeas due to the increased and improved farming practices and techniques. It is important to note that, despite the challenges of the procurement demands, food and nutrition security was not compromised as the farmers were able to harvest surplus crops from the CASU intervention (see 4.1.6).

In summary, overall the programme demands for P4P were difficult to meet for the majority of farmers in the cooperatives in both Luwingu (HGSF alone) and Katete (HGSF + CASU), which impacted on cooperatives' ability to meet the procurement demands. In Luwingu, this was due to several reasons, including WFP arriving long after harvest time to purchase beans and delayed payments, while in Katete this was due to cooperatives largely lacking the capacity to aggregate the contracted quantities and meet the conditions of WFP. These challenges, however, did not lead to a compromised food and nutrition security to meet the programme demands, as households would still keep food for their own consumption.

### 3.3. Programme operations/implementation process impacts

This research theme explores effects of the implementation of HGSF and CASU interventions for households that received support in conservation farming and that lived in farming blocks covered by the HGSF versus the HGSF intervention alone on household productive and consumption decisions, including the wider marketing context (e.g. prices, income generating activities).

#### 3.3.1. Implementation processes in Home-Grown School Feeding alone and in Home-Grown School Feeding and Conservation Agriculture Scale Up

As explained in section 1.1.1, P4P was initiated in Zambia in 2009 and encouraged farmers to work together in cooperatives for improved access to a broad range of services, such as training, equipment and inputs that were provided by partners. Legumes (specifically beans and cowpeas) were purchased from P4P-supported smallholder farmers through a network of aggregation centres to supply the HGSF programme. Although the P4P pilot project was designed and funded separately, P4P has a direct linkage to the ‘home grown’ aspect of the HGSF concept, as the legumes in the school meal are procured from local farmers.

The qualitative findings indicate that, in Luwingu, by working with smallholder farmers through cooperatives, HGSF did provide farmers with market access and built their capacity to engage and sell their beans. However, as explained in section 3.3.2, participating farmers were in cooperatives of varying capacities to engage in the procurement process which led to the number of cooperatives participating in the programme reducing over time.

##### **Quantitative findings for HGSF**

- Households have been benefitting from market access from three to three and a half years, signalling a reasonably stable participation (**similar to qualitative findings**).
  - o Between 58 and 59 percent of beneficiaries declared to have received instructions on the quantity and quality of the produce they were supposed to deliver to the cooperative and around 70 percent of respondents declare that payments by the client were made on time.
  - o Almost half of the respondents encountered no major challenges under the programme (**different from qualitative findings**).
  - o In 18 percent of cases, the produce was turned down due to deficiencies in the specified quality requirements; 18 percent of farmers also lament that the purchasing price of pulses is set too low, while 22.5 percent complain of collection points being too far from their farm.

##### **Quantitative findings for HGSF + CASU**

- Almost half of the sample encountered no major challenges with how the pulses procurement was applied while a quarter feels that collection points are hard to reach (**mixed findings from qualitative study**).
- On implementation, programme implementers on both sides tried to coordinate and target the same areas, as far down as the block level, to trigger the envisaged complementarities between the two programmes (**mixed findings from qualitative study**).

The most significant reasons for defaults on contracted quantities were linked to suppliers’ capacity. This includes side-selling, linked to price increase between the signature and delivery of the contract, low aggregation capacity closely tied to limited trust among members of farmer organisations and lack of appropriate post-harvest handling storage and equipment. Poor quality of beans was an additional reason for defaults on contracts. The local environment, encompassing unfavourable weather conditions, along with socio-political context and poor infrastructure also led to defaults on P4P contracts.

Discussions during FGDs reveal there were also challenges to the implementation process by WFP. For example, during an FGD in Chulungoma block, Kapisha camp, with a mixed group of farmers, informants explained that they once had to wait four months for WFP to arrive. With time, their “beans started rotting and we had to throw most of the beans away”. In cases of severe delays, farmers in other FGDs explained that they would also aim to sell their produce elsewhere. As such, during this FGD in Chulungoma block, Kapisha camp, the question arose, why did they not do the same?

Upon further probing to find out why they did not sell it elsewhere, the farmers detailed how their produce had already been transported to the warehouse to begin the process of the beans being bulked and graded for inspection by the independent contractor. As such, they no longer had access to their produce to be able to find an alternative market and were waiting for their payment. While, as will be explained in section 3.3.2, one of the requirements for co-ops to participate in P4P was having a bank account with sufficient funds to be able to pay vulnerable cooperatives members instantly instead of waiting for 7–21 days (the average time taken to receive payment), not all cooperatives had that minimum amount to pay. This could also have been another reason why this group of farmers went for months without pay. They further explained that WFP’s last time coming to their camp was in 2018, indicating reduced presence of P4P over time.

Another group in in Kapisha camp also said there was a delay (up to two months) in payment, while in Mufili camp there were more complaints of delays, which, as explained during FGDs with female farmers, impacts on households:

Beans [brings] money, but WFP doesn’t pay on time. Instead of two weeks before, they now take three months. We have school children and normally rely on this money to sort out problems.

Co-ops later were only paying the people they knew first. So, we are forced to take produce to brief case buyer.

During FGDs, farmers also explained that produce was often turned down after inspection by the independent contractor due to poor quality or moisture content, which often meant not being paid for their produce. In these cases, farmers would have to sell at reduced prices to traders. A few farmers complained about the distance from their farms to the collection points, and the resulting transportation costs to get their often bulky produce to the bulking points/warehouse/storage. The normal means of transport for most places is the ox-pulled carts that are able to carry around 200 to 500 kg at a time. Light trucks (commonly referred to as “Canter” because of the common model of Mitsubishi trucks in rural areas) with capacity typically ranging from 1.5 to 3.5 tonnes are used to collect from the bulking points, or from individual households that have the volume and/or are accessible, and further aggregate at the district centre or a designated storage shade. These vehicles are often owned by the local farmers and are hired out by other players, including fellow farmers and traders. While a satellite depot was set up in Chulungoma block to address this constraint, some farmers in Kapisha camp still found it a challenge, as travel distances were too great, with it being 25 km away from some farmers.

In Katete, over time, WFP stopped procuring directly from co-ops, due largely to capacity to supply contracted quantities, and instead procured through the agro-dealer NWK. Reasons why co-ops were unable to meet the procurement demands of WFP's P4P intervention included issues of trust within cooperatives, delayed payments of up to two weeks, incurring transportation costs and the presence and the disappearance of the market. In addition, storage would have to be used by co-ops when WFP delayed their collection of produce, with farmers needing to pay for the storage space for their produce and to also pay for pesticides as cowpeas were said to be extremely prone to infestation if not regularly monitored. The biggest factor is pest management of the harvested bean/pulses crop, particularly when there are delays, as most farmers do not have ideal storage facilities or access to the appropriate chemicals for improving storability. Farmers also discussed that while transport costs had been subsidised for those in cooperatives (ZMW 5–10 to storage and ZMW 3–5 to the depot) in the past, some never had to pay for transportation costs as traders used to come to them. Meeting quality standards was, as mentioned, also a continuous challenge.

Regarding implementation of both HGSF and CASU, as explained in section 1, the expectation in sites such as Katete, where CASU operated in districts where HGSF was also being implemented, was that HGSF beneficiary farmers could also benefit from productive support through the CASU programme. At the same time, the CASU beneficiaries could also benefit from the market access offered by HGSF. WFP was also intended to act as a partner with the CASU programme to link up farmers, traders and markets through P4P (among other programmes).

According to CASU's project document, one of the aims of the project was to establish partnerships with aggregators and other partners, such as WFP, in off-taking of marketable surplus commodities, particularly legumes. CASU aimed to facilitate access to legume seeds to expand legume cultivation. The market access offered through the P4P programme further provides an opportunity to develop the agricultural value chain. On the supply side, local smallholder farmers could benefit from such an initiative by having a secure market to sell to. In addition, by providing a market for legumes – one of the main leguminous crops promoted by the conservation agriculture project – the incentive provided by the P4P programme by purchasing locally for the HGSF school meals and other uses was expected to increase the adoption of these practices. At the same time, smallholder farmers were more likely to meet the extra demand from the P4P when benefiting from CASU's productive support.

However, based on KIIs in Katete, and among FAO and WFP programme staff in Lusaka, synergies between WFP's local purchases and FAO's CASU envisaged at the programmatic stage were only partly achieved by concrete coordination at the implementation stage. Overlap of the two programmes at the household level was not systematically pursued. Importantly, as per informants, there were mixed findings on the linkages between the programmes.

For some informants, there did not seem to be a deliberate link between the two programmes. As explained during a KII with a former camp extension officer in Eastern Block, Kamphambe camp, "administratively there was no link between CASU and HGSF, but I presume at a higher level there was a link as they both promoted legumes." Moreover, not all CASU farmers were in HGSF. In District level FGDs, informants indicated that no more than 10 percent of CASU lead farmers would

have engaged in HGSF co-ops (suggesting that around 90 percent of all CASU farmers did not engage). However, according to the co-op inspector:

The co-op knew about CASU and HGSF at our office... before CASU was here doing demo crops for legumes and was doing well – the only complaint that came is that ‘you don’t have market access’. Then CASU and HGSF were doing it on a small scale, with CASU in demo plots (10x10). HGSF was marketing and aggregation and CASU was production.

Key informant interviews with HSGF and CASU programme staff at the national level helped provide insight into the implementation challenges required to link the two programmes. During a KII with CASU programme staff in Lusaka, it was discussed that there was great potential for linking the two programmes, particularly in the beginning, as “...the ideas were matching – CASU does production and WFP does marketing, which isn’t FAO’s area”. This echoes similar sentiments raised during district level FGDs in Katete, where it was explained that after one year of CASU implementation, it was challenging for farmers to find a market for cowpeas and this potential link with WFP was observed. Once WFP’s P4P started, CASU informed the farmers that WFP was in town (through camp officers).

Due to P4P, a pricing mechanism was put in place that “played a big role in stabilising the market”. Specifically, a price monitoring/determination committee comprised of personnel from MoA, FAO, WFP and co-op representatives was established to assess the market value of the year, trends in the market, prices and recommendations for the price for the legumes (see 3.3.2). As P4P had a market of buyers and farmers, CASU was then able to inform farmers of the agro-dealers giving the best prices in the market.

However, for one key informant, concerning CASU, over time “things fell apart”. Reasons given for this during the KII included both programmes not being “married by design in the beginning,” leading to the programmes having to “make it work and co-exist ... search[ing] for these overlaps.” An example was given around the selection of farmers, as “CASU’s selection with beneficiaries had nothing to do with HGSF selection criteria,” which could help explain why not all CASU farmers were members of cooperatives that sold legumes to WFP. Similar remarks were made during KIIs with WFP programme staff, who explained that not all CASU farmers were in farmer groups and WFP only procured through farmer groups, explaining that “there wasn’t a specific programme design” for linking HGSF and CASU.

Another challenge was referred to as an “issue of marketing” by the key informant from the CASU programme, as “linkages had to be significant”. It was explained that, in Katete, while WFP provided CASU programme staff with some information, “their model of aggregation was clear [and] the prices and requirements for crops and quantities. What wasn’t clear was when they were buying from the programme”. This echoes the challenges raised during FGDs with farmers in cooperatives about the unpredictability of WFP purchases. As such, while WFP provided a market for farmers, and those CASU farmers in cooperatives selling to WFP were made aware of this by agricultural extension and camp officers, what ultimately happened was that “[they] have already planted and harvested based on an agreed production, and then told there is no market by WFP”.



In summary, WFP's P4P intervention met its objective to provide market access to farmers for beans in Luwingu and cowpeas in Katete. However, in Luwingu, challenges to implementation included delays in the timing of WFP's arrivals for collecting the beans, leading to defaults on contracted quantities, which participating farmers in cooperatives already struggled to meet due to suppliers' limited aggregation capacity and the often poor quality of beans. Katete also experienced similar challenges of delayed payments, as well as issues of trust within cooperatives and incurring transportation and storage costs. Regarding implementation of both HGSF and CASU, while WFP was intended to complement the CASU programme to link up farmers, traders and markets through P4P via improved market linkages, the synergies between WFP's local purchases and FAO's CASU envisaged at the programmatic stage were only partly achieved by concrete coordination during implementation. Overlap of the two programmes at the household level was not systematically pursued, as "there wasn't a specific programme design" linking the two programmes.

### 3.3.2. Home-Grown School Feeding procurement procedures

Earlier sections (1.1.1 and 3.2.2) began to present the HGSF procurement procedures, which were adapted by WFP to build the capacity of smallholder farmers and their farmer organisations to profitably engage in agricultural markets (WFP, 2013). As previously explained, in Zambia, contracts are usually signed prior to the expected delivery to allow vendors to bulk and grade the commodities according to WFP standards. The commodities are purchased and paid for by WFP only once the commodities are uplifted, after the clearance from the independent superintendent company contracted by WFP to certify the quality of the commodity, and all documents are received by WFP to process payment.

In Luwingu, a large majority of respondents understood the HGSF procurement procedures. As discussed during FGDs with female farmers in Chungu Block, Mufili camp: "Nagashimo co-op applied and won, and co-op informed members to bring beans. The prices were decided by WFP and a contract signed. There was quantity (no of bags) and price per bag." Moreover, FGDs with male farmers in Chungu Block, Mufili camp, said:

WFP informed the DACO and the DACO informed co-op inspector then the camp officer and the co-op inspector would assess co-ops books, bank accounts... they should have at least ZMW 500 in accounts. Selected co-op should also have a bulking centre. WFP decide price and in contract was quantity, duration of contract and price.

Participants in the FGDs with female farmers in Chungu Block, Mufili camp, felt "the process was okay, price was good, and it encouraged farmers". However, they also discussed issues of faulty scales when weighing their harvest. The male farmers of Chungu Block, Mufili, were fine with the prices but felt that "distances to some places where they were getting the beans were far".

As detailed during a KII with a treasurer of co-op supplying to WFP, it was the co-op inspector that assessed co-ops for their eligibility. Once selected, there was a seminar where the camp officer explained to farmers the WFP P4P initiative. Co-ops decided the quantities they would supply, with the co-op the treasurer was in first pledging 2 000 50 kg bags:

In the first year, we didn't meet target as a lot of farmers didn't believe WFP would buy, so they sold to traders. Second year, we met the target of 2 000 bags, even exceeding it and in the third year, we met the target again.

As also discussed during this KII, WFP decided the prices of ZMW 300–350 per 50 kg bag and the contract conditions, which stipulated the payments and timings of payments (between July and September to co-ops, and 7–21 days after receipt of payment from WFP to co-op members), which was signed directly with co-ops.

The selected co-ops also received training and equipment, such as scales, to improve production, post-harvest handling, crop quality and safety. Here, however, (indirect) support through P4P was provided through partnerships with government agencies and NGOs which were already working closely with farmer organisations. For example, improved seeds were supplied to farmers by NGOs like Afriseed, while fertilisers were supplied via FISP and training on crop rotation provided by MoA, all of which contributed to the improved production and higher yields which farmers could then sell through the increased market access WFP provided for their beans.

In Katete, there was a varied understanding of the procurement process: at district level, it was mostly understood by key programme personnel and among co-op chairpersons, particularly secretaries who had some knowledge. However, co-op members were less aware, which suggests that the weaker presence of cooperatives more generally in the district could have played a role in the set-up and communication of information between WFP, cooperatives chairpersons and members. Cooperatives chairpersons' higher awareness of the procedures could be likely due to the training on marketing, bulk management and group mobilisation (provided only to the co-op chair, secretary and treasurer). Information was obtained during a KII with the co-op inspector at the Ministry of Commerce in Katete District and further elaborated on during KIIs with WFP HGSP programme staff in Lusaka. Details were provided on the requirement for co-ops to participate in the district:

They needed to have at least a shed and warehouse. Some were involved in Frontier Development Project and already trained in marketing and bulk management. They needed to have members and business activity and 50 percent of farmers in the co-op should be into cowpeas growing and have annual meetings, and have a minimum of ZMW 10 000 in their account to ensure they can pay the underprivileged members in their account (elderly and orphans) when they start aggregating. So, if vulnerable bring 1 kg at aggregators centres, and can't wait for 7–21 days to be paid, they get paid instantly.

According to the co-op inspector, the 13 selected co-ops were:

*...engaged in various trainings – marketing arrangements, governance/corporate governance and group mobilisation. Under post-harvesting, they went for a workshop for 10 days at Kasisi – and trained 14–18 cooperatives. There they were also taught about pig packs.*

Communication was via the co-op inspector who called a meeting and from there used existing structures in the community (camp officer, clubs, field days, shows, schools, churches, letters, village meetings, etc.) to share messages and key information.

The contract process starts in October:

WFP will do an annual review, and we call the co-op leaders to discuss if they are buying cowpeas, and then do a review and discuss if they would buy – and in the meeting, a pre-form given to them (an evaluation form), and if WFP feels satisfied with the form, then they would send a contract to the farmer. What would happen, the co-op would be given a questionnaire and tell if they had at all a general meeting, if they want to continue on, and if they meet that they sign a contract.

In the contract, there's a price that is higher than market price. Threshold of 20 000 tonnes to at least be paid, form saying goods received note. Also, an inspector on behalf of WFP will come to inspect the produce. In April, they sign a contract and a tonnage is allocated and if they can sell their 20 tonnes, they can renew their contract before the market ends in September. So, when the contact starts, they would give you a threshold, when you meet, they would renew if co-ops had the capacity to buy some more. They were also given equipment like scales and they were told quality should not be compromised. This was 2013–2014, when it happened.

There were, of course, challenges. These, according to the co-op inspector, included competition from the other agents that were aggregating and selling in in the province, although “our area was protected – that is, high market prices were for those in the co-ops selling to WFP.” As mentioned, it was also difficult to handle contracts due to cooperatives capacity constraints; most of the time, their quantities were very low. There was also a delay in payments that affected selling, which led to people withdrawing their cowpeas.

In summary, in Luwingu (HGSF) there was an understanding of the HGSF procurement procedures by a large majority of respondents, including on criteria for selection, prices and contracts. In Katete, although there was understanding of the procurement procedures by key programme staff and among co-op chairpersons, co-op members were less aware of procurement processes. The difference in awareness on HGSF procurement procedures between Luwingu and Katete could be linked to cooperatives being more developed in Luwingu, and so potentially having a stronger capacity to understand and organize to meet the requirements, compared with cooperatives in Katete.

### 3.3.3. Impacts on products available and local market prices – effects on food and nutrition security

Earlier sections indicated that by P4P stimulating local markets, smallholder farmers selling legumes through cooperatives or agro-dealers to WFP have been able to improve their incomes, albeit in the short-term, and address food and nutrition insecurity. By working directly with smallholder farmers and building their capacity to engage and sell their produce in competitive markets through aggregators, P4P helped to increase smallholder farmers' capacities for agricultural production and their market access and ensure stable prices of legumes, allowing farmers to increase their income from agricultural markets.

WFP's purchasing power also encouraged the market for pulses by linking smallholder farmers to district level markets through which WFP purchases for the HGSP programme. Through the P4P, pulses are now widely cultivated by smallholder farmers, whereas prior to the P4P they did not reach a large formal market. This also had a broader impact on the price of legumes in the market and had benefits for rural communities: improving nutrition, boosting local economies and improving smallholders' livelihoods. Households in both sites are perceived to be better off now than at the start of the P4P programme and their health and nutrition have improved, and their family farms are run as businesses.

In Luwingu, a KII with a community health worker in Chungu Block, Mufili camp, observed that prices of beans in the market increased during the programme. FGDs with opinion leaders in the same location explained that prices for beans were good, but only in areas where WFP were buying from. Moreover, HGSP co-op chairpersons explained that prices of beans in the market were affected by WFP as "briefcase buyers had to increase their prices." This was reiterated by opinion leaders in the same location:

In 2012, a meda was selling at ZMW 5, and then went up to ZMW 10 to 12 once WFP came, and then went up to ZMW 15... WFP helped pull up market prices.

However, due to the low quality of produce and weak aggregation capacity on the cooperatives' side, not all legumes produced were sold to WFP. Moreover, due to WFP delays, they were often sold to other buyers at a lower price than set by WFP. As discussed earlier, the inability to meet WFP procurement demands did not lead compromise food and nutrition security, as farmers would often leave some produce for home consumption due to producing more food. This was echoed during a KII with a community health worker in the same block, who explained that with the increased incomes and increased [nutrition] knowledge, farmers had enough food and a balance diet (see section 3.2).

As explained during KII with WFP staff at national level:

When the programme started, we didn't get enough supply, but after two years supply outstripped demand... farmers produced more than what the programme could take. After a while, the programme shrank and farmers that were supplying didn't find ready market. A demand was created, but farmers couldn't connect to other markets.

For opinion leaders in Chulungoma Block, Kapisha camp, not everyone was able to sell their harvested beans, so there were "plenty of beans in the market". From the perspective of the opinion leaders, farmers produced more beans than were needed to be supplied to cooperatives, often leaving them with surplus. During KIIs with WFP staff at national level, they reiterated that "it was made clear that the programme [P4P] was an alternative market – one of the markets to sell in". It is also clear that for those farmers in cooperatives selling to WFP, the prices were more appealing than the alternative prices – even if those alternative markets had increased their prices due to a general price rise – and as a result, farmers were only selling to other buyers as a default, less preferable option, as a result of WFP delays or rejected produce.

In Katete, it was explained during district level FGDs that WFP, and now NWK, affect availability of products and prices, as they set the prices (for cowpeas). They further indicated that in the district,

“it’s close to a monopoly as we have two players for cowpeas - WFP and NWK - and if you don’t sell to them, you have nowhere to sell to”. This could help explain why prices for cowpeas in Katete were not as competitive as prices for beans in Luwingu, where there are more players in the market. As such, WFP – specifically NWK – provides the highest and best prices in the market as compared with other traders (see section 3.1). District level FGDS also noted that “cowpeas production was because of WFP, but in terms of local markets it’s not as common”. This is because cowpeas are not traditionally consumed in the district. This was echoed by female farmers during FGDs in Eastern Block, “before co-op [WFP] no one was buying cowpeas, just for household”. It was also explained during FGDs that food and nutrition status has largely improved, particularly among children: “there’s food in the schools and improved nutritional status of children and retaining the children in schools.”

In summary, in Luwingu, while HGSF has led to changes in market prices of beans enabling an overall increase in the price of beans by all sellers and the availability of beans on the open market, the improvements in food and nutrition security are more pronounced among those households in co-ops that sold produce to WFP. A more positive impact on food and nutrition is observed in Katete – this could be due to increased incomes from the presence of both HGSF and CASU. Moreover, WFP (and now NWK) are the major players in the market, resulting in them having a strong hold on prices for cowpeas, with the price for cowpeas sold by other buyers extremely low in comparison.

### 3.3.4. Changes in perceptions and behaviours around risk-adversity and aspirations.

#### **Quantitative findings for HGSF**

- A higher share of risk-seeking individuals and a lower share of risk-averse individuals, suggesting that the HGSF seems to stimulate risk-seeking behaviour. This is reflected in the reduction of the number of safe choices, the increase of the share of risk-seeking individuals and the simultaneous decrease in the share of risk-averse individuals. The share of those who have an optimistic view on future income in the HGSF was also high (**similar to qualitative findings**).

#### **Quantitative findings for HGSF + CASU**

- No significant impacts on the composition of the groups in terms of risk preferences (**different from qualitative findings**).
- Reduction in the share of households that hold an optimistic view about the future (**different from qualitative findings**).

In Luwingu, more people were taking risks and people were becoming less scared of risks, particularly regarding bean production. Opinion leaders in Chungu Block, Mufili camp, say that “before people were afraid of taking risks, especially growing beans as they were not sure of market”. After WFP, “people had less fear and embarked on beans growing and other businesses because of the market.” This was reiterated by HGSF co-op leaders in the same location, who discussed the fear farmers had to take risks before the programme as they had “no idea where to sell their products for a better price.”

As for aspirations, many informants held an optimistic view. During a KII with an agro-dealer, it was explained that farmers now “want to build houses and extend their businesses and take their children to college”. HGSF co-op leaders in Chungu Block, Mufili camp, further reiterated this by

mentioning farmers aspiring to buy cows, build a new house and take children to college. Other future plans include wanting to have a hammer mill or iron roofing sheets, or buying a car or motorbike.

In Katete, findings also indicate more people are taking risks (e.g. accessing loans, setting up shops, or trading, such as buying plastic dishes and selling in Malawi). Male co-op leaders in Eastern Block, Kamphambe Camps, explained that in the past, “we used to fear what would happen if our crops didn’t grow, but now we know we are able to return loans if we get them, because of larger yields from our crops”. As further detailed by female farmers in the same location, “before, we were afraid and we had no markets – we were scared of even cultivating a lot of crops, ‘what would I do with it?’” Now, they explain being “less fearful because [with WFP] we knew we had somewhere to sell.” Moreover, during a KII with a camp extension officer also in Eastern Block, Kamphambe camp, it was discussed that “the risk perception of people is less, as they have seen people who are doing these things [increasing production and selling harvests] and doing well”. This was reiterated across the multiple FGDs, including during FGDs with female HGSF farmers stating they are “not afraid of risk, as we grow a variety of crops and when one fails, we grow another”.

As for aspirations, many informants had an optimistic view, particularly around tertiary education, owning cars to be used as taxis, building houses and renting property, and hammer mills. Male co-op leaders in Eastern Block, Kamphambe Camps, stated that “people now know it’s normal to build good houses – with iron sheets and made of blocks”.

In summary, in both Luwingu (HGSF) and Katete (HGSF + CASU), there has been a change in perception of risks, with farmers being more willing to seek risks, specifically with regards to planting more crops. Many of the farmers interviewed for the study were happy to be able to sell beans and cowpeas to WFP and were planning to increase their production and sales in the future. This clearly illustrates the ability of WFP’s procurement to stimulate production and sales, as the P4P programme motivated the farmers to produce more legumes. However, as indicated in previous sections, this can also have an unintended negative impact when WFP is unable to purchase the agreed-upon quantities produced. There has also been an increase in having a positive outlook for the future, particularly around education and owning property.

## 4. Conclusion

This qualitative study was designed as an in-depth process evaluation to test/probe the findings of a quantitative impact evaluation of the Home Grown School Feeding (HGSF) and the Conservation Agriculture Scale Up (CASU) programmes in Zambia conducted between October 2017 and January 2018 (Prifti, 2017; Prifti and Grinspun, 2019). The study aimed to examine in depth how and why specific impacts transpired (e.g. household productive and expenditure decisions and responses to programme interventions) through the implementation processes of the programmes. Specifically, this study focused on explaining how institutional arrangements, design and operational processes of HGSF at central and local levels led to particular effects on household productive and consumption decisions and consequent impacts, including a focus on the wider marketing context and prices, income generating activities, cooperative contracts and their management and distribution processes, among others. It also reviewed impacts of those participating in the HGSF programme compared to households participating in both the HGSF programme and the CASU programme. The objective was to explore the effects of each programme in isolation and in combination with one another to gain greater insights, specifically on impacts regarding the implementation processes of the HGSF and the effects of combined programmes towards crystallizing successful programme modalities to improve rural livelihoods.

The three thematic areas covered by the research were: 1) changes around income generating and farming systems; 2) changes in food and nutrition security; and 3) programme operations/implementation impacts. The study consisted of an analysis of two sites: a HGSF alone site in Luwingu and a CASU and HGSF combined site in Katete district.

### 4.1. Summary findings

The research leads to the following conclusions, which are also synthesised in Table 3:

#### **Changes around income generating and farming practices**

This research theme explores reasons for the effects of the HGSF and CASU interventions for households that received support in conservation farming and which lived in farming blocks covered by the HGSF versus the HGSF intervention alone on income generation and farming systems. Specifically, the hypothesis is: **design and implementation of the programmes and their linkages have generated changes around income generating and farming practices** (i.e. crop/livestock - technology adoption, yields, use/destination of harvests, markets and resultant revenues).

In summary, **research findings suggest that this hypothesis is partly true**. Overall, both the CASU and its combination with the HGSF stimulate the adoption of conservation technologies, thereby increasing farm production and market participation and boosting incomes. The P4P initiative grants a secure access to the market for pulses to a selected group of smallholders organized in cooperatives, which leads to an increase in their production and sales of legumes. By setting legume prices in advance, and offering a higher price, P4P also provided stability and boosted incomes. However, the stimulus for increased beans and cowpeas production came with challenges, including unpredictable arrivals and delayed payments from WFP.



## Changes in food and nutrition security

This research theme explores effects of the HGSF and CASU interventions for households that received support in conservation farming and which lived in farming blocks covered by the HGSF versus the HGSF intervention alone regarding food nutrition and security. The hypothesis is: **design and implementation of the programmes has generated changes in food and nutrition security (stability/regularity, meal frequency/day, quantity, access, preparation), diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).**

In summary, **research findings suggest that this hypothesis is true.** Overall, in both the combined HGSF and CASU and the HGSF-alone site interventions, combined with improved marketing opportunities, the increase in production of legumes and resultant increased incomes from sale of maize (both sites), beans (Luwingu) and cowpeas (Katete), and higher yields and production support from CASU in Katete, has had an important impact on the food and nutrition security of farmers' households. This has led to an improvement in dietary diversity and food security within households. There has also been an increase in food expenditure in both sites. Moreover, while the programme demands for P4P were difficult to meet for majority of farmers in the cooperatives in both Luwingu (HGSF alone) and Katete (HGSF + CASU), impacting cooperatives ability to meet the procurement demands, this did not lead to compromised food and nutrition security.


## Programme operations/implementation impacts

This research theme explores effects/impacts on household productive and consumption decisions and on wider marketing and economic contexts (e.g. prices, income generating activities) of the implementation HGSF and CASU interventions on households that received support in conservation farming situated in farming blocks covered by the HGSF, versus the HGSF intervention alone.

In summary, **research findings suggest that this hypothesis is marginal.** In sum, WFP's P4P intervention did meet its objective to provide market access to farmers for beans in Luwingu and cowpeas in Katete. However, challenges to implementation included delays in the timing of WFP's arrivals for collecting the beans leading to defaults on contracted quantities, which participating farmers in cooperatives already struggled to meet due to suppliers' limited aggregation capacity and the often poor quality of beans. Regarding implementation of both HGSF and CASU, overlap of the two programmes at the household level was not systematically pursued, as "there wasn't a specific programme design" linking the two programmes and there were challenges with availability of market and timely purchases from WFP of the surplus beans produced by farmers, including those engaged in CASU.

The study provides evidence of a potential missed opportunity to increase farmer incomes and livelihoods through more intentionally combined programmes.

**Table 3. Findings on the research hypotheses**

Research theme	Hypothesis	Conclusion
Income generating and farming systems	<b>Design and implementation of the programmes and their linkages have generated changes around income generating and farming systems: crop/livestock – technology adoption, yields, use/destination of harvests, markets and revenues.</b>	 <p><b>Partly true.</b> Combined interventions have led to an increase of incomes through the diversification of crops, including legumes due to the provision of seed packs and fertilisers via CASU and access to markets via HGSF, with FISP playing a crucial role for maize. Training in conservation agriculture from CASU has also led to adoption of new farming technologies, improved production and higher yields, enabling farmers to generate further income. P4P grants market access to smallholders organized in cooperatives, leading to an increase in their production and sales of legumes. By setting legume prices in advance, and offering a higher price, P4P also provided stability and boosted incomes. However, only a small number of farmers have been able to sell to WFP via co-ops, leading to gains in income from the market access via WFP’s P4P diminishing over time.</p>
Food and nutrition security	<b>Design and implementation of the programme has generated changes in food and nutrition security: dietary practices, food security and diet diversity (quantity/quality/stability), sources and expenditures of food.</b>	 <p><b>True.</b> P4P efforts to enhance smallholder farmers’ involvement in agricultural markets generated additional benefits for farmers and their communities through improved nutrition. Farmers are able to eat better and more times a day, with a diversity of food. Improved production and higher yields enable a more constant supply of crops, such as maize, beans and groundnuts, while increased income is used to buy food of higher nutritional value than previously.</p>
Programme Operations	<b>Programme operations/implementation process impacts on income generation, farming systems and food and nutrition security.</b>	 <p><b>Partly true.</b> HGSF and CASU combined has resulted in farmers having increased access to market to sell their crops, and at a higher market price. However, not all farmers in co-ops were able to sell to WFP due to supply and aggregation challenges and WFP also did not buy regularly from co-ops. The combined programmes did not have a deliberate link, with coherence happening on an ad-hoc basis, missing a potential opportunity for increased farmer incomes.</p>

## 5. Recommendations

The study has a number of important lessons and recommendations for consideration for the Government of Zambia, Ministry of General Education (MoGE), Ministry of Agriculture (MoA), including extension workers, FAO, WFP, and other key stakeholders. From the findings and conclusions presented above, there are several key lessons learned in support of a potential HGSP and CASU combined intervention model. This is particularly important considering that, from June 2019, WFP planned to hand over procurement of legumes to MoGE and provide technical support for the new phase of the programme. The recommendations are presented in order of priority and importance:

### 1. Improving small-holder farmers' capacity to meet procurement demands.

Farmers struggled to meet the public food procurement market requirements (quality and quantity) of WFP's P4P intervention. At the same time, WFP purchases of legumes occurred after harvest, which meant farmers often had to sell at lower prices to traders. Payment delays from WFP also added to small holder farmers' challenges. As the credibility of the programme for smallholder farmers will largely depend on the perceived reliability of the services offered at the aggregation centres, such as the product grading and farmer payment systems, improved institutional arrangements could be achieved by:

- Providing specific, and additional, support to farmers to ensure that they can meet procurement demands and participate fully, as well as further developing their organizational and marketing capacities. This includes: addressing physical infrastructure constraints experienced by cooperatives and farmers, including supplying the bags farmers use for their initial harvest to transport to aggregation centres; addressing transportation costs borne by farmers to collection points, some of which were too distant; and providing support for storage capacity costs to prevent excessive moisture, infestation and rot as a result of delays by WFP. This could also include continuing to support cooperative organizational capacities to improve cooperative performance in meeting demands. **This can be addressed by WFP, MoA and MoGE.**

### 2. Continue to promote conservation agriculture activities.

CASU interventions led to crop diversification, while in HGSP-alone site farmers also adopted some conservation agriculture practices, such as crop rotation. With the benefits of conservation agriculture, including supporting sustainable agricultural production and meeting food security needs, such practices should continue to be promoted. This will be achieved through joint efforts between **MoA, FAO and WFP**. This includes:

- Continuing to provide regular training on conservation agriculture practices to smallholder farmers. **This can be addressed by MoA and FAO;**
- Continuing to support the provision of accessible inputs by providing vouchers to purchase seed and fertilizers. **This can be addressed by FAO, in consultation with MoA.**

### 3. Promote multisectoral arrangements and planning on programme design and implementation to enhance the impact of synergies between social protection and agricultural interventions.

Through P4P, HGSP achieved a number of goals, including increasing crop diversification and increasing market access. CASU interventions led to crop diversification, facilitated through access to legume seeds to expand legume cultivation. WFP was intended to partner with the CASU programme to link up farmers, traders and markets, complementing them with services as improved market linkages through synergies with P4P (WFP, 2014). As overlap of the two programmes at the household level was not systematically pursued, the programmes did not meet this objective and would benefit from a stronger multisectoral approach with intentional linkages in design. This will require coordinated and joint planning and implementation between key stakeholders, including **MoGE, MoA, FAO and WFP**. This includes:

- **Supporting coordination** among key actors in the design, planning, targeting, implementation of field operations, namely, procurement and agricultural interventions, across all stages to enhance impact and strengthen sustainability. This includes ensuring market access, providing better communication, and targeting farmers and cooperatives to benefit from production support, market access and other school feeding interventions. **This can be addressed by MoGE, MoA, FAO and WFP.**
- **Improving coordination** in procurement processes, including 1) addressing payment delays by ensuring the timing of collection consistently aligns and takes into consideration harvest to ensure farmers do not sell produce to traders at lower prices. This can be through establishing agreements between cooperatives and programme implementers “with conditions” for defaults or delays. **This can be addressed by WFP, in consultation with MoA;** and 2) addressing the timing of payments through part payment to farmers upon signature to facilitate aggregation and to address the uncertain wait and risk of price volatility while awaiting payment, and high quality standards requiring additional costs and effort. **This can be addressed by MoGE and WFP in consultation with the cooperatives.**

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## Annex 1: Research hypotheses and areas of inquiry

	Research Hypothesis	Areas of Inquiry
1	<b>Design and implementation of the programmes and their linkages have generated changes around income generating and farming systems: crop/livestock – technology adoption, yields, use/destination of harvests, markets and revenues.</b>	<ul style="list-style-type: none"> <li>- Changes, and causes if any, in cropping/farming systems and production yields (crop and livestock).</li> <li>- Changes in use of agricultural inputs.</li> <li>- Changes in production practices/technologies.</li> <li>- Changes in household revenues and gross income (crop, livestock, wage and non-farm business revenues, sharing/remittances).</li> <li>- Reallocation of land and other factors of production (farm size, labour supply (hiring in and paid work)).</li> <li>- Changes in use of harvests – proportion sold/consumed.</li> <li>- Changes in market access/dynamics and effects/impacts on households, including marketing strategy for sales, prices, purchasing of food in markets.</li> </ul>
2	<b>Design and implementation of the programme has generated changes in food and nutrition security: dietary practices, food security and diet diversity (quantity/quality/stability), sources and expenditures of food.</b>	<ul style="list-style-type: none"> <li>- Household members’ (perceived and experienced) changes in food and nutrition security (stability/regularity, meal frequency/day, quantity, access, preparation), diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).</li> <li>- Changes and causes (perceived and experienced) concerning diet patterns (diversity, range and types of foods consumed, source, etc.), nutrition and diet practices (e.g. diversity).</li> <li>- Changes in food expenditure.</li> <li>- HGSP beneficiaries’ ability to meet HGSP procurement demand and consequential effects on own household food security (i.e. meeting supply side demand)?</li> </ul>
3	<b>Programme operations/implementation process impacts.</b>	<ul style="list-style-type: none"> <li>- Experiences, perceptions and impacts of beneficiaries in HGSP and in combined HGSP and CASU concerning implementation processes: programme selection and targeting criteria, programme messaging and incentives, selection and roles of cooperatives, length of engagement, types of training/inputs, marketing.</li> <li>- Procurement procedures: is HGSP implementation as planned/intended (i.e. timely purchases, agreed upon rates of payment, benefit distribution, etc.) and what are the effects?</li> <li>- HGSP impacts on products available and prices on local market, and effects on food and nutrition security.</li> <li>- Changes in perceptions and behaviours around risk-adversity and aspirations.</li> </ul>

## Annex 2: Research methodology

### The research roadmap

The study is based on a comparative analytical approach, focusing on farmers and cooperatives living in farming blocks covered by the HGSF and CASU programme compared to the farmers and cooperatives in HGSF alone. To capture the breadth of differences, each sample was examined in two districts: Luwingu, the HGSF-only site, and Katete, where both programmes were operating.

The research was led by an international qualitative researcher, supported by an FAO expert, and involved four researchers from the Centre for Applied Research and Policy Analysis (CARPA) in Zambia. The fieldwork “roadmap” outlines the phases and steps of the overall field research process conducted between March and April 2019 in Zambia. There were six days of fieldwork in Katete district and eight days in Luwingu district. In each site, the research team split into two sub-teams working in pairs (facilitator and notetaker), visiting each main community (HGSF and CASU combined or HGSF alone).

At the end of each day, the team considered the highlights and key findings of each sub-team’s fieldwork in daily debriefing sessions, a key stage of analysis in the research, encouraging the entire team to identify the main findings of the day’s fieldwork, reflect collectively and discuss findings, analyse results and develop preliminary conclusions regarding the study hypotheses. The aim of this method of daily debriefings was to “build the story in the field” as the fieldwork transpires; adding to, contesting and strengthening findings and results towards determining research hypotheses conclusions. The sessions also revealed knowledge gaps needing follow up and further inquiry the next day.

Following the days of fieldwork in each beneficiary community, each sub-team carried out a community feedback session to report back to FGD participants and key informants on its preliminary findings. This session was critical to enabling ownership and sharing of the findings with the community. It also provided the sub-team with an opportunity to validate its findings and preliminary conclusions, and to offer community members an opportunity to add any last observations. The sessions were conducted in all research sites but one (in Luwingu district), and involved from 15 to 30 participants, depending on the size of the community.

The daily debriefing sessions fed directly into a synthesis session conducted on the final day of fieldwork in each site, attended by all researchers. The synthesis day in the first site comprised a half-day of consolidation of data, to generate the narratives substantiated by field data to develop conclusions of each of the three research themes. Each week built on the next to build the story in the field. The aim of the final synthesis session in the second site was to systematically analyse, consolidate and synthesise all findings from the fieldwork, compare the qualitative findings to the quantitative findings and to refine the main conclusions of each hypothesis and brainstorm preliminary recommendations.



## Research methods

The main methods used in this study were focus group discussions (FGDs), key informant interviews (KIIs) and, to a lesser extent, in-depth household case studies. Conducted with a small number of participants, FGDs enabled a range of opinions to be sought at once, fostering exchanges among participants and stimulating debate and analysis, which leads to in-depth information and insights (Pozarny, 2017). Key informant interviews provided a separate angle to understanding the thematic areas of the research and were based on detailed knowledge from informants well-versed in relevant subject areas. This provided deep and complementary perspectives to FGDs (Pozarny, 2017).

Prior to the fieldwork, according to fieldwork protocol, the researchers contacted the village head/chief for introductions in each community to explain the purpose of the study and request permission to undertake the study in the community. Each focus group brought together three to ten participants to discuss the three research areas. With exception of the FGDs with opinion leaders, during FGDs the team employed one of two participatory tools used in the study. Use of tools added value to the qualitative research by eliciting information through triangulated means; namely, visuals. Further, they were particularly invaluable in generating depth and breadth of information and local viewpoints of the areas of inquiry in an inclusive, open-ended less structured setting. This allowed participants to cross-check, contest, debate, and validate one another's perspectives in an informal setting, thus enabling participants to contribute to study analysis. The primary aim of the tools was not to complete the exercise, however, but to generate discussion, debate and consensus, providing a wide breadth of qualitative data (Pozarny, 2017).

Participatory research tools used in this study included the benefits and trade-offs matrix and the programme requirements matrix. The purpose of the benefits and trade-offs matrix tool was to understand 1) participants' prioritisation and decision-making processes around the different production practices, farming systems, marketing and resource reallocation; 2) benefits and trade-offs for households and wider communities; and 3) compare and discuss preferences. The tool proved immensely powerful in reflecting indications/trends of the most important motivations/driving forces leading households to dietary practices and consumption patterns, to achieve the overall objectives. The purpose of the programme requirements matrix was to 1) understand participants' experiences in meeting the programme requirements and 2) identify and prioritise causes which have the most impact and need to be addressed. Annex Three indicates the total number of FGDs, KIIs and in-depth household case studies conducted for the research (also see Research Guide, available on request).

Individual interviews were conducted with relevant key informants during KIIs, including community leaders, extension agents, cooperatives, head teachers, and HGSF and CASU programme staff with particular information and/or perceptions about the programme and its impacts on various stakeholders. The purpose was to elicit insights, information, examples, views and opinions of HGSF and CASU impacts from a wide diversity of sources. Finally, in-depth household case studies with beneficiaries were conducted at their households, following the question guide structure. These provided rich, deep and robust narratives about the conditions and perceived changes and experiences brought about either by HGSF alone or HGSF and CASU combined – and why and how these results transpired. The individuals were identified by the team – following the FGDs - as able

to provide further insight on their experiences as beneficiaries with HGSF alone or HGSF and CASU combined.

The research was premised upon principles of good conduct during fieldwork to ensure the research was conducted in an ethical manner. This included the team being clear about their role, seeking fully informed consent from research participants, answering questions openly and ensuring confidentiality and the right to privacy. Accessing participants for FGDs and respondents for KIIs in both districts was made possible through the support of MoA and MoE staff at district level, and agriculture extension and camp officers at the camp and block levels.<sup>9</sup>

### Selection of sample districts, blocks and camps

To probe in detail the findings of the quantitative impact evaluation, the qualitative study sampling paralleled the quantitative study, regarding two specific components:

- HGSF: households that benefit only from HGSF but not from CASU (i.e. households supplying to WFP's P4P programme whose children receive school meals provided by the HGSF programme);
- HGSF and CASU: farm households that benefit from CASU in districts where school meals and local procurement of pulses are available through the HGSF programme.

The sampling strategy involved a two-stage hierarchical approach of selecting districts, followed by sampling blocks, and then selecting camps within each block.<sup>10</sup> Additionally, the sampling strategy involved stratifying and sampling focus group participants within selected camps. The following methodology was used to select sites for fieldwork.

### Site selection

The first level of selection for this study was the districts. The study districts mirrored that of the quantitative study. In the quantitative study, for the HGSF-only arm, the districts of Kawambwa and Luwingu were selected and the survey concentrated on members of cooperatives that had benefited from the P4P and lived in districts where school meals are provided under the HGSF programme. The identified district for the HGSF+CASU arm is Katete, made of households that received support in conservation farming and which live in farming blocks covered by the HGSF, both in terms of public food procurement and school meals.

As noted in the quantitative study, the following three criteria played a role in the selection of the two HGSF-only districts. First, while the school meals are offered in all primary schools in a district, the P4P purchases benefit a limited number of farmers and are concentrated in much more limited areas inside the district, usually a block or even a camp. Second, there are only a few districts in Zambia where the P4P purchases mostly or exclusively met the schools' demand for meals. In most districts, the produce purchased by P4P from the aggregators only marginally met requirements for the school meals. Third, farm households do not sell their produce directly to the P4P but to an

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<sup>9</sup> A more detailed and thorough description is presented in the Research Field Guide, available on request.

<sup>10</sup> The sampling of the study sites followed a consistent methodology developed by FAO based on the Protection to Production (PtoP) approach, outlined in a number of field guides, which have been tested in over ten country case studies in Africa, many in partnership with Oxford Policy Management (OPM) (see Pozarny and Barrington, 2016) and [www.fao.org/economic/ptop](http://www.fao.org/economic/ptop).

aggregator, i.e. cooperatives or agro-dealers that buy crops from local farmers. They purchase for many purposes/markets and agro-dealers do not necessarily keep records of transactions and counterparts. As such, the study focused on districts where the P4P purchased through cooperatives, regardless of whether the purchases went for the HGSF programme or for other purposes.

For this qualitative study, the HGSF-only sample was taken in Luwingu district on Eastern Province and, similar to the quantitative sample, was comprised of farm households who sold to cooperatives selected by P4P and lived in districts where the school meals are provided under the HGSF programme. For the HGSF and CASU arm, the sample was taken from Katete district in Northern Province and composed of households that received CASU support in conservation farming and were located in farming blocks covered by the HGSF, both in terms of public food procurement and school meals, bought from cooperatives selected by P4P.

The second level of sampling was at the block and camp level. To capture the breadth of differences, each sample was examined in two blocks in Katete and two blocks in Luwingu, drawn from the list of blocks from the quantitative survey. Several criteria were established for the selection of the block/village study locations, which included *inter alia*: 1) overlap with the quantitative study; 2) sufficient numbers of beneficiaries to conduct FGDs; and 3) logistical feasibility.

In Katete district, two Blocks were randomly selected from the quantitative list: Eastern and Southern provinces. In Luwingu district, the two blocks randomly selected were Chungu and Chulungoma. Within each of the two selected blocks, the team selected those camps with enough available beneficiaries to conduct research: a maximum of 16 male and female beneficiaries per camp. A camp with a low number of beneficiaries (particularly male beneficiaries) dictated the need to conduct research in more than one camp within the block. Drawing on support and partnership with CASU and HGSF staff in the combined site and HGSF-alone site, this led to the selection of two to three camps with a sufficient number of beneficiaries for each block. The camps within these blocks then formed one study site.

There were six days of fieldwork in Katete and eight days in Luwingu, conducted between March and April 2019.

#### Informant selection

Within each camp, the agreed sampling methodology specified six FGDs, four of which were male and female cooperatives members supplying to HGSF alone or supplying to HGSF and engaged in CASU (see Annex Three). The beneficiaries participating in the research within each camp were randomly selected from the beneficiary list provided by the quantitative team in close collaboration with in-country partners, CARPA, and HGSF and CASU staff. Additional respondents for FGDs were identified by “snowball sampling” through referral from FGDs and KIIs. In addition, a number of purposive in-depth interviews were conducted with key resource persons and informants at District Level, including individuals from beneficiary households, teachers, Chiefs, field agents and Ministry officials. National-level interviews with CASU and HGSF programme implementers, from FAO and WFP respectively, as well as MoA and MoE officials were also conducted to gain further insights into operational aspects of the programmes.

## Annex 3: Fieldwork road map

### Fieldwork process roadmap (Katete: HGSF + CASU combined)

<b>DAY 1</b>	<b>Brief introduction at District level (KII with informants of relevant ministries and HGSF and CASU programme managers/officers)</b>	
	<b>Farming Blocks 1</b> (sub-team 1) <ul style="list-style-type: none"> <li>• Introductions with village Chiefs/leaders</li> <li>• 1 FGD with male/female opinion leaders/resource persons</li> <li>• 1 mixed FGD with co-op chairpersons benefiting from WFP P4P and CASU – programme requirements tool</li> <li>• 1 KII with CASU/HGSF/WFP officer/programme implementers at field level</li> <li>• Confirm fieldwork FGD/KII for next four days</li> </ul> Evening debrief	<b>Farming Blocks 2</b> (sub-team 2) <ul style="list-style-type: none"> <li>• Introductions with village Chiefs/leaders</li> <li>• 1 FGD with male/female opinion leaders/resource persons</li> <li>• 1 mixed FGD with co-op chairpersons benefiting from WFP P4P and CASU – programme requirements tool</li> <li>• 1 KII with CASU/HGSF/WFP officer/programme implementers at field level</li> <li>• Confirm fieldwork FGD/KII for next four days</li> </ul> Evening debrief
<b>DAY 2</b>	<ul style="list-style-type: none"> <li>• 1 FGD with female HGSF beneficiaries – benefits and trade-offs tool</li> <li>• 1 FGD with male HGSF beneficiaries – programme requirements tool</li> <li>• 1 KII with leaders/presidents of cooperatives</li> <li>• 1 KII with agro-dealers benefiting from WFP P4P</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 FGD with female HGSF beneficiaries – programme requirements tool</li> <li>• 1 FGD with male HGSF beneficiaries – benefits and trade-offs tool</li> <li>• 1 KII with leaders/presidents of cooperatives</li> <li>• 1 KII with agro-dealers benefiting from WFP P4P</li> </ul> Evening debrief
<b>DAY 3</b>	Team consolidation and briefing for the next days of fieldwork.	Team consolidation and briefing for the next days of fieldwork.
<b>DAY 4</b>	<ul style="list-style-type: none"> <li>• 1 FGD with female HGSF + CASU beneficiaries – programme requirements tool</li> <li>• 1 FGD with men HGSF + CASU beneficiaries – benefits and trade-offs tool</li> <li>• 1 KII with civil servants (e.g. health, ag extension)</li> <li>• 1 KII with teacher/head teacher</li> <li>• 1 Household in-depth case study (HGSF+CASU)</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 FGD with female HGSF + CASU beneficiaries – benefits and trade-offs tool</li> <li>• 1 FGD with men HGSF + CASU beneficiaries – programme requirements tool</li> <li>• 1 KII with civil servants (e.g. health, ag extension)</li> <li>• 1 KII with teacher/head teacher</li> <li>• 1 Household in-depth case study (HGSF+CASU)</li> </ul> Evening debrief
<b>DAY 5</b>	<ul style="list-style-type: none"> <li>• 1 KII with CASU lead farmers</li> <li>• 1 KII with CASU follower farmer</li> <li>• 1 KII that comes up during course of study (e.g. marketer)</li> <li>• Brief community validation/feedback if time</li> </ul> District Level feedback Evening debrief	<ul style="list-style-type: none"> <li>• 1 KII with CASU lead farmers</li> <li>• 1 KII with CASU follower farmer</li> <li>• 1 KII that comes up during course of study (e.g. marketer)</li> <li>• Brief community validation/feedback if time</li> </ul> District Level feedback Evening debrief
<b>DAY 6</b>	<b>Team consolidation and synthesis half day Travel to next site</b>	
<b>DAY 7</b>	<b>Continue travel to next site</b>	

## Fieldwork process roadmap (Luwingu: HGSF alone)

<b>DAY 1</b>	<b>Brief introduction at District level (KII with informants of relevant ministries and HGSF programme managers/officer)</b>	
	<b>Village Cluster 1</b> (sub-team 1) <ul style="list-style-type: none"> <li>• Introductions with village Chiefs/leaders</li> <li>• 1 FGD with men/women opinion leaders/resource persons</li> <li>• 1 KII with HGSF/WFP officer/programme implementers at field level</li> <li>• Confirm fieldwork FGD/KII for next five days</li> </ul> Evening debrief	<b>Village Cluster 2</b> (sub-team 2) <ul style="list-style-type: none"> <li>• Introductions with village Chiefs/leaders</li> <li>• 1 FGD with men/women opinion leaders/resource persons</li> <li>• 1 KII with HGSF/WFP officer/programme implementers at field level</li> <li>• Confirm fieldwork FGD/KII for next five days</li> </ul> Evening debrief
<b>DAY 2</b>	<ul style="list-style-type: none"> <li>• 1 mixed FGD with co-ops chairpersons benefiting from WFP P4P – programme requirements tool</li> <li>• 1 KII with agro-dealers benefiting from WFP P4P</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 mixed FGD with co-ops chairpersons benefiting from WFP P4P – programme requirements tool</li> <li>• 1 KII with agro-dealers benefiting from WFP P4P</li> </ul> Evening debrief
<b>DAY 3</b>	Team consolidation and briefing for the next days of fieldwork.	Team consolidation and briefing for the next days of fieldwork.
<b>DAY 4</b>	<ul style="list-style-type: none"> <li>• 1 FGD with women HGSF beneficiaries – programme requirements tool</li> <li>• 1 KII with civil servants (e.g. health, ag extension)</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 FGD with women HGSF beneficiaries – benefits and trade-offs tool</li> <li>• 1 KII with civil servants (e.g. health, ag extension)</li> </ul> Evening debrief
<b>DAY 5</b>	<ul style="list-style-type: none"> <li>• 1 FGD with men HGSF beneficiaries – benefits and trade-offs tool</li> <li>• 1 KII with leaders/presidents of cooperatives</li> <li>• 1 Household in-depth case study (HGSF)</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 FGD with men HGSF beneficiaries – programme requirements tool</li> <li>• 1 KII with leaders/presidents of cooperatives</li> <li>• 1 Household in-depth case study (HGSF)</li> </ul> Evening debrief
<b>DAY 6</b>	<ul style="list-style-type: none"> <li>• 1 KII with teacher/head teacher</li> <li>• 1 KII with District Executive Board Secretary Officer, Planner or Statistician, if possible</li> </ul> Evening debrief	<ul style="list-style-type: none"> <li>• 1 KII with teacher/head teacher</li> <li>• 1 KII with District Executive Board Secretary Officer, Planner or Statistician, if possible</li> </ul> Evening debrief
<b>DAY 7</b>	<ul style="list-style-type: none"> <li>• 1 KII with teacher/head teacher</li> <li>• 1 KII that comes up during course of study (e.g. food procurement committee, PTA)</li> <li>• Brief community validation/feedback if time</li> </ul> District Level feedback Evening debrief	<ul style="list-style-type: none"> <li>• 1 KII with teacher/head teacher</li> <li>• 1 KII that comes up during course of study (e.g. food procurement committee, PTA)</li> <li>• Brief community validation/feedback if time</li> </ul> District Level feedback Evening debrief
<b>DAY 8</b>	<b>Team consolidation and synthesis day</b>	
<b>DAY 9</b>	<b>Travel to Lusaka</b>	

Source: Adaptation from FAO PtoP/OPM studies. Note: The precise order of FGDs and KIIs may vary slightly depending on availability in communities.

## Annex 4: Research respondents met in the field

Katete District	Luwingu District	Lusaka
District Level Staff (7): 2F, 5M	District Level Staff (5) 1F, 4M	National Level KIIs (6): 2F, 4M (WFP, FAO, MoE, MoA)
<b>Eastern Block/Kamphambe Camp</b> Opinion leaders (8): 4F, 4M Co-op leaders (8M) Female farmers (8) Male farmers (13) KIIs (9): 1F, 8M (including agro-dealer co-op inspector, co-op chairpersons, lead and follower farmer, camp chairperson, camp and block extension officer)	<b>Chungu Block/Mufili Camp</b> Opinion leaders (6): 4F, 2M Co-op leaders (5): 1F, 4M Female farmers (11) Male farmers (15) KIIs (2M) (including deputy head teacher and CWAC member)	
<b>Southern Block/Chilembwe Camp</b> Opinion leaders (7), 3F, 4M Female farmers (11) Male farmers (15) KIIs (4M) (including co-op chairperson, headmaster, lead and follower farmer)	<b>Chilungoma Block/Kapisah Camp</b> Opinion leaders (7): 2F, 5M Co-op leaders (4M) Female farmers (11) Male farmers (11) KIIs (5M) (including co-op chairperson, HGSP school coordinator)	

Total informants met: 178 (117 male, 61 female)

## Annex 5: District and block profiles

### District profile summary

District	Katete*	Luwingu**
<b>Population</b>	240 818 (2010 census)	122 136 (2010 census)
<b>Poverty status (%)***</b>	70	79.7
<b>FNS****</b>	Stunting of U5 children: 49% Wasting of U5 children: 5% Food insecurity (cannot afford 3 meals): 53%	Stunting of U5 children: 46%***** Wasting of U5 children: 5% Food insecurity (cannot afford 3 meals): 65%
<b>Dominant religion</b>	Christianity	Christianity
<b>HGSF participating co-ops</b>	Initially 13	Initially 7
<b>CASU beneficiaries</b>	1 092 Lead Farmers 14 663 Follower Farmers	N/A
<b>Basic agro-physical context</b>	Vegetation ranges from Savannah grasslands to woodlands. The Eastern part of the district is characterized by overgrazing and cutting down of trees which overtime has led to deforestation and environmental degradation. The temperatures range from 8°C to 35°C. The mean annual rainfall ranges from 700 mm to 900 mm.	The district has a terrain which is largely plateau savannah and a climate which is dry and temperate. The district receives good average yearly rainfall.
<b>Main livelihood activity</b>	The main economic activity in the district is agriculture. Almost 95 percent of the population of Katete district depends directly on agriculture for their livelihood. Major crops grown in the District include maize, groundnuts, cotton and sunflower. Livestock reared include cattle, pigs, goats and chickens. Other economic activities that are contributing to the economy of Katete District are forestry and private companies or businesses and trading.	The main economic activities in the district are crops (beans, maize, cassava, groundnuts), fish farming and trading, livestock production, employment with government departments, district council and private firms. Cross border and inter-provincial trade have contributed to the increasing rate of economic activity in the district.
<b>Basic governance – leadership structure</b>	The district has 3 constituencies and 28 wards.	The District Council is comprised of elected councillors from 22 wards, 2 constituencies (Lubanseshi and Lupososhi, with respective counsellors) and two 2 senior chief representatives. The recognised chiefdoms are the Bemba, under Senior Chief Shimumbi, Chief Tungati and Chief Chipalo. Under the Bisa there is Senior Chieftainess Chungu, Chief Katuta and Chabula.  The District Commissioner (DC) is the top civil servant in the district.
<p>* Katete Implementation Plan and <a href="http://www.eas.gov.zm/?page_id=4903">http://www.eas.gov.zm/?page_id=4903</a>  **Luwingu District Profile, 2011  *** Zambia in Figures, 2018  ****Stunting and Wasting by Province (Eastern and Northern), Zambia DHS 2013–14  ***** Zambia DHS 2018</p>		

Block profile summary

<b>Districts</b>	<b>Katete District</b>		<b>Luwingu District</b>	
<b>Blocks/camps</b>	Eastern/ Kamphambe	Southern/Chilembwe	Chungu/Mufili	Chulungoma/Kapisha
<b>Distance to nearest market</b>	20 km	12 km	8 km	16 km
<b>Main livelihood source</b>	Farming	Farming	Farming	Farming
<b>HGSF co-ops</b>	1	1	1	1
<b>CASU beneficiaries *</b>	1 092 Lead Farmers 14 663 Follower Farmers		N/A	N/A

\*Based on district numbers



## Annex 6: Training schedule

**Training agenda:** Qualitative research on impacts of the Zambia Home Grown School Feeding and Conservation Agriculture scale up programmes

18<sup>TH</sup> – 20<sup>TH</sup> March 2019

<b>DAY 1: MONDAY 18<sup>TH</sup> MARCH</b>	
<b>Session</b>	<b>Topic</b>
09.00 – 10.30	<ul style="list-style-type: none"> <li>Welcome, introductions and ground rules</li> <li>Overview of the training, pilot and fieldwork plans</li> <li>Sharing experiences of qualitative research (including tools)</li> <li>Rationale and overview of the HGSF, CASU theory of change – objectives, implementation, targeting, coverage.</li> <li>Briefing on the FAO quantitative research findings</li> <li>Research rationale for mixed method: quantitative + qualitative research</li> <li>Programme theory of change – impacts of stand-alone vs. combined programmes on farm production and income generating activities, food and nutrition security and education outcomes.</li> </ul>
10.30 – 10.45	Tea Break
10.45 – 13.00	<ul style="list-style-type: none"> <li>Programme theory of change (cont'd)</li> <li>Key concepts: social protection definition, home-grown school feeding, market economy, food security and nutrition and diet diversity.</li> <li>The evaluation study: areas of inquiry, three research hypotheses, key research questions and probing questions</li> </ul>
13.00 – 14.00	Lunch
14.00 – 15.30	<ul style="list-style-type: none"> <li>Overview of the fieldwork process</li> <li>Overview of fieldwork roadmap – entry into the district, blocks and community</li> </ul>
15.30 – 15.45	Tea Break
15.45 – 17.00	<ul style="list-style-type: none"> <li>Fieldwork protocols: conduct, ethics, positionality, FGD protocols and facilitation</li> <li>Research techniques: open-ended questions &amp; importance of probing; data collection, note-taking &amp; management (including daily debriefs, consolidation, synthesis days)</li> </ul>
<b>DAY 2: TUESDAY 19<sup>TH</sup> MARCH</b>	
09.00 – 10.30	<ul style="list-style-type: none"> <li>Recap of Day 1 and Overview of Day 2 – any issues for further clarification</li> <li>In-depth review of the guiding questions and practice session in small groups of guiding questions (local language adaptation)</li> </ul>
10.30 – 10.45	Tea Break
10.45 – 13.00	<ul style="list-style-type: none"> <li>Introduction to the use of Participatory Tools: a means to stimulating discussion</li> <li>Participatory tool 1: Benefits and Trade-offs Matrix score and ranking tool and probing questions: Group practice</li> </ul>
13.00 – 14.00	Lunch
14:00 – 15:30	<ul style="list-style-type: none"> <li>Participatory tool 2: Program requirements matrix and probing questions: Group practice</li> </ul>
15.30 – 15.45	Tea Break
15:45 – 17:00	<ul style="list-style-type: none"> <li>Wrap up on question guide and tools as needed</li> <li>Plan for pilot – objectives, roles and responsibilities (and preparations of materials and logistics)</li> </ul>
<b>DAY 3: WEDNESDAY 20<sup>TH</sup> MARCH</b>	
09.00 – 11.30	<ul style="list-style-type: none"> <li>Recap of Day 2 – any issues for further clarification</li> <li>PILOT – Exercise (an opportunity to test guiding questions and tools and teamwork)</li> </ul>
11.30 - 12.00	<ul style="list-style-type: none"> <li>Group reflection on the pilot exercise – what went well, what were the key challenges, what could be done differently?</li> </ul>
12.00 – 12.30	Lunch
12.30 - 14.30	<ul style="list-style-type: none"> <li>Debrief – data analysis</li> <li>What areas requiring revision?</li> </ul>
14.30 - 15.00	<ul style="list-style-type: none"> <li>Any outstanding issues – areas requiring revision and practice</li> <li>Final remarks on field training and research programme</li> <li>Travel logistics and organisation</li> </ul>

## Annex 7: Co-op bean sales in Luwingu District (buyer: WFP)

<b>2014 Season</b>		
S/No.	Name	Qty (50 kg)
1	Chitemwiko	600
2	Musungu Bantu	500
3	New Isofwe	1 100
4	Chelstone	500
5	Ibemba	400
6	Nakashimu	1 000
7	Chitumfu	600
<b>Total</b>		<b>4 700</b>
<b>2015 Season</b>		
2	Musungu Bantu	702
3	New Isofwe	280
4	Chelstone	0
5	Ibemba	306
6	Nakashimu	611
7	Chitumfu	150
<b>Total</b>		<b>2 049</b>
<b>2016 Season</b>		
1	Musungu Bantu	2 000
2	Musungu Bantu	2 000
3	Musungu Bantu	1 000
<b>Total</b>		<b>5 000</b>
<b>2017 Season</b>		
1		2 175
<b>Total</b>		<b>2 175</b>
<b>2018 Season</b>		
1		4 000
<b>Total</b>		<b>4 000</b>

Source: Ministry of Agriculture Luwingu & Ministry of Commerce Trade and Industry.





FAO, together with its partners, is generating evidence on the impacts of coordinated agricultural and social protection interventions and is using this to provide related policy, programming and capacity development support to governments and other actors.

Inclusive Rural Transformation and Gender Equality  
Economic and Social Development Stream  
ESP-Director@fao.org

**Food and Agriculture Organization of the United Nations**

Rome, Italy