



Contracting Authority: The Government of the Republic of Malawi, represented by the National Authorising Officer (NAO) of the European Development Fund

Farm Income Diversification Programme (FIDP) Phase II -
Agribusiness

ANNEX VI: INTERIM NARRATIVE REPORT

23.02.2018-30.04.2019

Improved livelihoods through sustainable intensification and diversification of market oriented crop-livestock systems in southern Malawi

Contract number: FED/2016/379-827

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List of acronyms used in the report:

ACIAR	Australian Centre for International Agricultural Research
ADF	Acid Detergent Fiber
ADL	Acid Detergent Lignin
AEDO	Agriculture Extension Development Officers
AI	Artificial Insemination
CLIMM	Improved livelihoods through sustainable intensification and diversification of market oriented crop-livestock systems in southern Malawi
CRS	Catholic Relief Services
DADO	District Agriculture Development Office
DEC	District Executive Committee
EPA	Extension Planning Area
EU	European Union
FIDP	Farm Income Diversification Programme
FINCA	Foundation for International Community Assistance
HH	Household
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFAD	International Fund for Agricultural Development
IITA	The International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IP	Innovation Platform
LUANAR	Lilongwe University of Agriculture and Natural Resources
NBM	National Bank of Malawi
NDF	Neutral Detergent Fiber
NGOs	Non-Governmental Organisations
MSME	Micro, Small and Medium Scale Enterprises
SHMPA	Shire Highlands Milk Producers Association
SSLPP	Small Scale Livestock and Livelihoods Program
UP	United Purpose
VC	Value Chain
VCA	Value Chain Analysis

1. Description

- 1.1. Name of Coordinator of the grant contract: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- 1.2. Name and title of the Contact person: Dr André F. van Rooyen, Dr Sabine Homann-Kee Tui
- 1.3. Name of Beneficiary(ies) and affiliated entity(ies) in the Action:

Applicant: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Co-applicant: Small Scale Livestock and Livelihoods Program (SLLP)

Affiliated Entity: International Livestock Research Institute (ILRI)

- 1.4. Title of the Action: Improved livelihoods through sustainable intensification and diversification of market oriented crop-livestock systems in southern Malawi
- 1.5. Contract number: FED/2016/379-827
- 1.6. Start date and end date of the reporting period: 23-02-2018 to 30-04-2019
- 1.7. Target country(ies) or region(s): Malawi: Balaka, Chiradzulu and Thyolo
- 1.8. Final beneficiaries &/or target groups¹ (if different) (including numbers of women and men):
- 1.9. Country(ies) in which the activities take place (if different from 1.7): No Difference

¹ “Target groups” are the groups/entities who will be directly and positively affected by the project at the Project Purpose level, and “final beneficiaries” are those who will benefit from the project in the long term at the level of the society or sector at large.

2. Assessment of implementation of Action activities

2.1 Executive summary of the Action

Year 2 of the project focussed on creating functional relationships between producers and output markets, while working with input suppliers to provide training on inputs to both farmers and small and medium enterprises using and selling their products. The project also initiated investments in infrastructure development to enable output markets to operate efficiently, while reducing wastage and post-harvest losses, and increasing income and value addition for the various actors involved.

Result 1: A series of systems diagnostics informed the identification of bottlenecks and entry points to focus agribusiness development on on-farm production, stimulating diversification and therefore more options for integration and intensification of crop-livestock systems.

- Value chain analyses described the high potential of chicken, goat and dairy value chains. Wide trade networks and substantial flow of commodities were illustrated, working primarily through informal and unrefined networks. Improving processing technology, relationships with buyers and more efficient transport were identified as key entry points for upgrading the chains. Access to credit was seen as an opportunity for business actors to raise their productivity and leveraging purchases in response to consumer demand. Improving information flows along the value chains was highlighted for actors to understand how to trade cost effectively and at what price products can be sold. High consumer demand for nutritive and quality foods in rural and urban areas, as established through the consumer survey, reflects potential if quantity and quality of production can be improved. The various actors perceived their capacity as underutilized, substantiating that the potential for improvement is high. For chicken and eggs, smallholder farmers were in stiff competition with commercial broiler and egg producers selling cheap products at rural growth points, stimulating demand and consumer willingness to pay for village chicken in urban areas. Goats were sourced from smallholder farmers for urban consumers through a wide network of traders and butchers organized in associations. For dairy, a number of bulking centres aggregated large volumes of milk from farmer groups or private suppliers at low prices and with relatively high losses due to unhygienic conditions and mismanagement. The rejected milk was sold at competitive prices to rural consumers. Establishing local processing and distribution companies is seen as an opportunity for value addition.
- Fodder surveys and feed analyses were conducted to compare useful dual-purpose and fodder varieties which were tested and promoted through on-farm demonstrations. A comprehensive crop assessment including 360 farmers determined their current state of knowledge and skills with regard to crop improvement, agronomic practices, food safety, preferences for dual-purpose crops, as well as crop grain and biomass yield development. The grain vs biomass comparison of crop varieties currently in use informs about trade-offs and which available food varieties would be advisable for supplementary livestock feed. Participatory variety selection on 3 released and 5 non-released groundnut varieties was to explore farmers preferences for groundnut traits, feed traits as compared to drought and disease resistance, and others. Selected groundnut (20 varieties) and sorghum (10 varieties) biomass samples were analysed on feed nutrition contents.
- Engaging local policy makers in assessing farming systems and the agribusiness environment provided important insights on investment opportunities and priorities for improving the value chains. The discussions had implications for Innovation Platform (IP) review and how the IP can strengthen its individual members and the networks. These include:
 - Knowledge and communication on quality requirements and related price incentives so that farmers start producing based on consumer demand.
 - Transport and clearance: There is need for better aggregation. Market structures, including transport for livestock, must facilitate farmers to improve quality production.
 - Policy enforcement: Structures that combine market improvement with wealth creation, in a transparent way. Need for improved price information services.
 - Preferential procurement: There is need to raise awareness and enforce policies that encourage procurement from local business.
 - Alternative, locally-produced and cost-effective animal feed is required, along with cropping methods, increased use of organic fertilizer and intercropping to increase production efficiency. Crop and livestock extension services can assist in illustrating the value of such systems.

Result 2. To identify and improve existing high potential value chains (both crop and livestock) – identify entry points and develop strategies to improve chain efficiency, i.e. from production, processing and marketing by stimulating small and medium scale enterprises.

- Household surveys, value chain surveys, fodder market surveys and IP meetings identified a number of bottlenecks to the performance of Micro, Small and Medium Enterprises (MSMEs) in the 3 districts. In chicken, goat and dairy value chains, the main constraints were the lack of business skills among beneficiaries, market structures and prices. Efficient allocation of resources to different activities in their operations at farm and business levels was also of major concern. The lack of business planning was leading to major losses, especially at the dairy co-op at Bvumbwe, Thyolo district. To address these challenges, the project team and the Agribusiness officer from Government facilitated the development of an improved business structure, where some structure existed. The project facilitated structural improvements to bring efficiency in operations and accountability. The key was the separation of ownership and management of the businesses and defining their relationship. After the business structure was developed, the team facilitated the development of Business plans for the targeted farmer-led companies that were registered through workshops and coaching. At the farm level, the Agribusiness officer and the project team demonstrated the importance of gross margin analysis for enterprise selection, while also considering consumer preferences.

Four business plans were developed around the following value chains:

- Poultry (Chimtengo Youth Poultry Company Limited and Namagazi Chickens Producers Company)
- Goats (Phalula Butchermen)
- Feed Production (Feeds Solutions Limited).
- The surveys and the business consultancy that examined the gaps in MSMEs in the 3 districts and the areas the project could intervene in, assisted in directing where the resources and times could be invested by the project. The genetic diversity of dual-purpose poultry birds was found to be a gap in Malawi. Other than the Black Australorp, there was no known species that was officially introduced into Malawi in the past 50 years. The project, based on ILRI's work with indigenous dual-purpose birds, worked with the government of Malawi's Ministry of Agriculture and facilitated the acquisition of 5000 Kroiler birds for evaluation and possible release in Malawi. The farmer companies are participating in the evaluation, as is the Ministry of Agriculture's Mikolongwe Research Station which is serving as a second evaluator.
- The project facilitated the renting of infrastructure for quarantine and evaluation of Kroiler birds at Lunzu near Blantyre, providing support to government officials to assist in the inspection of the facilities and evaluation process.
- To ensure hygienic processing and therefore the shelf life of goat meat, the project facilitated the acquisition of 2 cooling containers, and one container that serves as a selling area for the Phalula Butchermen and the abattoir facilities. These interventions should lead to reduction in spoilage and improve the quality of meat and general food safety, and as a result increase sales and prices. This has been a major bottleneck.
- Bvumbwe dairy will be supported with value addition equipment. In May 2018, the project facilitated the demonstration of feed formulation using locally grown crops and forage for dairy animals. Following the demonstration, farmers who adopted the technology saw significant increases in milk yields, up to 30% within 2 months in some instances.
- All the technological interventions are structured to convert losses into sales. This is particularly important where goats are involved. The project does not advocate increases in the goat population, which could lead to land degradation if goat management and market systems are not improved. The project promotes improved husbandry, feeding and health for improved goat quality to meet market demand, and quality based payment instruments to encourage farmers increasing turnover in sales.
- Access to finance is an area where support for MSMEs has not been successful so far. While financial institutions, e.g. FINCA, have looked at the proposal, they are yet to develop a product suitable for the segment we are working with; discussions are continuing. It is however envisaged that the MSMEs developed and supported through the project will serve as case studies which financial institutions can evaluate and adapt into fundable business models. The project will continue to explore these opportunities.

Result 3. A series of trainings were held to improve farmers' production capacities and profitability, through farmer group approaches. Farmers at district-level trainings gained significant insights from the use of simple

comparative gross margin analyses to ensure viable enterprise selection. They were then capacitated to develop business plans. Through crop demonstrations, farmers individually chose options for diversifying their farming system, with emphasis on organic soil fertility management and improved biomass from an increased proportion of legumes in their fields. New high potential groundnut varieties were tested at selected sites and prepared for participatory variety selection. A series of trainings are underway on the following: to prepare recipient farmers to manage their chickens, participatory variety selection of groundnut varieties, crop grain and biomass harvesting and post-harvest processing, including aflatoxin control and livestock feed demonstrations.

Result 4. To improve the transformational capacity of agricultural systems through cross-scale policy dialogue that would address (i) the integration of smallholder crop and livestock productions systems; (ii) improve market linkages through the development of related small and medium enterprises for both input- and output markets as well as processing and (iii) increasing the role of the private sector in commercialization of smallholder agriculture. For upscaling relevant lessons, the project facilitates networking with various private sector companies such as Stewart, Suncrest, Nyamaworld, SeedCo, Foundation for International Community Assistance (Finca), National Bank of Malawi (NBM), and extends networking with other organizations like United Purpose (UP), International Fund for Agricultural Development (IFAD, on crop-livestock, irrigation), Catholic Relief Services (CRS, on crop-livestock), The International Institute of Tropical Agriculture (IITA), and Lilongwe University of Agriculture and Natural Resources (LUANAR). The next phase of the project will strengthen the relationship between producers and output markets.

Specific objective indicator	Level of achievement
1. Access to more diversified types of knowledge, greater differentiation of farming systems components, agribusiness and network linkages, supporting key legume-cereal-livestock farming systems and associated value chains	Crop-livestock integration information has been shared widely and demonstration sites of promising legume-cereals were set up in the growing seasons in all the districts. Strong linkages have been established among agribusinesses and the value chains through IPs. Discussions were held with major retailers to consider the products from the farmers the project is supporting. Though 70% of the work has been achieved, there is still work to be done.
2. Increased profitability and efficiency of value chain constellations, enabling ownership, participation and entrepreneurial development for women and youth	Tremendous achievements have been made. Three companies that have been registered are largely owned by women and youth. These are along poultry and feed value chains. Strong linkages across the value chains and the businesses in these value chains is being mentored, such as encouraging the selling of feed to dairy and poultry businesses and value addition of milk. There has been 50% achievement in this area.
3. Increased production, productivity and efficiency of on-farm resources use through better integration and diversification of crop-livestock systems through multiple value chains	Technical trainings and demonstrations have been established throughout the project sites. Evaluations and feedback between farmers and support services are ongoing, and market linkages are being built. The project has increased momentum through technologies, infrastructure and organizational development. This will encourage investment and diversification on farm. There has been 40% achievement.
4. Challenges reduced and opportunities enhanced with regard to the overall functioning and equitable access to the value chains	Confidence and trust in new market models is being built, addressing emerging constraints and strengthening the capacity of stakeholders to self-organize. The process will continue throughout the project. There has been 50% achievement.

2.2 Results and Activities

R1 – Increased knowledge on farming systems and agribusiness linkages that can be employed to increase farm and entrepreneurs' productivity and profitability

Indicator	Level of achievement
1.1 Challenges and opportunities with regard to inputs, production and markets identified locally	Challenges and opportunities identified, understood and refined through triangulation of diagnostic producer baseline, VCA, MSME, consumer surveys, feedback from local policy makers, IP review, as well as trainings and business plan development. The information is used to strategize IPs, MSMEs and policy support priorities. 100% achieved, for adjustment throughout the IP process.
1.2 New farm components and linkages identified and integrated	Entry points for improving crop-livestock integration and on-farm value addition defined. Farmers used gross margin analyses to evaluate farm enterprises, gained knowledge and experience from trainings and evaluation of crop demonstrations. 100% achieved, for adjustment throughout the IP process.
1.3 Improved agribusiness contacts and greater network supporting value chain development	Strategies for improving the business environment and networks in process; new links with private sector established; priorities for government support identified with local decision and policy makers. Farmers have gained knowledge for market requirements, group consolidation of sales are encouraged to enhance consistency in supply. 100% achieved, for adjustment throughout the IP process.

The need for a full and detailed analyses of value chains and business opportunities was emphasised. The project therefore engaged in comprehensive value chain and business diagnostics, specifically how agribusiness development relates to on-farm production, diversity, integration and intensification of crop-livestock systems. Through the IP review and feedback meetings, stakeholders contributed to analysis of farming systems and the agribusiness environment. Three high potential livestock value chains (chicken, goats, dairy) were prioritized for developing scalable interventions, informed by market flow estimations, value chain analyses, MSME surveys as well as gross margins analyses. Cereal and legume crops (sorghum, groundnut, pigeonpea and mucuna) as well as off-farm feed resources were identified as commodities for food security and nutrition, and as feed inputs to the livestock enterprises and value chains. District-level extension and policy makers were engaged to address entry points that will benefit smallholder crop-livestock farmers with regard to production capacity, gross margin analysis, enterprise selection and risk profiles.

A1 Stakeholder, extension and policy maker engagement through the IP

In continuation of year 1, an annual IP review and planning meetings were held mid-year in each district, with participants from farmer groups, agro-dealers, government extension, representatives from other projects and the project team. About 50 participants each attended the 2-day meetings. Feedback on the baseline report and gross margin analyses were used to inform enterprise selection, and linkages between actors that would promote improved agricultural production and marketing. The baseline data highlighted that although farmers spent most income on food, their access to food and ability to diversity was inadequate. Improving access to input and output markets was ranked as the most important challenge, mostly beyond the control of farmers. This spurred a discussion on the critical role of the IP in facilitating relations for developing the various value chains, strategically addressing market development and the creation of a more conducive environment for agri-business. Better structured market groups and improved market infrastructure would enable more effective bulking of commodities for sale and to purchases inputs in bulk. Reduction of transaction costs would be attractive for the private sector as well. Improving product processing and a transparent grading system would ensure adequate output price-quality ratio. There was a need for policy changes to support value addition to crop and livestock commodities. The project initiates a variety of SMEs to explore different entry points in support of high potential livestock value chains. Start-up capital for the SMEs, backed by continuous monitoring and market facilitation and feedback, strategies are built to engage more strategically with markets. The IP meetings were fruitful in revising agri-business enterprise selection in preparation of the next agricultural season. New schedules for more frequent meetings were requested.

A2 Market opportunities and value chain analysis (VCA)

Tools for in-depth value chain assessments were refined for the purpose of this study. The assessments characterize the value chains, profiling the particular value chain actors, identifying entry points for developing the value chains, quantifying the distribution of flows and profits and losses along the chains. We have prioritized key livestock value chains and built the value chain assessments based on available information. Qualitative and quantitative methods were combined, complementary to the IP planning process.

A team of 12 students from LUANAR University together with 4 SSSLP project staff were trained on the value chain, MSME assessment methodology and implementation of surveys. The surveys were implemented in October/November 2018.

1. **Estimating the market flows:** During reconnaissance visits, the different types of value chain actors, rural and urban traders, processors, retailers and wholesalers were identified. This was done for each project district, at growth points in the project EPAs and adjacent livestock market catchments areas, as well as for Blantyre and Lilongwe as large urban/terminal markets. Monthly volumes of livestock products traded from the EPAs and rural catchments areas, destinations to rural and urban markets, and seasonality in trade were estimated.
 - **Chicken:** The monthly volumes of broilers and village chicken sold from the EPAs and nearby catchment areas ranged between 7,000 and 14,000 during peak times, about half the volume during lean months. Between 50 and 70% of village chicken were sold to urban markets; there was a large and growing urban and rural market for chicken. A growing demand for village chicken over hybrid meat in urban areas was reported, due to greater consumer awareness of meat quality and health, and higher income levels. Industrial chicken producers supplied rural growth points, wholesalers, retailers, restaurants, pop up stores and individual consumers with cheaper broilers and eggs. Rural consumers are more cash constrained and hence go for the cheapest meat products on offer. Initial assessments of rural market opportunities, preferential trade agreements with government institutions and private buyers, clearly confirmed willingness to buy from smallholder farmers, if quality and consistency can be ensured. Farmer group approaches would be one way to coordinate larger volumes of chicken to rural clients.
 - **Goats:** Between 6,000 and 8,500 goats were sold to urban areas during peak months, about half the volumes during lean months. More than 80% of the goats were sold to urban markets in Blantyre and Lilongwe; urban areas with the largest and fastest growing markets for goats. The market context varied strongly between the districts, with vibrant goat markets along the main road in Balaka district, supplying live goats and meat to Blantyre and Lilongwe cities. In Thyolo and Chiradzulu, goat markets were more scattered. In all the districts, the project areas fed into larger goat aggregation markets outside the project EPAs. Smallholder farmers supplied the goat value chains; there was no meaningful competition with other commercial suppliers. The supply gap in quality goats, and high transaction costs for traders, motivated the introduction of quality based pricing mechanisms.
 - **Dairy:** Chiradzulu and Thyolo districts had 6-8 dairy bulking centres each. They were set up as privately-owned companies, offering farmers incentives to supply milk to them at higher prices and immediate payment, or they were set up as farmer groups, established under NGO-led interventions that distributed dairy cows. Between 150 and 450 farmers were supplying between 30,000 and 100,000 liters of milk per peak months per centre. The centres supplied to two large scale commercial dairy processors based in Blantyre. Smallholders competed with fresh industrial milk and composite milk suppliers. Quota systems seasonally imposed by industrial processors, adultery of milk to circumvent spoilage, policies that discourage local value addition, this has resulted in rejection of large volumes of milk.
2. **Characterizing key value chains:** The value chain survey covered 156 respondents representing different types of value chain actors in rural and urban markets. The respondents included input suppliers (maize millers and input shops), traders (moving livestock from the farm gate to rural collection points, and from rural markets to urban markets), processors (butchers, restaurants, pop up stores as well as dairy processors) and wholesalers and retailers (stalls and supermarkets).
 - **Village chicken (Figure 1):** There was no rural input feed and medical supply and farmers exchanged breeding stock. Maize bran from mills was the only source of supplementary feeds. Rural traders on bicycles played a crucial role in moving the village chicken to urban areas. They operated individually, not organized as associations. The fact that rural and urban retailers and wholesalers had chicken and eggs on the shelf, illustrated advanced commercialization of the rural poultry sector. In rural areas, wholesalers mainly sold industrial broilers and eggs; smallholder farmers cannot compete with the low prices. There was strong seasonality in the sale of live chickens in terms of volumes and prices, a result

of its availability for sale, the need to generate cash for spending, or when consumers have cash income to afford chicken. Peak sales of chicken occurred from June to September, with 60 to 80% higher sales, but at about 12% lower prices compared to lean periods (average price per live chicken 3,536 MK and 4,233 MK during peak periods, by rural and urban traders, respectively). For eggs, seasonality was more pronounced, up to 163% higher sales during peak times at up to 15% lower prices (average price per tray 2,698 MK and 3,100 MK, during peak periods, by rural and urban retailers, respectively). Women played a strong role in chicken production, retail and consumption; traders were exclusively men.

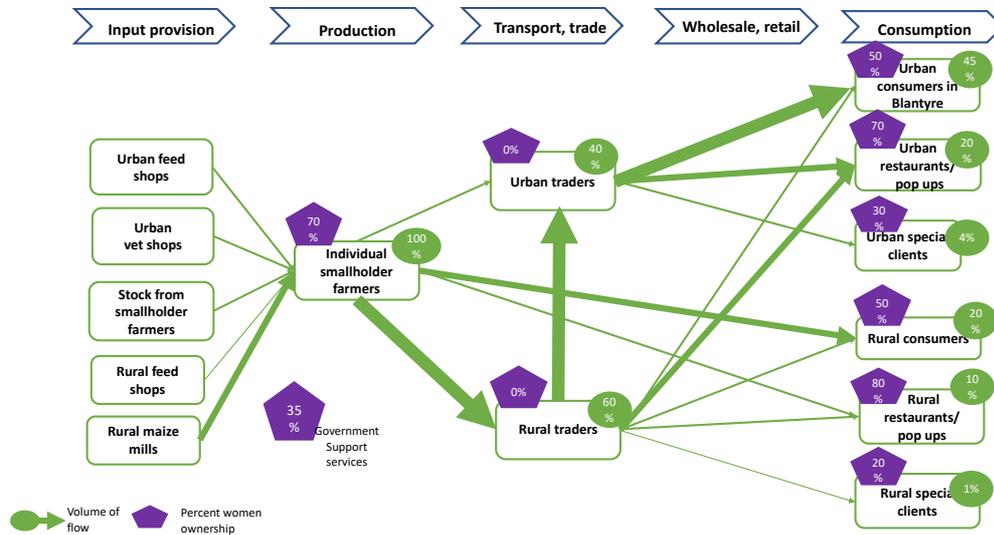


Figure 1. Chicken value chain in Chiradzulu district.

- Goats (Figure 2): Goat production was extensive, with an informal network of traders on bicycles assembling the goats in rural areas at weekly markets, and from there urban traders moving the goats to the cities. Goat butchers played a critical role in the goat value chain, as they supplied consumers with smaller portions of meat. Goat butchers operated in groups, selling and trading goats in turns, on different days. They were often organized into associations, with a strong influence on determining prices. They also integrated trading in their business, and had their own pop up stores. Retailers and wholesalers did not display goat meat, suggesting that the goat sector is not yet commercialized. Special clients, schools, hospitals and the army base offered opportunities to buy goats in bulk, but this was not yet fully exploited. There was strong seasonality in goat sales, influenced by the availability of cash. Goat sales peaked from August to December, at up to 18% lower prices compared to lean periods (average price of 26,250 MK and 29,300 MK during peak periods, by rural and urban traders, respectively). Women participated at various stages of goat production, retail and consumption. Goat trade and butcheries were however entirely in the hands of men; there were no fora where women could be represented in price negotiations.

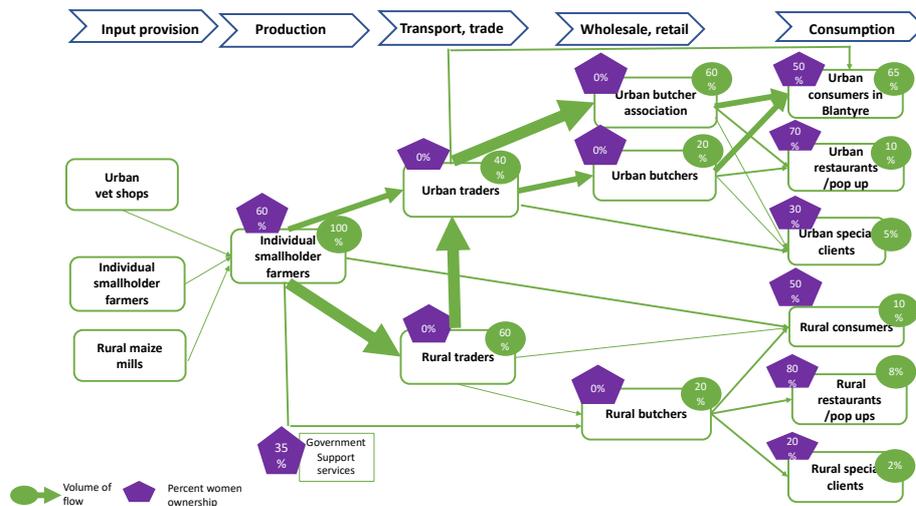


Figure 2. Goat value chain in Balaka district.

- Dairy (Figure 3): To supplement feeding, smallholder dairy producers relied mainly on buying maize bran from local mills, and collected biomass from other farms against a fee, or from open spaces along riverbeds. SHMPA (Shire Highlands Milk Producers Association) supported veterinary care. Farmers availed artificial insemination (AI) services from rural technicians. Farmers sold their milk daily to rural collection centres. Seasonality in milk supply was high. Milk sales were 63% higher during the rainy season due to better feed supply. Prices remained stable throughout the year. About 8 to 12% of the milk was rejected due to spoilage (addition of water, fertilizer, soda, ARVs, or sour unhygienic milk), a major loss for the centre. Milk centres that buy 45,000 liters of milk every month would lose 4,000 liters due to rejection. Farmers sold milk to the centers at a price of 175 MK/liter, as compared to selling rejected milk directly to rural consumers at a price of 100-200 MK/l. Women were strongly represented throughout the dairy value chain.

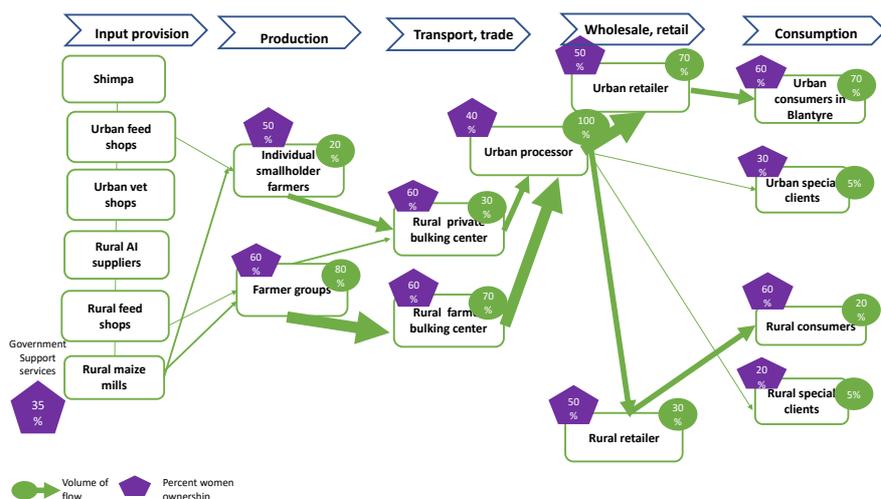


Figure 3. Dairy value chain in Thyolo district.

Most value chain actors had established their businesses more than 10 years before the survey. Maize millers and chicken traders belonged to a younger age group and were less educated, whereas the dairy bulking group of suppliers, input shop owners and wholesalers were older, more educated and more often had their businesses formally registered. Among the value chain actors, notably traders and processors had participated in FIDP I.

Most value chain actors combined their business with their own production of crops and livestock. While they themselves reported little change in income from crop activities, they confirmed a clear trend in increasing income from livestock-related activities.

Urban value chain actors had a stronger notion of quality criteria compared to their rural peers. For them, quality clearly influenced prices and quality products sold faster due to higher consumer demand. Urban processors and retailers sold more high quality products and rural actors mostly of average quality.

The study confirms the high and growing demand for livestock products, with urban markets that pay for higher quality products, many processors and retailers engaged in aggregating and processing activities, yet grading and information systems were lacking for it to translate into consumer requirement, quality criteria and prices.

The study clearly confirms the high potential for improving the value chains, through multiple entry points. Most actors found their business operating below capacity, on average at 50%. The most critical constraint that prevents reaching full capacity was cited as consumer demand for high quality products, which local producers and markets could not offer; reflecting the lack of product quality and refinement. With the lack of capital, farmers fail to respond to market demand, and as a result remain vulnerable to price fluctuations. Their profiles have not been raised to qualify for credit. On the other hand, for value chain actors, the most important opportunity to expand business to capacity was improved access to credit that would leverage buying livestock and respond to the demand for livestock products. In order to reduce expenses on purchase and aggregation, there was need for alternative market strategies and market structures that support effective aggregation and facilitate farmers producing quality

products. There is need for better cost planning, local feed manufacturing and integrated crop production methods that provide these feeds.

Changes in rules that would support building up capacity were identified. Most importantly, there was a need to explain the purpose and use of market fees. There should be transparency in the collection of taxes, to be used for market infrastructure development.

3. Consumer food choices:

The consumer survey on food choices was conducted parallel to the VCA assessment. In total, 136 women were interviewed as decision makers over food choices. Rural consumers were interviewed at rural food market places in the project EPAs (74 women). Urban low-income consumers (32 women) and urban high-income consumers (29 women) were interviewed at urban low- and high-income food markets in Blantyre and Lilongwe cities. Nutrition and health benefits were the most important factors for consumers choosing their food. Rural and urban low-income consumers were more limited in the types of food they actually consumed; their diets were dominated by affordable staples and vegetables. They used legumes to substitute eggs, meat and milk that were often not affordable. Urban high-income consumers spent substantially higher amounts on eggs, meat and milk. For them, food quality and diversity were the most critical constraints limiting their food choices.

4. In-depth MSME assessments:

An assessment was done of small-scale entrepreneurs in the target districts and beyond to identify MSMEs with high leverage potential, and define their structure, governance, capacity, source of finance and other inputs, challenges and priorities for interventions that support upscaling of MSMEs. The assessment showed that MSMEs operate under the Cooperative Society Act (CSA). However, it was found that other MSMEs are registered and operate under the Trustees Incorporation Act. These are businesses that are registered under the registrar general's office. The study found that most small businesses operating in districts do not qualify to be classified as MSMEs as they do not employ at least 4 people officially and permanently. The registration status influences the type and size of loans and support that an entity can access. Banks favour registration as companies rather than as cooperatives or trusts.

MSMEs play a very important role in wealth distribution and micro-economic growth in any district. The MSMEs the project is working with and those waiting for project support have the potential to play a positive role in Malawi's economy. Some of the notable positives attributed to MSMEs included ensuring the distribution of commodities from different and remote places, providing markets and product improvement in the value chain.

A study commissioned to further understand the MSMEs found that the general structure of most of the groups in the category of MSMEs constitutes a group of people with a common group activity such as rearing chickens and/or seed multiplication, with an elected executive committee. Although the MSMEs make monthly financial contributions, most of them have no bank accounts and have poor record keeping.

The study confirmed that a majority of MSMEs and small-scale entrepreneurs in Balaka, Chiradzulu and Thyolo are involved in agriculture and agriculture-related enterprises, therefore, the project is relevant in supporting enterprises that are in tandem with its target group and taking advantage of the synergies between livestock and crops.

Malawi's Micro, Small and Medium Enterprises (MSMEs) policy, 1998 is the main policy for supporting the growth and development of MSMEs in Malawi. However, there is a draft policy (2017) which is yet to be approved by the government, which seeks to support the development of a vibrant local entrepreneurship and improve MSMEs competitiveness, as the study found that most MSMEs are not competitive on account of many factors, including poor quality products.

A capacity assessment of MSMEs was undertaken during focus group discussions to understand their capacity issues. Among the areas identified as requiring support were issues of poor management and governance, poor quality products and marketing challenges. The project is tackling these through business plan development and reorganization of the MSMEs. The capacity building is tailor-made for the enterprises and is practical.

Barriers to efficiency facing MSMEs were identified and include limited access to capital and high cost of capital for MSMEs, weak and poor networking, limited access to markets and lack of appropriate technology to produce quality goods and achieve high productivity, including value addition. Working closely with financial institutions and having developed a starter-kit initiative with the project, CLIMM is addressing this challenge.

The SWOT analysis clearly shows that the biggest issue facing MSMEs is linked to the capacity of the entrepreneurs because they lack many skills necessary for improving performance. The project is focusing on capacity building by training farmers in feed making for livestock and organic manure making for crops and tailoring its support to the stage of development of the MSMEs. The project is supporting MSMEs by providing

value adding equipment (feed processing hammer mills, dairy processing cooler and processing facilities, goat market infrastructure including sales pens, slaughter and refrigeration facilities).

Since Bvumbwe dairy was found to be one of the MSMEs with the highest leverage potential, the project is providing support by providing processing machinery which will be located within the Bvumbwe Dairy with a capacity to process 3000litres of milk per day, and improving governance and management procedures and systems. All the other profiled MSMEs have been supported to improve management and governance systems and procedures.

Regarding transformational interventions, a study of the MSMEs recommends that a stable market environment be created urgently, which allows MSMEs to demand better prices for their products. Value addition is another intervention since the study found that MSMEs continue to market primary products, which unfortunately are relatively cheaper compared to processed (secondary) products.

Capacity building of MSMEs based on specific capacity assessment and capacity building plans is being undertaken. The MSMEs are empowered to improve performance. Regarding monitoring and evaluation plans, each MSMEs is developing a plan.

A1.2 Fodder surveys, feed analyses, useful varieties

This work aims at increasing food and fodder availability without the demand for additional land and water inputs. The entry points are dual-purpose food-feed crop cultivars that have been selected for superior grain yield as well as for superior crop residue quantity and fodder quality. This is achieved by cooperation between animal and crop scientists. During the reporting period, work with maize (DK 8033, Kanyani, Mapasa), groundnut (JL 24, Baka, Kakoma, ICGV-5M01514, ICGV-5M01513, ICGV SM01711, CG 7 and Nsinjiro) and sorghum (Philira) has been implemented by ICRISAT-ILRI and work with maize by ILRI and SeedCo, a large private sector seed producer.

Identification of groundnut cultivars with superior haulm fodder quality traits

Twenty cultivars of groundnut were harvested from ICRISAT in Lilongwe and haulms were sent to the ILRI livestock nutritional laboratory in Addis Ababa for the analysis of neutral (NDF) and acid (detergent fiber), acid detergent lignin (ADL), in vitro organic matter digestibility (IVOMD), metabolizable energy content (ME) and nitrogen (N) content.

There were highly significant ($P < 0.0001$) cultivar-dependent variations for all traits. These variations are also highly significant from the perspective of livestock nutrition. For example, haulm N content (haulm protein content equals haulm N X 6.25) ranged from 1.4% in ICGV-SM 02724 to 3.3% in ICGV-SM 01711 (Table 1). N content of 1.4% will cover for minimum microbial N requirement for cattle and small ruminants and haulms of this cultivar may be fed as sole feed. However, as an N supplement for example to maize stover, its N content will be largely insufficient. In contrast, haulms with an N content of 3.3% will work well as an N supplement feed component. A potent ration for dairy or beef and small ruminant fattening might be designed using haulms of these cultivars and maize or sorghum stover or other low-N crop residues.

In addition to differences in haulm N in cultivars, large differences were observed for In Vitro Organic Matter Digestibility (IVOMD) and, both indicators of the available energy content of a feed. IVOMD varied cultivar-dependent by more than 16% units. It is important to keep in mind that a difference in one percent unit in IVOMD has been associated with a 6 to 8% difference in livestock productivity.

Table 1: Haulm fodder traits in 20 cultivars of groundnut grown at ICRISAT in Lilongwe.

Variety	Country	NDF	ADF	ADL	IVOMD	ME	N
		%	%	%	%	MJ/kg	%
ICGV-SM 02724	Tanzania	28.6	46.0	8.8	47.7	5.41	1.4
ICGV-SM 99541	Mozambique	40.6	39.0	3.4	50.3	6.37	2.0
Manipinter	Malawi	37.7	38.2	9.2	50.9	6.3	2.0
Chalimbana	Malawi	29.0	40.9	8.2	49.9	5.9	2.1
ICGV-SM 99551	Tanzania	43.9	37.9	8.7	50.2	6.56	2.1
ICGV-SM 01514	Malawi	37.6	42.5	9.9	45.9	5.59	2.1
ICGV-SM 99568	Malawi	42.5	38.4	9.4	49.9	6.46	2.2
CG7	Malawi	35.5	36.8	8.1	51.8	6.54	2.2
ICGV-SM 99557	Tanzania	42.5	37.4	9.2	50.4	6.53	2.3
RG1	Malawi	37.4	36.3	8.2	50.5	6.38	2.3
Chitembana	Malawi	34.6	37.5	8.4	50.0	6.1	2.3
ICGV-SM 01731	Malawi	40.5	37.4	9.1	50.0	6.34	2.3
ICGV-SM 99555	Malawi	43.9	36.8	8.8	51.5	6.55	2.3
ICGV-SM 90704	Malawi	30.9	37.6	8.2	50.3	6.01	2.4
ICGV-08503	Malawi	37.6	36.0	8.2	50.6	6.38	2.4
JL24	Malawi	37.1	34.9	7.9	53.7	6.87	2.5
ICGV-SM 01513	Mozambique	36.9	36.1	8.3	53.2	6.75	2.5
ICG 12991	Malawi	43.2	35.0	9.2	51.2	6.61	2.5
Malimba	Malawi	30.1	30.9	7.0	54.2	6.86	2.8
ICGV-SM 01711	Tanzania	33.5	25.7	5.2	62.2	8.44	3.3
P Value		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
LSD		3.8	2.13	0.35	2.2	0.37	0.19
CV		6.27	3.49	2.52	2.6	3.44	5.1

Identification of sorghum cultivars with superior stover fodder quality traits

Stover from 10 cultivars of sorghum harvested from ICRISAT Lilongwe were sent to the ILRI livestock nutritional laboratory in Addis Ababa for the analysis of neutral (NDF) and acid (detergent fiber), acid detergent lignin (ADL), in vitro organic matter digestibility (IVOMD), metabolizable energy content (ME) and nitrogen (N) content.

Significant differences ($P < 0.05$) among the sorghum cultivars were observed for ADF, IVOMD and ME (Table 2). All three traits are related to available energy in sorghum stover. In fact, cereal straw and stover provide the energy part of the feed to livestock. The differences in IVOMD among the cultivars were 7% (43.1 to 50.1%) units which is high and very promising. In developed sorghum stover fodder markets in India, a 5% unit (47 to 52%) difference in IVOMD resulted in a price premium of 25% and higher for the higher quality stover. The difference in milk potential between sorghum stover with 52% IVOMD and that with 47% IVOMD was almost 6 kg of milk daily in dairy buffalo. A 7% difference in units of stover IVOMD is therefore highly significant for livestock nutrition.

Table 2: Stover fodder traits in 10 cultivars of sorghum grown at ICRISAT in Lilongwe.

Variety	N	NDF	ADF	ADL	ME	IVOMD
	%	%	%	%	MJ/kg	%
IESV 92036 SH	1.15	57.2	37.6	5.17	7.31	50.1
E 36-1	1.07	57.6	39.3	5.45	7.07	48.7
Kari Mtama 1	0.95	57.7	39.3	5.68	7	48.2
IESV 92037/2 SH	0.94	59.6	39.8	5.8	6.89	47.2
IESV 214009 DL	0.95	60.4	41.6	5.83	6.7	46.3
IS 8193 X GADAM	1.05	60.5	41.7	6.26	6.44	44.7
GADAM X IS 8193	0.97	60.5	42.3	5.83	6.4	44.3
IESV 92028 DL	0.99	60.8	40.3	5.52	6.83	47.1
Khalid	0.93	61.2	41.1	5.71	6.63	45.7
GADAM	0.97	62.9	45.6	6.54	6.17	43.1
LSD	0.25	3.82	3.67	0.83	0.53	3.26
P Value	NS	NS	0.016	NS	0.007	0.005
CV	15.27	3.78	5.28	8.38	4.61	4.11

Identification of maize cultivars with superior stover fodder traits

Seventy-eight maize cultivars were harvested from the SeedCo fields in Zimbabwe (where all the maize improvement for all of Southern Africa takes place) and sent to ILRI Ethiopia for analysis.

Cultivar-dependent variation in maize stover fodder traits was huge. Maize stover N varied by close to threefold (0.57 to 1.50%) and stover IVOMD varied by more than 10% units (40.5 to 51.2%) (Table 3). The project is currently in discussion on how superior dual-purpose cultivars can be employed in the Malawi project.

Table 3: Means and ranges in maize stover fodder quality traits in 78 maize cultivars from SeedCo.

Trait	Mean	Range
N (%)	0.77	0.57 to 1.59
NDF (%)	85.3	75.9 to 89.7
ADF (%)	45.4	39.6 to 49.8
ADL (%)	5.77	4.50 to 6.71
IVOMD (%)	44.9	40.5 to 51.2
ME (MJ/kg)	6.70	5.99 to 6.71

Exploring identified superior dual-purpose groundnut and sorghum cultivars in the field for food-feed traits, farmers' perception and livestock productivity trials

In the cropping season of 2018, groundnut and sorghum cultivars contrasting in haulm and stover fodder traits such as high and low N and high and low IVOMD were selected among the cultivars in Tables 1 and 2 and disseminated in the three districts for individual farmer use as well as common village-based demonstration plots. Mid-crop data collection is currently going on, including farmers' perception studies to better understand the value farmers attribute to fodder aspects of crop cultivars.

A.1.3 Engaging local policy makers in diagnosis of farming systems and agri-business environment

Feedback from district-level extension and policy makers: Government extension and support services were consulted to revise and interpret value chain and MSME results and implications for value chain development, at one-day feedback workshops in each of the districts, in February 2019. Between 5 and 10 government representatives participated, including crops, livestock and agribusiness officers. The participants stated the following priorities and policy issues:

- **Livestock quality and animal welfare:** Link livestock quality production and animal welfare with marketing; farmers and other value chain actors must understand livestock as an enterprise. There is need to enforce minimum standards for transport and maintenance. The project, through cross-sectoral collaboration, raises awareness on hygiene and health.
- **Grading and quality standards:** Grading needs to be incentivized for product improvement in response to increasing demand. Enforcement of quality standards and transparent price mechanisms are a question of political will. The project is preparing for demonstrations on alternative market structures and organization, the economic benefits that can be achieved and how they would help government implement policy.
- **Livestock feed:** There is a misconception that commercially produced feed outcompetes locally produced ones. This also stems from the fact that commercial feed grades and standards are not adhered to. Smallholder farmers can reduce costs by producing feed components, processing and adding supplements locally. They will also have greater control over feed quality as formal quality control is not enforced, while there is huge variation in quality of commercial feeds. Rising consumer consciousness and demand for village chickens being tastier and healthier, feed free from antibiotics and GMOs, is an opportunity for the project to also promote locally made feeds.
- **Awareness and enforcement of preferential procurement:** Smallholder farmers to access preferential procurement arrangements, e.g. with government office, schools, hospitals, and the military. To qualify for the bidding process, this requires farmer groups to register. The project is in process facilitating these relations.
- **Value addition dairy:** There is need for farmer-led bulking groups to invest in processing infrastructure. This involves farmer self-organization and investors and decision makers establishing new companies and new farmer-led models for the dairy industry. The project is assessing ways to address policy barriers to local value addition, MSMEs training and equipment for dairy processing are in preparation.

- Market and processing infrastructure and organization: Investments are required to increase the availability of better quality and refined products, in response to market demand. Capacity development further down the value chain and reduction of transaction costs will ensure quicker returns on investments. The projects already responds to these sentiments through investments in chicken, goat, dairy and feed MSMEs, infrastructure development, capacity building and policy dialogue.
- Knowledge and communication: Establishing effective market information channels for seasonal updates on commodities and prices is critical so that information from consumers to processors to farmers could change the production system as well as the income generated by farmers. Various media exist, but they are not always functional and do not penetrate rural areas. There is need to develop cost- effective and innovative ways of collaborating with private mobile companies and MPC1 radio stations to make market and price information available. The project will engage with high level media to bring out success stories and lessons of the multiple project components.
- Policy intervention on SMEs that look at government activation of preferential procurement from local entities, especially by government institutions such as schools, correctional facilities and military. Options for preferential trade agreements are being assessed, a list is in process of clients in rural areas, their requirements and prices.

A.1.4 Highlight implications for IP review and direct discussion with local decision makers (IP as coordination mechanism strengthening individuals and the network)

A review of the impact of the IP approach in the districts will be done in the final quarter of project year 3. It will assess if the approach has a broader appeal in the implementation of other initiatives beyond this project. A survey will assess the uptake of IP approach and tools involved for other sites and commodities.

R2 – Entry points for value chain development strategies identified and operationalized, addressing key bottlenecks and stimulating entrepreneurial development, large scale uptake, social organization and investment, considering implications for women and youth, information and capacity development needs

Indicator	Level of achievement
2.1 Stakeholder engaged in generating solutions for each value chain	VCA has been conducted. Stakeholders participated and gave insights into the critical entry points and areas of policy. Based on these, key value chains are currently being supported. This has been achieved 100%.
2.2 Existing MSMEs strengthened towards greater business and employment	Bvumbwe Dairy, Feeds Solutions Limited and Phalula Butchermen have been strengthened through business reorganization, development of business plans and are currently being mentored.
2.3 New MSMEs generated, mostly driven by women and youth	New companies around poultry, namely Chimtengo Youth Poultry Company Limited and Namagazi Chickens Producers Company, have been facilitated to register and received support towards chicken production. The latter is a company owned by women.

Investments for infrastructural development and institutional arrangements were prepared for improving existing high potential value chains of chicken, goats and dairy. Entry points were identified and strategies developed to improve overall chain efficiencies, involving production, processing and marketing, by stimulating MSMEs.

A2.1. Addressing entry points for value chain and MSME improvement, entrepreneurial development, social organization and investment

Sensitization meetings were held with farmer groups to identify members interested in venturing to become a limited liability company. Several groups were identified -- in Balaka the Phalula Butchermen group, in Chiradzulu a youth chicken group at Chimtengo and a women chicken group at Mmora, and in Thyolo a chicken group at Namagazi and Bvumbwe dairy cooperative. District Agribusiness Officers assisted in registering these into companies and identifying their training needs. Important criteria to form a company were: Names approved by the local leader (Village Head/ chief), IDs including passport size photos, physical & correspondence addresses, land ownership signed by the chief, readiness to invest 10% of the total value of a company, equal shares and a strong commitment to developing a constitution.

The project then organized training sessions for members of the MSMEs on viable ways of developing their enterprises. Trainings were conducted with two poultry companies (Chimtengo Youth Poultry Company Limited and Namagazi Chicken Producers Company), Bvumbwe Dairy Cooperative and Phalula Butchermen. The MSMEs produced their own bankable business plans, with objectives, organization structure, production and marketing plans.

A2.2. Facilitate technical interventions and institutional support needed

The household, value chain and fodder market surveys and IP meeting identified a number of bottlenecks to the performance of the MSMEs in the three districts. The value chains of chickens, goats and dairy were mainly constrained by the lack of business skills and capacity of the beneficiaries, markets prices and market structures. Allocative efficiencies at the farm and business levels were also of major concern. The businesses were operating with limited business planning leading to major losses, especially the dairy cooperative at Bvumbwe. To address these challenges the project team and the Agribusiness officer from the Government facilitated the development of a business structure, where some structure existed. For example at Bvumbwe, the project facilitated the revamping of the structure to bring efficiency in operations and accountability. The key was separating ownership from management of the businesses and defining their relationship. After the business structure was developed, through workshops and coaching, the project team facilitated the development of business plans for the targeted farmer-led companies that were registered. At a farm level, the importance of gross margin analysis for enterprise selection and for better allocative efficiency was demonstrated.

Each of the MSMEs developed their own business plans. Each company raised at least 10% of the value of their business plan or demonstrated capacity to raise the 10%. These were the companies

- Poultry (Chimtengo Youth Poultry Company Limited and Namagazi Chickens Producers Company)
- Goats (Phalula Butchermen)
- Feed production (Feeds Solutions Limited)

The surveys and the business consultancy that examined the gaps in MSMEs in the 3 districts, and the areas the project could intervene in, assisted in directing where resources and time could be invested by the project. The genetic diversity of dual-purpose birds was a constraint in Malawi. Other than the Black Australorp, no known species had been officially introduced into the country in the past 50 years. The project, based on ILRI's work with indigenous dual-purpose birds, worked with the government of Malawi's Ministry of Agriculture and facilitated the acquisition of 5000 Kroiler birds for evaluation and possible release in Malawi. The farmer companies are participating in the evaluation, as is the Ministry of Agriculture's Mikolongwe Research Station which is serving as a second evaluator.

The project facilitated the renting of infrastructure for quarantine purposes and for the evaluation of the Kroiler birds at Lunzu near Blantyre and assisted government officials with the inspection of the facilities and evaluation process. Furthermore, infrastructure to support onsite feed formulation was set up at the quarantine farm. The plan is for the feed company to use the infrastructure to produce feed for the poultry company and dairy that the project is supporting, and beyond.

One of the main challenges in the goat value chain was the shelf life of the meat since being in the hotter southern part of the country means meat tends to spoil easily. The project facilitated the acquisition of 2 cooling containers, and one container fabricated in a selling area for the butchery. These containers have been installed at Phalula Butchermen and the abattoir facilities. These interventions should lead to reduction in spoilage and improve the quality of meat and general food safety.

An assessment has been made of interventions important for the preservation of milk. Bvumbwe dairy will be supported in value addition in year 3, training and infrastructure for dairy pasteurization, cooling and bottling, yoghurt processing. In May 2018, the project facilitated the demonstration of feed formulation using locally grown crops and forage for dairy animals, after which farmers who adopted the technology saw significant increase in milk yields, in some instance up to 30% increase in 2 months.

As part of the Feed Assessment Tool (FEAST) survey, about 70 samples of different feeds and feed ingredients that farmers are using were collected and analysed for quality. Farmers mostly mentioned lack of nutritious feeds as a problem. However, the analysis revealed that most of the feed ingredients have high content of important macronutrients. Many of the feeds have high crude protein (e.g. mucuna, groundnut hay, pigeon pea, cow peas) and are highly metabolizable, clearly showing that the issue is not the quality but rather the quantity of feed given to the livestock, and methods of processing to allow for the full utilization of the feeds.

Another area of concern for farmers is that feed provided by commercial feed processors is of sub-standard. An analysis of the commercial rations samples from Proto Feeds and Central Poultry Feeds revealed that the nutrition information on tags (especially on crude protein level) match the contents or are slightly higher. This shows that these companies offer farmers the right feed.

Technological interventions are structured to convert losses into sales. Particularly where goats are involved, there is no strong advocacy to increase the goat population, so the project is promoting improved husbandry, feeding and health for improved quality to meet market demand and increase sales.

A2.3. Capacity development

Two trainings were held for poultry farmer groups from the three districts in preparation for the distribution of the improved Kroiler dual-purpose chickens. The trainings were designed to equip farmers with knowledge and practical skills in keeping Kroiler chickens in rural environments.

Consultants from Rural Poultry Team, together with the SLLP team and government extension officers facilitated a 3-day training on village chicken production, with emphasis on understanding the markets for chicken, improving chicken management, controlling New Castle disease, and government policies with regard to chicken production. Nineteen farmer representatives from the three chicken groups attended the training that was structured to enhance their management capacity to pass on to the respective groups. Reducing chicken losses at all stages in the production cycle was highlighted as a critical entry point for improving profitability. The training recommended that farmers work with agro-dealers to ensure the timely availability of vaccine for New Castle disease.

Subsequently, Charles Stewart Poultry Company trained farmers and extension representatives in managing dual-purpose chickens like Kroiler, dwelling on the sensitivity of the improved breeds, care during transport, housing and feeding, grading and uniformity for market purposes as well as biosecurity.

R3. On-farm productivity, production and profitability increased through informed enterprise selection, with improved diversification, integration and intensification of technologies and associated production and harvest management practices

Indicator	Level of achievement
3.1 Higher yields per unit of land	Crop demonstrations on farm and at the group level were supported by trainings; farmers diversified production as per gross margin analyses. Mid-season review was done. Yield levels will be measured in May 2019. Considering these activities, outstanding yield assessments and a second season in 2020, 20% were achieved.
3.2 Increased soil fertility through increased use of organic sources of fertilizer	Intercropping and manure management were part of the trainings and crop demonstrations. Some farmers applied manure and many used cereal-legume intercropping. Mid- and end-season data to verify uptake are being collected and processed. 30% achieved.
3.3 Improved human nutrition through increased food safety and frequency of consumption of animal and pulse sourced food on farm	Strategic investments are being advanced; linking baseline and consumer survey results with feedback at IPs and policy dialogue will enhance understanding and engagement. 20% achieved.
3.4 Increased income through market orientation, value addition and reinvestments on farm	Use of gross margin analyses supports farm conversion towards higher value commodities. Value chain links and MSMEs support income at farm level and along value chains. Some farmers had increased milk yields after introducing feeding technologies. Feed

	formulation for chickens will increase profitability. 30% achieved.
3.5 Reduced post-harvest losses in food and feed related processes	Addressing post-harvest losses in grain and biomass is being addressed through promotion of basic crop harvest management, PICS bags, and upcoming trainings. 20% achieved.

A3.1 Empowerment of farmer groups

The project empowers farmer groups through the IP activities where farmers define their own goals and ways how to get there. The MSME and farmer group level activities enhance farmers' capacity to self-organize in relation to specific technical components and market development.

A3.2 Gross margin analyses to equip farmers with tools for profitable enterprise selection

The IP meetings and diagnostic process revealed that there is high potential for farmers in the three districts to benefit from profitable agricultural enterprises. Most farmers do not select and plan their agricultural enterprises, leading to inefficient practices and huge losses. At the IP review meetings in each district, project staff and government extension officers trained farmer groups on gross margin analyses, how gross margins were compounded and how the tool can be used to choose profitable enterprises. Through participatory training sessions, farmers developed gross margins for their farm enterprise activities. The project worked with the farmer groups on enterprise selection for the 2018/19 season.

A3.3 Crop demonstrations and evaluation

The project supported farmer groups through individual farmers and village-based demonstrations towards ensuring food security by increasing cereal and legume crop productivity and production, while adding value to limited land and labor through livestock feed production. This was also in reaction to the decreasing price for crops against increasing price for livestock, fuelled by growing demand for livestock products in domestic markets. The project aims to develop mechanisms that translate improved livestock quality into adequate product pricing.

Input assessments were held in October 2018 with farmer groups in preparation for the 2018/2019 growing season. In total, 36 farmer groups were profiled, 8 groups in Balaka, 21 in Chiradzulu and 7 in Thyolo. Based on the gross margin analyses, farmer group members outlined the agricultural production enterprises that they would like to engage in and the inputs that they would require.

Inputs were provided since most producers were using local varieties, predominantly of cereals, with low productivity, limited feed quality, and prone to climatic shocks. Seed distribution to individual farmers was coupled with messages on crop diversification and improved crop management, notably intercropping, manure application and increased planting densities. The farmers were given seeds of sorghum, groundnut, pigeonpea, cowpea and mucuna for their individual fields, with a request to monitor crop growth parameters.

The project also disseminated improved dual/multi-purpose crop cultivars for village-based demonstrations, using varieties that had been screened during feed analyses. Groundnut and sorghum varieties were established on central demonstration plots.

Seed was distributed from 26 December 2018 to 3 January 2019. In total, 908 farmers (253 in Balaka, 505 in Chiradzulu and 150 in Thyolo) received a total of 7.5 tons of seed, depending on variety, each farmer received 8 to 10kg of seed. A total of 2450 acres was planted. Table 1 and Table 2 summarize the volumes of seed distributed. Those who received legume seed were also provided with pesticides to control early aphid infestation. Farmers received 293 litres of Dimethoate and Novatelic pesticides and 40 sprayers on 15 February 2019.

Seed distribution was followed by a short training on crop diversification and improved crop management, land preparation, increased planting densities for higher yields per ha, intercropping cereal crops with pigeonpea, cowpea, mucuna, and organic soil fertility management. In each group, farmers had the option to choose 1 to 3 different types of seeds, planted on individual farms and demonstration plots. The seed was distributed relatively late in the season; farmers had already planted their other crops. Most decided to intercrop, planting between the established crops, also as a way to accommodate different crops on limited land. The groundnut demonstration plots were planted as a single crop.

Monitoring visits by the research team during the mid-season and subsequently showed that crop establishment was better in Chiradzulu and Balaka. In Thyolo, the dry spell resulted in poor germination. Generally, legumes performed better than maize, which is infested by the Fall Army Worm. The late arrival of inputs through the

project reduced the potential yields. Among the crops distributed mucuna, cowpea and pigeonpea were comparatively better established. Mucuna was more drought tolerant and less susceptible to aphids than other legumes. The new cowpea variety showed high yields in Balaka and Chiradzulu. Pests on legumes were more frequent in Thyolo. Farmers complained about the quality of some of the groundnut and sorghum seed. The field visit provided important follow-up lessons: Crop monitoring must involve careful evaluation of the effects of intercropping and derive management recommendations. For outscaling of high potential food-feed crops, the project can buy back seed and distribute the same for MSME feed manufacturing. In some villages farmers had advanced their activities on their own initiative to prepare for company registration, e.g. poultry group and goat keepers in Thyolo.

Mid-term crop monitoring was prepared to be implemented in March 2019. Students from LUANAR University and the project's field team are assessing farmers' current state of knowledge and management practices. The end of season crop monitoring and participatory groundnut variety selection is planned for May 2019. The project will continue training on post-harvesting, aflatoxin control, livestock feed formulation and feeding demonstrations. Livestock feeding demonstrations will be established to illustrate the evidence of improved feeding. The training structure will be revised to train 2 farmers per group as trainers of trainers, with the groups nominating the participants. The distribution of chicken and goats to recipient farmers will be on the condition that farmers successfully implement the management requirements.

Tables 4 and 5 list details of seed varieties and quantities distributed per district,

Table 4. Quantity of crop seed distributed to CLIMM farmer groups in the three districts.

No.	Crop	Variety	Seed rate (kg/acre)	Seed per district (kg)			Total seed (kg)	Land size (acres)
				Balaka	Chiradzulu	Thyolo		
1	Groundnuts	Sinjiro & CG-7	5	509.3	1000	470	1979.3	395.86
2	Pigeonpea	Mwaiwathu Alimi	2	276.5	396	309.5	982	491
3	Cowpea	IT82E-16	2.5	295.5	961	290	1546.5	618.6
4	Sorghum	Pilira 1	2	489.6	216.5	430	1136.1	568.05
5	Mucuna	Black & Spotted	5	739.5	721	435	1895.5	379.1
Total				2310.4	3294.5	1934.5	7,539.40	2,452.61

Table 5. Quantity of dual-purpose groundnut seed varieties distributed for demonstrations to CLIMM farmer groups in Balaka.

Variety	Description	Utale EPA groups (kg seed)		Phalula EPA groups (kg seed)		Total seed (kg)
		Wondwe women	Chimwemwe FFS	Phalula youth	Chisomo	
ICGV-SM 01514	Low quality dual-purpose	5	5	5	5	20
ICGV-SM 01513	High quality dual-purpose	5	5	5	5	20
ICGV- SM 1711	Seed multiplication	2	0	0	0	2
JL-24	Dual quality	20	20	20	20	80
ICG 12991 Baka		5	5	5	5	20
Total		37	35	35	35	142

To control pests in legumes, pesticides and sprayers were distributed. In total, farmers received 56 liters of Dimethoate, 189l of Novatelic and 40 Jacto 16l sprayers.

Subsequently, a survey tool was developed for mid-season crop monitoring in March 2019, and end-season monitoring and participatory variety selection in May 2019. The aim is to assess farmers' current state of knowledge on crop management and safety, preferences for dual-purpose crops, and crop grain and biomass yield development under different management treatments. The mid-season survey was implemented by the team from ICRISAT and SSLP facilitators, interviewing a total of 278 farmers. Two students from LUANAR University

collected and entered the data. A subset of 4 to 5 farmer groups per district was selected from 33 existing project farmer groups that had received seed from the project, representing the different EPAs, gender and livestock ownership.

A3.4. Post-harvest management

In response to post-harvest losses due to spoilage and insect infestation, the project trained farmers in maintaining quality (appearance, texture, flavour and nutritive value), ensuring food safety and reducing losses (both in physical and market value) between harvest and consumption. PICS (Purdue Improved Crop Storage) bags provide a clean storage option that reduce post-harvest losses, pesticide costs, and keep the grains safe for three years. In total, 8 groups of 30 farmers each were trained on the use of PICS bags, 600 of which were distributed as starter bags. Farmers hailed the technology as cost effective compared to buying ordinary bags and pesticides. Some expressed the fear from hearsay that seeds of grains/legumes stored in the PICS bag do not germinate. Other farmers disputed the claim citing they had used the bags to store seed which had germinated properly.

A3.5 Livestock demonstrations and evaluation

Chicken production: Kroiler birds have been introduced in Malawi for evaluation at the farm level, working together with the government of Malawi. In Mikolongwe Research Station and a number of sites across all three districts, including 2 companies and 90 recipient farmers, these birds will be managed through a facilitated approach, including ownership, technical management and market facilitation.

Preliminary Kroiler evaluation at the Department for Animal Health and Production Station Mikolongwe (Figure 4): The previous annual report outlined the activities undertaken and processes initiated to shorten testing and release of new breeds of chicken in Malawi, which used to take a minimum of 18 months to start the testing process. As per the new arrangement proposed by the CLIMM project, the testing process starts after 12 months. The research station at Mikolongwe has been proposed by the government of Malawi as the site to undertake the government evaluation. Mikolongwe station reported better performance of the 1000 allocated Kroilers relative to the Black Australorp. Kroiler performance to date has been on par with the extensive performance trials conducted under the Bill & Melinda Gates Foundation project promoting Kroilers in Ethiopia.

The positive performance of Kroilers has already attracted considerable interest in chicken research by senior researchers and students and development communities in Malawi.

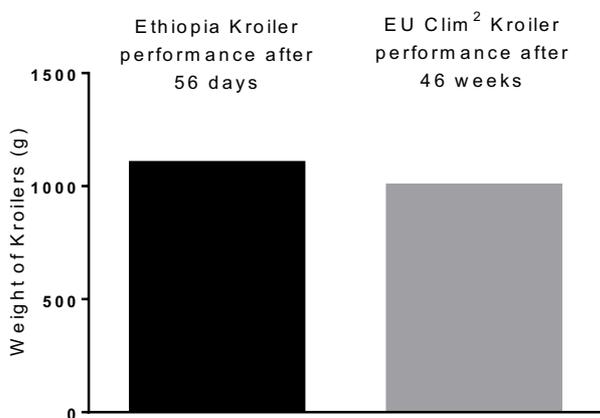


Figure 4. Comparison of Kroiler performance at government research stations in Ethiopia (“gold standard” from BMGF project) and Mikolongwe in Malawi

Preliminary Kroiler evaluation at Lunzu farm (Figure 5): Four thousand Kroiler birds were housed at Lunzu farm as preparation for distribution to farmer and chicken business. The management conditions at Lunzu can be considered to be in between the highly specialized management at Mikolongwe research station and farmer management. Considering this intermediate level of management, the performance of male Kroiler birds compares very favorable with on farm performance at of Kroiler birds tested on farm in Ethiopia under the BMGF project. The performance at Lunzu after 51 days is essentially the same as the performance of Kroiler after 90 days in Ethiopia.

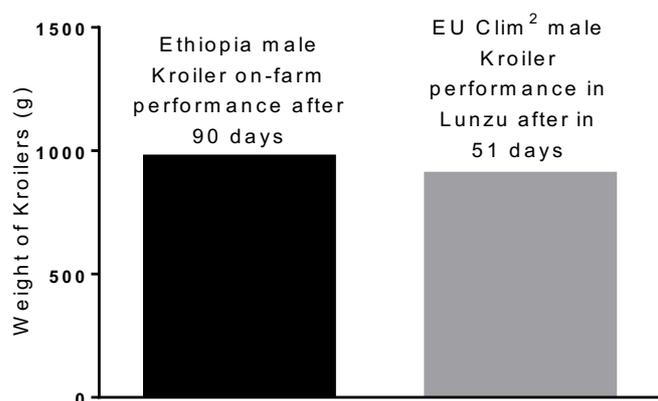


Figure 5. Comparison of Kroiler performance at Lunzu farm in Malawi with Ethiopia on farm performance

A3.6 Feed and fodder production

To improve the quality of feed for dairy production and to enhance the profitability of dairy enterprises, a 3-day training on feed formulation was facilitated by consultant Dr Irenie Chakoma from ILRI (Zimbabwe). The training dwelt on fodder production, silage making, hay making, ration formulation and mineral block. A practical session saw participants demonstrate the lessons that they had learnt. A total of 27 participants were trained, including dairy farmers from Bvumbwe dairy cooperative, extension services and agro-dealers from the three project districts and the project field team.

R4. Value chain-enabling environment improved through cross-scale policy dialogue, to facilitate upscaling of MSME enterprises and group performance

Indicator	Level of achievement
4.1 Critical policy constraints identified with stakeholders, and fed into policy review processes	Policy issues were identified and prepared to feed into the policy review process. This will be annually reviewed and aligned through the PSCM. 30% achieved.
4.2 New links between research, development and policy dialogue	Links are gradually being established and consolidated through feedback at the PSCMs. To be addressed in year 3 to end of project. 30% achieved
4.3 Up- and outscaling framework and processes	Entry points for upscaling are being identified in parallel with business activities (chicken groups in Thyolo, goat and dairy groups in Chiradzulu). Links for outscaling are being developed through cross-scale feedback with policy and decision makers. To be enhanced in year 3 to end of project. 20% achieved.

To improve the transformational capacity of agricultural systems, a cross-scale policy dialogue is being facilitated to address (i) the integration of smallholder crop and livestock production systems, (ii) improve market linkages through the development of related small and medium enterprises for both input and output markets as well as processing and (iii) increasing the role of the private sector in the commercialization of smallholder agriculture.

A4.1 CLIMM Project Steering Committee Meeting

By setting up an inclusive Project Steering Committee, the project built important linkages at the national level with research directors from crop and livestock production, to embed the project's outcomes in the countries' strategic investment plans, support the new agricultural policy, strengthen policy decisions, and for joint planning of upscaling strategies. At the first PSC meeting in October 2018, participants highlighted the importance of the project in addressing agricultural production and value chains to raise incomes and ensure food security and nutrition. Among the important issues raised were the need to verify the competitive advantage of improved vs

local breeds, promoting the use of feed formulations to enable farmers to optimize their farm enterprises, and development mechanisms that empower farmers in skills and knowledge sharing beyond the life time of the project. The PSC supported the institutionalization of the innovation platform, value chain approaches and focus on MSME and crop-livestock integration. The CLIMM project plans a policy dialogue early in 2019 focusing on broader issues (IPs, crop-livestock development, importance of VCs and MSMEs, food security vs nutrition challenges, etc.) to involve policy representatives early on in the process. The Agricultural Directors recommended inviting the Ministry of Trade and Director of Land Resources for policy directives as well as value chain representatives and relevant commodity associations. While there may not be an association focusing on small livestock (goat and sheep) and feed, we will investigate opportunities to include small stock and feed value chains. It was also agreed to invite the Principal Secretary to chair the PSC. A technical committee would meet more regularly to inform the PSC. The meeting identified ongoing initiatives and contact persons to which CLIMM could feed into and build synergies with.

A4.2 Business and policy consultant

A consultant was engaged to inform the current business environment and opportunities that are being supported along the value chain, providing insights into priority areas for capacity building support and delivery, to ensure success of the business. He also highlighted the need for policy and business restructuring, and made recommendations on restructuring existing MSMEs to better access markets, through quality products and meeting customer specifications.

A4.3 Policy review meeting

A consultative meeting of national level policy makers from agriculture was held in Lilongwe, providing inputs on the direction and priority areas for the sector. These inputs have informed some of the activities, especially around business structure, support models and capacity building. At the district and business levels, feedback from extension and research was incorporated in the planning and reporting.

A4.4 Mechanisms for upscaling policy relevant lessons

- Communication: Preparations are on to broadcast technical lessons, aligned around field activities, through the web, radio and TV.
- Blog writing training: CLIMM project staff was trained on documentation and blog writing, for regular contributions of project stories to the website and other social media, in a non-formal style and easier to reach not only donors and project staff but the general audience as well.
- A CLIMM website (www.clim.org) was designed for regular project updates in the form of photos, blogs, short articles and project reports.
- Visibility events: The project team participates in agricultural fairs, demonstrations and other events.
- Networking with the private sector (Suncrest, Nyamaworld, Finca, NBM):
 - Stewart supported chicken training activities and feed supply
 - Polypack representatives participated at IP meetings to promote PICS bags
 - Waymade investments shared their product packages at IP meetings, including pesticides, boer goats and other agricultural inputs.
 - SeedCo supports evaluation of suitable germplasm for dual-purpose.
 - FINCA supports developing agricultural MSMEs specifically looking at commodity-based repayments
 - Suncrest has been contacted for value addition to milk.
 - Shoprite was contacted as offtaker of goats. They are interested in volumes of 200 goats per week, with conditions such as the presence of a functional cold chain. This will be taken up through Balaka infrastructure development.
- Networking with other organizations: IFAD (CL, Irr), CRS (CL), UP, IITA, Luanar,
 - KULIMA: Possible cooperation was initiated with ADRA on using the FFS extension approach in two sites in Tholo EPAs.
 - AFIKEPO: Has been contacted for synergies and collaboration on nutrition sensitive agriculture.

Updated action plan for May 2019 to April 2020, following the revised logframe.

Activity	1	2	3	4	5	6	7	8	9	10	11	12	Implementing body
1. Increase knowledge on farming systems and agribusiness linkages													
1.1 Engage district stakeholders													SSSLP
1.2 Household baseline surveys analyses and feedback													ICRISAT
1.3 Value chain and MSME surveys analyses and feedback													ICRISAT/ILRI
1.4 Analyze dynamics in high potential value chains													ICRISAT/ILRI
1.5 Analyses and synthesis of research data for timely informing of stakeholder processes													ICRISAT/ILRI
2. Identify and operationalize entry points for value chain development strategies													
2.1 Identify and facilitate technical interventions and institutional support around high leverage entry points													SSSLP
2.2 Facilitate the technical interventions and institutional support needed to improve the functioning of value chains and related information flows													ILRI/ICRISAT
2.3 Mobilize and evaluate existing and create new MSMEs													ILRI/ICRISAT
2.4 Support and build capacity of value chain actors and MSME entrepreneurs													SSSLP
2.5 Explore informal and formal financial mechanisms (credit, loans, saving schemes) for establishment, implementation and sustainability													ILRI/SSSLP
2.6 Innovation Funds established to support MSME investments													ICRISAT/ILRI

4.3 Hold policy review and dialogue meetings to identify policy gaps, information and evidence required, to be assessed through the project, policy case studies													ICRISAT/ILRI/SLLP
4.4 Define mechanism for promoting, scaling up and out technology packages and processes, policy-relevant project lessons, engagement with the private sector													ICRISAT/ILRI/SLLP

3. Beneficiaries/affiliated entities and other cooperation

3.1. How do you assess the relationship between the beneficiaries/affiliated entities of this grant contract?

The project is being jointly implemented and activities are planned and revised together by all three partners: ICRISAT, SSSLP and ILRI. ICRISAT and the affiliated entity, ILRI, share a long history of cooperation on crop livestock projects in the region. They have many platforms to work together, build on their comparative advantages, share information and align the CLIMM work with other activities. ICRISAT and ILRI have used the opportunity to link the CLIMM project to other international initiatives, such as the ICRISAT-led CGIAR Research Program (CRP) on Grain Legumes and Dryland Cereals and to the IFPRI-led CRP on Policies, Institutions and Markets. ICRISAT faced staff turnover during the reporting period, so adjustments were made within the team to ensure continuity of the process and partnerships. Economist Kai Mausch resigned from ICRISAT, the PI Andre van Rooyen took a sabbatical for three months. Social scientist Sabine Homann-Kee Tui took over both roles temporarily. ICRISAT employed a new value chain economist based in Lilongwe office, who will support the CLIMM project.

The co-applicant, SSSLP is a Malawian-based NGO specializing in livestock development, hosting the research organizations, and with links to government and other implementing organizations at the district and national levels. Joint planning, implementation and continuous revision of activities supports the partners to ensure common understanding, and that implementation is aligned with and adjusted to the requirements on the ground for achieving the intended outcomes. Recognizing SSSLP's limitations (no large networks and resources such as personnel and funds to advance), strong support and capacity building, handholding has been implemented.

This has meant more time being spent by ICRISAT and ILRI guiding the partner organization in implementation and reporting, as highlighted in the EU-Result Oriented Monitoring (ROM) recommendations. ICRISAT and ILRI are building SSSLP capacity by encouraging district staff to jointly plan with the government at the district level, participate in trainings and feedback meetings, facilitate sessions of IP meetings and trainings, lead work packages during implementation, write reports and contribute to communication materials. SSSLP district staff are growing into their roles as facilitators of participatory processes, liaising with government officials as an integral part of the implementation process and taking responsibility in implementing activities.

Furthermore, ICRISAT finance staff reviewed SSSLP's financial management and accounting procedures. A report on recommendations for improving the financial management was sent to SSSLP for inputs. The frequent turnover of project managers, three staff in two years, is a challenge for the continuity of the project and results in loss of institutional memory.

To ensure smooth implementation, scientists from ICRISAT and ILRI plan all activities and field visits such that they are physically implemented together with SSSLP, hold regular planning meetings, and use the common time in the field for revision and adjustments. Resources are shared fairly, including transportation and office space.

The joint implementation is also embedded in government activities and planning processes. This is evident in the annual inclusive project steering committee meeting, led by the Permanent Secretary of agriculture. The team plans the Project Steering Committee Meeting (PSCM) together, to contribute to building strong relations in the country, sharing information, and exploring ways to address fundamental challenges.

3.2. How would you assess the relationship between your organisation and State authorities in the Action countries? How has this relationship affected the Action?

The project has a clear understanding with government entities that it is being implemented on behalf of the government to support government activities, aligned to the national agricultural policy and implementation plans. This is demonstrated by the fact that all government agricultural research directors are members of the project steering committee. The project puts a lot of effort in building capacity in multi-stakeholder approaches, crop-livestock integration technologies, and in ensuring that lessons are disseminated through local and higher level communication channels.

The project established an inclusive Project Steering committee, following the EU-ROM, composed of directors of government animal health, crops, research and extension organizations, NAO support line, SSSLP board member, ICRISAT country representative and ex-officio DADO representation. The first meeting held in October 2018 generated significant buy-in for the project, and a sense of urgency for the project to contribute to the vision of the country, work through government agencies, and build local capacity. The resolution was to invite the Permanent Secretary to chair the steering committee.

At the district level, protocols were followed to align the planning and implementation process. The project field officers are based at the EPA district offices to facilitate continuous interaction and feedback from the government.

DADO is informed and updated regularly, and activities are planned and coordinated with district level government and extension plans. District and EPA staff representing the government in the crops, livestock, agribusiness, jointly execute program activities. The emphasis is on training district level staff and project field staff to facilitate IP-relevant processes and trainings. Training in agribusiness and business plan development was done by engaging government agribusiness officers. This is reported back to the respective district and EPA level governments and extension services.

Government extension, research and technical staff support the development of MSMEs and evaluation of imported Kroiler. They seconded veterinary and management officers to the activities. Mikolongwe Research Station is hosting part of the evaluation work. The project directly supports all government staff through allowances for their participation. Students are being engaged and supervised at Mikolongwe in raising and monitoring the growth of chickens.

Based on our existing working relationship, we liaised with LUANAR University, with Prof. Vernon Kabambe, (Crop Production), Prof. Timothy Gondwe (Livestock Production), and Prof Charles Jumbe (Agricultural Economics). They seconded students for surveys, participated in VCA and MSME trainings for crop monitoring, VCA and MSME surveys, and provided data entry facilities at CARD.

Feedback meetings with district and EPA representatives proved valuable in interpreting the data from the local context, and together identify priorities for investments, IP follow up and policy gaps. It is very clear that there is a capacity gap in agricultural enterprises, driven by a growing demand for livestock products; hence the great urgency to develop infrastructure and organizational arrangements.

These insights will be shared at the national policy dialogue and project steering committee meeting planned in June 2019, in order to identify solutions and their facilitation. This will strengthen linkages to the national system and align with government priorities. New fundraising opportunities were identified for scaling and longer-term engagements.

New links were established with private sector companies, providing key inputs for MSME development activities. We are exploring market opportunities with the private sector to facilitate long-term relations between farmers and the private sector in order to obtain a better understanding of market demand and requirements. This will enable trade of larger volumes of quality products, linked with transparent and trusting pricing/ quality relations, and informing policy gaps. This will help support services find new ways of contributing to linking farmers to markets, and how this can contribute to raising productivity and income.

- **Chicken:** For the development of chicken value chains and MSMEs, we engaged a rural poultry team and Charles Stewart Poultry company to facilitate poultry training on local and commercial chicken production. We developed business links with Charles Stewart for the supply of Kroiler chicks in quarantine.
- **Goats:** As steps are being taken towards more structured goat marketing and meat processing at Phalula market and butchers, we contacted Shoprite as one the large-scale market avenues. We have been exploring other markets and traders that supply large volumes of goats to Blantyre and Lilongwe, as avenues for outscaling the goat marketing model.
- **Dairy:** We developed strong links with selected bulking groups and Bvumbwe dairy cooperative. We are in constant discussion on ways to test and improve milk quality and capacity development needs of farmer groups to venture into milk processing and value addition. We have approached Suncrest to ascertain how to reduce milk losses and have contacted other dairy cooperatives to scale out the dairy value addition model.
- **Feed:** Through feed sampling, we established links to feed input suppliers and manufacturing companies. We collected their samples for analyses, and will provide them with the results, ways of establishing ties to the feed industry. Samples from industrial feed producers showed that the content reflects the listed quality and ingredients on the labels and that they are not short-changing small-scale producers.
- **Credit:** No farmers have received direct loans from financial companies we have been working with. The biggest gap is the capacity and willingness of the financial institutions to develop products that fit the production cycles of farmers and the MSMEs. Ideally, a suitable product should involve repayment at the maturity of the product. Discussions are on with financial institutions to re-evaluate the products. Meanwhile, the project is using the start-up kit approach where support with initial funding and resources is provided to the MSMEs and farmers, including infrastructure support and purchase of initial chicken stock. The kits include equipment and machinery such as hammer mills, seeds and related technical support and training.

3.3. Where applicable, describe your relationship with any other organisations involved in implementing the Action

Final beneficiaries and target groups

Farmers are involved in the IP process and planning of program and capacity development activities. We encourage farmers to develop ownership over the process of implementation and feedback, and to use the information gained to develop their enterprises.

Farmers responded to the crop input distribution with enthusiasm; they intercropped the seed with what they had already planted. Beyond the individual plots a number of demonstration plots were established. Some groups rented land to participate in the learning exercise.

While the original strategy was to reach out to a few farmers and work with them as trainers of other group members, the feedback we got was that the trainings should be decentralized to allow more farmers to participate and reduce gaps in knowledge transfer.

Capacity development activities

Multiple capacity development activities were implemented, as per needs assessment and through the IPs, as well as in response to emerging deficits. Farmer targeted trainings involved gross margin analyses for enterprise selection, business plan development as preconditions for farmer groups registered as a company, as well as technical trainings on crop post-harvesting using PICS bags. Trainings on Aflatoxin control are planned for the end of the 2018/19 season, along with feed and fodder formulation.

The project team and university students were trained on communications, website and social media use, value chain and MSME tools as well as crop monitoring and chicken raising.

ICRISAT built SLLP capacity on financial management, planning and communication processes.

Table 3. Farmer groups participating in gross margin analyses.

No.	District	Farmer group	Participants		Date and venue
			Male	Female	
1	Chiradzulu	Chimtengo youth club	10	20	26-27 February 2018, Chimtengo village
2	Chiradzulu	Thobora women club	0	30	28 February-1 March 2018, M'mora village
3	Thyolo	Namagazi chicken club	10	18	1-2 March, 2018, Namalanga village
4	Chiradzulu	Satumbe club	10	20	2-3 March 2018, Ng'ombe section
5	Thyolo	Makapwa irrigation scheme	5	18	3-4 March, 2018, Chagunda village
6	Balaka	Chimwemwe farmer group	6	15	3-4 March 2018, Naweta village
	Total	6	41	121	162

Table 4. Project staff participating in communications and blog writing training.

No.	District	Participants		Date and venue
		Male	Female	
1	Blantyre	2	6	27-29 March 2018, CLIMM Blantyre office
	Total	2	6	8

Table 5. Farmer groups participating in PICS bags trainings

NO	DISTRICT	FARMER GROUP	PARTICIPANTS		Date and venue
			Male farmers	Female farmers	
1	Chiradzulu	Chimtengo Youth	10	20	3 July 2018, Mmora village
2	Chiradzulu	Thobola womens club	-	30	4 July 2018, Chimtengo village
3	Balaka	M'Bwemba club	10	20	4 July 2018
4	Balaka	Tipindule	30		
5	Thyolo	Namagazi FFS	30		
6	Thyolo	Zaone club	30		

Table 6. Farmer groups participating in the second IP meetings.

No.	District	Participants								Date and venue
		Govt male	Govt female	Farmer male	Farmers female	NGOs male	NGOs female	Private male	Private female	
1	Thyolo	7	2	21	10	2	0	4	0	23-24 June 2018, Bvumbwe, Thyolo
2	Balaka	6	1	18	11	2	0	6	1	18-20 July 2018, Zuc Lodge, Balaka
3	Chiradzulu	4	1	14	11	0	0	2	0	1-2 October 2018, Kamthiti Lodge, Chiradzulu

Table 7. Participants in the feed and fodder formulation training,

No.	District	Participants						Date and venue
		Govt male	Govt female	Feed supplier male	Feed supplier female	Male farmers	Female farmers	
1	Thyolo	5	0	3	3	9	7	19-21 June 2018, Bvumbwe
	Total	27						

Table 8. Participants in the business plan development trainings.

No.	Activity	Participants		Outputs	Date and venue
		Male	Female		
1	Business planning with Bvumbwe dairy cooperative	7	3	First business plan on running a milk bulking plant	25-26 July 2018, Bvumbwe
2	Business structure and business planning training	14	6	All the five MSMEs produced their organization structures and business objectives	19-20 December 2018, Kamthiti Lodge, Chiradzulu
3	Finalization of business plans			All groups completed their viable business plans	19–27 February 2019, MSME locations

Table 9. Participants in poultry trainings.

No.	Activity	Participants		Outputs	Date and venue
		Male	Female		
1	Village chicken poultry production	15	4	Village chicken production, feeding and vaccination	16-18 January 2019 at Zuc Lodge in Balaka
2	Commercial dual-purpose chicken production	17 Total		Dual-purpose chicken production, feeding and vaccination	1 February 2019 at Lunzu executive lodge

Table 9. Number of beneficiaries from seed input distribution.

No	District	EPA	Farmer group	Number of seed input beneficiaries									
				PIGEON PEA		COW PEA		SORGHUM		GROUNDNUTS		MUCUNA	
				Male	F	M	F	M	F	M	F	M	F
1	Chiradzulu	Thumbwe	Mulambe	4	13							2	8
2	Chiradzulu	Thumbwe	Chisomo Nkhupela	1	1	7	15						
3	Chiradzulu	Thumbwe	Takonzeka Ng'umba	14	18								
4	Chiradzulu	Thumbwe	Takondwa M'boola			5	17	5	17				
5	Chiradzulu	Thumbwe	N'zotheka Mangulama	10	32								
6	Chiradzulu	Thumbwe	Our Future youth	5	7	5	7						
7	Chiradzulu	Thumbwe	Mwayiwathu Nkhota			6	24					13	3
8	Chiradzulu	Thumbwe	Domasi			2	11					1	
9	Chiradzulu	Thumbwe	Tiyanjane Kamala			5	16						
10	Chiradzulu	Thumbwe	Mikundi							6	19		
11	Chiradzulu	Thumbwe	Tikondane Koneliwa	8	16	8	16						
12	Chiradzulu	Thumbwe	Satumbe					7	13			7	13
13	Chiradzulu	Thumbwe	Mmora								29		
14	Chiradzulu	Thumbwe	Chisomo Matope							7	23		

No	District	EPA	Farmer group	Number of seed input beneficiaries									
				PIGEON PEA		COW PEA		SORGHUM		GROUNDNUTS		MUCUNA	
				Male	F	M	F	M	F	M	F	M	F
15	Chiradzulu	Thumbwe	Madalitso Kanyenda			7	5						
16	Chiradzulu	Thumbwe	Chimtengo	8	15			8	15				
17	Chiradzulu	Thumbwe	Nalanda cooperative	31	39								
18	Chiradzulu	Thumbwe	Chisomo Malimusi			2	8			11	9	2	8
19	Chiradzulu	Thumbwe	Mwaiwathu Chalamanda			4	25					1	8
20	Chiradzulu	Thumbwe	Mango Kilowe	17						17			
21	Chiradzulu	Thumbwe	Limbikani Baluwa	24				24					
	SUBTOTAL			122	141	51	144	44	45	41	80	30	40
22	Thyolo	Masambanjati	Namagazi	10	18	10	18					10	18
23	Thyolo	Masambanjati	Makapwa	8	10	8	10					8	10
24	Thyolo	Masambanjati	Mtendere	0	26	0	26	0	26	0	26	0	0
25	Thyolo	Masambanjati	Zaone	8	21	8	21			8	21	8	21
26	Thyolo	Thekerani	Chimphuno	4	5	0	0	3	0	5	5	3	3
27	Thyolo	Thekerani	Lifuluni	4	6	4	6	4	6	4	6	4	6
28	Thyolo	Thekerani	Tiphunzitsane	0	28	0	28	0	28	0	28	0	28

No	District	EPA	Farmer group	Number of seed input beneficiaries									
				PIGEON PEA		COW PEA		SORGHUM		GROUNDNUTS		MUCUNA	
				Male	F	M	F	M	F	M	F	M	F
	Subtotal			34	114	30	109	7	60	17	86	33	86
29	Balaka	Utale	Tipindule Mgomwa	0	0	0	0	3	7	0	0	0	0
30	Balaka	Utale	Utale association	2	1	15	5	1	1	3	0	4	1
31	Balaka	Utale	Wondwe women	0	16	0	19	0	38	0	38	0	10
32	Balaka	Utale	Chiphunzitso youth	0	0	0	0	9	11	9	11	9	11
33	Balaka	Utale	Chimwemwe	0	6	3	4	3	8	6	13	1	7
34	Balaka	Utale	Tipindule Ndimbule	11	20	11	20	11	20	11	20	1	2
35	Balaka	Phalula	Chisomo	0	0	7	19	7	19	7	19	0	0
36	Balaka	Phalula	Tikondane	20	10	20	10	20	10	20	10	6	5
37	Balaka	Phalula	Phalula youth	6		0	0	9		10		0	0
38	Balaka	Phalula	M'mbwemba	9	8	14	7	13	9	0	0	6	4
39	Balaka	Phalula	Tiyese	0	0	0	13	0	21	0	14	0	7
	SUBTOTAL (for Balaka)			48	61	77	97	76	144	66	125	27	47
	TOTAL (for 3 districts)			204	316	158	350	127	249	124	291	90	173

3.4. Where applicable, outline any links and synergies you have developed with other actions.

The irrigation project with IFAD looks at irrigation schemes that IFAD is developing. We are exploring the possibility of forage production as one of the value chains in these irrigation schemes. The concept was acceptable to the IFAD project. The implementation phases, however, do not overlap. The IFAD project is at feasibility studies stage for the establishment of the irrigation schemes.

CRS is venturing into goat and poultry production within the project districts. The process of kickstarting was on hold by IFAD due to internal issues, and will resume on 28 April 2019. If successful, the funding should be available during 2019.

United Purpose (UP) are funded under FIDP II through the DIVERSIFY Project, and our activities overlap in Balaka district. Following the joint supervisory meeting on 17 July 2017, SLLP and United Purpose organized a strategic linkage meeting on 18 July 2017 which was attended by project staff, DIVERSIFY project staff and Extension officers. The meeting aimed at sharing information on project approaches, target EPAs and beneficiaries, interventions, etc. The DIVERSIFY project works with farmer clubs and associations. Both projects run for 42 months and have a component on pigeonpea. DIVERSIFY also targets Orange Fleshed Sweet Potatoes for 1000 beneficiaries and 34 lead farmers in Bazale, Mpilisi, Phalula and Utale. The parties agreed on possible collaboration on pigeonpea, specifically on working with ICRISAT's improved varieties, but also including linkages to agro-dealers, Village Savings and Loans (VSL), capacity building and trainings for both beneficiaries and staff (project and government).

ICRISAT and ILRI are preparing a joint proposal for IFAD which will focus on developing more integrated cereal, legume and livestock integration. We are in the process of designing this project to align with our work in southern Malawi contributing to a greater understanding of the opportunities for crop-livestock integration and furthering the impact of the EU-funded work.

ICRISAT has been involved with work funded by ACIAR to increase efficiencies in irrigation systems in Zimbabwe, Mozambique and Tanzania. ACIAR has recently funded a similar study in Malawi. Although with a very small budget, negotiations are on to introduce some of these successes into the EU-funded work on irrigation systems within our existing sites. We are in negotiations with the Malawian Director of Irrigation.

3.5. If your organisation has received previous EU grants in view of strengthening the same target group, in how far has this Action been able to build upon/complement the previous one(s)?

None

3.6. Visibility

Sign-posts: The project increased EU visibility through various media. All project offices, three in the project districts and one in Blantyre, have project signposts. Signposts have also been prepared for the various investments on the ground, for each of the project EPAs, crop demonstrations, Kroiler chicken quarantine farm in Lunzu and Mikolongwe Research Station, farmer poultry companies, farmers, youth and women clubs, the Phalula abattoir and butchery and the Bvumbwe dairy cooperative.

Reports and presentations: The project has communicated the findings of the diagnostic phase to a large audience in Malawi. The findings from the baseline, value chain and MSME analyses were presented at various fora in Lilongwe, Blantyre and at the district level, to inform, collect feedback and to prepare strategies for impact.

Project website: The website was created as an integral part of the communication and visibility platform of the project. The project team is being trained and encouraged to contribute content in the form of blogs, briefs and photos. The project annual report, IP inception, baseline, VCA and MSME reports, presentations held, blogs and briefs were also made available on the website. All these will be submitted to the EU before being made available to a wider audience.

Names of the contact persons for the action:

Andre F van Rooyen and Sabine Homann-Kee Tui

Signature:

Signature:

Location: ICRISAT-Malawi

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