

# Status of Agricultural Innovations, Innovation Platforms and Innovations Investment in

## Zambia



*Program of Accompanying Research for Agricultural Innovation*

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*Status of*  
**Agricultural Innovations,  
Innovation Platforms  
and Innovations Investment**

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

AIC	Agricultural Innovation Centres
AUC	African Union Commission
CA	Conservation Agriculture
CFU	Conservation Farming Unit
COMACO	Community Markets for Conservation
DfID	Department for International Development
EU	European Union
EWAS	Empowerment of Women in Agricultural Sustainability Project
FAO	Food and Agriculture Organisation of the United Nations
FARA	Forum for Agricultural Research in Africa
GART	Golden Valley Agricultural Research Trust
GART-LDC Trust	Golden Valley Agricultural Research Trust-Livestock Development Trust
IITA	International Institute of Tropical Agriculture
IP	Innovation Platform
LII	Lead Implementing Institution
MAL	Ministry of Agriculture and Livestock
NCDS	National Cassava Development Strategy
NRDS	National Rice Development Strategy
PAM	Programme Against Malnutrition
PARI	Programme for Accompanying Research for Innovations
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
SAO	Senior Agricultural Officer
SIDA	Swedish International Development Agency
SRI	System of Rice Intensification
USAID	United States Agency for International Development
ZARI	Zambia Agriculture Research Institute

## STUDY BACKGROUND

Science and technology remains the fulcrum for development over the ages. There is hardly any national development in contemporary history that is not based on consistent efforts from the science and technology sector. The spate of development in agriculture follow suit; the state of efficiency in science and technology generation correlates highly with the development of agriculture. In Africa, agriculture is considered as the sector with the best potential to lead the socioeconomic development of countries on the continent. However, the sector is bedevilled with many constraints that could be categorized as technological, socio-cultural, institutional, infrastructural, and economical. The poor productivity of the enterprise stream in the sector is clearly seen from its contribution to a country's GDP versus the number of active workers engaged in the sector. Africa's agriculture currently engages about 65% of the working population and its average contribution to GDP still stands at 22.9%.

The crave to develop Africa has received good attention in recent years, starting with the political will of the heads of states, under the auspices of the Africa Union Commission, to develop and implement the Comprehensive Africa Agricultural Development Programme (CAADP), the Science Technology and Innovation Strategy (STISA). The Forum for Agricultural Research in Africa (FARA) also came up with a handful of continental initiatives, such as the Sub-Saharan Africa Challenge Programme (SSA CP), *Strengthening Capacity for Agricultural Research and Development in Africa (SCARDA)*, Dissemination of New Agricultural Technologies in Africa (DONATA) and several others. The different initiatives aim to foster change by addressing specific issues that constitute constraints in the path of progress in Africa agriculture. The notion that African agricultural research system has generated a lot of technologies with great potentials, but which are not realized due to different institutional and organizational constraints—more specifically, the way agricultural research and development systems is organized and operated—is prevalent among stakeholders in the sector. Indeed, this notion appeals to reasoning. However, there is no known cataloguing or documentation of existing technologies and their veracity in delivering broad-based outcomes. The possibility of finding some documentation in annual reports of research institutes, journal articles and thesis in the universities is known, but this will not meet an urgent need.

Thus, the Programme of Accompanying Research for Agricultural Innovation (PARI) commissioned the three studies reported in this volume to provide a compressive analysis of the state of agricultural technology generation, innovation, and investment in innovations in the last 20 years in selected countries in Africa.

Study 1 is the “situation analysis of agricultural innovations in the country” and provides succinct background on the state of agricultural innovation in the last 30 years. It provides useable data on the different government, international and private sector agricultural research and development interventions and collates information on commodities of interest and technologies generated over the years. It also conducted an assessment of the different interventions so as to highlight lessons learnt from such interventions, with regard to brilliant successes and failures.

Study 2 concerns a “scoping studies of existing agricultural innovation platforms in the country”. It carried out an identification of all the existing Innovation Platforms (IP) in the country, including identification of commodity focus, system configuration, and partnership model. The study provides an innovation summary for each IP for use in the electronic IP monitor platform. It further synthesises the lessons learnt from the agricultural IPs established through different initiatives in the country in the last ten years.

Study 3 was an “Assessment of the national and international investment in agricultural innovation”. It is an exhaustive assessment of investments in innovation for agricultural development, food and nutrition security in the country. It collates updated data on investment levels in the past and present, including a projection for the next decade requirement to assure food and nutritional security in the country.

The three studies form the comprehensive collation on the state of agricultural innovation in the 12 countries where the PARI project is being implemented. It is expected that these studies will benefit all stakeholders in Africa’s agricultural research and development, including the users of technologies, research stakeholders, extension system actors and, more importantly, the policymakers.

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**STUDY ONE**

**Inventory of  
Agricultural Technological  
Innovations (1995 to 2015)**

## **INTRODUCTION**

Agriculture is the mainstay of the African continent in general; thus the development and/or transformation of agriculture is critical in the overall socioeconomic development of the continent. African agriculture is apparently at the crossroads, with production and productivity remaining low, resulting in persistent food shortages and/or food and nutrition insecurity especially in sub-Saharan countries. Adequate and timely investments that promote appropriate agricultural innovations and innovation platforms are therefore critical to bringing about the desired transformation. Essentially, innovation is the result of an interactive process between many actors, such as farmers, extension workers, researchers, seed companies, government officials, and other stakeholders. Creating an innovation system is therefore paramount in bringing about favourable networking of organizations within an economic system that are directly involved in the creation, diffusion and use of scientific and technological knowledge, as well as organizations responsible for the coordination and support of these processes. This is in recognition of the fact that individual organizations rarely possess all the knowledge necessary for the whole process of innovation. In agriculture, the interaction of multiple stakeholders or players is thus seen as Agricultural Innovation Systems (AIS).

With today's emerging opportunities, there is hope for the transformation of Africa's agriculture. There are three major opportunities that can help in realising the dream of most African governments in making agriculture the engine of economic growth and development. These are: (i) the worldwide advances in science, technology and engineering which can be utilised as new tools for promoting sustainable agricultural development; (ii) efforts to create regional markets that can be harnessed to provide new incentives for agricultural production and trade; and (iii) a new generation of African leaders with potential to helping the continent to focus on long-term economic development. These opportunities would help innovation in agriculture and development to receive increasing attention in addressing the challenges of feeding an increasingly populous and resource-constrained continent. The innovation and innovation platforms approach has made a major change in the way knowledge production is viewed and thus supported. It has shifted attention from mainly researching in science and technology to embracing the whole process of innovation, in which research is only a part.

The African Union Commission's Science, Technology and Innovation Strategy for Africa 2024 (STI Strategy 2024) takes into consideration the social, economic, and technological progress Africa has made over the last decades. Innovation for

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sustainable and high agricultural growth forms an important part of the African Union Commission's (AUC) agenda for prosperity. This is combined with the increasing importance of international scientific and research collaboration as an imperative for achieving regional and national science, technology, and innovation policy goals.

In embracing the STI Strategy 2024, the Forum for Agricultural Research in Africa (FARA), in partnership with the German government, which is represented by the Centre for Development Research (ZEF) of the University of Bonn under its 'One World No Hunger' initiative, is implementing the "*Programme of Accompanying Research for Agricultural Innovations (PARI)*". Although PARI was initiated in 2014, it commenced its key activities in 2015. Subject to availability of funds and continued relevance to country situation, it is proposed to continue until 2017. PARI is taking cognizance of the successes of research and innovation initiatives in African agriculture and in consideration of the concept of Integrated Agricultural Research for Development (IAR4D) promoted by FARA, to build an independent accompanying research programme to support the scaling of agricultural innovations in Africa and, thereby, contributing to the development of the Agriculture Sector in Africa. The PARI project will be implemented together with the Agricultural Innovation Centres (AICs) within the One World No Hunger initiative.

In order to generalize the adoption of innovations in agricultural value chains in Africa, FARA, a technical organ of AUC on issues relating to agricultural science, technology and innovation, in partnership with the German Government, is piloting PARI in twelve (12) African countries (selected based on previous engagement in diverse German-supported initiatives) of Benin, Burkina Faso, Cameroun, Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, Togo, Tunisia and Zambia. The following are the goals of PARI:

1. Support and enhance investments in the Agricultural Innovation Centres / Platforms (AICs) through research and development cooperation;
2. Promote and support the scaling-up of proven innovations in the agri-food sector in Africa in collaboration and partnership with all relevant actors; and
3. Contribute to the development of the agri-food sector in Africa through the identification, assessments, and generation of innovations.

At country level, the PARI studies are undertaken through the most suitable research organizations, while FARA coordinates the activities/studies across the continent. Thus in Zambia, PARI is being implemented through the Zambia Agriculture Research Institute (ZARI) of the Ministry of Agriculture and Livestock (MAL).

ZARI is playing the role of lead implementing institution (LII) for the PARI in Zambia. The three PARI studies undertaken in each of the 12 countries in 2015 are:

- i). Situation analysis of agricultural innovations in each of the pilot countries and produce reliable information and analysis (rich enough to generate publishable reports and policy briefs on the state of agricultural innovation knowledge in the respective country).
- ii). Scoping study of existing agricultural Innovation Platforms (IPs) in each country and synthesizing the lessons learned from agricultural IPs established by different initiatives in the Country in the last ten years.
- iii). Study on the national and international investment initiatives on innovation for agricultural development and food and nutrition security in each country. This will provide sufficient and updated data on investment levels in the past and present (1995-2015), including a projection of investment required for the next decade to assure food and nutritional security in the country.

The overall aim of these studies is to identify and prioritise areas of investment by PARI and the likely value it would add to the realization of the PARI objectives.

### **Study Objectives and Outputs**

This report is on the first PARI study, whose overall objective is to provide reliable information and analysis on agricultural innovations in Zambia. Such analysis is expected to be rich enough to generate publishable reports and policy briefs on the state of agricultural innovation knowledge in the country. The specific objective is to identify and produce an inventory of existing functional and promising agricultural innovations in Zambia in the last twenty years (1995-2015). It is noteworthy that, while a lot of innovation system initiatives have been successfully implemented in the past by various organizations and actors, this has been done in isolation and hence fragmented; therefore, there is little or no comprehensive documentation of the innovations in Zambia, for use as a reference point; detailing information such as beneficiaries, effect on beneficiaries, geographical coverage, drivers/triggers etc. of the innovations; and thus there is need to develop data bases on innovations that have been developed together with their socioeconomic outcomes on target beneficiaries.

The study is intended to deliver the following outputs:

1. Succinct background on the spate of agricultural innovations in the last 20 years on the main agricultural commodity (or commodities of interest) value chains in Zambia, in line with the country's agricultural development plans;

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2. Useable data on the different government, international and private sector agricultural research and development interventions;
3. Assessment of the different interventions/innovations to bring out lessons learnt on what worked (successes) and what failed (complete failures).

#### **METHODOLOGY**

The study used the common methodology agreed upon with FARA and the 12 countries in which PARI is currently being piloted, including the commonly agreed guide/checklist (see Annex 1 & 2A). However, following consultations and discussions with the Zambia Agriculture Research Institute (ZARI), as the lead implementing institution (LII) for the PARI in Zambia, the study guide was elaborated and/or contextualised for Zambia, as reflected in Annex 2B, which was used for primary data collection. Also, in consultation and discussions with ZARI, five (5) agricultural commodities were selected and agreed upon as the main commodities of focus. These were:

- i). Maize
- ii). Rice
- iii). Cassava
- iv). Groundnut
- v). Poultry

Maize was primarily selected on account of it being a national staple food crop, while rice was included as one of the strategic and upcoming food and cash crop, predominantly grown by small-scale farmers. Cassava was selected on account of it being a staple food crop for a larger part of the country and its potential as a cash and industrial crop. Moreover, the country is taking serious steps to promote rice and cassava as commercial crops. To this effect, the country has formulated the National Rice Development Strategy (NRDS) and National Cassava Development Strategy (NCDS). Groundnut was selected as a food and cash crop also predominantly grown by small-scale farmers and particularly women. Poultry was included so as not to confine the study to the crops sub-sector. It should be noted that, although this study aimed at identifying and compiling an inventory of innovations (past and existing), including promising technologies/innovations in the selected agricultural commodities from 1995 to 2015, important data and information on innovations on cross-cutting issues were also collected in the course of the study.

Primary data collection were largely qualitative, using the elaborated and contextualised study guide for Zambia (Annex 2B). Primary data were collected mainly from key informant interviews (KIIs) and focus group discussions (FGDs). Much data were collected largely from Lusaka District and/or Lusaka Province, with

a few from areas outside Lusaka Province: this was mainly because the selected commodities had key institutions and informants represented in Lusaka District and Provinces. Based on the 5 selected commodities, a list of key institutions and informants was drawn for data collection. In the course of data collection, other institutions and/or informants also emerged which/who were not initially listed: these were also covered in the data collection. The list of all stakeholders consulted is appended in Annex 3. A bit of secondary data (literature review) collection was also conducted, where available, to supplement primary data.

## **RESULTS**

The table in Appendix 1 summarizes the identified innovations under the five (5) selected agricultural commodities, and innovations on cross-cutting issues.

### **a. Maize Innovations**

Before the last two decades, maize innovations in Zambia had concentrated on improving/increasing yields and disease/pest resistance. But newer innovations are concentrating on improving additional traits, such as nutrition value and climate change resilience while also maintaining the yield and disease/pest aspects. Thus, the last two decades have seen prolific development or generation of technologies for drought-tolerance, improving nutrition and more of hybrids than open-pollinated varieties. This innovation shift has also enhanced institutional collaborations between and among the government, private sector and academic institutions within the country, region and internationally. Increased varietal releases have intensified:

- Drought-tolerant maize varieties, such as ZM 421, ZM 521, ZM 621, MMV 409 and MMV 607 (open-pollinated varieties), and GV 640, GV 659, GV 635, GV 637, GV 638, GV 628, GV 655, GV 613, GV 552, GV 553 and GV 557 (hybrids) have been released by ZARI in the recent past (in 2013, 2014 and 2015).
- High nutritive value varieties:
  - Quality Protein Maize (QPM): earliest release open-pollinated variety (OPV) namely Obatanpa (containing Tryptophan 0.9g/100g and Lysine 4.2g/100g), and the 2015 released hybrids: GV 682P and GV 687P.
  - Orange maize (Pro A): GV 662A, GV 664A and GV665A (all released in 2013); and GV 671A, GV 672A and GV 673 released in 2015.
  - GV 662A, GV 664A and GV 665A have been licensed for commercialisation to three private seed companies namely: Kamano Seed Company, Zambia Seed Company (ZAMSEED) and SeedCo, respectively.

Despite the development and release of improved varieties, it has been observed that the adoption rate of these varieties by farmers (small-scale farmers) is still low. There is therefore the need to intensify sensitization and/or promotion efforts. With regard

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to Orange Maize in particular, adoption and/or acceptance by both farmers and consumers has not been easy in Zambia. This is largely due to the past experience Zambians had with yellow maize, which had a bad odour (rancid smell). Additionally, there is an element of misunderstanding or inadequate knowledge about Orange maize, as people refer to it as a Genetically Modified Organism (GMO). Thus there is also the need to intensify sensitization and/or education in this aspect. However, the newly established Innovation Platform (IP) for promoting Orange maize in view of the widespread Vitamin A deficiency in the population, especially among children under five years old, as well as pregnant and lactating mothers, has greatly helped in promoting Orange maize for both production and consumption among Zambian farmers and public consumers.

The IP for promoting Orange maize comprised government and quasi-government institutions, NGOs and the private sector—these included Ministry of Agriculture and Livestock, Ministry of Health, HarvestPlus, National Food and Nutrition Commission (NFNC), Tropical Disease Research Centre (TDRC), National Institute for Scientific and Industrial Research (NISIR), Programme Against Malnutrition (PAM), and private seed companies. Orange maize is being accepted for consumption, as could be noted from the case studies in this report. In order to shorten the time it takes to produce maize inbred lines and the subsequent release of varieties under conventional breeding method(s), it is recommended that the Zambian government invest in the acquisition of equipment for using the Double Haploid (DH) approach/technology locally. Although the initial investment might be costly, it would be cheaper in the long-term, and the benefits to be realized would outweigh the high initial investment cost, compared to what is currently being spent. A Public-Private Partnership (PPP) arrangement (government with private sector seed companies) could be considered for this investment, to economise on the required initial government investment.

### **b. Rice Innovations**

Rice innovations in Zambia has been revolving around increasing productivity, production and aroma. There is increasing consumption of rice in Zambia beyond the local production. Thus it is not uncommon to find a lot of imported rice in shops, especially in big supermarkets. Rice consumption is increasing among the youths. A number of innovations are thus coming up in order to increase productivity and production of rice to meet the national demand. The government has also developed the National Rice Development Strategy (NRDS) to guide the development and/or intensification of rice production and commercialisation in Zambia.

In view of the above, technologies have been introduced for the production of rice even under upland and/or irrigated conditions. Traditionally, Zambian rice is grown in rain-fed low land flood-prone ecologies (commonly referred to as dambos). New rice varieties, such as NERICAs (upland rice), have been introduced and released for production and consumption. But despite the introduction of high yielding upland rice varieties, and that of better quality in terms of grain size and milling properties, the innovations have not been very successful on the Zambian market, due to lack of ‘aroma appeal’ in the new ‘foreign’ varieties. Zambian local varieties (although not pure varieties, but admixtures) e.g. Chama Rice and Mongu Rice, have nice aroma and are thus preferred by consumers. Therefore, although imported rice are relatively cheaper than locally produced rice, Zambians prefer the local rice (largely because of the aromatic characteristic).

Thus, ZARI is currently working on purifying the local admixtures so as to come up with a pure local aromatic variety and then to enhance its other characteristics, such yield and grain quality. The challenge for technology developers in Zambia is, therefore, to come up with a variety which is both high-yielding and aromatic. There is also the need for the government to promote the System of Rice Intensification (SRI), which has proved successful in increasing rice yields among smallholder farmers.

### **c. Cassava Innovations**

Cassava is an important crop for increased production and commercialisation in the Zambian agricultural diversification agenda. The demand for cassava in Zambia, like rice, is higher than the local supply. This is largely due to the fact that the crop is grown mostly by small-scale farmers under low hectareage. Nevertheless, new high-yielding and early maturing varieties, such as the Bangweulu, Chila, Nalumino and Manyopola, have been developed and released on the Zambian market. Production by small-scale farmers is, however, low and unable to satisfy industrial demand. There are a number of challenges to this imbalance:

- Farmers fail to meet the industrial requirement of quantity and regularity of cassava supply.
- The prices demanded by small-scale farmers for cassava are considered exorbitant by industrial buyers; yet, farmers tend to equate cassava prices to those of maize.
- The demand for cassava is usually higher during the rainy season and this is the time small-scale farmers face challenges in the drying of cassava, failing to meet the required industrial quantities and consistency in supply.
- Small-scale farmers have not increased the area under cassava production (probably due to mechanisation challenges).

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- Productivity among small-scale farmers is still low (despite availability of high-yielding varieties), due to poor management (agronomic) practices.

The government recognizes the importance of cassava, both as a staple food crop and for commercialisation; hence, it developed the National Cassava Development Strategy (NCDS) to guide and spearhead the promotion and commercialisation of cassava. Cassava production and processing among majority of small-scale growers is poorly mechanized. Thus, innovations in the mechanization of cassava production and processing among the farmers require serious attention, if the local supply has to meet the demand. This is notwithstanding the efforts which have been made by the government and projects in developing some appropriate small-scale equipment, especially for processing, such as mechanical equipment for making chips, drying, etc.

### **d. Groundnuts innovations**

The major bottleneck in production and processing, leading to enhanced commercialisation of groundnut, lies in reducing the level of Aflatoxin contamination in groundnut and/or production of Aflatoxin-free groundnut. A number of innovations is thus being promoted by both the government and the private sector to achieve this. The Community Markets for Conservation (COMACO), for instance, is promoting good postharvest practices for the production of Aflatoxin-free groundnuts, especially in the area of minimising moisture in stored and shelled groundnuts; e.g. farmers are advised to better store groundnuts in shells and not add water to groundnuts (for softening of the shell before shelling). COMACO also offers premium prices on groundnuts, as well as other products they are promoting, that are grown following the conservation practices.

On the other hand, the International Institute of Tropical Agriculture (IITA) is working on the technology of locally producing an agro-chemical called Aflasafe, a bio-control chemical for the prevention of Aflatoxin contamination (at harvest and in storage) and mitigating its effects in groundnuts and maize. The chemical (Aflasafe) has so far undergone three years of field testing and has apparently proved to be effective, and thus one of the promising innovations. However, it needs to undergo one more year of field testing before the Zambia Environmental Management Agency (ZEMA) can approve it for registration.<sup>1</sup> Unfortunately, the project under which it has been developed and tested in Zambia for the last three years has ended (it was funded by USAID/GIZ from 2011 to September 2015). It is nevertheless

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<sup>1</sup> ZEMA's requirement (apparently by law) is that the product must be tested for four (4) years.

hoped that another year of field testing will be funded for the product to be registered in Zambia. Local processing of groundnuts, especially at small and medium-scale level, should be encouraged and promoted to achieve, for example, the production of good quality peanut butter and confectionary nuts from the crop.

#### **e. Poultry innovations**

There are likely to be quite a good number of innovations in the poultry sub-sector in Zambia, although these have not been captured in this study due to poor response from the sampled respondents. However, there was an uncommon innovation that was captured in the data. This is the “Improvement of Village Chickens” undertaken by the Golden Valley Research Trust (GART) at its Batoka Livestock Development Centre (LDC) in Choma District (Southern Province). The innovation was undertaken under the project funded by the Swedish International Development Agency (SIDA) from 2005 to 2008. At the end of SIDA’s support, the innovation was continued by GART-Batoka LDC and extended to other poultry like guinea fowls and quails; it has also extended it to other beneficiaries (all poultry farmers). The initial project target beneficiaries were HIV/AIDS-infected people.

The innovation basically involves the change or improvement in the feeding regime and arrangements of village chickens and other poultry: Chickens are confined to a feeding area and provided with nutritionally-enriched feed rather than scavenging on free range. This results in village chickens improving or developing meat to the level of broiler chickens (and generally grow bigger than unimproved/ordinary village chickens). It is therefore necessary for government to promote the innovation all over the country and should extend this to all village chicken farmers /keepers.

#### **f. Cross-cutting Innovations**

With regard to the challenges being experienced as a result of climate change, especially in areas of food and nutrition insecurity, energy and markets, efforts should be made to develop technologies aimed at addressing cross-cutting challenges or promoting and/or producing innovations with positive effects/impact. As evidenced in this study, a number of innovations and technologies have been identified that are aimed at addressing cross-cutting challenges affecting the agricultural sector.

## CASE STUDIES

### Production and Consumption of Orange Maize:



**Figure a)** A Case of Chikoka Women Group of Kafue District, Lusaka Province. **b)** One of the Chikoka Women Group with cobs of Orange Maize Some members (7) of the Chikoka Women Group with the agricultural camp officer (in red top)

The Chikoka Women Group of Kafue District, Mungu Agricultural Camp, Lusaka Province, started growing Orange Maize in 2010. The group had seventeen (17) members. Orange Maize was introduced to the group by the Senior Agricultural Officer (SAO) for Kafue District, Ministry of Agriculture and Livestock (MAL), Mrs. Monica Mulenga in 2010. The Orange maize seeds were provided by an Organisation called HarvestPlus. As a way of introducing the Orange maize to the women, two (2) dishes of Nshima<sup>2</sup> were prepared, one using Orange maize mealie meal and another dish with White Maize mealie meal (the common mealie meal in Zambia): also two dishes of porridge were prepared using the two types of mealie meals. The women were made to taste the two different foods (both Nshima and porridge made from the Orange and White maize mealie meals), while their eyes were closed. That is, they were not allowed to see the type food they were tasting. The two dishes were put one on the right hand side and the other on the left hand side. After tasting the food, the women, individually and separately, were asked to tell which one tasted better. The dishes made from Orange maize mealie meal were said to have tasted better (sweeter) than the ones prepared from the White.

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<sup>2</sup> Zambian staple food prepared mainly with maize flour (mealie-meal); but can also be prepared with cassava and millet flour (mealie-meal)

With this tasting exercise, the women expressed the willingness to try out Orange maize. Later, the agricultural officers explained the nutritional value of Orange maize, with regard to its Vitamin A content. The women appreciated the taste of the Orange maize as well as its nutritional value, especially for the children. They testified that, beside the nutrition value (Vitamin A) of Orange maize for both adults and children, it tastes sweeter than White maize, matures earlier, and is drought-tolerant and resistant to diseases. The Group in 2010 started with open-pollinated variety of Orange maize and planted 2kg of seeds in a 2 Lima area ( $\frac{1}{2}$  Ha) and harvested about 15 x 50kg bags (without using fertilisers) and later on recycled the same seeds. Later they planted hybrid seeds and harvested about 20 x 50kg bags. During the last agricultural season, the Group planted 40kg of seeds, with 75kg of Compound D and 75kg Urea fertilisers on a 6 Lima ( $1\frac{1}{2}$  Ha) of land. The Group has continued growing Orange maize, using the variety called GV 664A. The seed is given to the Group for free by HarvestPlus, which is promoting orange maize.

Although the women sell some of the orange maize, more is actually consumed/eaten by them and their households than is sold, in appreciation of the crop's nutritive value: it is eaten in various forms, including Nshima, porridge, cakes, fritters, etc. Orange maize is sold at a price higher than White maize (it sold for K30.00 per 20 litre bucket, as compared to K25 per 20 litre bucket of White maize). The Group is willing to buy Orange maize seeds, although from 2010 to date, it has been provided with free seeds by HarvestPlus. HarvestPlus also bought the crop from the Group, thus providing an assured market. However, the women also sold to the public.

The concern of the women with Orange maize, however, is that the grains are smaller than those of White maize and, thus, arduous in shelling and require more grains to fill a 50kg bag, as compared to White maize. Consequently, the Group is appealing for the development of an Orange maize variety with bigger grains.

**The 3-Woman Club of Kafue District, Lusaka Province**



**Figure.** Representatives of the Twachelwa, Tusumpike and Chinsungwe Women Clubs.

Three (3) other women groups, namely, Twachelwa, Tusumpike and Chinsungwe Women Clubs of Chikupi Agricultural Camp in Kafue District (Lusaka Province) have also started growing Orange maize, which is promoted by HarvestPlus. These three Clubs started growing Orange maize in the 2014/15 agricultural season. Orange maize was introduced to the Clubs by the Ministry's Block Extension Officer (Mr. Busiku). The women were also happy with Orange maize with regard to its nutritive value and better taste, compared with White maize. They were selling their Orange maize at K75 per 50kg bag. They, however, claimed not to have an established market for Orange maize. The study found, because of the clubs being new, they were not aware of the market arrangements with HarvestPlus (the Kafue District Office has therefore taken note of their concern and would link them with HarvestPlus). It is noteworthy that the women Clubs expressed the same concern of smaller grain size of Orange maize as did the Chikoka Women Group above.

**Improvement of Village Chickens and/or other Poultry**

***A Case of GART Batoka Livestock Development Centre (GART-Batoka LDC)***

With the aim of supporting people infected with HIV/AIDS to improve their nutrition and incomes and thus their livelihoods, a project was initiated and funded by the Swedish International Development Agency (SIDA) and implemented from 2005 to

2008. The Project involved “Improving Village Chickens” which were then given to HIV-infected people in Choma District, particularly in Batoka and Siamalubo Villages. The Project was implemented by the Golden Valley Agricultural Research Trust-Batoka Livestock Development Centre (GART Batoka LDC). The technology involved confining the village chickens to a feeding area and providing them with a nutritionally-enriched feed rather than being left to scavenge for themselves on free range. The feed provided for the village chickens was usually made using maize bran, moringa leave powder and Di-Calcium Phosphate (DCP). This feeding regime resulted in the village chickens improving their muscles (meat) to the size of that of



broiler chickens.

The Project’s initial beneficiaries were HIV-infected people, identified by KARA Counselling<sup>3</sup> in Batoka and Siamalubo villages, Choma District (Southern Province). Each beneficiary in a group received one improved village chicken to keep and multiply for consumption and selling. The Project procured an incubator for hatching eggs from the improved village chickens and also constructed poultry houses (about five). The beneficiaries were trained in the feed formulation and given moringa seedlings for planting, so that they can use the leaves as part of the feed components. GART Batoka LDC also helped the beneficiaries in the management of chickens, particularly by providing free vaccinations against New Castle Disease, and free hatchery services for beneficiaries.

At the end of the project, however, these services are provided at a fee: payment for hatching of eggs is either in cash or in kind (i.e. sharing of the chicks between GART-Batoka LDC and beneficiary, after incubation and hatching). Also, GART Batoka LDC not only charged for hatching of eggs but also bought both eggs and

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<sup>3</sup> An NGO dealing with HIV/AIDS counselling and testing

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chicks from beneficiaries, i.e. provided market services as well. Eggs bought from beneficiaries were hatched and reared into chickens; chicks bought were grown for resale by Batoka LDC to public consumers at open markets. The innovation has improved the livelihoods of the target beneficiaries, specifically through: enabling beneficiaries to send their children to schools; enabling beneficiaries to buy larger-size livestock e.g. goats; and enabling beneficiaries to construct iron-roof houses. Currently, the innovation has been extended to all village poultry farmers nationwide and now includes the improvement and/or management of guinea fowls and quails.



**Figure:** *Left:* Eggs in the incubator. *Right:* Hatching eggs (in hatchery side of the Incubator)

#### **CONCLUSION**

This study identified a number of innovations for selected commodities in Zambia. Nevertheless, further inventory of innovations is recommended on the same commodities as well as other agricultural commodities of socio-economic significance in Zambia. It is recommended that nearly all the promising technologies (as in Table 2) be pragmatically executed to become innovations. There had been challenges in the collection of data/information for this study for various reasons, which include:

- i). Poor and/or non-response to the provision of information and data by a number of the identified and targeted respondents.
- ii). Some respondents in certain institutions who provided the information are new in the institutions and thus lack the institutional memory for old innovations and/or technologies, needed for the twenty years period.

Nevertheless, this identified inventory of innovations would or is expected to serve as a preliminary baseline for further updating in order to come up a comprehensive inventory of Agricultural Innovations for Zambia.



## **STUDY TWO**

### **Inventory and Characterization of Innovation Platforms**

## **INTRODUCTION**

Agriculture is the mainstay of African economies in general and thus the development and/or transformation of agriculture is critical in the overall and general socioeconomic development of the continent. African agriculture is apparently at the crossroads, with production and productivity remaining low, resulting in persistent food shortages and/or food and nutrition insecurity in most African countries. Adequate and timely investments in agriculture that promote appropriate innovations and innovation platforms are therefore critical and important in bringing about the desired transformation. Essentially, an innovation platform (IP) is defined as a space or forum for learning and change. It is composed of a group of individuals (often representing organizations) with different backgrounds and interests, e.g., farmers, traders, food processors, researchers, government officials, etc. The members meet to diagnose problems, identify opportunities and find ways to achieve their goals. Innovation platform members may design and implement activities as a platform, or coordinate activities by individual members.

Innovation platforms are particularly useful in agriculture because agricultural issues tend to be complex. Agricultural issues often involve different biophysical, socioeconomic and political factors, and apply to various formal and informal institutions. By bringing together stakeholders in various sectors and from different levels, IPs may be able to identify and address common concerns more effectively. Innovation platforms can also be utilized in exploring strategies that can boost productivity, manage natural resources, improve value chains, and adapt to climate change. While some IPs focus on single issues, others deal with multiple topics or ideas. Creating an innovation system/platform is therefore paramount in bringing about a favourable networking of organizations within an economic system that are directly involved in the creation, diffusion and use of scientific and technological knowledge, as well as organizations responsible for the coordination and support of these processes. This is in recognition of the fact that individual organizations rarely possess all the knowledge necessary for the whole process of innovation. In the agricultural sector, the interaction of multiple stakeholders or players can thus be seen as an agricultural innovation system (AIS).

Although the agriculture in Africa is apparently at the crossroads, there is, however, hope in changing the sector with emerging opportunities. There are currently three major opportunities that can help in realizing the dream of most African governments in transforming agriculture to be the key 'instrument' for economic growth and development. The three enabling opportunities include: (a) the world-wide advances in science, technology and engineering which can be used as new tools for promoting

sustainable agricultural development, (b) efforts to create regional markets that can be harnessed to provide new incentives for agricultural production and trade, and (c) a new generation of African leaders with the potential to assist the continent to focus on long-term economic development.

These opportunities would support innovations in agriculture and development to receive enhanced attention in resolving the challenges of feeding the increasingly populous and resource-constrained African continent. The innovation and innovation platforms approach has made a major transformation in the way knowledge production is viewed and thus supported. It has shifted attention away from just focusing on research, science and technology, to embracing the whole process of innovation, in which research is only one of the components.

The African Union Commission's Science, Technology and Innovation Strategy for Africa 2024 (STI Strategy 2024) takes into consideration the social, economic, and technological progress Africa has made over the last decade. Innovation for sustainable and high agricultural growth forms an important part of the African Union Commission's (AUC) agenda for prosperity. This is combined with the increasing importance of international scientific and research collaboration as an imperative for achieving regional and national science, technology, and innovation policy goals.

The Forum for Agricultural Research in Africa (FARA), in partnership with the German government, which was represented by the Centre for Development Research (ZEF) of the University of Bonn under its 'One World No Hunger' initiative, in embracing the STI Strategy 2024, is implementing the Programme of Accompanying Research for Agricultural Innovations (PARI). The PARI was initiated in 2014, but commenced its key activities in 2015. Subject to the availability of funds and continued relevance to country situation, it was proposed to continue until 2017. The Programme of Accompanying Research for Agricultural Innovations is taking cognizance of the successes of research and innovation initiatives in African agriculture, and considering the concept of Integrated Agricultural Research for Development (IAR4D) promoted by FARA, to build an autonomous accompanying research programme to support the scaling-up of agricultural innovations in Africa and, consequently, contribute to the development of the agriculture sector in Africa. The PARI project will be implemented together with the Agricultural Innovation Centres (AICs) within the One World No-Hunger initiative.

In order to generalize the adoption of innovations in agricultural value chains in Africa, FARA, which is a technical organ of the Commission of African Union on

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issues relating to agricultural science, technology and innovation, in partnership with the German government, is piloting PARI in twelve (12) African countries. The twelve pilot countries (selected based on the previous engagement of the countries in diverse German-supported initiatives) are: Benin, Burkina Faso, Cameroun, Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, Togo, Tunisia and Zambia. The following are the goals of PARI:

4. Support and enhance investments in the Agricultural Innovation Centres/Platforms (AICs) through research and development cooperation;
5. Promote and support the scaling-up of proven innovations in the agri-food sector in Africa in collaboration and partnership with all relevant actors, and
6. Contribute to the development of the agri-food sector in Africa through the identification, assessment, and generation of innovations.

At the country level, the PARI studies are being undertaken through the most suitable research organizations, while FARA coordinates the activities/studies across the African continent. Thus, in Zambia, PARI is being implemented through the Zambia Agriculture Research Institute (ZARI), of the Ministry of Agriculture. The Zambia Agriculture Research Institute is playing the role of the lead implementing institution (LII) for PARI in Zambia. The three PARI studies to be undertaken in the above-mentioned countries in 2015 include:

- iv). Conduct a situation analysis of agricultural innovations in each of the pilot countries and produce reliable information and analysis (rich enough to generate publishable reports and policy briefs on the state of agricultural innovation knowledge in the respective country).
- v). Conduct a scoping study of existing agricultural innovation platforms (IPs) in each country and synthesize the lessons learned from agricultural IPs established by different initiatives in the country in the last ten years.
- vi). Conduct a scientific study on national and international investment initiatives on innovation for agricultural development and food and nutrition security in each country. This will provide sufficient and updated data on investment levels in the past and present (1995-2015), including a projection of investment required for the next decade to assure food and nutrition security in the country.

The overall aim of the above three studies is to identify and prioritize areas of investment by PARI and the likely value it would add to the realization of the PARI objectives. This report is on the second PARI study, whose overall objective is to undertake a scoping study of existing agricultural innovation platforms (IPs) in

Zambia, and synthesize the lessons learned from agricultural IPs established by different initiatives in the country. The specific objective is to identify all existing agricultural innovation platforms (IPs) in Zambia in the last ten (10) years, i.e., from 2005 to 2015, with reliable data sets and publishable information. Study 2 is intended to deliver the following outputs:

- An inventory of all the existing innovation platforms in Zambia, including the identification of commodity focus, system configuration, partnership model(s), etc.
- Development of IP summary document for each IP to be used in developing African (Continental) Innovation Platform Map.
- Synthesis of the lessons learned from agricultural IPs that were established from different initiatives in Zambia, with reliable data sets and publishable information on IPs.

## **METHODOLOGY**

The study used the methodology agreed upon with FARA and the 12 countries, in which PARI is currently being piloted, including the commonly agreed upon template for innovation platform inventory (See Annex 1 & 2A). However, the template for IP inventory used for study 2 primary data collection was slightly modified and/or contextualized for Zambia, as reflected in Annex 2B (both in Word and Excel versions). Study 2 was aimed at identifying and coming up with an inventory of all existing innovation platforms (active and non-active) in Zambia in the last ten years. The identification and inventory of IPs was undertaken across all the agricultural commodities in the country.

Primary data was mainly collected using key informant interviews (KIIs) from Lusaka District and/or Lusaka Province. However, some primary data was also collected from key informants outside Lusaka Province by electronically sending the IP templates to be completed/filled-in from their respective localities (and again sent back electronically after filling-in the required information/data). For the electronically collected data, follow-ups were made with the informants (respondents) by either phone or email for clarification.

The identification of existing IPs was undertaken using secondary data (review of printed and electronic documents, including workshop presentations), to supplement and/or verify the primary data. The list of all stakeholders consulted through interviews and electronically is appended in annex 3, while the literature reviewed is listed under annex 4.

## **RESULTS**

From KIIs and literature review, sixteen (16) IPs were identified by location, under six (6) agricultural commodities and one (1) on conservation agriculture, which is cross-cutting. The IPs were identified and listed along the entire commodity value chain. The six agricultural commodities were: maize, cassava, rice, sorghum, soybeans and wheat. Categorizing the IPs by value chain or title, there were eleven (11) IPs in total as follows: two under maize, four under cassava; one under rice, one under sorghum, one under soybeans, one under wheat, and one under conservation agriculture.

By location, the sixteen (16) identified IPs were as follows: two IPs for maize located in Lusaka, eight IPs for cassava located in Kaoma, Kasama, Mansa, Samfya and Serenje, one IP for rice located in Chinsali, two IPs for sorghum located in Masaiti and Siavonga, one IP for wheat located in Mpika, **one** IP under CA located in Lusaka, and one IP for soybean in an unknown (unidentified) location. The summary IP documents (containing the information collected as per the IP template) for all the identified IPs is as shown in table 1. The complete inventory and details of all identified IPs are contained in the imbedded Excel version of IP template, below:

### **Inventory of Innovation Platforms**

Appendix 3 presents the IP summary documents for each IP identified, under the six agricultural commodities, including one on CA, during the study. Innovation platforms is apparently a new approach in Zambia for learning and change, in resolving and/or diagnosing problems, identifying opportunities and finding ways/means to achieve goals involving agricultural issues (which may tend to be simple or complex). Thus, most agricultural stakeholders in Zambia are not aware of IPs and/or have not fully appreciated the usefulness of the approach. The ignorance about IPs and the inadequate appreciation of their usefulness and suitability by a number of Zambian stakeholders, to a large extent explains the paucity of the existing IPs in the country. However, the few stakeholders, both individuals and organizations, who are aware of and/or are participating in IPs have appreciated the effectiveness of IPs in learning, sharing ideas and resolving complex agricultural issues, which often involve different biophysical, socioeconomic and political factors, applicable to both formal and informal institutions.

### **IPs under maize**

As the country's staple food crop, much effort and resources have been put into maize by various stakeholders (government, private sector, cooperating partners, individual farmers etc.), in terms of input supply, technology development, production, storage, processing and marketing, since Zambia's independence.

However, there appears to be no corresponding effort and resources put into the crop with regards to the establishment and functioning of IPs under maize.

With so much effort and resources allocated to maize, as mentioned above, it seems that there are not so many and much issues/challenges in the sub-sector to be dealt with or resolved under the IPs. Thus this study has only identified two (2) IPs under maize, namely: Orange (Pro-vitamin A) maize value chain, and a National Coordination Unit (NCU) under the New Seed Institution for Maize in Africa (NSIMA), all located in Lusaka, but with a countrywide geographic coverage in terms of intervention. The newer and apparently the most active or vibrant one is the IP on Orange Maize (Pro-vitamin A) value chain, which is aimed at addressing the high incidence or prevalence of Vitamin A deficiency in the majority segment of the population, particularly among the under-five children, lactating mothers and pregnant women. The Orange Maize (Pro-vitamin A) value chain innovation platform has scored a number of achievements, including:

- Official launching of the orange maize seed in Zambia by the Minister of Agriculture in August 2015;
- Commercializing of the orange maize seed by a number of the country's major private seed companies;
- Promoting the production and consumption of orange maize, currently by more than 100,000 small-scale farmers;
- Encouraging and supporting the processing and selling of orange maize in the form of mealie-meal, and
- Having ninety metric tons (90 MT) of orange maize seeds included in the government's (Ministry of Agriculture) Input-subsidy programme (FISP) for small-scale farmers for the 2015/2016 agricultural season.

Despite the above achievements, the orange maize IP is still facing some challenges in promoting the production and consumption of orange maize among the majority of Zambians due to the experience of yellow maize (with a rancid smell) procured and consumed in the late 1980s, when the country experienced a severe drought which resulted in a maize deficit.

### **IPs under rice**

Only one IP has been identified as existing in the country under rice. This is despite the government's serious steps being taken to boost the production rice, particularly since there is an increasing demand for rice consumption, surpassing the local production/supply. In the government's effort to increase the commodity's

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productivity and production, the National Rice Development Strategy (NRDS) was formulated.

Through the efforts of an NGO called Community Markets for Conservation (COMACO), the System of Rice Intensification (SRI) has been introduced in Zambia, aimed at improving production and yields of rice. Rice has attracted further interest and support from some cooperating partners, who have introduced upland rice varieties, such as NERICA. The System of Rice Intensification has proved successful in increasing local rice yields among smallholder producers in the major rice production regions of Western, Eastern, Muchinga and Northern Provinces of the country. With such effort from the government and other rice stakeholders, it could be envisaged that IPs would be taken advantage of resolving the existing challenges in the rice sub-sector to increase local productivity, production and marketing of the crop to meet the local demand and even produce surplus for the export markets (and thus increase incomes not only for farmers but also for the government).

The Zambian government and local research institutions/stations must accord much recognition and support for the SRI innovation platform and also encourage the establishment of other IPs in the rice sub-sector. Currently, the main players in the SRI innovation platform, which at the maturity phase, are local NGOs (e.g., COMACO and CSRII) and small-scale farmers.

### **IPs under cassava**

Among the identified IPs, there are more IPs in Zambia involving cassava, at least by location and type of IP. This could be attributed to the support accorded the commodity by both the government and cooperating partners. Cassava is an important crop for increased production and commercialization in the Zambian agricultural diversification agenda. The crop's demand (particularly industrial demand) surpasses the local supply. Thus, the government has shown its commitment to the enhanced development of the cassava sub-sector, by coming up with a national strategy, the Cassava National Strategy, with support from cooperating partners. Other cooperating partners, such as the International Institute of Tropical Agriculture (IITA), through various projects, are helping in the establishment of IPs in cassava.

As mentioned above, cassava tops the number of identified IPs, eight (8) of them by location in five cassava growing districts of Central, Luapula, Northern and Western Provinces of the country. However, there are only four (4) by name, i.e.

- Cassava improved varieties (early-maturing and high-yielding varieties);
- Disease-free cassava planting materials;
- High quality cassava flour (HQCF); and
- Entire cassava value chain (the actual distribution is in table 1)

### **IPs under wheat**

There is so far only one IP under the wheat value chain in Zambia, located in Mpika District. This, however, is not as a result of the country's or Wheat stakeholders' choice, but by the guidelines/design of the supporting project-support to Agricultural Research for Development of Strategic Crops (SARD-SC) in Africa project. Since the commencement of the wheat value chain IP in the country early this year, the approach has attracted a lot of interest among its members, judging from the fact that two meetings have so far been held without financial support from the funding agent (SARD-SC).

However, under the financial support of the project, the IP by the end of October 2015 had revived wheat production in the intervention areas (Mpika, Chinsali, Mbala and Solwezi Districts) and had undertaken a farmer exposure or study tour to Mkushi District (one of the country's major wheat growing areas). These activities, including the successful holding of two self-financing meetings, are among its achievements till date. The IP is targeting to increase the number of farmers growing wheat in the intervention areas to 800 in the next agricultural season. The IP is encouraging and mobilizing its members to increase wheat production in the area in order to take advantage of the wheat milling Plant in Mpika owned by the youths supported by World Vision. The IP is also considering appealing to World Vision to include wheat production under its (World Vision's) programme, and to engage the Lusaka-based potential wheat buyers (to expand the market for its members).

The IP was intended to serve or cover four (4) wheat growing districts of Mpika and Chinsali (Muchinga Province), Mbala (Northern Province) and Solwezi (North-Western Province), although it is located in the Mpika District, which is considered to be centrally-located. The Mpika District intervention areas of the IP are two agricultural camps, namely: Mpika Central and Mufubushi Agricultural Camps. The IP's members are not yet fully stimulated by the benefits, however, the holding of two successful meetings at the current members' own cost (without project financial support), signifies the likelihood of the IP's sustainability even after the end of the project. Sustainability indicators were further enhanced by the attendance of wheat growers from the neighbouring Chinsali District when meetings were held in Mpika.

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**Table 1: Cassava IPs**

<i>S/N</i>	<i>IP Name</i>	<i>Entry Point</i>	<i>Location (District)</i>	<i>Date of establishment</i>	<i>Achievements</i>
1	Cassava improved varieties (early-maturing and high-yielding varieties)	The need to increase cassava productivity and production among small holder farmers	Kasama, Kaoma & Serenje	April - June 2014	Seed multiplication fields established
2	Disease-free cassava planting materials	Lack of/ inadequate disease-free seed (planting materials)	Samfya & Kasama	April - June 2014	<ul style="list-style-type: none"> <li>Established seed multiplication fields, resulting in the increased availability of and access to disease-free planting materials by farmers</li> <li>market linkages improved</li> </ul>
3	High quality cassava flour (HQCF)	Value-addition to produce high quality cassava flour for bakery products	Kaoma & Mansa	April - June 2014	<ul style="list-style-type: none"> <li>Product diversification of cassava (HQCF) enhanced</li> <li>Market linkages for cassava flour and other products improved</li> </ul>
4	Cassava value chain (whole value)	The need for improving the health and nutritional status, food security, and income of people affected by HIV/AIDS through the production, consumption, and marketing of nutritionally-enhanced crop products	Mansa	-	<ul style="list-style-type: none"> <li>IP members monitor project implementation and provide advice and direction to tackle agriculture and nutrition issues</li> <li>Local CBOs supported and their capacity built to implement and monitor project activities</li> <li>IPs established in 12 agricultural camps (constituting of Agricultural Camp Committees)</li> <li>IPs consisted of strong &amp; committed partners</li> </ul>

**IPs under sorghum**

Sorghum is not so common and prominent in Zambia compared to maize, rice and cassava, but its production and utilization is captured in the National Food Balance

Sheet (FBS). Inclusion of sorghum in the national FBS shows the importance attached to the crop by the government.

Sorghum value chain IPs were identified with locations in two (2) districts of the country, namely: Masaiti (Copperbelt Province) and Siavonga (Southern Province). The sorghum IPs in Masaiti and Siavonga were among the earliest IPs to be established in Zambia (in the 2010/2011 agricultural season), under the Promotion of Science and Technology for Agricultural Development (PSTAD) in Africa project through the Dissemination of New Agricultural Technology in Africa (DONATA) and RAILS activities. Specifically, one national innovation platforms for technology adoption (IPTA) and two regional IPTAs were established in the two districts. However, even before the implementation of the DONATA and RAILS activities commenced in April of the 2010/2011 agricultural season, some research activities in the sorghum open pollinated varieties had long before started. The establishment of the IPs in sorghum was aimed at:

- ensuring and/or facilitating the promotion and adoption of open pollinated variety (OPV) technologies in sorghum by smallholders, and enhancing the appreciation of the efforts of sorghum OPV technologies through the effective engagement of relevant stakeholders involved in the value chain;
- linking farmers to the markets (since the market for sorghum is poorly organized);
- shifting sorghum from a subsistence crop to a value added cash crop; and
- fully engaging most stakeholders through greater interactions and understanding of issues and opportunities in sorghum.

### **IPs under soybean**

Soybean is an upcoming crop and apparently new in Zambia, and thus it is being very much promoted, especially among small-scale farmers for increased incomes and improved nutrition. And since it is apparently new, there had been a shortage of seeds and this was the entry point for the establishment of an innovation platform (to encourage and increase soybean seed production). Through the IP, this objective (increasing production of improved soybean seed) has been achieved. Additionally, the IP has led to the identification of potential seed growers and the creation of the agro-chemical market (especially for herbicides) for agro-dealers.

### **National Conservation Agriculture Task Force (NCATF)- Conservation Agriculture IP**

The NCATF is one of the new IPs in conservation agriculture (CA), established in February 2015, with the aim of:

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- increasing crop productivity and production with minimal capital input;
- promoting the practice of climate-smart agricultural technologies in order to mitigate the effects of climate change;
- harmonizing CA and promoting investment that avoids overlaps and duplications, including variations in key extension messages by various stakeholders;
- promoting research that demonstrates and provides evidence of impacts of CA; and
- promoting, facilitating and developing a robust private sector support for CA and managing existing partnerships.

### **Lessons Learnt from Agricultural IPs**

The innovation platform approach can be described as a “one-stop-shop extension service delivery and information-sharing forum”, involving all stakeholders in a particular subject of interest in the agricultural sector at minimal costs. The specific lessons learnt from the approach can be itemized as follows:

#### **Use of Innovation platform and involvement of key stakeholders**

- All key stakeholders along the agricultural value chain are involved in technology development and dissemination, and identification of various challenges and solutions affecting the agricultural sector through greater interactions and understanding of issues and opportunities.
- Improved linkages among the public and private sectors with farmers.
- Enhancement of information-sharing and communication flow among stakeholders through consistent interactions and mainstreaming of day-to-day activities in all institutions involved.
- Resources are used more cost-effectively and duplication of efforts is avoided or minimized.
- Competing stakeholders, particularly private sector institutions, have not appreciated or do not see the usefulness of participating in IPs and, thus, in this regard, IPs have not worked very well in resolving some challenges in the agricultural sector.

#### **Use of value chain approach and involvement with the industry**

- Initially, the concentration was on issues of productivity and production (particularly for small-scale farmers), but now nutrition, markets and climate change issues have been brought on board.
- Farmers decide on which crop to grow, guided by market opportunities and profitability.

### **Use of market linkages and market linkage workshops**

- Producers and buyers come together to agree on pricing, considering commodity demand and supply, on a transparency basis (previously there was mistrust between them).
- Gross margin and cash-flow analysis training is offered to and/or easily accessed by farmers, enabling them to beware of the production cost minimization, profit maximization and cash management.

### **Collaboration and networking**

- Makes technology dissemination easier.
- Resources are put to good use during project implementation.
- IPs have improved prioritization of funding/allocation to important activities (especially by the government and other decision makers) through awareness creation and buy-in facilitation.
- IPTA issues could be mainstreamed in the government's Farmer Input Support Programme (FISP) meetings and workshops, which draw a good number of government officials in decision-making positions, the private sector and cooperating partners.

## **CONCLUSION**

Innovation platforms in Zambia have proved to be successful or helpful in resolving various challenges and thus fostering the development of the agricultural commodities/sub-sectors/value chains in which they (IPs) have been established. This is largely because the approach is able to bring the different stakeholders in a particular agricultural commodity/sub-sector along the entire value chain under one table/roof to identify problems, create and share ideas and resolve the challenges surrounding the commodity/sector, thus contributing to the efficient and effective functioning of the whole agricultural commodity or sector system. Therefore, it was recommended that the Zambian government and other key stakeholders championing the IP approach intensify their efforts in creating awareness, stimulating interest and encouraging the establishments of IPs. This is because the innovative platform approach using the value chain apparently does not seem to be very well understood by most stakeholders.

This study may have not identified all the existing IPs in the country, but it serves as a baseline for further studies, with an elaborate or comprehensive inventory of innovation platforms. The execution of study 2 encountered some challenges in the collection of data/information, which include:

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- iii). Poor and/or no response from a number of the identified and targeted respondents.
- iv). Some respondents in certain institutions who provided the information were new in the institutions and thus lacked the institutional memory for old innovations and/or technologies, needed for the twenty years period.
- v). There is limited awareness among a good number of the respondents concerning the existence and functioning of IPs.
- vi). Limited geographical coverage for information collection due to logistic challenges.

The IP approach, nevertheless, is being appreciated by members where IPs have been established and are operational and by the various stakeholders who have come to know about IPs.

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## **STUDY THREE**

### **Investments in Innovations for Agricultural Development and Food and Nutrition Security**

## **INTRODUCTION**

The characteristics of agriculture in Africa, in general and in Zambia, in particular, do not seem to have changed significantly despite the many years and apparently huge financial resources invested in African Agriculture. Nevertheless, the Agricultural Sector is still the predominant sector of the African economy on which the livelihoods of about 80% of the Continent's population depend and providing employment to about 60% of its economically active population and about 70% of its poorest people. African Agriculture generates about 63% of the incomes of the rural households. Most of the Agriculture is practiced in smallholder farms of less than 2 hectares (Ha) and represents close to 80% of all farms and contributes about 90% of the total agricultural production of the Continent. Women constitute a large proportion of these smallholders, producing about 80% of the food in the rural households: unfortunately they do not have adequate access to productive farm inputs.

Therefore, it is critical to transform agriculture to be the engine or driver for economic growth of Africa. This inevitably requires considerable investments in agriculture not just as a development sector but also, more importantly, as a business enterprise particularly among the smallholders. This is why the prioritisation of African agricultural transformation as a front burner, as has been done for some time now by some African Governments is a welcome development. The implication is that agricultural investments must be driven by both public and private interests.

Public investments appears to have been enhanced by the rear commitment seemingly shown by African leaders in the support of the CAADP framework implementation. However, in order to meaningfully address the real challenges that confront agricultural development on the Continent and enable more food and nutrition security for the increasing population as well as provide raw materials for industries, actions on the development side of agriculture need to be adequately complemented by the business side. Thus the need to encourage the private sector entrepreneurs to make decisive investments in African agriculture to increase productivity, create employment, enhance livelihoods and promote growth.

In this contemporary age of global integration, investment and growth seem to be enhanced by innovative thinking and knowledge application, thus the essence of Science, Technology and Innovation (STI). Africa's effort to take advantage of STI to transform its agriculture has witnessed the development of the Science, Technology and Innovation Strategy for Africa (STISA). Consequently, the

development of the Science Agenda strategy by the Forum for Agricultural Research in Africa (FARA) in promoting agricultural development on the African Continent.

These are however, recent occurrences in the African agricultural landscape. The issue is what has been happening in knowledge management for Africa's agriculture development and Zambia's Agricultural development in particular? How has innovative thinking been stimulated? Has there been any deliberate investment to encourage or promote agricultural innovations in Zambia at national or international level? If not, why and how is Zambia expected to contribute its quota to the knowledge economy? If so, in what contexts and how has Zambian agriculture profited from such investments? Adequate and timely investments in agriculture that promote appropriate innovations and innovation platforms are critical and important in bringing about the desired transformation in Zambian agriculture.

In Zambia, agriculture solely provides occupation to about 40% of the rural population and contributes about 13% of the Country's Gross Domestic Product (GDP) in the primary sector and 9% in the secondary sector. The National Agricultural Policy, Sixth National Development Plan (SNDP, CAADP's Zambia National Agricultural Investment Plan-2014-2018 (NAIP: 2014-2018), Vision 2030 and other Zambian policy documents and papers, acknowledge agriculture as a primary sector for economic development and growth, including poverty alleviation.

Zambia has a total land area/ size of 752,612 Km<sup>2</sup> (75 million hectares) out of which by 2012, arable land was 3.8 million Hectares (Ha) and 49.13% of forest cover. Its current (2015) total labour force is 6.25 million, while the labour force in agriculture is 3.75 million representing 60.08% of the Country's total labour force. Of the 3.75 million agricultural labour 46.14% are females. The 2015 population is estimated at 15.52 million (FAOSTAT-FAO of the UN). According to the 2015 Rural Agricultural Livelihoods Survey (RALS) undertaken by the Indaba Agricultural Policy Research Institute (IAPRI), the adult female agricultural population is 51.5% and the percentage farm (agricultural) income is 55%.

FARA, in partnership with the German Government represented by the Center for Development Research (ZEF) of the University of Bonn under its 'One World No Hunger' initiative, in embracing the STI Strategy 2024, is implementing the "Programme of Accompanying Research for Agricultural Innovations (PARI)". The PARI was initiated in 2014 but commenced its key activities in 2015. Subject to availability of funds and continued relevance to country situation, it is proposed to continue until 2017. PARI is taking cognisance of the successes of research and innovation initiatives in African agriculture and in consideration of the concept of

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Integrated Agricultural Research for Development (IAR4D) promoted by FARA, to build an independent accompanying research programme to support the scaling-up of agricultural innovations in Africa and thereby contribute to the development of the African agriculture sector. The PARI Project will be implemented together with the Agricultural Innovation Centers (AICs) within the One World No-Hunger initiative.

In order to generalize the adoption of innovations in agricultural value chains in Africa, FARA which is a technical organ of the Commission of African Union on issues relating to agricultural science, technology and innovation, in partnership with the German Government is piloting PARI in twelve (12) African Countries. The twelve Pilot Countries (pre-selected based on previous engagement of the Countries in diverse German-supported initiatives) are: Benin, Burkina Faso, Cameroun, Ethiopia, Ghana, Kenya, Malawi, Mali, Nigeria, Togo, Tunisia and Zambia.

The following are the goals of PARI:

- a. Support and enhance investments in the Agricultural Innovation Centres / Platforms (AICs) through research and development cooperation;
- b. Promote and support the scaling-up of proven innovations in the agri-food sector in Africa in collaboration and partnership with all relevant actors; and
- c. Contribute to the development of the agri-food sector in Africa through the identification, assessments, and generation of innovations.

At country level, the PARI studies are being undertaken through the most suitable research organizations, while FARA coordinates the activities/studies across the African Continent. Thus in Zambia, PARI is being implemented through the Zambia Agriculture Research Institute (ZARI), of the Ministry of Agriculture. ZARI is playing the role of the Lead Implementing Institution (LII) for the PARI in Zambia.

The three PARI Studies to be undertaken in the above-mentioned Countries in 2015 include;

- a. Conducting a situation analysis of agricultural innovations in each of the pilot Countries and produce reliable information and analysis (rich enough to generate publishable reports and policy briefs on the state of agricultural innovation knowledge in the respective Country).
- b. Conducting a scoping study of existing agricultural Innovation Platforms (IPs) in each country and synthesizing the lessons learned from agricultural IPs established by different initiatives in the Country in the last ten years.
- c. Conducting a scientific study on national and international investment initiatives on innovation for agricultural development and food and nutrition security in each Country. This will provide sufficient and updated data on investment levels in the past and present (1995-2015), including a projection of investment

required for the next decade to assure food and nutritional security in the country.

This Report is based on the third PARI Study (Study 3), whose overall objective is to review and assess the extent and level of national and international investments on agricultural innovations in Zambia in the last twenty (20) years, i.e. from 1995 to 2015. The specific objectives of the study are as follows:

1. Review the national and international investments that may have taken place in agricultural innovations in Zambia;
2. Review the context(s) within which the investments were made;
3. Assess the extent of the investments and the specific innovations targeted;
4. Analyse and determine the value-addition of these investments to the target innovations; and
5. Identify possible areas of investments by the PARI project and the likely value it would add to the realization of the PARI objectives.

The expected outputs include:

- A detailed analytical report of the country review study that speaks to the specific objectives of the study;
- Generate updated data on investment levels in the past and present, including a projection for the next decade requirement to assure food and nutritional security in the country; and also
- Generate publishable information including policy briefs.

## **METHODOLOGY**

The Study used the common methodology agreed upon with FARA and the 12 countries in which PARI is currently being piloted. Information and data were collected mainly from literature reviews (Secondary Data/information) as well as from key Informant Interviews. The main source of information/data was the Zambian Ministry of Agriculture, headquarters (Lusaka); other sources included Cooperating Partners; and both local and international non-government organisations (NGOs), based in Lusaka. Information and data were collected on investments in agricultural innovations for development, and food and nutrition security, made by the Government of the Republic of Zambia (GRZ), Cooperating Partners (Donors) and non-government organisations (NGOs), in the last twenty years (1995-2015). Investments by GRZ and local NGOs represent national investments, while that by Cooperating Partners and international NGOs represent international investments. Both national and international investments were captured through past and on-going projects or activities implemented through the following approaches/ways:

- i). implemented directly by the GRZ (ministries and parastatal organisations);

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- ii). implemented through NGOs with funding from the GRZ;
- iii). implemented through the Private Sector with funding from the GRZ
- iv). implemented through the GRZ with funding from Cooperating Partners;
- v). implemented directly by Cooperating Partners;
- vi). implemented through NGOs with funding from Cooperating Partners;
- vii). implemented through Cooperating Parting Partners (non-donors) with funding from other Cooperating Partners (donors)
- viii). Implemented through the Private Sector with funding from Cooperating Partners.

## **RESULTS**

The table in Appendix 5 contains the number and details of both national and international investments in agricultural initiatives in Zambia, through Projects and Programmes, from 1995 to 2015. The data show that there has been considerable investment in agriculture in Zambia, both national (by GRZ) and international (by Cooperating Partners/Donors). This signifies the importance especially the Government (GRZ) as well as the Cooperating Partners attaches to the Agriculture Sector. Undoubtedly so, especially that the larger proportion of the Country's population relies on agriculture for their livelihoods and/or employment, especially in rural areas. In addition the Government believes that the Sector is key for poverty alleviation and economic development; thus the agriculture sector is considered to be the second best alternative to mining for economic diversification, growth and development.

**Table 2: Evolution of population and labour-force size in Zambia**

	<i>Population Size [Millions]</i>				<i>Annual Growth Rate (%)</i>		
	2000	2005	2010	2015	2000-2005	2005-2010	2010-2015
<i>Total population</i>	10.1	11.47	13.22	15.52	2.58	2.88	3.26
<i>Total labour force</i>	3.84	4.35	5.13	6.25	2.53	3.35	4.03
<i>Labour force in agriculture</i>	2.66	2.88	3.25	3.75	1.6	2.45	2.9

Source: FAOSTAT, FAO of the UN, Accessed on January 24, 2014.

From this assessment of investments in agricultural innovations in the last twenty years (1995-2015), there is more investment in number (programmes and/or projects) and value (monetary terms) from Cooperating Partners/Donors (international investment) than from the Government-GRZ (national investment); notwithstanding the fact that not all investments have been captured for the period under review and also in exclusion of smaller investments/projects (of less than US\$ 10,000 total budget). This is an unfavourable and undesirable situation of heavy/high dependency

on external support for Zambian agricultural development and growth. Table 1 shows less than 5% of the agricultural investment initiatives coming solely from the GRZ (national investment) as compared to about 89% of agricultural investment initiatives fully funded by Cooperating Partners (international investment) and about 7% joint investment by GRZ and Cooperating Partners.

**Table 3: Composition of Zambian population and labour-force**

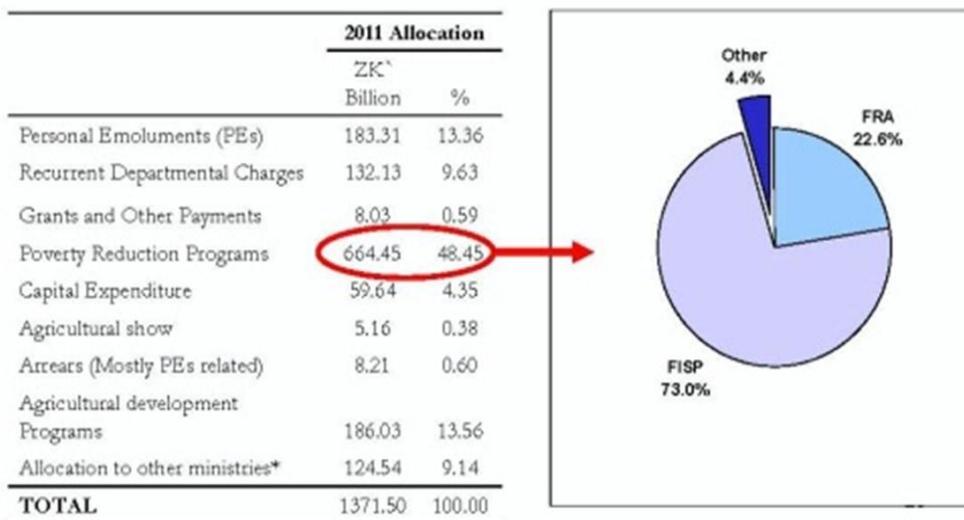
	<i>Share (%)</i>				<i>Annual Growth Rate (%)</i>		
	<i>2000</i>	<i>2005</i>	<i>2010</i>	<i>2015</i>	<i>2000-2005</i>	<i>2005-2010</i>	<i>2010-2015</i>
<i>Rural population [% of total population]</i>	65.2	63.39	61.28	59.07	-0.56	-0.67	-0.73
<i>Labour force in agriculture [% of total labour force]</i>	69.15	66.34	63.27	60.08	-0.83	-0.94	-1.03
<i>Females [% of labour force in agriculture]</i>	47.22	47.31	46.52	46.14	0.04	-0.34	-0.16

Source: FAOSTAT, FAO of the UN, Accessed on January 24, 2014.

This ratio brings into question the future sustainability of agricultural investment initiatives and ownership in Zambia, without the support of partners. Without the inclusion of infrastructure, machinery and equipment, the Government’s investment has predominantly been in the crops subsector. Also within the crops sub-sector the Zambian Government’s investment has heavily been skewed towards maize, at the disadvantage of other crops, although maize is the Country’s staple food crop. This is evident from the many Government’s yearly agricultural budgets, with 2011 as one example reflected in figure 1 below.

GRZ’s investment (through yearly budgets) in the crops sub-sector and specifically in maize is reflected under the Poverty Reduction Programmes, which generally takes up more than 50% of the national agricultural budget, in many recent years. The Poverty Reduction Programmes also mainly consist of two (2) Government Programmes, namely, the Farmer Input Support Programme (FISP) and the National Strategic Food Reserves under the Food Reserve Agency (FRA); FRA also includes the crop marketing component. As could be seen in figure 1 above, in 2011 over 95% of the Poverty Reduction Programmes’ budget was just for FISP and FRA, which is a similar trend in the past decade.

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**Figure 1:** GRZ’s 2011 Agricultural budget  
*Source:* Dr.Moto’s<sup>4</sup> Presentation on FISP-FRA, April 2012

Not all agricultural investment initiatives in the Country were covered during this study due to logistical and time constraints and/or other limitations. The notable ones not covered include smaller ones (with values of US\$ 10,000 and less) and one-time investments of less than one year period. These are normally investments for supporting the vulnerably groups such as women groups and youths, by the Government, Cooperating Partners and NGOs. On the other hand, there are apparently other national investments in agricultural innovations above the US\$ 10,000 threshold and of longer than one year period, funded by the Citizens’ Economic Empowerment Commission (CEEC) which also have not been captured under the Study due to non-cooperation/non-willingness by CEEC to provide the information.

**Challenges**

Generally there has been success in most of the investments (both national and international) undertaken which has led to the overall development of the Agricultural Sector in Zambia and improvement in livelihoods of most Zambians, especially the small-scale farmers. However, implementation of these investments, through programmes and projects, has experienced a number of challenges, including but not limited to the following:

<sup>4</sup> Japanese Policy Advisor to the Ministry of Agriculture

- Delay in approval of programme/project agreements and contracts by the Government of the Republic of Zambia (GRZ), mainly through the Ministry of Justice and sometimes by Cooperating Partners (particularly for donor-funded investments) or both GRZ and Cooperating Partners; resulting in delay in Programme/Project start-up activities and lagging behind implementation schedule, which sometimes also leads to extension of Programme/Project completion dates.
- Delayed procurement of programme/project works, goods and services by Government and sometimes by Cooperating Partners (Donors) or both (GRZ & Donors);
- Delayed decision-making on a number of processes by both GRZ and Donors (No Objections);
- Slow disbursement of funds from Donor Bank Accounts to Programme/Project Accounts, resulting in low utilization rates of project funds;
- Insistence by some Donors that Project Coordinators should be Subject Matter Specialists and not necessarily experienced Project Managers; and also that the Project Managers should be Directors of the specific implementing Government (Ministry of Agriculture) Departments, thereby making the oversight of the Programmes/Projects by the Policy and Planning Department (PPD) of the Ministry of Agriculture (overall coordinating Department), challenging;
- Demotivated Civil Servants (GRZ Staff): due to abolition of top-up allowances for civil servants attached to the Programmes/Projects on full-time basis (has created huge remuneration disparities between GRZ staff and Programmes/Projects' contracted staff);
- Most earlier (old) international-funded programmes and projects had/have been donor-driven and generally took/have taken a top-down approach, thus sustainability has been a challenge.

### **Recommendations**

The following recommendations are made to help in alleviating or minimising the above challenges:

- i). The Steering Committees of all Programmes/Projects should be chaired by one Government Permanent Secretary to avoid ambiguous accountability.
- ii). Project Coordinators should possess demonstrated experience in Project Management.
- iii). Ministry of Justice should designate a Desk Officer dedicated specifically to deal with the Agricultural Sector Programmes/Projects' contracts and agreements.

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- iv). In order to enhance the coordination and oversight role of the Policy and Planning Department (PPD) of the Ministry of Agriculture (and in line with the PPD's mandate), all the other Ministry's programmes/projects implementing agencies/departments, should regularly be submitting reports to PPD. Additionally programmes/projects should be having Steering Committee meetings more regularly, to further enhance coordination and collaboration across relevant sectors and institutions (at least once every month during the implementation period, to present/discuss achievements made, challenges faced, outlook for the following month, etc. and make recommendations on how the Ministry can resolve the challenges faced). However, Programme/Project Coordinators should be reporting directly to the Directors of implementing Departments/Agencies on specific technical matters (probably with copy to PPD, if direct reporting is in writing).

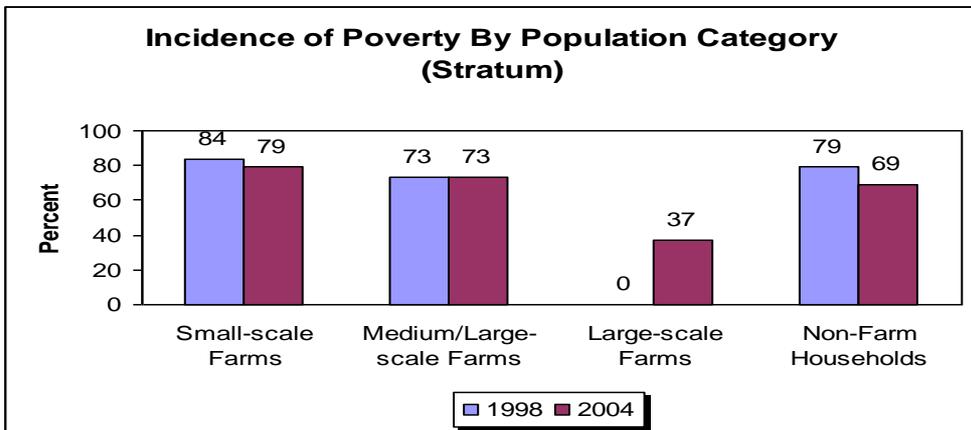
**Investment Requirement Projection for the Next Decade to Assure Food and Nutritional Security in Zambia**

Notwithstanding the availability of econometric models for future projections of investment requirements, it is quite challenging to project the investment requirement for the next decade to assure food and nutrition security in Zambia. This is because so much investment already has been injected into the agricultural sector in the last two decades, and yet there are still high levels of poverty and not so appreciable levels of improved livelihoods (as could be expected) in the Country, especially among the farming small-scale communities. The information/data in the following tables and figures attest to the above mentioned poverty and/or livelihood situation.

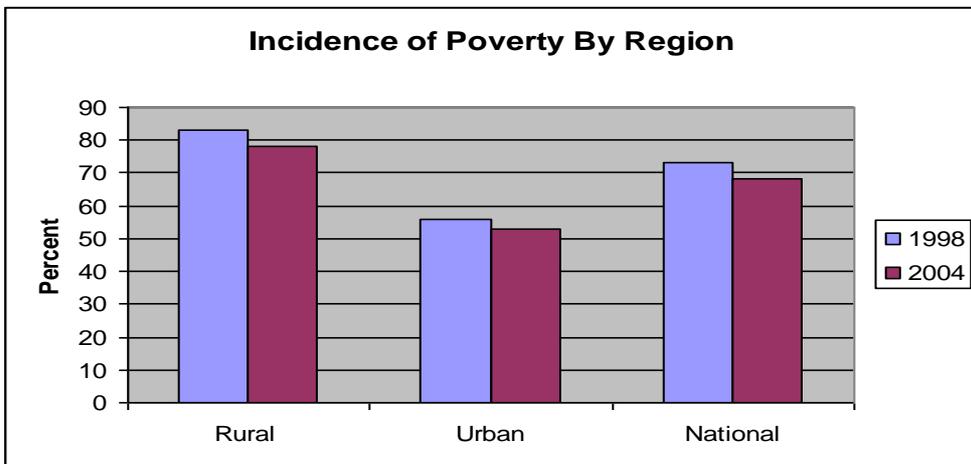
**Table 4: Overall and Extreme Poverty in Zambia, 1991-1998**

<i>Year</i>	<i>Zambia</i>		<i>Rural Areas</i>		<i>Urban Areas</i>	
	<i>Overall Poverty (%)</i>	<i>Extreme Poverty (%)</i>	<i>Overall Poverty (%)</i>	<i>Extreme Poverty (%)</i>	<i>Overall Poverty (%)</i>	<i>Extreme Poverty (%)</i>
<b>1991</b>	69.7	58.2	88.0	80.6	48.6	<b>32.2</b>
<b>1993</b>	73.8	60.6	92.2	83.5	44.9	<b>24.4</b>
<b>1996</b>	69.2	53.2	82.8	68.4	46.0	<b>27.3</b>
<b>1998</b>	<b>72.9</b>	<b>57.9</b>	<b>83.1</b>	<b>70.9</b>	<b>56.0</b>	<b>36.2</b>

*Source:* CSO: Living Conditions in Zambia 1998; The Evolution of Poverty in Zambia 1990-1996



**Figure 2:** Incidence of poverty by population category in Zambia



**Figure 3:** Incidence of poverty by region in Zambia

With the above picture of poverty levels in relation to investment levels, in mind, it would rather therefore be prudent to also invest in attitude change among the Zambian population, especially the farming community. Positive attitude change could bring about higher/improved returns on investment not only in agriculture but also in other economic sectors of the Country. This is based on the conceptual illustration that people’s positive change of attitude (in all aspects of human development) could enable Zambia attain 100% achievement, not only in agriculture but in all other socio-economic sectors of national development. Refer to the Conceptual Framework of Attitude Change in Annex 3.

**Table 5: Poverty changes-1998 & 2004**

	<i>Population (million)</i>						<i>Incidence of Poverty (%)</i>		<i>Depth of Poverty (%)</i>		<i>Severity of Poverty (%)</i>	
	1998	2000	2004	2005	2010	2015	1998	2004	1998	2004	1998	2004
<b>Rural</b>	6.36		6.66				83	78	49	44	34	<b>30</b>
<b>Urban</b>	3.82		4.29				56	53	23	22	13	<b>12</b>
<b>National</b>	10.18	10.1	10.95	11.47	13.22	15.52	73	68	40	36	26	<b>23</b>
<b>Central Province</b>	1.02		1.14				77	76	44	43	31	<b>28</b>
<b>Copperbelt</b>	1.82		1.66				65	56	31	24	19	<b>13</b>
<b>Eastern</b>	1.30		1.51				81	70	46	40	31	<b>27</b>
<b>Luapula</b>	0.70		0.86				82	79	47	42	32	<b>26</b>
<b>Lusaka</b>	1.53		1.53				52	48	22	19	13	<b>10</b>
<b>Northern</b>	1.24		1.41				82	74	45	41	31	<b>27</b>
<b>North-Western</b>	0.55		0.65				76	76	41	40	27	<b>26</b>
<b>Western</b>	0.76		0.83				89	83	57	53	42	<b>38</b>
<b>Southern</b>	1.27		1.36				76	69	42	35	28	<b>22</b>
<b>Small-scale Farms</b>	-		-				84	79	50	45	35	<b>31</b>
<b>Medium/Large-scale Farms</b>	-		-				73	73	38	36	25	<b>22</b>
<b>Large-scale Farms</b>	-		-				-	37	-	-	-	-
<b>Non-Farm Households</b>	-		-				<b>79</b>	<b>69</b>	<b>48</b>	<b>36</b>	<b>35</b>	<b>24</b>

Source: CSO: Priority Surveys (1991, 1993) and Living Conditions Monitoring Surveys (1996, 1998 & 2004)

## **CONCLUSION**

There has been appreciable investment in agriculture in Zambia, both by the Country's Government (national investment) and by Cooperating Partners/Donors (international investment), which signifies the importance attached to the Agriculture Sector, as key for economic development and growth, including poverty alleviation. Therefore there is need for continued investment into the sector as the main alternative to mining in the Country's economic diversification. This is necessitated by the fact that the larger, especially rural, proportion of the Country's population relies on agriculture for livelihood and/or employment.

However, with the larger portion of investment in the Sector coming from the Cooperating Partners/Donors (notwithstanding the Government's investment in agricultural infrastructure, machinery and equipment), brings into question the sustainability of agricultural investment initiatives without the support of Cooperating Partners. This is so especially with the dwindling donor support not only to Zambia but to Africa, in general, in the wake of the Global financial and/or economic challenges. The Government's commitment to the development of agriculture as the primary sector for overall economic development, growth and poverty should be seen in increased investment in the Sector, in line with the Sub-Region's (SADC & COMESA) and the Region's Bodies' (AU's CAADP) goals and objectives. Thus the Agricultural Sector Investment should take a holistic approach with minimal or no bias towards one sub-sector; and there should be reduced dependency on donor investment.

In view of increased population and unemployment especially among the youth, there is need for enhanced deliberate investments to engage/encourage the youth and women in agriculture; taking agriculture as a business and particularly with the aim of establishing a future pool of commercial farmers (from the youths), for assured food and nutrition security. Additionally with the prevalence and intensity of adverse weather conditions, it is recommended that Government increases and/or enhances investment in the development and promotion climate change technologies /innovations. Coordination of the international (donor) investment in agriculture also requires enhancement, and as well as intensified facilitation of the private sector's involvement in agriculture through the provision of an enabling policy and business environment.

Finally the undertaking of this Study encountered some challenges in the collection of data/information for the assignment, which even contributed to the failure to complete the assignment within the scheduled timeframe. These challenges included:

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- vii). Poor, unwillingness and/or non-response to the provision of information and data by some of the identified and targeted respondents.
- viii). Unavailability of some required information/data due to poor record keeping and management by some institutions; additionally, unavailability of recent or updated data.

### **References**

- Homann-Kee Tui, S., Adekunle, A., Lundy, M., Tucker, J., Birachi, E., Schut, M., Klerkx, L., Ballantyne, P.G., Duncan, A.J., Cadilhon, J.J. and Mundy, P. (2013). *What are Innovation Platforms?* Innovation Platforms Practice Brief 1. ILRI, Nairobi, Kenya.
- Misiko, M. (2014). *Extending Conservation Agriculture Benefits at Landscape Through Agricultural Innovation Platforms*. 1<sup>st</sup> Africa Congress on Conservation Agriculture (1ACCA) Presentation, March 18– 21, 2014. CIMMYT Lusaka, Zambia.
- Nederlof, S., Gildemacher, P., Heemskerk, W. and van der Lee, F. (2011). *Facilitation of Innovation: Experiences of RIU Innovation Platforms in Tanzania, Rwanda and Zambia*. Royal Tropical Institute, KIT Development Policy & Practice, Amsterdam.
- Therese Gondwe (IITA): “Innovation Platforms for improving performance of the agricultural sector: the case of MIRACLE”, GIZ Workshop Presentation
- FARA: “*Promotion of Science and Technology for Agricultural Development (PSTAD) Learning Report, Zambia DONATA and RAILS*”, June 2013
- Minutes of the Mpika Wheat Innovation Platform-held at Mpika FTC, 13<sup>th</sup> October 2015

## APPENDICES

### Appendix 1

**Table 1a: Summary of innovations on maize**

S/N	Name of Innovation	Domain	Type	Drivers/ Triggers	Beneficiaries	Effect
1	Promotion of Pro-vitamin A Orange Maize for improved nutrition	Crop	Technical	<i>Policy change:</i> realisation that the majority population, especially in rural areas are deficient in Vitamin A.  Appreciation of importance of nutrition (vitamin A) by the general public.	Public consumers	<ul style="list-style-type: none"> <li>✓ Improving nutrition by addressing vitamin A deficiency in people, especially the poor.</li> <li>✓ Improved health status of people and resulting in reduced public expenditure on provision of health services</li> </ul>
2	Development and promotion of drought-tolerant maize varieties	Crop	Technical	Frequent occurrence and increased severity of droughts in many areas of the Country; prompting interventions to adopt Climate-Smart Agriculture (CSA) to address effects of climate change	Farmers (especially small-scale farmers)	Increased resilience of farmers, especially smallholder farmers and therefore enhanced food and nutrition security through having maize varieties which are able to withstand drought situations and still produce good yields
3	Development and promotion of Quality Protein Maize (QPM) i.e. maize varieties rich in	Crop	Technical	Promotion of good nutrition and enhancing human	General public, especially the	Enhanced nutrition security and health status of the Zambia population through consumption of high protein maize enriched with high levels of

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	proteins			health.	poor and vulnerable	two amino acids namely Tryptophan (0.9g/100g) and Lysine (4.2g/100g).
4	Promoting and popularizing the use of maize Sheller	Crop-processing	Technical	Desire to make agriculture production in Zambia cost-effective and competitive through labour-saving technologies	Poor female farmers in Gwembe & Senanga Districts of Southern and Western Provinces, respectively.	Lessening/shorting the time and/or the work of maize shelling by using mechanical Shellers instead of using hands and thus saving the women the time spent on shelling (improved the efficiency of maize shelling).

**Table 1b: Summary of innovations on rice**

S/N	Name of Innovation	Domain	Type	Drivers/ Triggers	Beneficiaries	Effect
1	Promoting the production of upland rice	Crop	Technical	<ul style="list-style-type: none"> <li>➤ Availability of rice types suitable for upland cultivation ( i.e. Nerica varieties)</li> <li>➤ Need to increase local rice production aimed at reducing the deficit in local demand and therefore reduce the import bill.</li> </ul>	<ul style="list-style-type: none"> <li>i). Farmers</li> <li>ii). Public consumers</li> </ul>	<p><u>Positive:</u></p> <ul style="list-style-type: none"> <li>✓ Increased local rice production and high yielding varieties (NERICA's average yield of 4MT/Ha compared to local rice yield of 1.5MT/Ha)</li> <li>✓ Expanded and diversified rice growing ecologies or areas</li> <li>✓ Increased incomes among rice producers</li> <li>✓ Foreign exchange savings through reduced imports of rice.</li> <li>✓ still good performance under soil acidity i.e. withstands high soil acidity</li> <li>✓ can be grown both in dambos and upland areas (although not necessarily to be grown under purely upland conditions, but recommended for production in-between dambo and upland conditions)</li> </ul>
2	System of Rice Intensification (SRI)	Crop	Technical	Food security and market demand (to increase rice	Small-scale rice farmers	Improved livelihoods of people through increased productivity, production and incomes (specifically small-scale rice farmers)

				production and yields, and incomes for sustainable livelihoods of small-scale farmers)		
3	Promotion of the acquisition and use of rice-sorting equipment	Crop-processing	Technical	market demand for quality rice	Public rice consumers	<ul style="list-style-type: none"> <li>✓ Improved quality of rice that meets market requirements</li> <li>✓ Increased incomes from selling of quality rice</li> <li>✓ Contribution to or facilitation of establishment of grades for rice</li> </ul>

**Table 1c: Summary of innovations on cassava**

S/N	Name of Innovation	Domain (livestock, cropping, processing, etc.)	Type (technical, social or institutional/organizational)	Drivers/ Triggers (policy change, market demand, diseases/pests etc.)	Beneficiaries	Effect (Positive/Negative)
1	Promotion of Solar-powered drying machine for cassava	Crop-processing	Technical	Market demand for quality cassava	Poor female farmers in Senanga District, under the EWAS Project (but generally all cassava farmers or processors are beneficiaries)	<ul style="list-style-type: none"> <li>✓ Improved quality of cassava that meets market requirement.</li> <li>✓ Increased incomes from high quality cassava (attracting higher price)</li> </ul>
2	Development and promotion of early-maturing and high-yielding varieties (improved varieties)	Crop	Technical	Need to increase productivity and production among small holder	<ul style="list-style-type: none"> <li>i). Small-scale cassava farmers</li> <li>ii). Industrial users of cassava (for various purposes)</li> </ul>	Improved varieties are both early maturing and high-yielding and have thus: <ul style="list-style-type: none"> <li>✓ enhanced productivity and production of cassava aiming at satisfying the local industrial demand for Cassava</li> </ul>

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				farmers		<ul style="list-style-type: none"> <li>✓ contributed to increased farmers' incomes</li> <li>✓ sustainable cassava production leading to reduced pressure to unnecessarily increase the area under cassava production to meet the demand (increasing area under production may contribute to de-forestation)</li> </ul>
3	Production and Supply of Disease-free planting materials	Crop	Technical	Need to mitigate Disease occurrence and prevalence ( <i>Cassava mosaic disease and Cassava bacterial blight</i> )	i). Cassava grower ii). Consumers	Provision of benefits in terms of food security, nutrition and income generation
4	Production and use of High Quality Cassava Flour (HQCF)	Crop-processing	Technical	Policy change: Promoting value addition.	i) Consumers ii) Bakeries	Provision of benefits in terms of food and nutrition security and income generation
5	Processing of Cassava for making or producing Cassava chips, livestock feed and eventually Starch	Crop-processing	Technical & Institutional	market demand for livestock feed and starch  Value-addition	i). Cassava farmers ii). Livestock farmers iii). Industrial users of starch iv). public users of starch	<ul style="list-style-type: none"> <li>✓ Increased production of cassava by farmers and thus increased farmers' incomes</li> <li>✓ Boosting local industrial utilization/processing of livestock feed</li> <li>✓ Re-vitalise local industrial utilisation of Starch for various purposes and exports</li> </ul>

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6	Encouraging and promoting of use herbicides in cassava	Crop	Technical	Increased production	i). Farmers ii). Processors iii). Consumers	Labour- and time-saving for control of weeds in Cassava, resulting in increased area under production and thus increased quality and production of cassava to meet market demand
7	Promotion of fertilizer application in cassava	Crop	Technical	Market demand for Cassava roots	i). Farmers ii). Processors iii). Transporters iv). Traders v). Consumers	Contributing to meeting the high market demand for cassava

**Table 1d: Summary of innovations on cassava groundnut**

S/N	Name of Innovation	Domain	Type	Drivers/ Triggers	Beneficiaries	Effect
1	Promotion of groundnut Shellers	Crop-processing	Technical	Labour-saving in order to increase efficiency in groundnut production and processing	Groundnut producers especially poor female farmers	<ul style="list-style-type: none"> <li>✓ The mechanical/mechanised Shellers have lessened the work of shelling groundnuts as compared to using hands and thus beneficiary women are saving on time spent on shelling (Shellers have improved the efficiency of groundnut shelling)</li> <li>✓ Groundnut producers, especially women, have more time to engage in other productive activities</li> </ul>
2	Promotion of the production of groundnuts with low levels of Aflatoxin contamination and/or Aflatoxin-free groundnuts	Crop	Technical	market demand and meeting health requirements	Groundnuts farmers and traders	<ul style="list-style-type: none"> <li>✓ Farmers of Aflatoxin-free groundnuts are getting a premium price (higher price) for their groundnuts, thus increasing their incomes</li> <li>✓ Increased export earnings for the Country from Aflatoxin-free groundnuts</li> </ul>
3	Promotion of processing of 'naturally 'or organically-grown groundnuts into peanut butter and roasted nuts	Crop-Processing	Technical	market demand for healthier products	Public Consumers	Consumption of processed products (peanut butter, roasted nuts. Etc.) from 'naturally' grown groundnuts, is generally said to be healthier (with COMACO's branding of these products as "Its Wild")
4	Processing or making of	Crop-	Technical	Policy to	Public	Discourages or minimises de-forestation by

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	groundnut shells into 'bricks' used for cooking on braziers	Processing		discourage use of charcoal for cooking and thus minimise de-forestation		providing alternative sources of energy for cooking
5	Promotion of use of Alfa-Safe for killing Aflatoxins	Crop	Technical	Market demand for Aflatoxin-free groundnuts and/or low level Aflatoxin-groundnuts	i) Small-scale farmers ii) Consumers	<ul style="list-style-type: none"> <li>✓ Groundnuts farmers get a higher price (increased farmer incomes) for producing and selling quality groundnuts (Aflatoxin-free or low-level Aflatoxin groundnuts)</li> <li>✓ Increased export earnings for the Country from Aflatoxin-free groundnuts</li> </ul>
6	Promotion of use of Pics bags for storage	Crop	Technical	Market demand	Small-scale farmers	Better, convenient and easy storage in 50Kg bags

**Table 1e: Summary of innovations on poultry**

S/N	Name of Innovation	Domain	Type	Drivers/ Triggers	Beneficiaries	Effect
1	Improvement of Village Chickens and/or other Poultry	Livestock	Technical & Socio-economic	To improve nutrition and incomes of HIV/AIDS infected people	i) HIV/AIDS infected people (initially) ii) All poultry farmers (later)	Improvement in livelihood of HIV/AIDS people in Project areas/villages of Batoka and Siamalubo (Choma-East) of Choma District in Southern Province. Benefits to beneficiaries include: <ul style="list-style-type: none"> <li>✓ Able/afford to send children to schools;</li> <li>✓ Able to build/construct iron-roofed houses; and</li> <li>✓ Able/afford to buy other bigger livestock, specifically goats.</li> </ul>

**Table 1f: Summary of innovations on cross-cutting issues**

S/N	Name of Innovation	Domain	Type	Drivers/ Triggers	Beneficiaries	Effect
1	Tree-planting (Musango and Gliricidia trees) to reduce or	Forestry and/or	Technical & Environmental	Policy to address the adverse	Specifically poor female	Innovation has been well-received by the beneficiaries and the trees (leguminous) have

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	address rampant deforestation in Western Province	Agro-forestry		effects of climate change	farmers in Senanga District (Project beneficiaries) and generally the public	also helped in enriching the soils for crop production
2	Use of energy-saving stove for cooking	Forestry & Energy	Technical & Environmental	Policy to address the adverse effects of climate change	Female farmers in Gwembe and Senanga Districts, of Southern and Western Provinces, respectively	<ul style="list-style-type: none"> <li>✓ Assists in curbing or minimising deforestation, as a result of cutting big trees for fuel (charcoal and firewood); the stove uses small tree branches (cuttings) instead of big firewood/tree trunks or charcoal</li> <li>✓ The innovation has also reduced the time it takes women in looking for firewood in the bush. The stoves are made locally within the Districts and/or villages.</li> </ul>
3	Drip irrigation in/for vegetable gardening	Crop	Technical	Policy for promoting food & nutrition security, and incomes for poor rural households; through Increased productivity and production	<ul style="list-style-type: none"> <li>i) Female farmers (EWAS Project beneficiaries) in Gwembe and Senanga Districts, of Southern and Western Provinces, respectively</li> <li>ii) Small-scale</li> </ul>	<ul style="list-style-type: none"> <li>✓ Helping female farmers in arid areas to grow vegetables for food and income (through sales)</li> <li>✓ Increasing productivity and production of vegetables, thus ensuring food and nutrition security and increased incomes for vegetable producers</li> </ul>

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					Farmers & Consumers (Project areas of PROFITPI us in Eastern & Lusaka Provinces)	
4	Use of Treadle Pumps for irrigation	Crop	Technical	Policy for promoting food & nutrition security, and incomes for poor rural households	Female farmers in Gwembe and Senanga Districts, of Southern and Western Provinces, respectively, living along the Zambezi River	<p><u>Positive:</u></p> <ul style="list-style-type: none"> <li>✓ Helping female farmers in arid areas to do gardening (vegetable production) and also to grow winter maize for food and income (through sales).</li> </ul> <p><u>Negative</u></p> <ul style="list-style-type: none"> <li>➤ Operation of the treadle pump is too energy-demanding, particularly for old farmers.</li> </ul>
5	Re-introduction of the growing/planting of Gliricidia tree	Agro-forestry	Technical & Environmental	Conservation of the environment	small-scale farmers living in game parks/reserves, including animal poachers	<ul style="list-style-type: none"> <li>✓ <u>Improving soil fertility through the planting of the Gliricidia tree (leguminous tree) and the use of its leaves, also for soil fertility, by putting them in conservation basins.</u></li> <li>✓ <u>Chemical fertiliser substitute: Small-scale farmers are encouraged to plant and use this tree for improving/enriching the soil, instead of using chemical fertilisers (which are costly).</u></li> </ul>
6	Use of a Cook-Stove which uses Gliricidia's small branches (cuttings) for cooking	Agro-forestry	Technical & Environmental	Policy to stop or minimise de-forestation	Small-scale farmers living in game parks/reserves	<u>Preserves trees by encouraging the use Gliricidia tree cuttings instead of charcoal; thus stops or minimises de-forestation</u>

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					and forests	
7	Use of Electronic Voucher (E-Voucher) for the procurement of agricultural inputs by small-scale farmers	Crop	Technical	To ease access of agricultural inputs by small-scale farmers	Small-scale farmers	Agricultural inputs are accessed by farmers within their localities through various private agro-dealers. Farmers also have a choice of what inputs to buy
8	Promotion of Conservation Farming/Agriculture	Crop	Technical	Policy for increased agricultural (crop) productivity	Farmers (all categories)	Has greatly contributed to increased crop productivity. For example with maize CFU has introduced three "Clubs" with regard to yield targets, namely 5MT/Ha Club, 10MT/Ha Club and 15Mt/Ha Club. The following yields have so far been reached: 4.2MT/Ha for the 5MT/Ha Club, 8.6MT/Ha for the 10MT/Ha Club and 12.8Mt/Ha for the 15MT/Ha Club. However, nationally CA has pushed the average yield to 2.4MT/Ha when all clubs are considered together.
9	Mechanisation of small-scale farmers through Conservation Agriculture (CA)	Crop	Technical	Policy for increased agricultural (crop) productivity and production	Farmers (all categories)	Farmers have been able to increase the areas under cultivation for their crops and thus increasing production, using the tractors. Farmers who have bought tractors are also providing services (e.g. ploughing, transportation etc.) to other fellow farmers using the tractors and thus getting additional incomes from using the tractors. Farmers have been empowered with tractors, thus practicing mechanised agriculture, through guaranteed loans without providing security (collateral) for their loans
10	Improving and/or building markets for agricultural commodities	Cross-cutting	Institutional	Uncertain agricultural markets and/or gaps in marketing chains or processes	i) Small-scale Farmers ii) Small & Medium scale Traders	Improves the working or promotes smooth working of agricultural markets. Tries to remove the bottlenecks or uncertainties in the markets, leading to efficiency of market operations, resulting in time-saving, reduced worries, enhanced profits etc. Developing entrepreneurship among small-scale farmers

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11	Use of metal Silos for storage	Crop	Technical		Small-scale Farmers	Easy and convenient storage of agricultural commodities
12	Agricultural mechanisation for and/or among small-scale farmers	Cross-cutting	Technical	Increasing productivity, production and incomes for small-scale farmers	Small-scale Farmers	Increasing productivity and scale of production of small-scale farmers, thus ensuring food and nutrition security and increased incomes

### Summary of Promising Technologies

Table 2 presents a summary of the identified inventory of promising technologies, for the selected agricultural commodities, including those on cross-cutting issues, which had the potential for becoming innovations, with positive effects.

**Table 2: Summary of promising technologies**

<i>Commodity</i>	<i>Name of Technology</i>	<i>Domain</i>	<i>Type</i>	<i>Drivers/ Triggers</i>	<i>Potential or Targeted Beneficiaries</i>	<i>Potential Effect</i>
<i>Maize</i>	Development of Storage-Pest-Tolerant Varieties	Crop	Technical	To minimise post-harvest losses in Storage	Farmers (especially small-scale farmers)	Expected to reduce or avoid post-harvest maize losses in storage due to Weevils and Larger Grain Borers (LGB)
<i>Cassava</i>	Production and promotion of Yellow cassava roots	Crop	Technical	Policy change: promotion of nutrition (Vitamin A)	Vitamin A-malnourished or deficient persons	To address Vitamin A deficiency and thus promotion of nutrition security
<i>Cross-cutting</i>	Planting and using of a certain type of Bamboo <sup>5</sup> for making charcoal	Forestry & Energy	Technical	Policy drive to stop or minimise de-forestation	All users of firewood or charcoal for cooking (in general, the entire population)	<ul style="list-style-type: none"> <li>✓ Would assist in stopping or minimising de-forestation. Instead of using trees to make charcoal, people would plant and use the Bamboo for making charcoal for cooking</li> <li>✓ The Bamboo matures and is ready for charcoal-making earlier than a tree.</li> </ul>

<sup>5</sup> Bamboo whose germplasm was obtained from Kenya

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						Therefore there would be time-saving in having materials ready for charcoal-making: consequently charcoal productivity and production from bamboo would increase
<i>Groundnuts &amp; Maize</i>	Development & use of Aflasafe	Crop	Technical	i) increase in prevalence of Aflatoxin in the Country & loss of export value from groundnuts & maize due to Aflatoxin contamination ii) health concerns (Aflatoxin causes cancer, stunting, immunity suppression)	i) Small-scale farmers ii) Traders iii) Public consumers	✓ Increased income from export of Aflatoxin-free products or acceptable levels of Aflatoxin in exported products (Groundnuts & Maize) ✓ Improved health of public consumers (remove/minimise risk of cancer/stunting/immune-loss caused by Aflatoxins)

**Annex 2: Primary Data Collection Tools**

**A. Commonly Agreed Study 1 Guide**

**Stakeholder Interview Guide:**

1. Stakeholder identification
  - a. Type: Individual .....1 Organization .....2.
    - i. Name of Stakeholder .....
    - ii. Location .....
2. Value chain type

	<i>Crops</i>	<i>Livestock</i>	<i>Fisheries</i>	<i>Others</i>
1				
2				



Notes:

- II) \*Actors –describe roles, interaction, resource mobilization  
.....  
.....
- ii) \*\* Effect –Positive, negative (describe)  
.....  
.....
- iii) Driver/trigger –Describe  
.....  
.....

**B. Commonly Agreed Study 1 Guide-Elaborated and contextualized for Zambia**

**STAKEHOLDER INTERVIEW GUIDE**

**Study 1: Situation Analysis of Agricultural Innovations (Identification & Inventory of Innovations along agreed/main Value Chains) in Zambia, in the past twenty [20] years: 1995-2015**

Working definition of Innovation(s):

- ✓ Technology applied, i.e. not necessarily new/newly invented or generated technology
- ✓ Used technology bringing out benefits (value) or unsuccessful technology (failure), i.e. bringing out social or economic benefits and/or failures, to users or beneficiaries.
- ✓ Technology bringing about improved livelihoods or negative effects to users/beneficiaries

**6. STAKEHOLDER IDENTIFICATION** *(for interview or to be interviewed)*

- a. Type: Individual: (1) Organization: (2) : if (2), if (2), n  Org: .....
- iii. Name of Respondent: ..... Gender:  M  F
- iv. Location (*Province & District*): .....
- v. Contact Phone (*of Respondent*): .....
- vi. E-mail (*of Respondent*): .....

**7. VALUE CHAIN TYPE**

<i>Crops</i>	<i>Livestock</i>	<i>Fisheries</i>	<i>Others</i>
1. Maize	1. Poultry		
2. Rice			
3. Cassava			

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4. *Groundnuts*

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**8. VALUE CHAIN FUNCTION**

- a. Technology development/Input Supply
- b. Production
- c. Storage/warehousing
- d. Processing
- e. Marketing
- f. Consumption

**9. NAME OF INNOVATION:**

- i. ....
- ii. ....
- iii. ....
- iv. ....Etc.



**Notes:**

i). \*Actors –describe roles, interaction, resource mobilization etc.

.....  
.....

ii). \*\*Drivers/Triggers –Describe

.....  
.....

iii). \*\* \*Effect –Positive or Negative (Describe)

.....  
.....

**Annex 3: List of Stakeholders Consulted and/or Interviewed**

S/N	Name	Organisation	Telephone	E-mail
1	Dr. Eliab Simpungwe	HarvestPlus	+260 974 214152	<a href="mailto:e.simpungwe@cgiar.org">e.simpungwe@cgiar.org</a>
2	Mr. Michael Phiri	ZARI	+260 977 521024	
3	Mr. Shadreck Nabeene	ZARI	+260 977 629746	
4	Ms. Lubasi Sinyinda	ZARI	+260 977 879592	<a href="mailto:lubasi_sinyinda@yahoo.com">lubasi_sinyinda@yahoo.com</a>
5	Mr. Kayombo Kambukwe	ZARI	+260 978 956080	<a href="mailto:kayombokambukwe@yahoo.com">kayombokambukwe@yahoo.com</a>
6	Mr. Moses Mbaao	Programme Against Malnutrition (PAM)	+260 971 256644 / 0950 939 444	<a href="mailto:moses.mbaao@gmail.com">moses.mbaao@gmail.com</a>
7	Dr. Mukanga Mweshi	ZARI	+260 968 674107	<a href="mailto:mmweshi@gmail.com">mmweshi@gmail.com</a>
8	Mr. Henry Ngimbu	Community Markets for Conservation (COMACO)	+260 977 172359	<a href="mailto:hngimbu@gmail.com">hngimbu@gmail.com</a>
9	Mr. Frank P. Chisamanga	COMACO	+260 977 433625	<a href="mailto:fchisamanga@itswild.org">fchisamanga@itswild.org</a>
10	Mr. Ronald Msoni	-	+260 977 751263	<a href="mailto:ronaldmsoni@gmail.com">ronaldmsoni@gmail.com</a>
11	Mr. Alex Pavlovic	PROFITPlus	+260 963 040690	<a href="mailto:apavlovic@profitplus-zm.org">apavlovic@profitplus-zm.org</a>
12	Dr. Martin Chiona	ZARI	+260 977 125692	<a href="mailto:martinchiona@yahoo.com">martinchiona@yahoo.com</a>
13	Mr. Collins Nkatiko	CFU	+260 965 238007	<a href="mailto:cfu@iconnect.zm">cfu@iconnect.zm</a>
14	Mr. Vincent Hodson	CFU		<a href="mailto:vincenthodson@gmail.com">vincenthodson@gmail.com</a>
15	Mr. Mwiya Mwiya	Golden Valley Agricultural Research Trust (GART)-	+260 979 561245	

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		Batoka LDC		
16	Mr. Absalom Muleya	GART-Batoka LDC	+260 977 700121	
17	Dr. Juliet Akello	International Institute of Tropical Agriculture (IITA)	+260 971 259938	<a href="mailto:J.Akello@cgiar.org">J.Akello@cgiar.org</a>

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**Appendix 3:** IP summary documents for each IP identified, under the six agricultural commodities, including one on CA, during the study

**Table 1: Summary Inventory of Innovation Platforms**

S/ N	IP Name	Entry Point	IP Locat ion	Date of IP establ ishme nt	IP Member s	Funding Agents	IP still activ e or not	Facilitator s (names & contacts)	Problem s addresse d (opport unities explored )	Achievements to date	Challe nges	Sustaina bility issues	Phas e in IP Proce ss
1	System of Rice Intensification (SRI)	Low rice productivity and production in Zambia (thus aims at increasing rice productivity and production)	Chinsali	2006	i)COMACO ii) Centre for System of Rice Intensification Initiative (CSRII)	i) Norwegian Embassy and ii) American Embassy	Active	Mr. Henry Ngimbu, COMACO Ltd, P.O. Box 480178, Chinsali, Zambia. E-mail: hngimbu@gmail.com or hngimbu@itswild.org	Improving production and yields of rice crops, with the apparent suitable areas for rice production and increasing rice demand	<ul style="list-style-type: none"> <li>✓ First SRI trial in Zambia, &amp;possibly the first in Southern Africa, was initiated in late 2005, 12.5 x 12.5 m plot yielded 6.144 MT/ha of dried paddy where previous yield was/is 1-2 MT/ha.</li> <li>✓ Hosted a National SRI Launch and First SRI Harvest in Solwezi on June 30, 2006, attended by 300 people.</li> <li>✓ In 2007, the</li> </ul>	SRI is still promoted by NGOs without much recognition by GRZ or Research Stations to mainstream it in policy systems	Concerted efforts from different players needed to create a formidable & sustainable platform	Maturity

									<p>Esek Farmers' Cooperative Society won 2<sup>nd</sup> prize for its SRI work at the North-Western Province Agric. Commercial, Mining &amp; Industrial Show.</p> <p>✓ With a grant from the American Embassy, Henry subsequently trained farmers in other parts of Zambia.</p> <p>✓ In Nov. 2009, the Wildlife Conservation Society (WCS) in Zambia engaged Henry Ngimbu to train farmers in its COMACO program in the Eastern Province.</p> <p>✓ Henry also undertook several trainings in Musele Area</p>			
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										<p>Development Programme (ADP) on behalf of World Vision during 2010.</p> <p>✓ In early 2010, a newly formed NGO, the Centre for SRI Initiative (CSRII), was legally recognised by GRZ.</p> <p>✓ In Feb. 2011, CSRII trained 300 farmers in Zambezi District (Northwestern Province) in SRI methods.</p> <p>✓ COMACO officially launched SRI in Chinsali District (Muchinga Province) which marked GRZ's support for SRI in Zambia.</p> <p>✓ In Jan. 2013, the System of</p>			
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	)- National Coordination Unit	tolerant maize varieties			Seed Companies v) UNZA				ii) low levels of information sharing on new and improved varieties	developed		lity challenges once external support ceases	
3	Orange (Pro-vitamin A) maize value chain	High incidence or prevalence of Vitamin A deficiency in the population, especially among the under-five children, lactating mothers & pregnant women	Lusaka	-	i) MAL-ZARI ii) Harvest Plus iii) Ministry of Health iv) NFNC v) PAM vi) TDRC vii) NISIR viii) Private Sector (Zambia Seed Association)	-	Active	i) ZARI, P/B 7, Chilanga ii) HarvestPlus, C/O World Fish Centre, P.O. Box 51289, Lusaka	Addressing prevalent problem of Vitamin A deficiency (especially in under-five children; and pregnant & lactating mothers)	<p>✓ Orange maize seed officially launched in Zambia by the Minister of Agriculture (August 2015).</p> <p>✓ Promoted Orange maize for consumption (e.g.</p>	It has not been easy to promote consumption of orange maize due to past experience Zambians had with the yellow maize bought and consumed in Zambia in the late 1980s (yellow maize had a bad odour-rancid smell) when the country experienced a drought	-	Initial/Maturity?

									<p>processed &amp; sold as meal. ✓ Orange maize seed (90 MT) included in Ministry of Agriculture's input subsidy Programme (FISP) for the 2015/2016 Agricultural Season</p>	<p>which resulted in a maize deficit.</p>		
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<i>S/N</i>	<b>IP Name</b>	<b>Entry Point</b>	<b>IP Location</b>	<b>Date of IP establishment</b>	<b>IP Members</b>	<b>Funding Agents</b>	<b>IP still active or not</b>	<b>Facilitators (names &amp; contacts)</b>	<b>Problems addressed (opportunities explored)</b>	<b>Achievements to date</b>	<b>Challenges</b>	<b>Sustainability issues</b>	<b>Phase in IP Processes</b>
										n. ✓ Currently more than 100,000 small-scale farmers are growing and consuming orange maize			
4	Cassava improved varieties (early-maturing and high-yielding varieties)	The need to increase cassava productivity and production among small	Serenje	April - June 2014	i) IITA ii) Ministry of Agriculture iii) COMACO iv) Ministry of Chiefs	SARD - SCProject	Active	Terence Chibwe: Tel +260 971 235625	Low cassava yields & production	Has established seed multiplication fields	Ownership of the IP not established /firm	Sustainability not yet clear	Initial

		holder farmers			and Traditional Affairs v) Farmer Representative vi) Finance Bank vii) District Commissioner viii) Agro-dealers ix) Transporters x) Processors (cassava based products)								
5	Cassava improved varieties (early-maturing and high-yielding varieties)	The need to increase cassava productivity and production among small holder farmers	Kasama	April - June 2014	i) IITA ii) Ministry of Agriculture iii) CEEC iv) Snafu v) NATSAVE Bank vii) Transport	SARD - SCProject	Active	Terence Chibwe: Tel +260 971 235625	Low cassava yields & production	Has established seed multiplication fields	Ownership of the IP not established /firm	Sustainability not yet clear	Initial

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				ers viii) Processors ix) Milling company									
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<i>S/ N</i>	<i>IP Name</i>	<i>Entry Point</i>	<i>IP Location</i>	<i>Date of IP establishment</i>	<i>IP Members</i>	<i>Funding Agents</i>	<i>IP still active or not</i>	<i>Facilitators (names &amp; contacts)</i>	<i>Problems addressed (opportunities explored)</i>	<i>Achievements to date</i>	<i>Challenges</i>	<i>Sustainability issues</i>	<i>Phase in IP Process</i>
6	Cassava improved Varieties (early-maturing and high-yielding varieties)	The need to increase cassava productivity and production among small holder farmers	Kaoma	April - June 2014	i) IITA ii) MAL iii) CEEC iv) Concern Worldwide v) Transporters vi) World Vision vii) Processors viii) Farmer representative ix) Transporters	SARD-SCProject	Active	Terence Chibwe: Tel +260 971 235625	Low cassava yields & production	Has established seed multiplication fields	Ownership of the IP not established/firm	Sustainability not yet clear	Initial
7	Disease-	Lack of/	Samf	April -	i) IITA	SARD-	Active	Terence	i) Lack of	✓ seed	Ownership	Sustainability	Initial

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	free cassava planting materials	inadequate disease-free seeds (planting materials)	ya	June 2014	ii) MAL iii) Chief Mwansakombe iv) Zambia Postal services v) Transporters vi) Farmer representative	SCProject	ve	Chibwe, Tel: +260 971 235625	disease-free cassava planting materials (seeds) ii) Fragmented cassava markets	✓ multiplication fields established, resulting in increased availability of and access to disease-free planting materials by farmers improved market linkages	of the IP not established/firm	lity not yet clear	l
8	Disease-free Cassava planting materials	Lack of / inadequate disease-free seed (planting materials)	Kasama	April - June 2014	i) IITA ii) MAL iii) Snafu iv) NATSAV E Bank v) Transporters	SARD-SCProject	Active	Terence Chibwe, Tel: +260 971 235625	Limited availability of clean (disease-free) cassava planting materials	✓ seed multiplication fields established, resulting in increased	Ownership of the IP not established/firm	Sustainability not yet clear	Initial

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<i>S/N</i>	<b>IP Name</b>	<b>Entry Point</b>	<b>IP Location</b>	<b>Date of IP establishment</b>	<b>IP Members</b>	<b>Funding Agents</b>	<b>IP still active or not</b>	<b>Facilitators (names &amp; contacts)</b>	<b>Problems addressed (opportunities explored)</b>	<b>Achievements to date</b>	<b>Challenges</b>	<b>Sustainability issues</b>	<b>Phase in IP Process</b>
										ed availability of and access to disease-free planting materials by farmers ✓ improved market linkages			
9	High Quality Cassava Flour (HQCF)	Value-addition to produce high quality cassava flour for bakery products	Kaoma	April - June 2014	i) IITA ii) MAL iii) CEEC iv) Concern Worldwide v) Transporters vi) World Vision	SARD-SCProject	Active	Terence Chibwe, Tel: +260 971 235625	Limited value-addition of cassava	✓ enhanced product diversification of cassava (HQCF) ✓ improved	Ownership of the IP not established/firm	Sustainability not yet clear	Initial

					vii) Processors viii) Kariba Bakery ix) Famer representative					market linkages for cassava flour and other products			
10	High Quality Cassava Flour (HQCF)	Value-addition to produce high quality cassava flour for bakery products	Mansa	April - June 2014	i) IITA ii) MAL iii) CEEC iv) PECO v) Transporters vi) Caritas Zambia vii) Processors viii) Farmer representative	SARD-SCProject	Active	Terence Chibwe, Tel: +260 971 235625	Limited value-addition of cassava and fragmented cassava markets	<ul style="list-style-type: none"> <li>✓ enhanced product diversification of cassava (HQCF)</li> <li>✓ improved market linkages for cassava flour and other products</li> </ul>	Ownership of the IP not established/firm	Sustainability not yet clear	Initial
11	Cassava Value chain	Need for improved health & nutritional status, food	Mansa	-	i) MIRACLE Project ii) Local farmer groups (or	MIRACLE Project	-	MIRACLE Project	<ul style="list-style-type: none"> <li>• Poor health and nutritional status,</li> </ul>	<ul style="list-style-type: none"> <li>✓ Innovation Platform (IP) members</li> </ul>	-	-	-

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	security, and income of people affected with HIV/AIDS			community-based organisations-CBOs) iii) Ministry of Agriculture iv) Ministry of Health					food insecurity, and low incomes of people affected by HIV/AIDS through the production, consumption, marketing of nutritionally-enhanced crop and livestock products (Advocating supportive	monitor project implementation and provide advice and direction to tackle agriculture and nutrition issues ✓ Local CBOs supported & their capacity built to implement and monitor Project activities ✓ IPs established in			
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								<p>agricultural and health policies)</p> <ul style="list-style-type: none"> <li>• Low cassava production and productivity</li> <li>• Limited markets</li> <li>• Lack of interest to grow nutrient rich commodities due to limited knowledge on processing techniques</li> </ul>	<p>12 agricultural camps (constituting of agricultural camp committees)</p> <p>✓ IPs consisted of strong &amp; committed partners</p>			
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<i>S/N</i>	<b>IP Name</b>	<b>Entry Point</b>	<b>IP Location</b>	<b>Date of IP establishment</b>	<b>IP Members</b>	<b>Funding Agents</b>	<b>IP still active or not</b>	<b>Facilitators (names &amp; contacts)</b>	<b>Problems addressed (opportunities explored)</b>	<b>Achievements to date</b>	<b>Challenges</b>	<b>Sustainability issues</b>	<b>Phase in IP Process</b>
									<p>ques</p> <ul style="list-style-type: none"> <li>Weak institutional capacity to support technology generation and dissemination</li> </ul>				
12	Sorghum Value Chain	i) IP Approach using the value chain not very well understood by most stakeholders ii) Need to scale-up and out of Open	Siavonga and Masaiti Districts	2010/2011 Agricultural Season	i) Farmer and farmer organizations' representative ii) Processors (Kankoyo, Kapiri, Mukwa, Chat, Nkwazi and	-	-	i) ZARI, P/B 7, Chilanga ii) DONAT Aand RAILS Projects	<ul style="list-style-type: none"> <li>To scale the efforts for OPV in sorghum through effective engage</li> </ul>	<ul style="list-style-type: none"> <li>✓ The IPTA approach and the use of OPV for technology adoption worked well</li> <li>✓ Collaborations</li> </ul>	i) Market linkages did not work very well (more funds needed for creating market linkages & building trust between buyers and	i) weak market linkages between buyers and sellers ii) Communication channels still need to be strengthened further	-

	<p>Pollinated Varieties (OPV) technologies in sorghum promoted &amp; adopted by smallholders                  iii) to promote access to agricultural knowledge and technologies to all stakeholders involved in the sorghum value chain in order to promote productivity and competitiveness                  iv) To establish</p>			<p>Lusaka Breweries, and Tiger animal feeds) and milling companies                  iii) ZARI                  iv) PSTAD Project                  v) DONATA Project                  vi) RAILS Project                  vii) MAL-Extension Depts./Branches (Siavonga and Masaiti Districts)</p>				<p>ment of relevant stakeholders involved in the value chain                  • To establish agricultural information systems for exchange of knowledge and technologies among ARD stakeholders                  • To enhance inform</p>	<p>with other stakeholders and linking farmers to markets and potential markets in Siavonga and Masaiti Districts has resulted in an increased demand for sorghum in Zambia today                  ✓ The demand for grain sorghum by breweries trigger</p>	<p>sellers)                  ii) Sorghum market is still poorly organized                  iii) Sorghum production by farmers is still very low (short of demand by sorghum processing companies); Low level of production still a challenge for bulk buyers of sorghum                  iv) Most sorghum utilizing companies (processors) are reluctant to directly contact the</p>	<p>iii) Inadequate extension services.</p>	
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	agricultural information systems for exchange of knowledge and technologies among Agricultural Research & Development (ARD) stakeholders.								ation and communication flow among sorghum stakeholders and mainstreaming the IPTA in the day to day activities in all the institutions involved	<ul style="list-style-type: none"> <li>to shift sorghum from a subsistence crop to a value</li> </ul>	<p>and an increase in production in areas outside the Project Districts, like Rufunsa, Mazabuka &amp; Kalomo Districts</p> <p>✓ Spillover effect from the IPTA approach: farmers in non-project areas are now accessing markets through market linkages establish</p>	farmers (would rather concentrate on processing)	
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v) Lack of processing & value adding technologies at household level

vi) Training on sorghum good post-harvest storage techniques was not done

vii) Inadequate processing facilities for other sorghum products.

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<i>S/N</i>	<b>IP Name</b>	<b>Entry Point</b>	<b>IP Location</b>	<b>Date of IP establishment</b>	<b>IP Members</b>	<b>Funding Agents</b>	<b>IP still active or not</b>	<b>Facilitators (names &amp; contacts)</b>	<b>Problems addressed (opportunities explored)</b>	<b>Achievements to date</b>	<b>Challenges</b>	<b>Sustainability issues</b>	<b>Phase in IP Process</b>
13	Soybean seed production	Shortage of soybean seeds	-	-	i) Local farmer groups (or CBOs) ii) IITA iii) MIRACLE Project iv) Private Seed Company v) MAL	-	-	i) MAL, P.O. Box 50197, Lusaka ii) IITA	<ul style="list-style-type: none"> <li>Identified the need for improved seeds &amp; potential seed growers</li> <li>Private Seed Company got interested and decided to be giving farmer</li> </ul>	<ul style="list-style-type: none"> <li>Direct contracts given to farmers by an interested private seed company</li> <li>Agro-chemical market created for Agro-dealers</li> <li>Potential Soybean seed growers identified</li> </ul>	-	Strengthen the relation between farmers and private sectors (inputs dealer, buyers)	-

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<i>S/N</i>	<b>IP Name</b>	<b>Entry Point</b>	<b>IP Location</b>	<b>Date of IP establishment</b>	<b>IP Members</b>	<b>Funding Agents</b>	<b>IP still active or not</b>	<b>Facilitators (names &amp; contacts)</b>	<b>Problems addressed (opportunities explored)</b>	<b>Achievements to date</b>	<b>Challenges</b>	<b>Sustainability issues</b>	<b>Phase in IP Process</b>
									<ul style="list-style-type: none"> <li>• An agro-dealer found a market for chemicals such as herbicides</li> </ul>				
14	Conservation Agriculture (National Conservation Agriculture Taskforce-	i) To increase crop productivity and production with minimal capital input ii) Adaptatio	Lusaka	February 2015	i) Ministry of Agriculture ii) Cotton Association of Zambia iii) CFU iv) CSO v) Farmer Organizati	COMESA	Active	i) FAO-Zambia: CASU Project, P.O. Box 30563, Lusaka, Tel: +260 211 252277 ii) CFU, Lusaka	<ul style="list-style-type: none"> <li>• Low crop productivity &amp; production</li> <li>• Increased incidences of</li> </ul>	IP has so far successfully held two stakeholder meetings (the second consultative meeting was to validate the TORs and enable CA	Registration process has been slower than expected due to time constraints	Not yet formulated concrete financial support mechanisms	Initial

<p>NCATF)</p>	<p>n &amp; mitigation of climate change effects                  iii) To harmonize Conservation Agriculture (CA) &amp; promote investment that avoids overlaps and duplications                  iv) To promote research that demonstrates &amp; provides evidence of impacts of CA                  vi) To promote, facilitate and develop robust private</p>			<p>on Support Programme (FOSUP)                  vi) Kasisi Agricultural Training Centre                  vii) MRI Syngenta                  viii) NATSAV E Bank                  ix) PAM                  x) Concern Worldwide                  xi) World Vision Zambia Limited                  xii) SARO Agro Industrial Ltd                  xiii) FAO-Zambia</p>				<p>overlap on selection of farmers at field level, e.g. instances where one farmer is supported by more than two institutions promoting CA at the expense of scaling up the technology to other farmers and</p>	<p>stakeholders chart the way forward with regards to steering activities and fully formalize the establishment of the NCATF based on the initial preparatory work that had been done by the Interim Committee)</p>			
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		sector support of CA and manage existing partnerships vii) To facilitate knowledge management and regular sharing of important information among CA actors							efficiency of interventions <ul style="list-style-type: none"> <li>Increasing evidences of variations in key extension messages by various stakeholders</li> </ul>				
15	Wheat value chain	improving wheat production and overall functioning of the wheat value chain in Zambia	Mpika	March 2015	i) MAL-ZARI ii) ATS Agro-chemicals iii) Farmer Representatives iv) others to be advised later	SARD-SC Project	Active	i) Mr. Julius Siwale, ZARI-Mt Makulu, P/B 7, Chilanga. Tel: +260 977 869005 ii) DACO-Mpika iii) Mr. Aaron Sakala,	<ul style="list-style-type: none"> <li>Inadequate availability of inputs (particularly rain-fed seed varieties &amp; fertilisers)</li> <li>Marketing challenges</li> </ul>	<ul style="list-style-type: none"> <li>✓ Revived wheat production in intervention area</li> <li>✓ Undertaken farmer exposure or study tour to Mkushi District (Central Province)</li> </ul>	Wheat value chain in intervention area still operating inefficiently; value chain players just beginning to appreciate the enterprise	IPs members not fully stimulated by the benefits, however, current members are able to conduct meetings at their own cost (without Project	Initial

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							DACO's Office, Mpika. Tel: +260 976 194353 iv) Mr. Arnold Banda, Misamfu Research Station, Kasama	ges among small-scale wheat producers • inadequate processing facilities			financial support), an indication that the IP is likely to be sustainable even after the end of the project	
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## APPENDICES

### Appendix 4: Primary Data Collection Tools Used for Study 2 on Innovation Platform (IP) Inventory

#### **Template for Innovation Platform (IP) Inventory**

---

IP Name

---

Entry Point

Innovations (technical or social and economic innovations)

Location (name and GPS coordinates in UTM or degrees)

Intervention areas (regional/province/district/...)

IP webpage:

Participating villages

Date of IP establishment

Institutions setting up the IP

Funding agents

Number of years activities on the ground

---

IP is still active or not

---

Facilitators (names and contacts)

---

IP members (regrouped by VC actors and sectors)

---

Opportunities addressed

---

Achievements to date

---

Challenges

---

Sustainability issues

---

Phase in IP process (initial, maturity, independent)

---

#### **C. Commonly Agreed Study 2 Template for Innovation (IP) Inventory-Elaborated and contextualized for Zambia**

**Study 2: Identification & Inventory of Innovation Platforms in Zambia, in the past ten [10] years:  
2005-2015**

#### **TEMPLATE FOR INNOVATION PLATFORM (IP) INVENTORY**(Word Version)

---

IP Name:

---

Entry Point (Driver/Trigger):

Type or Nature of Innovations considered under IP (technical or social and economic innovations):

Location of IP (Town/District/Province/National):

---

---

IP Name:

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IP Intervention Areas (National/Provincial/District/Community etc....):

IP webpage (if any):

Participating Villages/Communities/Agricultural Camps:

Date of IP establishment:

Institutions setting up the IP or Members of IP:

- 1) .....
- 2) .....
- 3) .....
- 4) .....
- 5) .....
- 6) .....

Funding agents:

Number of years activities on the ground:

---

IP is still active or not:

If IP not active-state reasons for inactivity:

---

Facilitators (names and contacts):

---

---

IP members (re-grouped by Value Chain Actors/Facilitators and Sectors):

- 1) .....
- 2) .....
- 3) .....
- 4) .....
- 5) .....
- 6) .....

---

Problems addressed (Opportunities taken advantage of):

---

Achievements to date:

---

Challenges:

---

Sustainability issues:

---

Phase in IP process (initial, maturity, independent):

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## Appendix 5

**Table: Past, On-Going and planned Agricultural Projects in Zambia (1995-2015)**

S/ N	Project/Programme	Funding Agent (Donor)	Total Budget	Amount Spent to Date <sup>6</sup>	Duration	Beneficiaries	Geographical Coverage (Location)	Project/Program Components	Funds Utilization Rate (%)
1	Agricultural Development Support Programme (ADSP)	World Bank	US\$ 37.2m	US\$ 37.2m	2006-2014	Farmers and Agribusiness Enterprises	Southern, Lusaka & Copperbelt Provinces	<ul style="list-style-type: none"> <li>➤ Institutional capacity building</li> <li>➤ Support to Farmers and Agribusinesses Enterprises</li> <li>➤ Rural Road Improvement Facility</li> <li>➤ Institutional Development</li> </ul>	100
2	Irrigation Development Support Project (IDSP)	World Bank	US\$ 115m	US\$ 8.42m	2011 - 2018	Small scale farmers	Siavonga (Lusitu), Chisamba (Mwomboshi) & Mufulira (Musakashi) Districts	<ul style="list-style-type: none"> <li>➤ Infrastructure Development (dams &amp; schemes)</li> <li>➤ Irrigation Investment Support</li> <li>➤ Management &amp; Coordination</li> </ul>	7.3
3	Livestock Development & Animal Health Project (LDAHP)	World Bank	US\$ 50m	US\$ 5.75m	2012-2018	female and male smallholder livestock producers	Western, North-Western, Southern,	<ul style="list-style-type: none"> <li>➤ Disease Control &amp; Surveillance</li> <li>➤ Animal</li> </ul>	11.5

<sup>6</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>7</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
							Eastern & Northern Provinces	<ul style="list-style-type: none"> <li>➤ Production Livestock Services Provision</li> <li>➤ Pasture Development -Matching Grant</li> <li>➤ Institutional Support</li> </ul>	
<b>4</b>	Agricultural Productivity Programme in Southern Africa (APPSA)	World Bank	US\$ 30.0m	US\$ 2.5m	2013-2019	Small Scale Farmers, Research institutions & Research staff	ZARI-Mt. Makulu, Kabwe Research Station, Msekera Research Station-Chipata, Misamfu Research Station-Kasama & Mongu Research Station	<ul style="list-style-type: none"> <li>➤ Technology generation and dissemination</li> <li>➤ Infrastructure development and capacity building</li> <li>➤ Project management and coordination</li> </ul>	8.3
<b>5</b>	Smallholder	IFAD	US\$ 10.1 m	US\$	2007-2014	Small scale	Eastern,	➤ Disease	89.5

<sup>7</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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	Livestock Investment Programme (SLIP)			9.04m		livestock farmers in ECF- & CBPP-prevalent areas	Southern, Western, Northern & North-Western Provinces	<ul style="list-style-type: none"> <li>➤ Control Development</li> <li>➤ East Coast Fever (ECF) Management</li> <li>➤ ECF Research</li> <li>➤ Contagious Bovine Pleuro-Pneumonia (CBPP) Eradication</li> <li>➤ Smallholder Animal Production and Access to Animal Draft Power</li> </ul>	
<i>S/N</i>	<i>Project/Programmes</i>	<i>Funding Agent (Donor)</i>	<i>Total Budget</i>	<i>Amount Spent to Date<sup>8</sup></i>	<i>Duration</i>	<i>Beneficiaries</i>	<i>Geographical Coverage (Location)</i>	<i>Project/Program Components</i>	<i>Funds Utilization Rate (%)</i>
6	Smallholder Agribusiness Promotion Programme (SAPP)	IFAD /Swedish Govt. & Embassy of Finland	US\$ 22m	US\$ 6.71m	2010-2017	small scale farmers	In 30 Districts distributed Countrywide	<ul style="list-style-type: none"> <li>➤ More efficient value chains</li> <li>➤ Enabling environment for agribusiness development</li> </ul>	30.5
7	Smallholder Agricultural Productivity	IFAD & Government of Finland	US\$ 39.86m	US\$ 1.65m	2011-2018	Poor farming households	Luapula & Northern Provinces	<ul style="list-style-type: none"> <li>➤ Sustainable smallholder productivity</li> </ul>	4.2

<sup>8</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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	Promotion Programme (S3P)							<ul style="list-style-type: none"> <li>➤ growth</li> <li>➤ Enabling environment for productivity growth</li> </ul>	
<b>8</b>	Programme for Luapula Agricultural & Rural Development-Phase II (PLARD II)	Government of Finland	€ 10.41m	€5.89m	2011-2015	Small scale Crops, Livestock & Fish farmers	Luapula Province	<ul style="list-style-type: none"> <li>➤ Sustainable Fisheries development</li> <li>➤ Agriculture development</li> <li>➤ Agribusiness development</li> <li>➤ Policy, Regulation and Institution</li> </ul>	56.6
<i>S/N</i>	<i>Project/Programmes</i>	<i>Funding Agent (Donor)</i>	<i>Total Budget</i>	<i>Amount Spent to Date<sup>9</sup></i>	<i>Duration</i>	<i>Beneficiaries</i>	<i>Geographical Coverage (Location)</i>	<i>Project/Program Components</i>	<i>Funds Utilization Rate (%)</i>
<b>9</b>	Small-scale Irrigation Project (SIP)	AfDB/ Finnish Govt. ADF	US\$ 9.5m	US\$ 5.37m	2010–2014	Smallholder Irrigation Farmers	Southern, Lusaka & Northern Provinces	<ul style="list-style-type: none"> <li>➤ Irrigation Development</li> <li>➤ Capacity Building</li> </ul>	56.5
<b>10</b>	Livestock Infrastructure Support Programme (LISP)	AfDB	US\$ 18.12m	Nil	2013-2018	100,000 livestock-keeping households	9 Districts in Northern & Muchinga Provinces	<ul style="list-style-type: none"> <li>➤ Livestock Infrastructure Development</li> <li>➤ Capacity Building</li> <li>➤ Project Management</li> </ul>	Nil
<b>11</b>	Agricultural	AfDB	US\$ 31.12m	Nil	2014-2018	Small Scale	Serenje,	<ul style="list-style-type: none"> <li>➤ -Agriculture</li> </ul>	Nil

<sup>9</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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	Productivity & Market Enhancement Project (APMEP)					Farmers	Chongwe, Chitambo, Gwembe, Sinazongwe & Rufunsa Districts	<ul style="list-style-type: none"> <li>➤ production and productivity</li> <li>- Value chain development and market linkages</li> <li>➤ -Institutional strengthening</li> </ul>	
<b>12</b>	Rural Extension Services Capacity Enhancement Project (RESCAP)	JICA	ZMW 9.5m	ZMW 9.5m	2009-2014	Small Scale Farmers & Extension Services Branch-MAL	Northern & Western Provinces	<ul style="list-style-type: none"> <li>➤ Improve rural extension services provided by MAL</li> </ul>	100
<b>13</b>	Technical Cooperation on Community-based Small-scale Irrigation (COBSI)	JICA	ZMW 2.3m	ZMW 0.45m	2013-2016	1,018 households	Luapula & Northern Provinces	<ul style="list-style-type: none"> <li>➤ Capacity Development</li> <li>➤ Institution Development of Farmers Organization</li> <li>➤ Promotion of Irrigated Agriculture</li> </ul>	19.7
<i>S/N</i>	<i>Project/Programmes</i>	<i>Funding Agent (Donor)</i>	<i>Total Budget</i>	<i>Amount Spent to Date<sup>10</sup></i>	<i>Duration</i>	<i>Beneficiaries</i>	<i>Geographical Coverage (Location)</i>	<i>Project/Program Components</i>	<i>Funds Utilization Rate (%)</i>
<b>14</b>	Support to the Agricultural Sector “Performance Enhancement Programme” (PEP)	EU & Finland	€ 8.9m	€ 2.24m	2012-2016	MAL Human Resource	MAL Countrywide	<ul style="list-style-type: none"> <li>➤ Improving Change management and Service Delivery</li> </ul>	25.2

<sup>10</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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								<ul style="list-style-type: none"> <li>➤ Improving Sector Policy, Planning &amp; Financial Management</li> <li>➤ Improving Human Resource Management &amp; ICT</li> <li>➤ Improving Monitoring and Evaluation</li> </ul>	
<b>15</b>	Support to Artificial Insemination in Western Province	Czech Development Agent	€ 195,000	€ 195,000	2012-2014	NGOs dealing in Livestock, UNZA & other learning Institutions, private companies, All categories of livestock farmers	Western Province	<ul style="list-style-type: none"> <li>➤ Establishment of improved pasture fields and range management practices</li> </ul>	100
<b>16</b>	Adaptation to Climate Change in Agro - Ecological Regions I & II	UNDP	US\$ 3.9m	US\$ 2.3m	2010-2015	Farmers in vulnerable areas of Agro-Ecological Regions I & II	Kazungula, Senanga, Siavonga, Sioma, Chongwe, Luangwa, Mambwe & Choma Districts	<ul style="list-style-type: none"> <li>➤ Implementation of soil and water conservation techniques.</li> <li>➤ Promotion and introduction of crop diversification practices.</li> <li>➤ Promotion and introduction of alternative</li> </ul>	58

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<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>11</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
								<ul style="list-style-type: none"> <li>➤ livelihoods</li> <li>➤ Water storage and irrigation systems improved or developed to ensure adequate water provision to crops and livestock</li> </ul>	
<i>17</i>	Development of Feeding Strategies for Improved Production among Dairy Farmers in Njolwe	IAEA	€ 0.283m	€ 0.231m	2012-2015	Small dairy farmers in the project areas	Njolwe & Palabana areas	<ul style="list-style-type: none"> <li>➤ disease</li> <li>➤ Animal nutrition</li> <li>➤ Disease control and reproduction improvement</li> </ul>	81
<i>18</i>	Feed the Future - Sustainable Intensification of Maize-Legume Systems for the Eastern Province of Zambia Project (SIMLEZA Project)	USAID	US\$ 2.8m	-	2011-2014	Small scale farmers	Chipata, Katete & Lundazi Districts	<ul style="list-style-type: none"> <li>➤ leveraging science for sustainable productivity growth</li> <li>➤ Intensification &amp; diversification of maize-</li> </ul>	-

<sup>11</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>12</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
								<ul style="list-style-type: none"> <li>➤ based systems in the Region through new varieties</li> <li>➤ Improved agronomic practices</li> </ul>	
<b>19</b>	Global Alliance for Livestock Veterinary Medicines	Global Alliance for Livestock Veterinary Medicines-UK	US\$ 2m	US\$ 0.25m	2014-2017	Small scale Cattle Farmers	CBPP Areas	<ul style="list-style-type: none"> <li>➤ CBPP Research</li> </ul>	12.5
<b>20</b>	Climate-Smart Agriculture (CSA)- Capturing Synergies between Mitigation, Adaptation & Food Security	EU & FAO	€ 1.04m	€ 0.727m	2012-2014	Agriculture Sector	Countrywide	<ul style="list-style-type: none"> <li>➤ An evidence base for developing and implementing policies and investments for climate-smart agriculture built in Zambia.</li> <li>➤ Formulation of Country-</li> </ul>	70

<sup>12</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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								<p>owned strategic framework for climate smart agriculture activities.</p> <ul style="list-style-type: none"> <li>➤ Formulation of Climate-smart agriculture investment proposals and identification of possible financing, including from climate finance.</li> <li>➤ Capacity building for evidence-based planning and financing climate-smart agriculture in Zambia</li> </ul>	
<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>13</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
<i>21</i>	Conservation	EU	€ 11.0m	€ 1m	2013-	21,000 Lead	31 Districts	➤ CA	9

<sup>13</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

**STUDY 3: Investments in Agricultural Innovations for Development...**

	Agriculture Scaling-Up Project (CASU)				2017	Farmers & 315,000 follower farmers	in all the Provinces except Northern Province	<ul style="list-style-type: none"> <li>➤ Techniques expanded and consolidated</li> <li>➤ CA skills improved</li> <li>➤ CA farmer input and output supply chain</li> <li>➤ Land management practices</li> <li>➤ Project management &amp; coordination</li> </ul>	
S/N	Project/Programmes	Funding Agent (Donor)	Total Budget	Amount Spent to Date <sup>14</sup>	Duration	Beneficiaries	Geographical Coverage (Location)	Project/Program Components	Funds Utilization Rate (%)
22	The Food Crop Diversification Support Project Focusing on Rice Production (FoDIS-R)	JICA	2,493,500 (JPY?)	1,389,600 (JPY?)	2012-2015	Small Scale Farmers and Rice Researchers	Eastern, Muchinga, Northern, Copperbelt, Lusaka & Western Provinces	<ul style="list-style-type: none"> <li>➤ Rice Research Extension</li> </ul>	55.7
23	Programme for Luapula Agricultural & Rural Development-Phase I (PLARD I)	Government of Finland			2006-2010	Small scale farmers (crops, livestock & fish)	Luapula Province	<ul style="list-style-type: none"> <li>➤ Agribusiness</li> <li>➤ Agriculture</li> <li>➤ Capture fisheries &amp; aquaculture</li> </ul>	

<sup>14</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

**94 Programme for Accompanying Research in Innovations (PARI)**

								<ul style="list-style-type: none"> <li>➤ Institutional &amp; organization development</li> <li>➤ Cross-cutting issues for enhancement of a supportive policy, regulatory &amp; institutional environment.</li> </ul>	
24	Participatory Village Development in Isolated Areas Project-Phases I & II (PaViDIA-I & II)	JICA	JPY 860m	JPY 860m	2002-2009 <i>(Phase I: 2002-2007; Phase II: 2007-2009)</i>	Small-scale farmers	Lusaka, Chongwe, Luwingu & Mporokoso Districts		100
25	Farmer Input Support Response Initiative (FISRI) to rising prices of agricultural commodities in Zambia	EU	US\$ 10.36m			Small-scale farmers practicing Conservation Farming (CF)	Southern, Eastern, Central Copperbelt, Western, Northern, Luapula and Lusaka Provinces	Increased food security through Conservation Agriculture (as a result of food production & more sustainable use of environmental resources).	
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>15</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate</b>

<sup>15</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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									(%)
26	Farm Input Support Response Initiative-Phase II (FISRI-II)	EU				Small-scale farmers practicing CF	Selected Districts-Countrywide		
27	Support to Enhancement of Cassava Productivity	FAO				Small-scale Cassava farmers			
28	Enhancing Food Security in Cassava Based Farming Systems in Zambia	European Union through AAACP	US\$ 202,000	US\$ 202,000	2010-2011	Small scale cassava farmers	Serenje, Samfya & Mansa Districts	Livelihoods improvement of cassava producers	100
29	Farmer Input Support Programme (FISP)-(formerly known as Fertiliser Support Programme [FSP])	GRZ	No fixed Budget	ZMW 2,205m <sup>16</sup>	2002-to date (on-going)	Small-scale farmers	Countrywide		
30	Food Security Pack (FSP) Programme	GRZ	US\$ 10m per year		2001-2003	Small-scale vulnerable but viable farmers ( <i>Female-headed households, orphanages, child-headed households, farmers cultivating less than 1 ha, disabled, households affected by floods, drought and other</i> )	Countrywide (All the 73 Districts then)		

<sup>16</sup> Total budgetary allocation (in re-based Zambian Kwacha) from 2002/03 Agricultural Season (commencement season) to 2010/2011 Agricultural Season

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S/N	Project/Programmes	Funding Agent (Donor)	Total Budget	Amount Spent to Date <sup>17</sup>	Duration	Beneficiaries	Geographical Coverage (Location)	Project/Program Components	Funds Utilization Rate (%)
						<i>natural calamities and households having terminally ill patients)</i>			
31	Eastern Province .....	IFAD?					Eastern Province		
32	Support to Agricultural Diversification & Food Security Project (SADFS)	EU			2006-2009?	Small-scale Farmers	North-western & Western Provinces		
33	Farm-Block Development	GRZ			2005-to date (on-going)?	All farmers (small, medium & large)	In all Provinces		
34	Smallholder Enterprise Marketing Programme (SHEMP)	GRZ & IFAD	US\$ 18.35m		2000-2006	Resource poor smallholder farmers and market intermediaries	Southern, Lusaka, Central, Eastern & Copperbelt Provinces (7 local areas in each Province)		
35	Enhanced Smallholder Livestock Investment Project (E-SLIP)	IFAD, GRZ, beneficiaries, other potential co-financers	US\$ 46.3 m		2015-2022	livestock smallholder sector			

<sup>17</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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36	Promotion of Agro-processing among Small Scale Farmers in Zambia Project	FAO	US\$ 305,000		2012-2014	Small-scale farmers	Selected 7 Districts	<ul style="list-style-type: none"> <li>➤ Market analysis (of existing market potential for processing food products from small scale processing facilities)</li> <li>➤ Developing &amp; disseminating Protocols on food processing</li> <li>➤ Training of Trainers (ToT) in value addition (for at least 30 supporting staff in Project Districts)</li> <li>➤ improved practices, skills &amp; knowledge in value-addition &amp; entrepreneurship (for about 630 small-scale farming households)</li> </ul>	
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**98 Programme for Accompanying Research in Innovations (PARI)**

								involved in 7 Project Districts) ➤ preparation & distribution of appropriate promotional materials for processed products in the 7 Project Districts & beyond	
37	Southern Province Household food Security (SPHFS)	GRZ & IFAD	ZMW 1.44m (GRZ): SDR 9.54m (IFAD)		2000-2002	Small scale farmers (19,000)	All Districts in Southern Province		
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>18</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
38	Crop Monitoring Project	FAO			2012-2014	MAL's Early Warning Unit	Lusaka		
39	Agricultural Credit Management Programme (ACMP)	GRZ (through Private Sector: Cavmont Merchant Bank & SGS)			1994-1997	Small-scale farmers	Countrywide		

<sup>18</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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40	Food Reserve & Crop Marketing Programme (under FRA)	GRZ			1995-to date (on-going)		Countrywide		
41	CountrySTAT for Sub-Saharan Africa (Phases I & II)	FAO & GRZ	US\$ 44,950 <i>(Phase II)</i>		-2012 <i>(phase I:- 2012;</i> <i>Phase II: June 2012-Dec. 2012)</i>	National (Zambia) CountrySTAT Secretariat	Lusaka		
42	Agricultural Project Monitoring Programme (PMP)?	SIDA				MAL's Monitoring & Evaluation Unit	Lusaka		
43	Support to Zambian Aqua-farmers	FAO	US\$ 402,000	US\$ 402,000	2010 to 2011	Small-scale fish farmers	Copperbelt, Southern & Central provinces		100
44	Support to the Development of National Food Security Strategy & Monitoring Framework	FAO	US\$ 250,000	US\$ 250,000	2006-2007	MAL	Lusaka	<ul style="list-style-type: none"> <li>➤ Development of Food security Strategy &amp; Monitoring Framework</li> <li>➤ Institutional capacity-building</li> </ul>	100
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>19</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
45	Pilot Program for	World Bank	US\$ 1.50m		2010-			General	

<sup>19</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

**100 Programme for Accompanying Research in Innovations (PARI)**

	Climate Resilience (PPCR)							agriculture, fishing and forestry sector	
46	Strengthening Rice Seed Production and Enhancing Extension Services to increase Rice Production in Zambia	FAO	US\$ 484,000		2015-2017	small and medium scale households/farmers	Chinsali, Mungwi & Kasama Districts.	<ul style="list-style-type: none"> <li>➤ purification of existing rice varieties</li> <li>➤ development of improved varieties</li> <li>➤ supporting multiplication and supply of quality seed of rice</li> <li>➤ enhancement of extension services to rice producers</li> </ul>	
47	Programme of Accompanying Research for Agricultural Innovations (PARI)	German Partners through FARA	US\$ 30,000		July 2015- Dec. 2015	MAL-ZARI	Lusaka		
48	R4 Rural Resilience Initiative	SDC through WFP	US\$ 6.6m		2015-2017	Vulnerable rural farmers (at least 4,000)	Zambia and Malawi	<ul style="list-style-type: none"> <li>➤ Risk Reduction (<i>improved resource management</i>)</li> <li>➤ Risk Transfer (<i>insurance</i>)</li> <li>➤ Prudent Risk taking (<i>livelihoods diversification and microcredit</i>)</li> </ul>	

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<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>20</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	➤ Risk Reserves ( <i>savings</i> )	<b>Funds Utilization Rate (%)</b>
<b>49</b>	Drought Tolerant Maize (DTM) for Africa Project								
<b>50</b>	Support to Agricultural Research for Development of Strategic Crops (SARD-SC) in Africa Project- <i>for</i> Cassava	AfDB	US\$ 119,625		2012-2017	Farmers & Consumers, Farmer Groups (women/youth), Policy makers & other Private Sector Players (marketers/traders, transporters)	Serenje, Kasama, Kaoma, Samfya & Mansa Districts	<ul style="list-style-type: none"> <li>➤ Technology generation &amp; dissemination</li> <li>➤ capacity building</li> <li>➤ project management</li> </ul>	
<b>51</b>	Support to Agricultural Research for Development of Strategic Crops (SARD-SC) in Africa Project- (for Wheat)	AfDB							
<b>52</b>	Dissemination of New Agricultural Technology in Africa (DONATA)	AfDB			2011-2015	Research & Extension Institutions		Adoption and use of new and proven technologies	

<sup>20</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

**102 Programme for Accompanying Research in Innovations (PARI)**

<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>21</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
53	Project Empowerment of Women in Agricultural Sustainability (EWAS) Project	Royal Norwegian Embassy	US\$ 1m		2015-2017	Women Farmer Groups	Senanga & Gwembe Districts	<ul style="list-style-type: none"> <li>➤ Climate smart Conservation Agriculture</li> <li>➤ Agriculture &amp; Food Security</li> <li>➤ Gender-related Vulnerability &amp; Nutrition</li> <li>➤ Women Economic Empowerment</li> <li>➤ Project Implementation &amp; Governance</li> </ul>	
54	(Project on the development & use of Aflasafe)	USDA-ARS							
55	(Project on the improvement of Village Chickens and/or other Poultry at GART-Batoka)	SIDA			2005-2008	HIV/AIDS infected people	Choma District (Batoka & Siamalubo Villages)		
56	Rural Youth Enterprise for Food Security Programme	Swedish Government through ILO	US\$ 6.9m		2014 - 2017	Rural youths, Rural and Peri-urban enterprises		Development of sustainable rural Micro,	

<sup>21</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

**STUDY 3: Investments in Agricultural Innovations for Development... 103**

<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>22</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
		& FAO				(SMEs) & National organizations involved in the design and implementation of value chain development interventions		Small and Medium-scale Enterprises	
57	Land Management and Conservation Farming Programme (LMCF)	SIDA	SEK 1.39m		-2001	Small-scale farmers	Choma, Kalomo, Gwembe, Monze & Mazabuka Districts		
58	Agricultural Sector Investment Programme- Support to Southern Province (ASSP)	German Government (GTZ)	DM 2.8m		1998-2003	Small-scale farmers	Choma, Monze, Mazabuka & Siavonga Districts		
59	Smallholder Agriculture Mechanisation Promotion (SAMeP)	I-MADLO (Netherlands Organisation)	US\$ 679,485		2001-2004	Small- & medium scale farmers	Eastern, Lusaka and Southern Provinces		
60	Africare/Donner Seed Multiplication Project	DONNER	US\$ 55,955		2002	small-scale farmers (200 in groups of 40 per District with	Kalomo, Choma, Monze & Mazabuka		

<sup>22</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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						deliberate preference for women farmers)	Districts		
61	Eastern Province Rural Credit Facility (EPRCF)	AfDB	US\$ 637,805		1998-2002	Small-scale farmers	Chipata, Petauke & Nyimba Districts, initially (but ultimately to cover the whole Eastern Province)		
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>23</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
62	Kasama Youth Training Centre ( <i>established for Agricultural Training</i> )	UNDP	US\$ 177,481		2000-2002	Youths	Kasama District		
63	Siachitema Area Development Project Promotion of Sustainable Agriculture	Self-fund generation ( <i>from child sponsorships abroad</i> )	US\$ 3,000 per year		1996-	Small-scale farmers	Kalomo District ( <i>Siachitema Area</i> )		
64	Smallholder Irrigation & Water Use Programme (SIWUP)	IFAD				Rural poor small-scale farmers	Choma, Kalomo, Namwala, Monze, Mazabuka &		

<sup>23</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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							Sinazongwe Districts		
65	Agricultural Sector Investment Programme (ASIP)	GRZ & IDA	ZMW 3,959.25m (ZMW 1,476.48m - GRZ: ZMW 2,482.77m - IDA)		-?	Small-scale farmers & Research Stations	Central Province ( <i>all Districts</i> )		
<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>24</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
66	Land Management and Conservation Farming (LM&CF)	SIDA	ZMW 300m		2002	Small-scale farmers	Chibombo, Kabwe, Kapiri Mposhi & Mumbwa ( <i>21 Agricultural Camps</i> )		
67	SIWUP		ZMW 105m per year			Small-scale farmers	Central Province (All districts)		
68	Rural Enterprise and Agri-service Promotion Programme (REAP)	IFAD		-?	1999-2001	Smallholder farmers in remote areas	Kalulushi, Masaiti, Mpongwe & Lufwanyama Districts		
69	Land Management and Conservation Farming (LMCF)	SIDA	SEK 40m		1999/2001 - 2003/2004	Smallholder farmers	Kapiri-Mposhi, Kabwe,		

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S/N	Project/Programmes	Funding Agent (Donor)	Total Budget	Amount Spent to Date <sup>25</sup>	Duration	Beneficiaries	Geographical Coverage (Location)	Project/Program Components	Funds Utilization Rate (%)
							Chibombo, Mumbwa, Chama, Petauke, Chipata, Nyimba, Chadiza, Katete, Mambwe & Chongwe Districts		
70	Conservation Farming Unit (CFU) <sup>26</sup>	SIDA & NORAD	SEK 3.36m		1999-2001	Small-scale farmers	Mumbwa, Chibombo, Kabwe & Kaoma Districts		
71	Economic Expansion in Outlying Areas (EEOA) <sup>27</sup>	SIDA	SEK 56.6m		1999-2001	smallholder farmers & local businessmen	Mpika, Chinsali, Isoka Katete, Chadiza & Petauke Districts		
72	Multiplication and Distribution of	SIDA	SEK 11m (for 3 years)			Small-scale farmers	Mpika, Chinsali,		

<sup>26</sup> CFU has continued to date, promoting and demonstrating the adoption of Conservation Farming Practices or conservation Agriculture, among small-scale farmers beyond 2001, with funds from other donors as well, and with increased geographical coverage

<sup>27</sup> EEOA continued after 2001 (continued SIDA support) under the name of Agricultural Support Programme (ASP), up to about 2008/09

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	Improved Seed and Planting Materials (MDSP)						Luwingu, Choma, Namwala, Gwembe, Senanga, Mongu, Kaoma, Solwezi, Zambezi, Kabompo & Mwinilunga		
73	Small Holder Access to Processing and Seed (SHAPES)	SIDA	SEK 8m		2001-2002	Smallholder farmers	Katete, Nyimba, Petauke, Chongwe, Chibombo, Mumbwa, Monze, Namwala, Siavonga, Sinazongwe & Kaoma		
<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>28</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
74	Policy, Planning, Monitoring and Evaluation of ASIP activities	SIDA	SEK 10.6m <i>(SEK 5m for Policy &amp; Planning Activities through</i>			MAC, PPB	Countrywide		

<sup>28</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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			<i>Extension; SEK 5.6 m for M&amp;E of ASIP activities, for 3 years)</i>						
75	SIWUP	FAO & UNOPS	US\$ 902,734		- (36 months)	Resource-poor farmers in rural areas			
76	Improving household Food Security and Nutrition	Belgian Government	US\$ 3.31m		- (60 months)		Nchelenge, Mwense & Kawambwa Districts		
77	Integrated Support to Sustainable Development and Food Security (IP)	Governments of Norway & Finland	US\$ 200,000			Agricultural sector stakeholders	Countrywide		
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>29</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
78	Technical Advisory Group (TAG)	Government of the Netherlands	€ 1.34m		2000-2003	Public & private sectors, NGOs, CBOs & Farmer Cooperatives within the Livestock Industry.	Countrywide (with a focus on key livestock-producing areas)		
79	Food Security Research Project (FSRP)	USAID	US\$ 3.9m		1999-2002	Policy makers, agribusiness, small-scale farmers	Countrywide		

<sup>29</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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80	Kaoma Rural Livelihoods Project	Harvest Help	GB£ 25,000		-	Resource poor households	Kaoma District		
81	Chikwanda-Mukungule Development Project (CHIMU-DP)	HH UK & Owens Foundation	GB£ 25,000 per year (HH UK); US\$ 10,000 (Owen's Foundation)		-	Resource poor households belonging to village development clubs/groups	Mpika District ( <i>Chief Chikwanda &amp; Mukungule areas</i> )	<ul style="list-style-type: none"> <li>➤ livelihood improvement</li> <li>➤ wildlife conservation</li> </ul>	
82	NORAD Support to Farmer Associations Project (SFAP)	NORAD ZNFU ABF MAC Farmer Associations	US\$ 3.87m (US\$ 3,055,391-NORAD; US\$ 108,071-ZNFU; US\$ 198,660-ABF; US\$ 508,570-MAC; US\$ 102,509-Farmer Associations)		- (4 Years)	Farmer groups linked to well defined markets	Choma, Monze, Siavonga, Chongwe, Kaoma, Mumbwa, Chibombo, Kabwe & Mwinilunga Districts		
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>30</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
83	Cotton Research and Extension	World Bank; GRZ; Self-generating	US\$ 439,278 (US\$ 375,000-			Small-scale farmers & Ginning and Textile	Southern, Eastern, Central & Lusaka		

<sup>30</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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			<i>World Bank; US\$ 24,625-GRZ; US\$ 39,653-Self-generating)</i>			Companies (over 90,000)	Provinces		
84	CLUSA Rural Group Business Programme (RGB)	USAID	US\$ 5m		1996-2001	Rural smallholder farmers	Mazabuka, Monze, Mumbwa & Chibombo Districts		
85	CLUSA Natural Resources Management Programme	USAID	US\$ 3.8m		1998-2003	Communities bordering protected forests	Eastern Province		
86	Zambia Agribusiness Technical Assistance Centre (ZATAC)	USAID	US\$ 6.6m		1999-2004	Agribusinesses servicing small farmers	Countrywide		
87	CARE Livingstone Food Security Project Phase II (LFSP)	USAID	US\$ 3.64m		1996-2002	Rural small-scale farmers	Livingstone & Kalomo Districts		
88	WV Integrated Agroforestry Project	USAID	US\$ 3.9m		1998-2003	Small-scale farmers (12,000)	Chipata, Katete, Chadiza & Mambwe Districts		
89	Crop Forecasting	USAID	US\$ 500,000		1997-1999	MAFF/Early Warning Unit	Countrywide		
S/N	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>31</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate</b>

<sup>31</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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									(%)
90	Farmers' Union and Youth Support Project (FUYSP)	SCC	ZMW 1,000,000		2002-2003	Small-scale farmer members of ZNFU	Lusaka ( <i>ZNFU HQ</i> ), Choma, Monze, Kabwe & Mkushi Districts		
91	Naluyanda Rural Livelihoods Programme	Harvest Help UK	GB£ 362,524		2002-2006	Small-scale farmers in the target area	Chibombo District ( <i>Naluyanda &amp; surrounding areas</i> )		
92	Small Ruminant Development for Smallholder Diversification Component	UNDP	US\$ 441,000 per year (?)		1997-2002	Resource poor smallholders	Southern, Eastern, North-Western & Lusaka Provinces		
93	Copperbelt Livelihoods Improvement Programme (CLIPP)	Oxfam	-		1998-	Poor people in the target districts	Kitwe, Chingola & Mufulira Districts		
94	Lutheran World Federation (LWF) Micro-credit Programme	LWF Headquarters, Geneva	ZMW 40,000			Groups of small-scale farmers	Chipata, Chadiza, Katete & Lundazi Districts		
95	Luapula Livelihood and Food Security Programme (LLFSP)	FINNIDA	-			Smallholder farming communities	Luapula Province		

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S/N	Project/Programmes	Funding Agent (Donor)	Total Budget	Amount Spent to Date <sup>32</sup>	Duration	Beneficiaries	Geographical Coverage (Location)	Project/Program Components	Funds Utilization Rate (%)
96	Sustainable Land Management in the Zambian Miombo Woodland Ecosystem	GRZ & GEF	US\$ 1.35m			Small-scale farmers	Mkushi & Serenje Districts		
97	The National Aquaculture Research and Development Centre	JICA/JOCV	ZMW 5m		1997-1998	Small-scale farmers	Kitwe District ( <i>Mwekera Fish Farm</i> )		
98	Mongu/Sefula Irrigation Scheme (Mongu Rural Development Programme)	Japanese Government	US\$ 7m	US\$ 7m	1996-2003?	Small-scale farmers	Mongu District ( <i>Sefula area</i> )		100
99	Agriculture Sector Investment Programme (ASIP)	IDA	US\$ 350m		1995-2001	Agricultural sector stakeholders	Countrywide		
100	Zambia Agricultural Marketing, Processing and Infrastructure Project (ZAMPIP)	AfDB & World Bank	US\$ 12m		1993-1999	Small-scale farmers	Eastern Province		
101	Small-scale Irrigation Project (SIP)	AfDB	ZMW 19m		2001-2007	Small-scale farmers	Southern & Lusaka Provinces		
102	Integrated Land Use Assessment, Phase II (ILUA II)	Finnish Government (through	€ 3.95m		2011-2014	smallholder farmers	Countrywide	land use planning and carbon emissions	

<sup>32</sup> Project/Programme Amounts spent as at 11<sup>th</sup> April 2014

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<i>S/N</i>	<b>Project/Programmes</b>	<b>Funding Agent (Donor)</b>	<b>Total Budget</b>	<b>Amount Spent to Date<sup>33</sup></b>	<b>Duration</b>	<b>Beneficiaries</b>	<b>Geographical Coverage (Location)</b>	<b>Project/Program Components</b>	<b>Funds Utilization Rate (%)</b>
<b>103</b>	Integrated Land Use Assessment, Phase I (ILUA I)	FAO) Finnish Government (through FAO)			2005-2009	smallholder farmers	Countrywide	determinations land use planning and carbon emissions determinations	
<b>104</b>	Support to surveillance structure and capacity in view of establishment of livestock disease-free zones in Central and Southern Provinces	FAO	US\$ 410,000	US\$ 410,000	2011-2013	Ministry of Agriculture & Livestock	Central and Southern Provinces	Livestock disease surveillance and control	100
<b>105</b>	UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation (UN REDD) in developing countries: Zambia quick start Initiative	UN REDD Policy Board (FAO, UNDP & UNEP)	US\$ 4.49m	US\$ 4.49m	2011-2013		Countrywide (with some specific pilot districts)	strengthen Zambia's readiness for Reduced Emission from Deforestation and forest Degradation (REDD)	100
<b>106</b>	Conservation Agriculture Scaling up for increased	Government of Norway	US\$ 5m		2008-2010	small-scale farmers (120,000 farmers practicing	Chipata, Katete, Petauke,	Scaling-up Conservation Agriculture	

**114**      **Programme for Accompanying Research in Innovations (PARI)**

Productivity & Production (CASPP)					conservation agriculture)	Chongwe, Chibombo, Kapiri-Mposhi, Mumbwa, Mazabuka, Monze, Choma & Kalomo Districts		
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