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**PROFIT**  
PRODUCTION, FINANCE AND TECHNOLOGY  
A USAID FUNDED PRIVATE SECTOR DEVELOPMENT PROGRAMME



## **FINAL REPORT**

**ZAMBIA PRODUCTION, FINANCE AND TECHNOLOGY PROJECT (PROFIT)**

**April 2005-Sept. 2011**

**Under Cooperative Agreement No. 690-A-00-05-00077-00**

**Disclaimer:** This report was prepared by NCBA CLUSA International and does not necessarily reflect the views of the United States Agency for International Development.



**“PROFIT is not ending, WE are the project!”**

**“We have the relationships with the firms and we have the knowledge and confidence to work with them.”**



**“We can do this! We did not have this information, confidence and power before, but now we do and we can move forward.**

## **Consortium Partners**

**NCBA CLUSA International (PRIME)**

**Cardno Emerging Markets, Inc.**

**NIRAS A.B. (Dairy Industry Development Activity)**

**Land O'Lakes, Inc. (Dairy Industry Development Activity)**

**IDE (2005-06)**

## **Key Local Zambian Partners**

**AFYA MZURI**

**CHAMP (Comprehensive HIV/AIDS Management Program)**

**Conservation Farming Unit (CFU)**

**Zambia National Farmers Union (ZNFU)**

**Mobile Transactions Zambia, Ltd**

**ZAMACE**

**Plus over 50 private sector firms**



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## ACRONYMS

- **ACE** African Commodities Exchange
- **ACCE** African Carbon Credits Exchange
- **ACF** Agricultural Consultative Forum
- **CAZ** Cotton Association of Zambia
- **CETZAM** CETZAM Opportunity Microfinance , Ltd (MFI)
- **CF/CA** Conservation Farming/Conservation Agriculture
- **CLUSA** NCBA/CLUSA International
- **CFU** Conservation Farming Unit
- **CLW** Community Livestock Worker
- **DAZ** Dairy Association of Zambia
- **EWB** Engineers Without Borders-Canada
- **FAO** Food and Agriculture Organization (UN)
- **FISP** Fertilizer Input and Supply Program (GRZ)
- **FRA** Food Reserve Agency (GRZ)
- **GLCC** Great Lakes Cotton Company
- **GMP** Good Manufacturing Practice
- **GRZ** Government of the Republic of Zambia
- **HHP** Herd Health Plan
- **ICSP** In-community Service Providers
- **IFAD** International Fund for Agricultural Development
- **LSC** Livestock Service Centre
- **MATEP** Marketing Access, Trade, and Enabling Policies Program
- **MOLFD** Ministry of Livestock and Fisheries Development
- **MRI** Maize Research Institute
- **MSP** Mechanized Service Providers
- **NTFP** Non-timber Forest Products
- **P4P** Purchase for Progress (UN WFP)
- **PEPFAR** President's Emergency Plan for AIDS Relief
- **PLHIV** People Living with *Human immunodeficiency virus* (HIV)
- **PPP** Public Private Partnerships
- **SADC** Southern Africa Development Community
- **SIDA** Swedish International Development Agency
- **SSP** Spray Service Provider
- **TSP** Tillage Service Provider
- **VA** Veterinary Assistant
- **WFP** World Food Program (UN)
- **ZACA** Zambian Agriculture Commodities Agency (formerly)
- **ZAMACE** Zambia Agricultural Commodities Exchange
- **ZANACO** Zambia National Commercial Bank
- **ZDPA** Zambia Dairy Processors Association
- **ZNFU** Zambia National Farmers Union

## EXECUTIVE SUMMARY

The Production, Finance and Technology Project (PROFIT) designed to help Zambia's agricultural industries grow, become more competitive and reduce rural poverty used a value chain and market facilitation approach to develop critical support services and products, improve inter-firm cooperation and foster the credibility of, and confidence in, markets. The project approach and methodology were closely aligned with USAID's value chain approach and principles and integrated the best practices from NCBA CLUSA International (CLUSA) and CARDNO Emerging Markets' activities in business development service provision and rural enterprise development in Zambia and the region. Project activities aimed to primarily benefit smallholder farmers and their communities but also private sector companies and many individuals, including the project staff. PROFIT's work led to real economic growth at the industry, firm and household levels as a result of upgrading that occurred across several key industries—agriculture retail input, dairy, veterinary services, cotton and commodity output—as well as in critical support markets such as ICT, financial services and the provision of micro commercial services.

In employing a knowledge-based approach, investing in continuous learning for staff and developing a disciplined approach to smart subsidies, PROFIT effectively harnessed the resources of over 50 private sector firms including Cropserve, Parmalat, Afrivet, Afgri, Dunavant, Mobile Transactions, Zamseed, CETZAM and many others and improved access to technologies, services and information to increase incomes for an estimated 250,000 smallholder farmers. It is estimated that overall benefits valued at more than \$25m accrued to smallholder farmers during the six-year project and that the systemic changes it brought about will ensure that these benefits continue over the long term.

In getting there, PROFIT faced a number of challenges, including the cultural and economic traditions and perceptions that often hindered both trust-building and progress; the lack of access to knowledge and capital; and the need to maintain momentum during the months (or years!) it could take for project initiatives to bear fruit. Additionally, the market distortions caused by some government and donor programs created disincentives for private sector firms, inhibited the development of commercial suppliers and networks and furthered the impression that inputs were public goods that should be handed out for free.

Despite this challenging environment, from April 2005 through September 2011 PROFIT helped to transform the behavior of the stakeholders involved in Zambia's retail input supply, livestock, cotton and other industries. Its success depended on the ability of project staff to engage with the whole range of value chain actors, from suppliers to producers and buyers, and to catalyze the trusting relationships with and between its partners that could improve and expand the agriculture sector. The project facilitated changes in ingrained habits, long-standing attitudes and often erroneous perceptions and the reasons for them and it allowed communities to say, "We can do this! We did not have this information, confidence and power before, but now we do and we can move forward. We have the relationships with the firms and we have the knowledge and confidence to work with them." That is what sustainable development is all about and that is what PROFIT succeeded in doing.

While several PROFIT initiatives achieved a level of success and sustainability, the agent model undoubtedly had the greatest impact on the largest number of smallholder farmers and private sector firms. PROFIT introduced the concept of a cost-effective, community-based agent network as a new commercial actor into the input supply value chain—farmer agents chosen by their communities to become intermediaries between them and input suppliers. By project end, over 3,000 agents were actively brokering products and services between input supply firms and smallholder farmers. Over the life of the project the agents had sold close to \$8million worth of inputs and services to smallholders and the lead input supply firms had taken complete ownership of their networks. Today, these firms continue to invest in training and developing their systems to improve and expand them.

PROFIT's role in establishing the agent business model was central to overcoming the fears and lack of trust that traditionally existed between the communities and the commercial enterprises. The project helped close the confidence gap that previous experiences had created by convincing both parties that they could work together in ways that would benefit everyone. The success and sustainability of this win-win model relied on the ability of firm managers to develop relationships with agents using business plans and incentives, formal contracts and accurate forecasting. The firms were able to grow and sustain the model because both managers and agents developed needed skills and knowledge and felt empowered to innovate as markets and competition grew. PROFIT's skilled facilitators worked closely with both smallholder farming communities and companies, helping the latter develop practical and sound business solutions to the challenges that working with a whole new client base—very small farmers living in hard to reach areas—presented them.

PROFIT used a broad, cohesive and holistic approach that built social capital. Its initiatives were multi-dimensional and worked on several levels simultaneously to effect change and achieve objectives. For instance, in the livestock and veterinary industries, PROFIT introduced a prepaid herd health plan and the cattle spray race, including an innovative mobile model, and demonstrated to farmers the benefits of using vet services. It helped to convince both newly graduated vets that private practice in rural areas could be profitable and established vets to hire and mentor them as assistants and provide them hands-on experience both in working with large animals, farmers and communities and in starting and managing a business.

PROFIT introduced vets to new business models servicing the rural smallholder market, provided business training and encouraged input suppliers and agents to carry and sell veterinary supplies needed to improve the health of the herds. The project adapted its highly successful retail agent network by establishing community livestock workers (CLW)—the critical link between vets and cattle communities. The vets trained CLWs to diagnose and treat simple problems, provide advice and vaccinations and assist with spraying. And, PROFIT facilitated links with private sector beef wholesalers to buy healthy animals and dairy firms to provide consistent, daily milk collection.

This multi-faceted approach to working with both the private sector and small farmers was innovative, efficient and, most importantly, it was effective. Had PROFIT not achieved change on so many levels at the same time, momentum and the will to make those changes would have

been lost. PROFIT showed farmers they could do amazing things by mobilizing and more effectively leveraging their resources than in the past. It made a difference in their lives by helping them develop both their farm businesses and their communities and it engendered a sense of pride in their accomplishments and the determination to continue growing.

In addition to the systemic changes in these industries, several new structures were developed or established as a result of a more competitive industry. PROFIT supported the creation of Mobile Transactions, now the second largest mobile transactions provider in Zambia, to take on the challenge of upgrading cotton industry firm outgrower management systems. It also played a role in the development of ZAMACE, a major player in the output market established in response to the needs of the private sector. While facing some difficult challenges, ZAMACE has been instrumental in providing a vision for the future of Zambia's agricultural sector competitiveness. Likewise, ACCE, which puts Zambia on the map for market and financial innovation, was created to respond to the increasing importance of the international carbon credits market. The dairy and input supply industries created ZADP and Croplife Zambia to improve industry stakeholder coordination, which will have a positive impact on the Zambian agricultural and livestock landscape for years to come. In addition, the upgrading of project local technical staff led to increased confidence, skills and the vision needed to respond more effectively to the demands of the increasingly competitive agriculture and livestock sectors. This confidence also led them to establish a local NGO, Musika, which has received substantial core funding from non-USAID donors to support PROFIT-type activities.

Three elements were especially critical to the success of PROFIT. First, the close relationship and solid communication channels the project developed with the USAID Zambia S05 team. Many of these activities took time to develop and the mission both supported this timeframe and challenged the project to find results and success in new areas. The second was the development of an extremely effective causal model and industry pathway monitoring tool that was instrumental in developing a cutting-edge monitoring and evaluation system built on the premise that a project needs to continuously learn, manage and share knowledge to be truly effective at market facilitation. The development of these tools and their successful application also has had a lasting impact on the development industry. The third key aspect was a private sector willing to invest, engage and collaborate in the process of making industries more competitive in support of improving the lives of smallholder farmers.

PROFIT's holistic systems approach helped industries grow and reduce poverty. Its success stemmed from its ability to support smallholders and their partners in developing the knowledge and confidence to effectively mobilize, leverage and target their resources and expertise and bring about change, both behavioral and systemic. The PROFIT approach—based on knowledge and market facilitation and anchored in continuous learning, measured risk-taking and innovation—demonstrated to key industries that in taking ownership of the transformational process they could achieve positive, sustainable change.

## IN THEIR OWN WORDS...

“We originally were looking at our main business as being the commercial farming sector and then PROFIT came in and said look why don’t you consider the small scale sector as well. ....” Lytton Zulu, Managing Director, Cropservice (Agricultural Inputs)

The agent network system that we put up was necessary to put up a program within the rural community with people (agents) that have the understanding of the needs of the farmers within [proximity] the areas that they are in” Gilbert Vlahakis, Director Munzuma Estates, Monze (Agricultural Inputs)

God blessed us, we have harvested 350 by 50kg bags of maize, I sold and got many and I was very happy... I went to town and bought a generator and a satellite dish... I am able to watch programmes from abroad without a problem as though I live in town and yet I live on the farm in the village...but when I get into my house I am like one who is in town” Enos Mweemba, Mweemba farm Chief Lesa, Mpongwe (Household Level – Impact)

“We are equipping the representatives of the companies to go out there and train spray-service providers who are using the pesticides responsibly. The distributors of pesticides in Zambia have the responsibility to ensure that the chemicals that they distribute to the farmers are handled without harming the handler, the people around the handler and the environment at large.” Perry Ngoma, Coordinator, CropLife Zambia

I settled in Mpima in 1983.... What I have liked most about the herd health program with [Veterinarian] Leloisa is that our animals are now able to live longer. Diseases have been done away with, and most of the tick borne diseases have also gone away because we are now dipping the animals, we are vaccinating them and I would say the health of the animals is excellent.” Jeremiah Matimuna, Farmer, Mpima Dairy Cooperative, Kabwe (Livestock Services – Household Level Impact)

A spray race acts as an aggregation point that brings the small scale farmers at one point where they will come and spray their animals and also access vet services....” Felix Nseluka, Director, FENS Investments, Kafue (Livestock/Spray Race)

“Being an agent (TSP) for the first time, there is an advantage with me on the farmers that I am working with. Knowing the farmers...it is difficult for them to work with someone they don’t know maybe because of language or behavior..... but it is easy for them to work with me because I will share knowledge I have received from PROFIT and the firms with the farmers. When the farmers receive knowledge, they will benefit as I will till their land and they will get a good yield.” Parly Ndemena, Tillage Service Provider, Chombwa, Mumbwa (Tillage Service)

“Animals look healthy and the cows have given us calves every year. The herd has grown from 10 to 17 animals over the last 3 years – a 20% growth rate, never seen before. The animals give us 5 liters of milk every day...” Romeo Bumba, grandson and dependent of a cattle producer, Susumambo village, Choma District (Livestock)

“There are many medium and small scale farmers who can testify to the work we [the agents] have done. Even elderly people who do not have the strength can now farm because of the products and services I am offering.” Carles Munkombwe, Super Agent for Cropservice, Pannar Seeds, and Afrivet (Agricultural Inputs)

## CHAPTER ONE: INTRODUCTION

### *Zambia*

Situated in southern Africa, Zambia is a land-locked country with eight bordering neighbors and a total area of 752,614 square kilometers (740,724 km<sup>2</sup> land and 11,890 km<sup>2</sup> water). Formerly known as Northern Rhodesia, Zambia was a British colony developed primarily for its vast copper resources. It gained independence in 1964 and is now a peaceful, democratic country with a population of nearly 15 million and enormous economic potential stemming from its natural resources. However, in spite of a steadily declining poverty rate, 60% of Zambians remain below the poverty line and 80% of the rural population experiences chronic food and nutritional security problems. And regionally, stagnant agricultural production, urbanization and rapidly growing populations are contributing to an emerging deficit of food crops. Zambia's favorable climate, abundance of arable land and relatively plentiful water offer it an opportunity to increase rural prosperity and provide food for its own, and its neighbors' citizens. The country's smallholder farmers cultivate fewer than two hectares of land and comprise 50% of its producers yet they produce 80% of the country's staple food crop—maize. These farmers are essential partners in any effort to help the country's rural economy reach its potential and become the engine that drives development and contributes to food security and poverty reduction throughout the region.

### **PROFIT**

While USAID, other donors and their partners had made considerable progress in increasing agricultural production and the competitiveness of small scale farming enterprises, significant obstacles continued to limit rural incomes. Constraints included low productivity, burdensome government regulations and practices, few skills and minimal knowledge and capital. In 2005, led by CLUSA in partnership with Cardno Emerging Markets and International Development Enterprises (IDE), launched the USAID-funded Production, Finance and Technology project to address these problems and strengthen local business development markets and service providers.

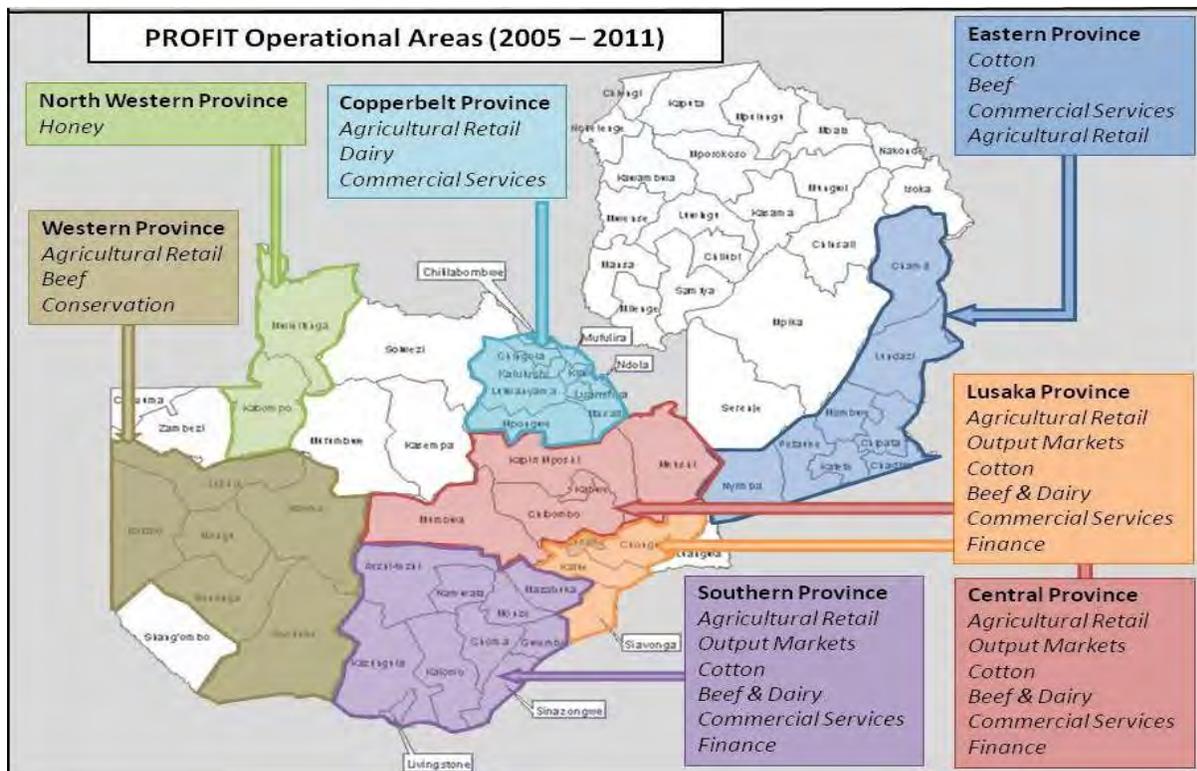
PROFIT was a private sector development project and Zambia's leading agricultural market development initiative. It used an integrated value chain and market facilitation approach focused on production, finance and technology activities to increase industry growth while ensuring meaningful poverty reduction at the household level.

PROFIT's market systems approach targeted selected industries—agricultural inputs, veterinary services, dairy, natural resources, finance and outputs (crops, beef)—that involved a large number of small businesses and had the potential to compete in national, regional and even international markets to develop upgrading strategies. It was designed to complement USAID's MATEP (Market Access, Trade and Enabling Policies) project, which was simultaneously focused on increasing the level of Zambian agriculture and natural resources exports into regional and international markets.

In large measure, PROFIT achieved USAID's strategic objective (SO5) of *Increased Sector Competitiveness in Agriculture and Natural Resources*, first by effectively analyzing the market

system in which the targeted industries were operating and then working with a range of value chain actors to address supply, demand and enabling environment constraints. And, its work with individual enterprises helped improve industry competitiveness. PROFIT's partners included private sector firms operating in the selected industries, local and international NGOs, other donors and development programs, communities, key government ministries (Agriculture and Cooperatives, Livestock and Fisheries, and Education) and, most importantly, the emerging and poor smallholder farmers.

Originally a five-year, \$15m project, USAID later committed an additional \$2m to incorporate a dairy development initiative through the Innovative Grants Program, and another \$550,000 to develop initiatives aimed at integrating a more private sector approach to addressing the HIV/AIDs pandemic. Finally, through two extensions, USAID added 18 months and \$4.9m for a total budget of \$22.4m over a period of six and a half years.



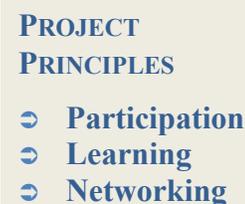
## INITIAL IMPLEMENTATION CHALLENGES

At project start-up, PROFIT faced four key implementation challenges:

- The high costs of serving large numbers of widely-dispersed smallholder producers
- A history of mistrust between smallholders and the private sector enterprises serving them
- Social and cultural imperatives that diverted local resources away from productive economic activities
- The reactive behavior of smallholders that was directly related to the long history of government subsidies, including inputs, services and even markets.

## PRINCIPLES OF THE APPROACH

The principles that drove project implementation were *participation*, *learning* and *networking* in a system built on explicit incentives, supportive capacity development and trusting relationships. In essence, PROFIT facilitated the development of win-win relationships that benefited key industry players—suppliers, buyers and support service providers. Firms were selected based on their willingness to invest their own resources, reach out to rural communities and collaborate with others. Not every firm qualified and some fell out in this process of self-selection.



**PROJECT PRINCIPLES**

- ⊖ Participation
- ⊖ Learning
- ⊖ Networking

While designed and developed based on following four basic premises, the PROFIT approach evolved continuously throughout the project:

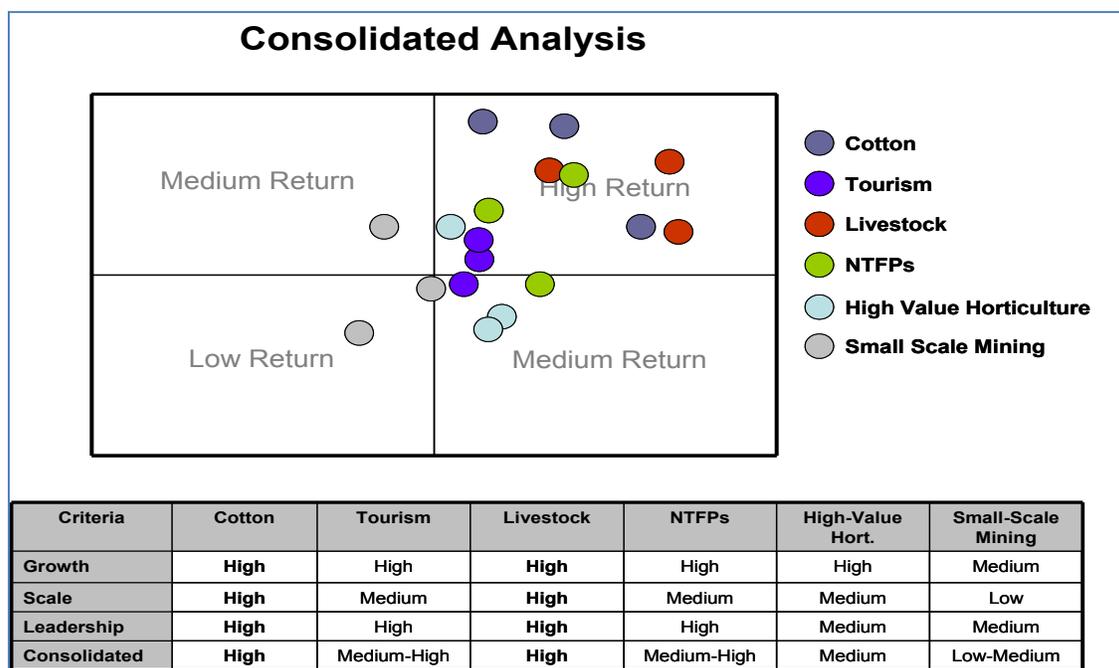
- ***Adherence to a specific industry approach:*** PROFIT worked both to ensure the competitiveness of each targeted industry over time and increase the number of contributing businesses. Using an industry approach allowed PROFIT to integrate its exit strategy at entry.
- ***Facilitation not implementation:*** PROFIT acted as market facilitator rather than market player by fostering increased industry and firm capacity to learn, innovate and change and to compete effectively. The project assisted markets in addressing their own constraints and ensured that industry players would ‘own’ the process of change.
- ***Appropriate interventions:*** PROFIT kept program interventions to a minimum and methodically explored all ‘light touch’ options before progressing toward more involved ‘buy down’ strategies requiring project funds. And, as every intervention is a subsidy, every subsidy must have an exit strategy to ensure sustainability.
- ***Systems approach:*** PROFIT helped create a ‘circle of confidence’ whereby all key requirements for smallholder upgrading were met, to the extent possible, simultaneously. Leveraging actions and incentives throughout the project allowed market system upgrading to occur organically and efficiently and to continue spurring innovation after project completion.

To better manage both the many and varied project components and the market relationships, PROFIT developed new models, including the pathway system, and an improved management structure that allowed it to learn from and influence the industries with which it was working by sharing knowledge and facilitating behavior change.

### Industry Selection

PROFIT began by assessing and prioritizing the six industries that USAID identified as having potential—cotton, non-timber forest products (NTFPs), tourism, small scale mining, high-value horticulture and livestock. Using three criteria—growth potential, scale and impact potential, and leadership—PROFIT conducted basic analyses of each industry and combined them for an initial ranking that determined those that could provide the highest return on investment. Interviews with key players determined industry growth potential based on market trends and the capacity to organize an effective response to demand. While the analyses were not exhaustive, they did provide sufficient information to rank the industries based on their potential. PROFIT also considered the number of MSEs that could participate in and benefit from a growing industry and the income they could realize. To identify industry leaders, PROFIT assessed each firm’s commitment both to growing the industry and to upgrading MSEs to improve competitiveness.

A *consolidated analysis* combined the three criteria and allowed PROFIT to assess the comparative potential of the six industries to determine those it should invest in upgrading—cotton and livestock. PROFIT also kept an eye on progress in the other industries, particularly NTFPs and tourism, and undertook targeted interventions when feasible.



While industry-specific action plans provided the basis for project activities, they were modified if a detailed analysis called for changes or new opportunities or constraints materialized. PROFIT continuously scanned the market for business ideas and it possessed the flexibility and capacity to quickly take advantage of them.

### *Engaging the Private Sector*

The success of PROFIT depended on its ability to engage and develop relationships with a range of private sector partners to improve and grow Zambia’s agricultural sector. A major constraint to forming these partnerships was the general lack of trust that existed between small rural enterprises and large, usually urban-based commercial firms. Farmers had low trust perceptions of the companies to treat them fairly and felt they overcharged them for the same products that commercial farmers could buy for less. Smallholders also thought the firms sold them sub-standard or ‘fake’ (poor quality or adulterated) inputs and paid them too little for their crops and animals. The firms doubted that small farmers could prove to be profitable markets and they thought it too expensive for them to market and deliver goods and services to, or purchase animals or crops from them. PROFIT set out to change these attitudes and perceptions as well prove the contrary was true.

#### **CRITICAL SUCCESS FACTORS**

- ⇒ Trust
- ⇒ Communications
- ⇒ Buy-down of risk
- ⇒ Training

### *Demonstration and Buying Down Risk*

PROFIT worked with lead firms—retailers, service providers, support markets—to facilitate and demonstrate the process of change. These potential partners were willing and able to invest their own resources in the process. The firms were slow to appreciate and invest in the concepts — most had never even considered working with small farmers living in remote rural areas and they had difficulty thinking of them as profitable customers. And firms like those in the cotton sector that engaged smallholder farmers were reluctant to open their integrated outgrower schemes to outside influences for fear of disruptions beyond their control—regardless of whether current conditions were competitive or not. PROFIT used different means both to share its analyses, broker new relationships and buy down firms’ risk of entering a new market or allowing change in their existing system, and to incentivize innovation. PROFIT took a disciplined ‘light touch’ approach to prevent actual or perceived market distortions within the industries. It leveraged all available resources before considering the use of a direct subsidy and required that all interventions progress toward additional investment only when there was evidence of a commitment and willingness to invest beyond the demonstration phase.

For example, in the agriculture retail business, PROFIT conducted market analyses to introduce an opportunity that could reduce the costs for retail firms that were unwilling to invest in exploring new markets in rural areas. It then supported ‘product promotional days’ or other methods to underscore the realities and benefits of marketing to the smallholder market and assisted those firms willing to pursue and learn from this opportunity. PROFIT also cost-shared training for retail agents and spray service providers and demonstrated the effective use of innovative technologies such as mobile spray races and mobile containers by developing and demonstrating working prototypes. For the livestock industry, PROFIT provided business training for new veterinarians and cost-shared promotional campaigns, salaries and motor bikes to help them take services to the communities. Under the dairy directive, the project helped fund the purchase of large volume milk processing and storage equipment. In some cases, such as the establishment of ZAMACE, the situation required more long-term and sustained subsidies, based

on business plans and the ability to generate an ever increasing internal cash flow to support operations.

## INTERNAL PROJECT SYSTEMS

### *PROFIT as a Learning Organization*

The complexity of the project required fast, open communications, flexibility and continuous learning at all levels. It also needed a systems approach that could improve its knowledge and practices by consciously drawing lessons from its own and have them influence future support activities. To meet the demands of its technical approach, PROFIT's management structure and systems evolved over the life of the project as managers realized that they needed to organize operations in a way that was flexible enough to quickly take advantage of new opportunities or adjust to market variables. The result was streamlined communications channels between all staff that fostered greater transparency and encouraged knowledge sharing that contributed to one of the more notable achievements of the project: a flat, team-based structure focused on generating, analyzing and sharing the knowledge of both failures and successes. PROFIT fostered innovation and risk-taking in the field and gave out awards for ideas and experiments that worked. It also gave 'missed the net' awards to those who tried out new ideas which, even if they did not work, inspired others to talk about their own ideas. The project provided a modest education allowance that encouraged staff to take courses relevant to their work. Most who took advantage of this program became more productive and developed new skills that helped them and the project advance.

PROFIT conducted periodic workshops, retreats, and assessments, developed reports in a participative manner, and organized staff exchanges to facilitate constant interactions and communications between field and home office staff and to foster the development of skills sets that would make them more effective market facilitators. The result was a very effective team of development professionals who respected each other and took ownership of the principles of the project.

The key to making this work was a strong, team-orientated organizational structure and the appropriate tools for data analysis and knowledge sharing. PROFIT invested in critical team-building activities, supported continuous learning and training and constantly reinforced the underlying objectives and principles of the approach. Staff who came from traditional development backgrounds had to learn and adjust to working with private sector firms while staff recruited from the private sector had to learn and understand farmers' experience, how to do business in a rural environment and how to engage the public sector. In both instances, and in mutually beneficial ways, their prior experience provided staff the basic tools for the common task of convincing commercial firms that they could make the markets work for themselves by changing their perceptions of the markets. The change in mindset was gradual as staff struggled to let go of their former attitudes and perspectives during that first year. By the end of the second year, they gained confidence as the market—farmers, firms, and government—responded slowly and favorably to their efforts. Staff began to understand and appreciate that both farmers and firms were capable of communicating, negotiating and identifying win-win commercial

relationships. By the third year, they were confident and effective market facilitators who could encourage the farmers and firms to play a role in developing the value chains in which they were participating. Buy-in to the new approach was essential and staff who were uncomfortable with it, or could not adjust to the challenges left. This mirrored the self-selection process which PROFIT promoted with all of its partners. And, one of PROFIT's initial consortium partners left the project early due to relevancy issues in both the approach and technical areas.

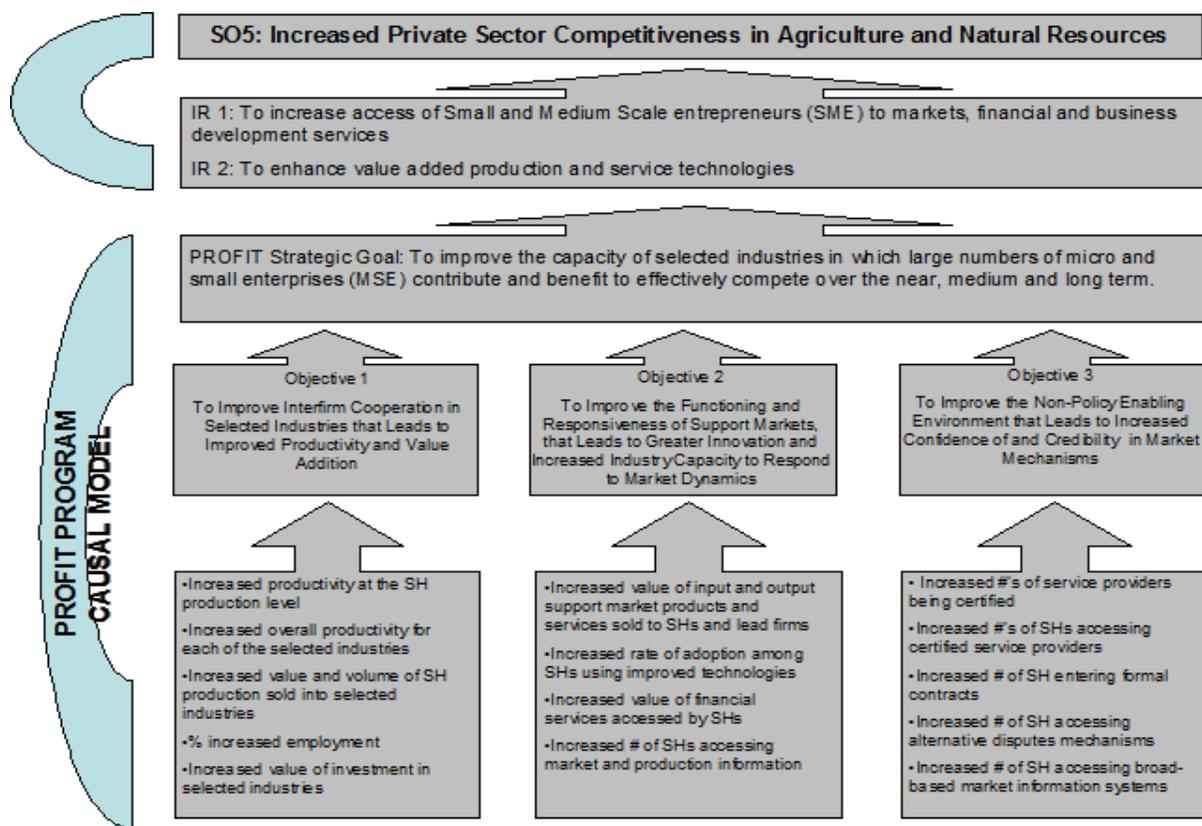
By project end, PROFIT was recognized as having some of the most highly skilled market facilitation professionals using the value chain approach in the field. They were consulting with farmers and firms on complex and challenging issues and galvanizing improvements in vertical and horizontal linkages without distorting markets.

### *Effective Management Tools: Causal Model and Industry Pathways*

Market facilitation requires a structure that actively pushes information from the field up to managers and then returns it to field staff able to read and react to local market signals and understand the fine line between facilitating and directing an action. Empowering field staff with the knowledge and skills to fulfill this role is critical—they must take ownership of the project objectives and believe in the approach. Also essential is a knowledge management structure that captures both explicit and tacit knowledge and fosters a communicative and creative working environment.

PROFIT's Monitoring and Evaluation system integrated knowledge management principles which allowed staff to determine whether the project was headed in the right direction and at an acceptable pace and to modify activities, as necessary, to ensure the best possible outcome. At the root of the PROFIT knowledge management system was the need for everyone to understand and use a common language when tracking progress and to have a common vision of what a competitive industry would look like in order to make programmatic decisions and allocate resources effectively. All staff contributed to and participated in improving the available market knowledge and identifying new opportunities.

To this end, the project team developed a causal model showing how project activities would lead to the intended results. PROFIT defined its causal model within the context of USAID Zambia's SO 5, Increased Competitiveness of Zambia's Agricultural and Natural Resource Sectors. It took this broad objective and added context to set a vision for selected industry competitiveness. It then adapted the model in the form of industry pathways that became important diagnostic tools for guiding decisions to inform the level of continued PROFIT investment and the nature of support as it made progress along the pathway. Detailed pathways existed for all industries in which PROFIT worked. The tool allowed staff to measure their observations and analyses of significant changes against benchmarks of expected change. Each industry pathway showed the expected changes that staff observed as industries moved through the project phases and presented their observations in four distinct areas as well as a vision for the future of the industry at exit as shown in the figure below. (Find more on the Monitoring and Evaluation framework and the Industry Pathways in Chapter 4).



## MARKET FACILITATION

PROFIT’s facilitation approach focused on developing of more transparent and commercially-grounded relationships that could foster benefit flows and incentivize constant upgrading, i.e. innovation at all functional levels of the targeted industries. It is only through the development of such relationships that Zambian industries effectively responded to internal and external market dynamics. Even as the economic incentives and cultural norms that drive behavior and market dynamics make for a very fluid and often complex environment, the market facilitator must foster new relationships, on-going innovation and benefit flows that encourage value chain actors to behave in a way that makes the industry more competitive. The facilitator catalyzes a continuous upgrading process by value chain actors to stimulate the market to develop and grow. But facilitators do not become part of the process. While conceptually simple, the practice of market facilitation is difficult—constantly changing market dynamics and behavior can destabilize the environment and result in conflicting economic and social motivations.

Facilitation was the foundation of the PROFIT approach and essential to its success. It required staff to have a solid set of skills and understanding and the ability to put them into practice in two complementary, yet distinct areas to succeed. First, a core understanding of market concepts and principles is critical. How do markets function and what roles do participating actors play? Starting here, PROFIT developed frameworks and tools—industry pathways—that would lead to a more concrete understanding of the theory. Second, market facilitators need a basic set of practical, finely-tuned facilitation skills that allow them to communicate effectively, mobilize people, influence decisions and recognize and understand their role as trainer, advisor, facilitator

or observer at any given time. These fundamental communication and facilitation skills and techniques are critical to any market facilitation work. At the heart of market facilitation is the building of relationships, which first and foremost require trust—a delicate and constantly evolving dynamic between people, markets and firms. PROFIT staff learned how critically important it was to understand, and to have experience and skills in, experiential learning, participative methods, negotiation and mediation. They also realized that less tangible skills such as how to communicate effectively with rural farmers and lead firm decision-makers were just as important to establishing trusting relationships.

PROFIT managers and consultants strengthened field staff value chain knowledge and market facilitation skills through regular meetings and periodic trainings. Trainings were timed to respond as closely to activities as possible.

### **THE CONFIDENCE CYCLE: FACILITATING BEHAVIOR CHANGE**

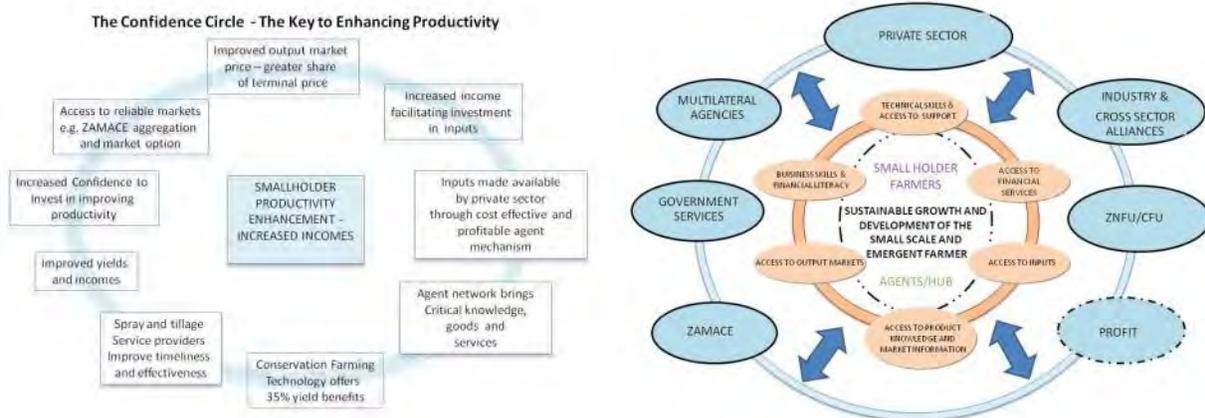
Change from within begins with the understanding that there are many things that influence the decisions that smallholders, commercial entities and the government agencies that serve them make. PROFIT realized that it would have to simultaneously engage private and public partners operating in a value chain to address constraints by using the appropriate incentives at the right time. This focus on the entire system and the linking and leveraging of its support enabled the project to help farmers realize their productive potential and improve their food security. This “confidence cycle”—a combination of issues and incentives—was based on the premise that farmers had three essential requirements: access to inputs, profitable output market opportunities and the skills and knowledge to fully utilize and realize the potential that they offered.

As the agent model and other project initiatives moved into the scale up and exit phase, the model informed staff and partners exactly where interventions could have the most impact and enabled the effective coordination of activities. PROFIT’s focus on the issues that smallholders considered important, as well as the consistent and effective efforts of its partners, increased farmers’ confidence in the products, services and opportunities offered and allowed them to believe in a future with higher productivity and incomes. As smallholders became more willing to invest in their businesses, the private sector firms and support organizations became more confident in the farmers’ ability to respond to and engage in competitive markets.

In one example of the confidence cycle, the cotton industry needed to address inefficiencies in the lead firms’ out-grower management systems to make it competitive. PROFIT approached several firms to gauge their willingness to upgrade their out-grower management systems using their own resources and with support from PROFIT. Great Lakes Cotton Company (GLCC) initially showed interest, but did not take ownership of the process. However, when Dunavant became interested, PROFIT linked the firm to an ICT company, CAD International (now Mobile Transactions Zambia, Ltd.) in 2007 to design a cotton supply chain management system aimed at improving information flow at all levels, from input distribution to gin inventory control. At the same time, the Conservation Farming Unit (CFU) worked with cotton farmers to increase their yields and improve farm planning. With PROFIT assistance, CAD designed and tested an SMS-based funds transfer system that enabled Dunavant to make electronic payments to farmers’ for

their cotton crop via mobile phone technology. This reduced the high transaction costs associated with distributing cash to hundreds of widely dispersed farmers increased confidence because of the instant payment mechanism. Dunavant, Mobile Transactions, farmers, the Zambia National Farmers Union, the Bank of Zambia, CFU and PROFIT collaborated to create the foundation for a more competitive cotton industry by working to address both industry constraints and challenges farmers. Dunavant deemed the work to be so important that in 2008 it purchased an equity stake in Mobile Transactions. And, while Zambia’s cotton industry continues to face challenges, several other industries have adopted many of these PROFIT-initiated activities and seen both increased competition and inter-firm cooperation.

*PROFIT Confidence Cycle and Circle*



**Private Sector Firms:** It is important to note that PROFIT worked with lead firms as a means (to demonstrate) to an end (increased productivity and growth at the smallholder level). One of the biggest challenges throughout the project and across all industries was getting the private sector firms to believe in the market potential and capacity of smallholder farmers to purchase quality products and services and deliver quality outputs. PROFIT strove to demonstrate to and convince companies that serving smallholders would open up a potentially lucrative market for them and lead to systemic changes at the smallholder level. Initially, the challenges of working with these farmers seemed insurmountable to companies used to working with large, commercial farmers operating near rail lines. The high costs and many difficulties associated with bringing inputs to small farmers living in Zambia’s more remote rural areas discouraged most firms from even trying to find a low-risk, cost effective way to sell their products to them.

PROFIT helped convince companies to buy into the model by facilitating links with both farmer communities and individual farmers, by demonstrating the model’s effectiveness and in some cases providing transport. PROFIT also shared the cost of training agents in facilitation and how to run a business and work with the private sector. The firms invested a great deal of time and resources in providing agents with training in product knowledge, business planning and surveying consumers.

Even after seeing successful examples of the agent model, senior management in many firms was slow to buy into the model. It would require them to alter their management practices and to train mid-level managers to meet the needs of smallholders. They also had to rethink their retail

outlet incentive systems as well as those of their growing agent network. And, as their business increased, they had to standardize reporting and record-keeping systems and invest in more sophisticated database tracking and management systems to gather data and assess trends; track orders and inventory; and perform market analysis, research and forecasting to better serve the growing market. PROFIT helped buy down the risk for firms willing to enter this new market by cost-sharing the training for agents and mid-level firm managers and by helping them identify new markets and develop knowledge management systems and practices. In a sign that PROFIT's efforts to formalize business relationships in the agricultural retail sector really did lead to effective change was the fact that nearly 100% of Cropserve's agents came under formal contract with the firm by project end. The key to making the model work was the way that PROFIT integrated it into existing industry platforms so increased sales would drive the need for change from within.

In another example, the dairy industry engaged with very few smallholder farmers due to their generally low potential to supply processors with quality milk. Upgrading this sector required not only better and consistent veterinarian services and feeding practices for healthier cows, but also improved transport services and regular (daily) milk collection. These changes depended on the willingness and ability of many value chain actors to reallocate resources in order to improve their systems—for dairy farmers to invest in vet services and improved feeding practices to healthier cows that could give more and higher quality milk and for processors to invest in upgrading milk production and expanding transport services to integrate smallholders (in part by matching PROFIT incentive funds). To address the lack of good quality milk cows, Zammilk, in conjunction with the MFI, CETZAM, sold 61 cross-bred dairy animals to smallholders supplying their processing facility. Zammilk also added a full-time dairy advisor to its staff and Parmalat employed several full-time dairy extension advisors. Although the dairy industry continues to face many challenges, coordination and trust between farmers and processors is much improved.

***Smallholder Farmers:*** Changing the way farmers thought about adopting new ways of doing what they had been doing their whole lives remained a challenge throughout the project. Their resistance to innovation was very strong and most tended to rely on traditional production methods and ingrained perceptions of how things should be done until they could see for themselves the effect that new products and technologies could have on their crops. And, the fact that many farmers were used to market failures should not be forgotten. Their mistrust of the market and large and small companies was a reality that PROFIT had to deal with if it were to succeed. For instance, traditional attitudes about cattle—a sign of prestige and wealth—meant that the majority of smallholders sold animals only when they had a specific financial need. Most never considered their cattle a source of regular income and did not use vet services, even if they were available. This caused high rates of animal morbidity and mortality and threatened Zambia's beef industry and much of the meat sold in cities and towns was imported. The traders who purchased the usually underweight and often unhealthy animals from smallholders paid little for them and Zambeef and other commercial buyers did not want them.

One of the most dramatic ways that farmers changed under PROFIT was their readiness to use their postharvest revenue to buy inputs, in advance, for the next season. Rural agricultural credit in Zambia had long been unsuccessful, with high rates of non-performing loans and banks that

lacked the knowledge and experience to effectively manage smallholder lending programs—it was not the solution. But, the PROFIT pre-paid model was working even though, initially, most farmers were reluctant to give money to agents to buy inputs. However, some early risk-takers did try with good results and this early success provided others a positive demonstration of the model’s effectiveness. The result was tens of thousands of farmers upgrading their farming practices and at least that many hectares coming under modern farm management practices.

***Business Support Markets:*** Working on the assumption that inadequate support markets hindered industry growth at all levels, service providers had to develop business models adapted to the smallholder market—aggregating demand, lowering transaction costs and encouraging adoption of new technologies. Many of the conditions that made industries less competitive at the start of PROFIT resulted from lead firms or smallholders taking on responsibilities that, under healthy market conditions, business support firms would perform.

Commercial service providers not only embraced the smallholder market, they led the way by developing and adopting innovations to meet evolving client needs. This meant they were learning and responding to market conditions. While much of this report is about the agent network and the work of Mobile Transactions, other key innovations that demonstrate behavioral change include the adoption of mechanized tillage service provision, double boom sprayers, the mobile spray race, mobile retail containers and the establishment of Croplife Zambia.

Farmers soon realized that they could provide commercial services to their neighbors and other farmers that would enhance the productivity of their farming businesses. The development of the concept of farmer to farmer micro-service provision was a novel idea and, while it started in the cotton sector, it soon expanded to other industries. By the end of project, the smallholder market had more than fifty mechanized service providers preparing over 6,500ha of smallholder lands, at least 600 oxen-based service providers ripping 4,800ha for 5,000 smallholder clients and 400 spray service providers servicing nearly 2,300 clients cultivating over 4,400ha.

### ***The Role of PROFIT***

Using the development of the agent model as an example, the key to project success was the trust that PROFIT’s facilitation activities engendered between the value chain players—communities, agents, private sector firms and government. Communities selected a farmer they trusted and firms approved them, with the implicit understanding that trust and loyalty were the basis of the agent / firm relationship. In helping firms expand into Zambia’s sparsely populated rural areas, PROFIT fostered competition among industry players, which provided farmers with more choices, helped drive down prices and spurred government to improve the rural infrastructure. It also led firms to find innovative ways to differentiate themselves—through branding, by developing new or better products, or by launching advertising campaigns.

PROFIT’s role evolved through the different phases of industry competitiveness and its well-designed interventions ensured a smooth exit. In the initial project stages, project business advisors (Bas) were animators who initiated events, led discussions and presented their analyses of a situation to the industries and farmers. As industry actors bought into and took ownership of the process, the role of the BA evolved to that of a market facilitator who focused on supporting

the process of change, helping to prepare but not lead events, observing and then providing post-activity feedback. As an industry matured to the scale-up phase, their role transitioned to that of a consultant who would intervene in specific cases periodically based on demand. By project end, they were working as advisors providing advice less frequently and only upon request.

PROFIT's role in establishing the agent business model was central to alleviating the fears and lack of trust that traditionally existed between the farmers and commercial enterprises. The project helped close the confidence gap that previous experiences had created by convincing them that they could work together in ways that would benefit everyone. PROFIT analyzed markets to better understand the smallholder market characteristics, needs, challenges, cash flow and seasonality and used the information to identify potential business opportunities that the market offered. It used this knowledge to target relatively low-cost upgrading activities—demonstrations and smart subsidies—to buy down some of the risk and offset a portion of the initial costs so firms could see how the model would help them reach a previously untapped and potentially lucrative market. Subsidies were phased out rapidly when certain expected actions were observed or when progress on ownership within the industry was lacking.

#### **PROFIT Business Advisors**

Before initiating the agent model, PROFIT ensured that its team fully understood and 'owned' the facilitation approach to developing markets and value chains by providing staff an intensive orientation on working with firms and farmers, initiating activities but not conducting them, and letting the actors implement them from the beginning.

PROFIT facilitators, or Business Advisors (BA) as they were known under the project, were skilled in working with communities and private sector companies. They expertly assisted firms in developing practical and sound business solutions to the challenges that working with a whole new client base—very small farmers living in hard to reach areas—presented them.



## CHAPTER TWO: STRENGTHENING INDUSTRY COMPETITIVENESS

A robust and innovative agriculture sector is crucial to developing the smallholder market. The ability of Zambian agricultural industries to move into this market depended on the willingness and ability of lead firms to develop and institutionalize a management philosophy based on knowledge and to improve managers' ability to comprehend and buy into a new way of thinking and working. PROFIT knew that for firms to invest in any new and inherently risky business venture they had to understand the opportunities the smallholder market offered. And, the initiative had to be attractive and safe. In addition to addressing some of the issues that prevented industries from selling goods and services to small farmers, the project used demonstrations, incentives and smart subsidies to buy-down initial risk. Key to this was achieving scale which is a pre-requisite for firm and market system change. At the firm level, scale offers incentives for investment and growth, while at the systems level it offers firms incentives to compete, which stimulates the process of learning and innovation.

PROFIT worked with its private sector partners to help them tap into rural markets and boost sales, often of new products or ways of working and looking to industry leaders to further develop and implement innovative ideas like mobile spray races, seed varieties tailored for different geographic areas and climactic conditions and a commodity exchange. For instance, PROFIT encouraged innovations both through its methodology (self-selection), use of appropriate scale-up strategies (crowding-in instead of replication) and analysis (demonstrating new technologies). To support innovation, the project provided advice and, in some cases, consultants to help them adapt products and services and ensure they would work in the conditions and situations for which they were designed. Once support got to a tipping point, PROFIT withdrew support and got out of the way. Most innovations occurred because of increased competition or through the use of well-targeted smart subsidies.

### THE AGRICULTURAL RETAIL INPUT INDUSTRY

When PROFIT began working with the agricultural retail input sector, few smallholder farmers had reliable access to inputs or knew how to use them properly. Long distances, widely-dispersed communities, poor roads and high supply and transaction costs had long limited the provision of quality agricultural inputs, information and technical services to Zambia's farmers, but after six years of innovative effort by PROFIT, the agricultural input delivery landscape had changed dramatically. It had become a significantly more competitive industry.

From 2005 through 2011, all major input supply firms in Zambia engaged and invested in over 3,000 community- and commission-based agents who provided services valued at \$7.7 million to more than 250,000 smallholder farmers. The firms formalized contracts with a majority of the agents and invested in the establishment of Croplife Zambia, an industry group that established safe-handling guidelines for the inputs industry and coordinated certification and training for agents and spray service providers. The net benefits to the smallholder economy in terms of lower costs and greater availability of inputs, increased product knowledge and yield enhancement were estimated to be over \$25m through 2011.

### *The Agent Model*

PROFIT introduced the concept of the in-community service provider (ICSP)—the agent network—to lead firms interested in working with smallholders and willing to invest in developing networks of agents to provide the farmers with reliable access to inputs, services and product knowledge. The *ICSP agent business model* introduced a new commercial actor into the value chain—agents, most of them farmers themselves, chosen by their communities to become commercial intermediaries between farmers and input suppliers. It has proven to be a key means of increasing smallholder access to inputs, providing a way to scale up what was largely a fixed distribution system by increasing input supplier capacity to interact with farmers, providing farmers with knowledge about inputs and reducing opportunity and transport costs incurred by buying directly from regional input suppliers.

In the model, agents took prepaid orders from farmers then consolidated and placed them with supplier representatives in towns. By project end, some agents were using a mobile-based inventory and sales service, developed by Mobile Transactions and input industry leaders, to check supplies and place orders. In

### **Carles Munkombwe, Super Agent**

Mr. Munkombwe used to repair shoes to buy food for his family and many in his community looked down on him for being ‘just a village cobbler’ who knew little about farming and nothing about business. But, when the CLUSA Rural Group Business Project (RGBP) trained him as a loan recovery agent in 2001, his life changed forever. Within two years he had become an Assistant Area Coordinator and by early 2005, he was working with and training farmers in improved conservation farming methods to increase their production. He was learning about business and farming. With PROFIT, his community selected him to become an input supply agent. Initially, he worked with two agricultural input firms, Pannar (seeds) and Cropserve (agro-chemicals and herbicides) and later joined AfriVet, a veterinary drug company. All of the firms provided him with detailed product information and they cost-shared training with PROFIT in starting a business, working with communities and marketing.

For over five years now, Carles has been selling chemicals, seeds and veterinary drugs to his farmer-clients and providing them with information and training on how to improve their production. Farmers trust him — they know he sells only good quality seeds and chemicals, not the fake or adulterated products that many traders offer, and they are now able to produce enough to feed their families, make a profit and invest in upgrading their farming business. Carles said, *“In the work I have done, there are many medium and small scale farmers who can testify to the work we [the agents] have done. Even elderly people who do not have the strength can now farm because of the products and services I am offering.”*

Carles’ sound relationship with the firms provides him a good commission on the business he brings to them and he has been able to build a new house and purchase cattle and an ox cart that he uses to transport other farmers’ crops to depots and markets. He has become a successful maize and vegetable farmer and recently bought a sheller both to add value to his maize and to rent out to others. Carles continued advocating and practicing conservation farming techniques in addition to becoming a trained spray service provider and community livestock worker. He is truly a rural solution provider or hub agent. His position in the community has changed dramatically—his perseverance and hard work have set a good example for others who want a better life—and the chief and elders now consult him on a range of important issues. His plans for the future include expanding his business into new areas and developing a sub-agent network.

Carles had these words for his fellow agents *“the important thing I have seen in my work as an agent is that I need to be able to help the farmer but I also need to be helped and the company should as well—it must be a win-win situation. If you as an agent are the only beneficiary and you forget about the farmer, the farmer will run away. If you make the farmer happy but forget about the company, the company will stop supplying the products and the business will collapse.”* By the end of the project, he was recruiting and helping to train and manage SSPs for Cropserve and he often traveled to other parts of Zambia to assist in training CLWs. When asked what he would do when PROFIT ended, he pointed to his head, his heart and to another agent and said, *“PROFIT is not ending, we are the project!”*

most cases, agents delivered inputs directly to farmers but if orders were big enough, suppliers could deliver them to communities. The price farmers paid for their delivered inputs was the same as the retail price in regional towns, saving farmers up to 10% on transport costs—and it included the agents’ sales commission, an important incentive. Initially, commissions were fairly consistent across all input supply firms, averaging about 10%, but by the time PROFIT exited, commissions and prices varied, depending on the supplier and the product. Additional incentives given to outstanding agents included bikes, motorcycles and other perks.<sup>1</sup>



PROFIT staff facilitated initial interactions between firm managers and agents and between agents and farmers, working with the lead firms to train agents in providing quality seeds and chemicals, teaching smallholders how to use them and introducing new products, production processes and technologies. PROFIT trained agents in the basics of running a business, including record keeping and customer service and the agents, in turn, taught farmers business basics. The model evolved organically with agents creating sub-agent networks to expand their outreach geographically and to provide farmers with better services. To effectively establish trust and credibility on a commercial relationship basis, agents had to understand farmers’ daily lives and their potential to participate in business transactions. The agents played a critical role in helping to change fellow farmers’ perceptions about new farming methods and techniques, providing information, demonstrations and confidence-building, and they were pivotal to bringing company brands into the communities. On their side, agents needed better product knowledge and information on proper use and techniques. Their provision of knowledge-based solutions to farmers’ problems allowed the agents to close rural Zambia’s ‘extension gap.’ Agents confirmed the value of their services by helping farmers improve their yields and incomes. This increased their own social capital with the communities even as it helped forge strong bonds between communities and firms. The product knowledge that agents provided also convinced smallholders to expand their adoption of new technologies, to make further investments and to increase their use of inputs. The agent networks were responsible for an increase in the number of hectares under improved technology in the project zone—from about

#### **The Agent Business Model**

The success and sustainability of the model relied on the ability of firm managers to recognize the impact that the model was having on their businesses and to develop the relationships with agents using clearly-stated business plans and incentives, formal contracts and accurate forecasting. Obviously this evolved over time from a loosely affiliated agent network to one where most agents were working under formal contracts with the firms. The firms were able to grow and sustain the model because both managers and agents developed needed skills and knowledge and were empowered to innovate as markets and competition grew. Most importantly, *the incentives and the business model were well aligned.*

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<sup>1</sup> It is important to note that this report refers to the ‘agent network’ as the basic model. However, each firm managed its own network of agents.

10,000 to more than 130,000. Farmers' lack of access to a viable rural credit facility limited further expansion.

Through their agent networks, some suppliers organized *field days* to promote sales. They also actively managed their agents through regular meetings and refresher courses and conducted regular trainings or worked with agents on providing technical assistance to farmers. Others, however, focused only on selling products to agents and provided little oversight and no follow-up training. Management structure and priorities determined how supplier / agent relationships worked and how profitable the model was for firms. Those who invested the most in training, communicating with, and managing their agents saw the greatest improvement in sales and customer satisfaction with their products.

*“We give agents money to buy the products we want and they bring them directly to the village—there are no transport costs; they also bring knowledge and teach us how to use the products. If you buy in the shop, they don’t teach you. Agents who sell us chemicals live in the village and understand the problems we face and treat us fairly. We know them. Agents also help us sell our crops and they bring us information on prices. And, if you are short on cash they give you a discount, or allow you to pay a few days later.”<sup>2</sup>*

Though they faced challenges, agents appreciated that their communities trusted them enough to select them to become the primary contacts with private firms and PROFIT. In addition to extra income, they obtained valuable knowledge and training from input suppliers on product use and application. Some agents also received special training in providing spraying services. As farmers, they valued these skills and knowledge and applied them in their own farming businesses. Challenges included transporting goods to farmers and the seasonality of the business and resulting lack of a year-round income, but the biggest problem they faced was the coordination and timing of orders—farmers needed chemicals at different times and sometimes had to wait until there were enough orders for agents to bulk and fill them. These delays could seriously affect farmers' productivity and erode trust in agents and suppliers.

*“Over time we discovered that farmers needed chemicals at different times—it would be hard to off-set transportation costs if we were to purchase for each farmer individually, we needed to wait for several orders before going to get inputs. There is a need for agents to open their own shops in the communities and store products, so they can be sold to farmers when needed.”<sup>3</sup>*

When PROFIT began exiting from the industry, firms had taken ownership of the process and were continuously monitoring and reviewing both agent and farmer performance to determine the effectiveness of the model. Agent assessments were critical to firms achieving their objectives. The agents shared their knowledge with the farmers and provided the farmers with the right products and information when they needed them. As farmers started recognizing and appreciating distinct brands, sales increased and firms realized that agents had become a critical element in their business strategy. The model benefitted both the private sector and smallholder

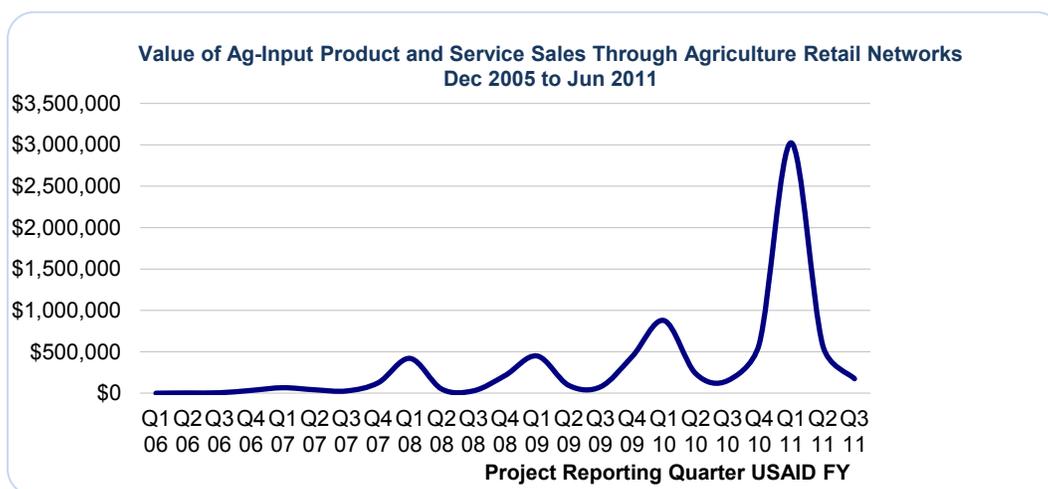
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<sup>2</sup> Focus group discussion with maize and groundnut farmers, Chikupili area, Mkushi.

<sup>3</sup> An agent for a chemical input supply firm, Chalata area, Mkushi

farmers in a win-win arrangement with agents providing farmers information on different types of products, such as seed varieties appropriate for specific conditions, and how to use them. By the end of the project total commissions paid to agents working within these networks was estimated to be close to \$200,000.

The collaborative relationships between project staff, industry firms and support markets, farmers and government agencies led to learning, innovation and improvements in the models and increased industry competitiveness. While in the scale-up phase, PROFIT had to learn to recognize the “tipping points” so as not to distort support to one or only a few firms beyond what was needed. For PROFIT, the objective was increased industry competitiveness and it needed the buy-in of the companies for that to happen. The following graphic shows the increase in sales of agricultural input products and services from project inception in 2005 through 2010.



## INNOVATIONS ON THE BASIC AGENT MODEL

### *Sub-Agents*

An effective agent could work with only about 100 farmers within a radius of 10–15km. Requests for products and services from other farmers sparked an organic evolution of the network as agents began recruiting farmers in distant communities to become sub-agents who would serve much the same function as agents. The payment systems between agents and sub-agents varied, depending on initial arrangements. While this move by agents to expand into new areas confirmed that demand could drive the size and coverage of a network, the availability of supplies, infrastructure and transport might impose limits.

Companies trained both agents and sub-agents but paid a commission only to their agents who then shared it with sub-agents. The agents were responsible for supervising their sub-agents and some high-performing sub-agents went on to become agents.<sup>4</sup>

<sup>4</sup> Additional innovations based on the model are presented below: Community Livestock Worker under the Livestock Industry section and the Spray Service Provider under the Commercial Service Provision section.

### ***Agriculture Retail Input Suppliers***

The agent model brought input suppliers closer to farmers by allowing them to identify and diagnose problems early and get better information on what farmers needed and wanted. It also helped them understand the smallholder mentality. This information provided suppliers an incentive to develop new products, like seed varieties tailored for Zambia's different geographic areas and climactic conditions. The agent network also helped them market their products by increasing farmer awareness of them.

#### **Edward Lwabila—Farmer, Agent, Supplier**

Mr. Lwabila is a farmer and an agent for both Cropserve and Pioneer Seed. He owns an input supply shop near Kabwe that stocks a range of supplies his customers want, including irrigation pumps that he installs and trains them to use. After just two years in business, Mr. Lwabila is doing better than his competitors due to the knowledge and skills he learned from PROFIT and passes on to clients. The products and techniques he demonstrates on his farm and the advice and training he provides other farmers convinces them to buy their supplies from him. In addition to advising on product use and application, Mr. Lwabila is a spray service provider and an early adopter and teacher of conservation farming techniques.

Mr. Lwabila's sons help manage the shop and provide spraying and ripping services. When advising and training farmers, he brings products to the sessions and gives free T-shirts and chitenges to those who answer questions correctly. In mid-2011, the Ministry of Agriculture approached Mr. Lwabila and asked him to help with input distribution by accepting the e-Vouchers it provides many smallholders. Mr. Lwabila's business has allowed his five sons to attend school and learn about agriculture as a business and it has strengthened their family and community relationships. He plans to buy a motorized sprayer to further expand the family's business.

#### **Henry Ngoma, Input Supplier**

Mr. Ngoma is the Cropserve District Manager in Copperbelt Province, where one third of Zambia's crops are produced. At the Natural Resources Development College in Lusaka he attended community development courses taught by CLUSA staff. Following graduation, Cropserve hired him to work in his home district (Mpongwe) and in 2008 he began collaborating with PROFIT. Mr. Ngoma trains and manages 40 Cropserve agents, teaches refresher courses and reviews performance. For Ministry of Agriculture, he trains MoA extension agents along-side Cropserve agents. While only five of his agents are female, he (and Cropserve) would like to recruit more because he finds that women agents listen better, sell more products and tend to be stronger, ensuring their orders are prepaid. They tend to have more influence with farmers than other agents and generally have a more positive impact on the communities with which they work.

Mr. Ngoma established an incentive program for agents and sub-agents, providing discounts for picking up products from the warehouse and delivering them to farmers. He also organized a raffle for farmers that awarded a plough, bicycle and protective clothing to the first three winners and consolation prizes (goggles, gloves, herbicides and respirators) to other ticket-buyers. The raffle brought many new customers to his shop and, in addition to using incentives and innovative techniques to boost sales Mr. Ngoma wants to expand his business into other areas by building a new shop and warehouse.

In the 2 ½ years that Mr. Ngoma and PROFIT have been working together, production in the province has increased about 60%. In 2008, most smallholders were harvesting just ten bags of maize, enough for a family to consume in a year. They were subsistence-only farmers. By 2010, many small farmers were harvesting up to 50 bags of maize—they could feed their families more nutritious foods, send their children to school, get medical care, purchase better seed, animals and tools and, importantly, save for future needs.

*“The key market information comes from farmers themselves. They give us ideas and we learn about the challenges they face through field days and try to address them. If we see a prominent problem, we look at ways to solve it—improve the seed, develop new varieties. Field days also help us project demand. At the end of the day you get a sense of what farmers’ needs are and how many are planning to grow our seed this year. Field days are better than just [product] promotion. They help us learn about the issues that farmers face.”<sup>5</sup>*

### **Gilbert Vlahakis, Input Supplier and PROFIT Supporter**

When Mr. Gilbert Vlahakis, a large agricultural input retailer in Choma, first began working with PROFIT, he quickly realized that the program did not tell suppliers and farmers what to do; instead it asked them about the challenges they faced and how they could solve them together. One of PROFIT’s first private sector partners, he worked closely with the project to find solutions to the problems that retailers and farmers faced due to the poorly-defined, frequently disrupted input supply chain in Zambia. Mr. Vlahakis valued the ability and willingness of PROFIT staff to analyze often formidable problems and then work with industry players, farmers and others to identify the best ways to deal with them and said, “PROFIT complements its private sector partners—they know their business and PROFIT understands how to work with communities and farmers.” Project staff used their experience and facilitation skills to help him and other retailers and stockists provide their customers with the knowledge, products, services and technical assistance that would enable them to become better farmers and increase their production.

Mr. Vlahakis said that PROFIT helped change the smallholders’ mindset by providing them the tools and self-confidence they needed to take responsibility for themselves and their communities rather than depend on government or others for handouts. Farmers have become pro-active and more discriminating because they now know quality and demand it; they understand the value of on-time input delivery and planting and can correctly order the inputs they need. In facilitating meetings between traders and farmers, PROFIT helped the traders understand the farmers’ point of view and how to advise them on the best seeds and other products to buy for their specific needs. PROFIT’s facilitation built trust between the parties which helped traders grow their businesses and farmers increase their production. Mr. Vlahakis also noted that in four areas with a serious food deficit farmers had been producing a surplus for three years.

### **James Mweemba, Senior Agriculture Officer, Ministry of Agriculture**

Senior Agriculture Officer in the Copperbelt Province, Mr. Mweemba, said that “...with PROFIT [agents], the Ministry of Agriculture now has partners in the field who help the MoA spread the word about what is happening in agriculture.” In the promotional flyers used to advertise the raffle he organized for farmers, Mr. Ngoma used a photo showing Mr. Mweemba in the field with farmers and a Cropservice agent because “...he is a very hands-on government official who supports farmers, NGOs and the private sector.”

PROFIT facilitated the collaboration of Cropservice and the MoA so extension agents could learn about the chemicals farmers were using to improve their production. And, when Cropservice told Mr. Mweemba that communities wanted and trusted his extension agents and asked if he would allow them to become Cropservice agents, he said, “Why not?.” Soon after, Cropservice recruited Mr. Godfrey Katai, an MoA extension agent who quickly became one of firm’s best agents. Mr. Mweemba cautioned him and other MoA / Cropservice agents not to abuse government resources and time and he charged the communities with monitoring Godfrey and the other ‘double’ agents to ensure they kept their private sector and government work separate. In addition, he reminded all extension agents that they had to work with Cropservice and PROFIT to achieve the best for both the smallholders and Zambia.

<sup>5</sup> Seed input supplier representative, Choma

## THE DAIRY AND LIVESTOCK SECTOR

### *Private Veterinary Services*

While poor herd health management has long been a critical problem for smallholder cattle farmers, few private veterinarians were working in rural areas and farmers did not understand the need for, or value of disease prevention. And, cattle ownership had never been a commercial activity; small farmers traditionally kept them as a source of social capital and sold them only when they had a specific need, such as school fees or an emergency. They also saw vet services as a government-provided public good. For these reasons, farmers did not invest in their cattle to prevent disease and their animals suffered high morbidity and mortality rates. Government and private sector efforts to reduce livestock diseases over the years yielded few results. Following a sector assessment and discussions with key players, PROFIT introduced innovative and cost effective ways of increasing the availability of vet services and combating livestock diseases by fostering commercial relationships between farmers and providers and it used several different approaches to support the growth of the vet services industry. One was an internship program for young vets to conduct their residency with private vets serving rural farmers. This provided an opportunity for them to gain experience in offering private services to rural farmers. Another was to cost-share the establishment of a veterinary laboratory (VetLab) for disease and feed testing.

To jump start an active and engaged private vet service industry, PROFIT provided a package for interested and willing young veterinarians that included transport (use of a motorbike), cost-shared initial sales promotions, salary cost-share for young vets for a limited time, and cost-shared training of community livestock workers and agents to establish a vet network.

#### **Veterinarians Dr. Raymond Hamoonga and Dr. Nawa Mabuku**

Dr. Hamoonga, a private veterinarian practicing in Monze, opened his office in 2008 after his mentor introduced him to the business side of veterinary medicine and encouraged him to go into private practice. Initially, he focused only on small animals in and close to the town as he lacked transport and could not regularly travel to more rural areas to care for large animals. When he heard about PROFIT and the HHP, he met with local staff and the project provided a motorbike that allowed him to travel a 50Km circuit.

In the field, Dr. Hamoonga worked with CLWs and a veterinary assistant (VA), subsidized by PROFIT on a sliding scale, helped him with his office practice. In addition to one-off vaccinations, de-worming and other services, Dr Hamoonga introduced a modified HHP of weekly spraying for K1,000/animal to his practice. PROFIT provided the spray race and he furnished the acaracide and fuel for the pump. Dr. Hamoonga links farmers with other suppliers (forage, etc.) and stays current on new developments in veterinary medicine via radio, online sites and publications. He plans to expand his business by recruiting newly-graduated vets, mentoring and giving them hands-on experience for a year and then placing them in offices he wants to open in other areas.

Dr. Mabuku, a government veterinary officer, initially focused primarily on disease control—testing dairy cows for TB, scheduling vaccinations, regulating the slaughter of beef cattle and overseeing private vets engaged by commercial firms. He also set up a private practice and PROFIT linked him to small farmers, introduced the HHP concept and facilitated his training of CLWs.

### ***The Herd-Health Plan***

In an initial effort to improve animal health PROFIT worked with private and public veterinarians to demonstrate the benefits of having healthy animals. Together, they developed a prepaid preventive herd health plan (HHP) and a hybrid of the in-community service provider agent model—community livestock workers (CLWs)—to organize groups of farmers to minimize the cost of the plan. PROFIT designed the business model for the HHP as a one-year prepaid package of services (vaccinations, de-worming, check-ups, advice, etc.) and presented the plan to veterinarians. The project also facilitated initial meetings between vets and communities concerning payment terms and contracting and explained the role of the CLWs, who became the critical link between the two parties. The CLWs marketed and explain services, collect payments, advised on animal care, diagnosed diseases, administered some drugs and treated simple problems. They also assisted with spraying and contacted the vet when animals became sick.

While there was enough interest in the HHP to prove the effectiveness of the model and some farmers still purchase the plan annually, veterinarians sell far more one-off services. In addition, some vets adapted the model to make it more affordable, for example by bundling vaccinations and spraying. PROFIT worked with vets to make these changes in response to farmers' requests.

The vets began offering one-off services for cash payment to farmers who saw the value of their services, but could not afford to pay the annual HHP fee. The project also urged agricultural input suppliers to offer cattle spraying services via their agent networks in areas where the HHP was unavailable. Some suppliers even sold veterinary products and services. Overall, the herd health plan demonstrated the value of preventive vet services to those who previously lacked access, or did not want to pay for them.

At project end, ten private vets were working in five regions. And, they were creating a more competitive market, mentoring newly-graduated veterinarians who wanted to work in their home areas and could benefit from the supervised, hands-on experience in working with communities, running a business, etc. that they could provide. The vets also trained the CLWs in herd health issues, spraying, dry season feeding, etc. who, in turn, provided farmers information on animal

### **Mr. Shambosha and Agrivet**

When *Mr. Shambosha*, a smallholder farmer in Mumbwa District, first heard about the Herd Health Plan (HHP) he wasn't sure what to make of it. Pre-payment? For vet services? After listening closely to the benefits—preventive services to improve animal health—he decided to test the service and put over 40 of his animals on the plan.

He pays K65,000 (\$16.25) a year per animal for weekly preventative vet services. His investment in prevention has saved him money in treatment and improved the overall health of his animals. Mr. Shambosha finds the cost of the HHP program to be about half what he would have spent on treatment and none of his animals have fallen ill or died. This improvement in animal health has also increased his animals' market value. "I recently sold one animal for K2.8 million. Before the HHP, I would have been happy if I was offered K1.5 million. I'm seeing that this can really be a good income generating option for me."

Mr. Shambosha is one of many farmers who now buy much needed vet services from private vet businesses such as Agrivet, which PROFIT worked with to serve smallholder markets. When Agrivet signed its first community contract in Mumbwa in 2007, only 150 animals were on the HHP. Today, Agrivet is servicing over 2,000 animals through the pre-paid HHP contract structure. To expand its business, Agrivet established a network of 10 agents to bulk pre-paid orders for drug treatments.

health, identified problems and notified the vet if a problem was serious and needed their attention. They also advised farmers on improving animal nutrition and were present on spray race days to meet with farmers, check animals and provide other necessary services, such as scheduled vaccinations and de-worming. By project end, these ten private vets had conducted over 800,000 one-off service transactions worth \$1.2m and signed HHP contracts worth \$113,000 covering more than 60,000 animals. In addition, they had had contracts with 122 CLWs. The Ministry of Livestock and Fisheries Development (MLFD) trained and certified more than 85 CLW through June 2011.

### *Livestock Service Centers*

PROFIT supported the MLFD in making its vision of livestock service centers (LSCs) throughout Zambia a reality by constructing the first five in Mumbwa, Mazabuka and other areas with high concentrations of livestock farmers. The ministry's strategic plan identified LSCs as critically important links between the communities and the government and the private sector for extension, training and information as well as the key to rural input and output services. The centers quickly became aggregation points where farmers could get private veterinary and spraying services for their animals and commercial buyers could inspect and purchase them. In addition to the focus on animals, centers became a place where maize, cotton and horticulture growers could find extension services, learn about new products and production methodologies and purchase seeds and other inputs. Farmers from remote areas also used the LSCs as a social center and place to gather and share information.

In less than a year, more than 1,000 animals were vaccinated and de-wormed and over 300 sold at the Mubwa center. At project closing, the ministry continued to identify new LSC locations and planned to have 40 tier one or tier two centers completed and fully operational by the end of 2011. Although progress was somewhat slower than expected, the MLFD remained committed to establishing LSCs nationwide within five years.

### *The Dairy Industry*

At the start of PROFIT, Zambia's dairy sector was uncompetitive and a net importer of milk even though 60% of its processing capacity was underutilized. In addition, the country had one of the lowest milk consumption rates in the region. While there was significant potential for growing domestic demand for milk and other dairy products and for developing the export market to neighboring countries, the poor yields and low quality given by small producers' animals meant that large commercial farmers dominated milk production in the country.

In mid-2007, PROFIT began working with emergent farmers who had 10 or more milking cattle and the potential to participate in commercial markets. It targeted geographical areas with high production and market access potential and where commercialization of the smallholder sector had the best chance to impact the industry as a whole. Initially, the low number of small dairy farmers limited processors' ability to obtain scale and they were reluctant to work with them. A mutual lack of trust also made it difficult to create the alliances both parties needed to increase competitiveness and attain commercial success.

By project end, smallholder production represented nearly 30% of all milk purchased by the formal sector—double what it was in 2007. This increase resulted from processors becoming more involved in working directly with small dairy farmers by opening new collection centers (Zammilk, Nice Products, Silwili, Protea), developing better transport options (Parmalat) and improving the analysis capacity of the dairy feed industry (VetLab). PROFIT also facilitated the provision of embedded extension services by processors and farmers’ adoption of better nutrition and herd health practices, such as regular spraying and the use of veterinary services.

PROFIT assistance was instrumental in changing processors’ and other private sector players’ perceptions of smallholder farmers and convincing them to buy-into project activities. The creation of the Dairy Association of Zambia (DAZ) to replace the exclusive, processors only Zambia Dairy Processors Association includes farmers, suppliers, processors and other stakeholders and is poised to become the recognized voice of the dairy sector. And, project-supported training for processors in Good Manufacturing Practices (GMP) has helped raise industry awareness of the importance of improving and maintaining milk standards.

In addition to these initiatives, PROFIT collaborated with poultry and cattle industry players and several veterinarians to share the equipment and start-up costs of developing *VetLab*, a private veterinary diagnostic laboratory based in Lusaka to offer cattle and poultry serology and bacteriology testing. Home to the most advanced feed analysis facility in Zambia, the lab (once ISO accredited) will offer analyses throughout the region and compete with services currently available only in South Africa. PROFIT also leveraged private sector funds to establish a *Dairy Industry Development Fund* to improve firm and market efficiency at different points along the value chain, including smallholder production. The following graphic shows how the fund affected both smallholders and companies that received equipment.

### Makamu Dairy Women’s Cooperative

The cooperative operated a spray race that the President of Zambia, the late Mr. Rupiah Banda, donated to them at the beginning of the 2009-10 season. Formed in 2005, the group has 29 members, all dairy farmers who decided to operate the facility to raise income for the group.

A committee selected by the group managed the spray race which sprayed over 300 animals per week and raised K300,000 (\$60) per week. As one member of the group, Ms. Felistus Munsanje put it, “the spray race is a cheaper way of managing ticks as the amount of dip and water used is minimal.” She added that “the mortality in my herd had gone down because I can afford to regularly dip my animals.”

Fund Recipients	Amount Accessed	Matching Funds	Fund Purpose	Results
Nice Products Ltd	35,000	46,000	Increase raw milk supply from SH through new MCC	New MCC established with farmers Feb 2011
Dairy King Ltd	25,800	17,200	Increase plant capacity to accept more SH milk	New equipment installed and 35% increase in SH supply
Parmalat Ltd	30,880	65,400	Increase raw milk supply from SH	Increase in SH milk purchased: 2008-0.45 m liters → 2011-1.5 m liters
Zammilk	30,000	20,000	Increase raw milk supply from SH through new MCCs	Increase in SH milk purchases 2008–5,000 L → 2011–113,000 L
Vetlab	155,119	100,000	Industry recognized analytical laboratory	Equipment installed and showcased at the Lusaka Agricultural Show in Aug 11
<b>TOTAL</b>	<b>\$276,799</b>	<b>\$202,644</b>		

## COMMERCIAL SERVICE PROVISION MARKET

PROFIT pioneered the development of viable, commercially provided services targeting the smallholder market in Zambia and made major inroads in establishing professional-level service provision capacity and access to smallholders in the agriculture and cattle industries.

### *Spray Service Providers*

The spray service platform was an innovative adaptation of the basic agent model that fostered the development of a spraying service platform as a way to achieve wider, safer and more efficient agro-chemical application in the cotton industry.

One of the main issues causing low productivity among farmers is their uninformed use of agro-chemicals. In an effort to create market incentives through improved chemical application, PROFIT began working with three cotton companies in 2007—Dunavant, GLCC and Birchand Cotton—to introduce trained, well-equipped farmers who would provide spraying and scouting services throughout the season. PROFIT staff working inside the cotton networks initiated the activities and by the 2009/10 agricultural season all three companies were actively identifying and training spray service providers.

The provision of spray services to smallholders opens up opportunities for many in terms of the ability to access better, more cost-effective inputs as well as the knowledge of appropriate crop management practices. A service platform built on the basis of transparent transactions and information provision to farmers enables them to gain confidence in both the service providers and the technology. Critical to ensuring continual upgrading of providers' services were firm investments in training, testing and certifying their spray service providers. PROFIT focused its activities on this effort by supporting the establishment of an industry association, Croplife Zambia to encourage provider certification and prompt firms to develop and internalize testing, certification and re-certification regimes.

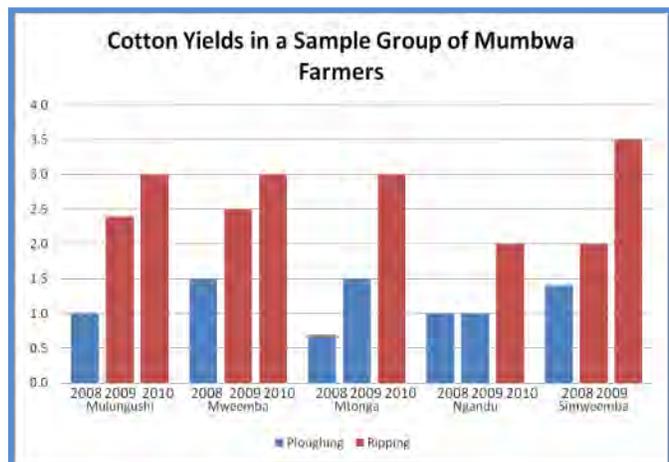
The movement toward a sustainable and expanding service platform was designed to increase smallholder production and the number of certified spray service providers, improve relationships between the providers and farmers and provide spray service providers with more knowledge and income-generating opportunities. The idea was to stimulate the service platform by encouraging firms to focus on strategies that would expand and institutionalize the methodology into their business models.

By September 2011, PROFIT had facilitated the training and testing of 2,500 spray service providers, 1,500 of whom had been certified. Since 2007, farmers have hired spray service providers to their treat cotton, vegetables and other field crops on over 5,000 ha.



### *Tillage Service Provision*

Late planting, a major factor contributing to low crop yields (cotton, maize, soya beans, etc.) in Eastern Province, occurs when soil is prepared late in the growing season. Traditionally, farmers depended on the rains to prepare the hard soil but when they were delayed, they had little choice but to plant late—mid-December or early January. In addition, they planted only a few hectares due to a lack of time and the inferior, costly and time-intensive tillage methods and implements they used.



PROFIT supported its partners, the Conservation Farming Unit (CFU) and Dunavant in both farmers in conservation farming practices to help them improve the quality and quantity of production and in developing tillage services. CFU training focused on sustainable farming techniques such as early planting into rip-lines, crop rotation, plant population management and other good husbandry techniques. To ensure adoption of these practices, PROFIT worked closely with Dunavant and Cargill to train tillage service providers (TSPs)—farmers who owned oxen and were able and willing to invest in a ripper and sell their services to others. By project end, more than 1,000 commercial oxen and tractor-based tillage service providers had prepared over 6,000Ha of smallholder land. PROFIT also encouraged farmers who owned oxen to employ their animals to transport crops and other goods for community members.

#### **Mr. Lancelot Malambo, Tillage Provider**

Mr. Malambo, an emerging farmer who owned oxen and farmed 505 hectares, became a reliable and efficient tillage service provider who furnished his neighbors with crop spraying and hauling services.

Though it was late in the 2010 season when Mr. Malambo received a tractor (under a lease/purchase agreement), he was able to increase his production of both maize—by 50%, from 30Ha to 60Ha (earning K468m) and soya beans—by 400%, from 2Ha to 10Ha (with earnings of K22.5m). Also during that first season, Mr Malambo tilled 20Ha for 11 other farmers (for K8m) and he made an additional K10.5m spraying 30Ha of neighbors' crops.

In addition to the oxen-based tillage services, PROFIT convinced several leasing firms to provide smallholders with tractor leasing services under the mechanized service provision model (see *Equipment Leasing* under **THE RURAL AND AGRICULTURE FINANCE INDUSTRY** section, below).

#### ***The Spray Race—Stationary and Mobile***

The spray race is a cost-effective and efficient alternative to the traditional dip tank used to eliminate tick-borne and other diseases that plague cattle. PROFIT and its Zambian partner, Fens Investments, replicated the South African-designed spray race, which uses far less water and fewer chemicals than a dip tank. They also developed an innovative mobile spray race that was a good business venture both for those who purchased them and for the entrepreneurs who copied the design and began manufacturing them. While the mobile spray race also required a cement slab and water source, owners could dismantle a unit in about 15 minutes, pack it in a pickup truck or ox cart and move it. This was an innovative adaptation that responded to seasonal cattle migration patterns. Mobile race owners could schedule treatments in different locations on set days and inform farmers so they could aggregate their cattle. Depending on the area, both

#### **Mr. George Shimusako and Mr. Collins Lubezhi**

Mr. Shimusako, a cattle farmer and co-owner of a locally-manufactured mobile spray race, had this to say about the spray race “When I saw the spray race, I was excited and shared the news with my friend, Mr. Lubezhi. We decided to try out the innovation and cost-shared the manufacture of the first locally-made spray race. It worked well and we never looked back.”

He went on to say that “some of the benefits of the spray race were the significant time and labor reductions when spraying the animals”. He says “it takes about one hour to spray 1,300 animals with only five people managing the animals”. Mr. Lubezhi manufactured that first locally-made spray race and had a lot of praise for the unit. He thanked PROFIT for the innovation and said it was a solution to the disease problem, especially when animals are taken to the plains.

stationary and mobile spray race owners charged K750 (\$.15) to K1000 (\$.25) per animal. The spray race facilities stimulated demand and they became aggregation points where farmers could



have their animals vaccinated and de-wormed and buy vet drugs, chemicals and even seeds. Veterinarians and input suppliers also used the venue for agent and farmer trainings and, in areas where there was a cattle ramp buyers could arrange to purchase animals on spray race days.

By project end, ten private veterinarians were working with smallholders and offering weekly spraying services and at least ten privately-owned spray races were operating and available to neighboring farmers for around K1,000 per animal. By project end,

there were 10,000–12,000 spray race transactions per week and the number continued to grow as word spread and new spray races were commissioned.

## THE RURAL AND AGRICULTURE FINANCE INDUSTRY AND OUTPUT MARKETS

In 2005, Zambia's rural financial sector was small (12%) when compared to those in other African countries. Loans to small and medium businesses were rare, collateral rates were as high as 200% and the agriculture sector was not a priority. In addition, the lack of credit to intermediary firms such as service providers, processors and emergent farmers was a major constraint to sector growth. With no other programs substantially involved in finance, PROFIT took the lead and moved forward with several promising initiatives, including three profiled here.

### *Equipment Leasing*

The project worked with Dunavant to pioneer equipment leasing in the cotton sector to alleviate the chronic shortage of tractors available to help smallholders prepare their land and transport their crops to aggregation depots. Dunavant provided its first tractor on a commercial lease to a top-performing distributor to demonstrate the viability of the ripping and haulage services business model. Afgri, a leading equipment vendor and agricultural leasing agent issued four tractor leases to non-cotton farmers providing ripping and haulage services with the intention of issuing up to 250 over the next few years. In 2011, vendors financed 13 new tractors through leasing arrangements.

### *E-Transactions: M-Payments and E-Vouchers*

Large outgrower schemes in Zambia faced a number of challenges that limited their growth potential and prevented industries from becoming competitive. These constraints included payments to large numbers of smallholders and the transaction risks and costs related to

communicating and coordinating technical information. In seeking ways to facilitate the creation of mechanisms that could reduce risk for the cotton, horticulture and honey industries and foster the development of commercially viable outgrower schemes, in 2007 PROFIT contacted CAD International, a dynamic and progressive mobile technology firm based in South Africa and operating in Zambia that was interested in becoming the leader in providing technology solutions for the financial and operational problems facing industries wanting to penetrate rural markets.

### *M-Payments*

Knowing that its cotton ginning clients wanted to lower the cost of moving cash across rural Zambia and to integrate a technology-based MIS system into their outgrower management systems, PROFIT provided CAD a small grant to support industry and market research that led to the development of both a cotton grower management scheme and Zoona—a mobile-payments solution that allowed the companies to make payments to any mobile phone in Zambia and did not require payees to have a bank account. The grant also financed the start-up of Mobile Transactions, a commercial (joint) venture between CAD, Dunavant and other investors, brokered by PROFIT, to expand and pilot the Zoona e-transactions platform to reduce the high cost and risk of paying the company's 150,000 outgrowers. The platform enabled payments to be made on any network and customers could use a mobile phone or collect cash payments from an authorized dealer. Mobile Transactions developed a relationship with the formal banking sector to facilitate large payments.

The pilot was successful, with 580 payments processed and farmers accepting the technology. However, SMS was expensive and excluded the many smallholders who did not have mobile phones. Mobile Transactions moved the technology to a more secure, lower-cost IP platform that allowed payees to access cash through agents—retailers with access to the system who could receive a payee's e-voucher and identification and call the payer to validate the information before giving out cash.

As mobile-based banking products began reaching the wider Zambian market, PROFIT linked Mobile Transactions to other agricultural and financial sector companies and the firm began adapting the mass-payment technology. The resulting, transformational m-payment model used mobile phones to supply low-cost financial products to Zambians who lacked access to conventional financial services. PROFIT support contributed to a significant rise in the number of mobile transactions, which increased almost 1,000% in 2010. In addition, the Mobile Transactions transfer and payments system engaged more than 180 small businesses that earned up to \$14,000 more per month and the person-to-person transfer system has become the second largest payments service in the country, with more than \$1m such transactions passing across the platform each month. Other financial services have continued to be built off the back of the transactions platform and Mobile Transactions has developed electronic payment solutions to facilitate bulk loan disbursements to banked and unbanked clients around Zambia and provided a loan repayment module through its MaKwacha agent network.

### *E-Vouchers*

PROFIT also facilitated the development of an e-voucher system for government and other subsidized input programs. Based on a scratch card application that locked the recipient's

identity to the voucher, it provided proof of redemption and delivery and allowed real-time program monitoring. The e-vouchers stimulated rural retail markets by increasing recipients' spending power and attracting and encouraging private sector players to provide information and technology transfer services. By project end, PROFIT had facilitated Dunavant's plan to convert a portion of its cash payments to electronic vouchers to be redeemed for agricultural inputs and household items in a bid to reduce the volume of cash and provide incentives for farmers to purchase their inputs early.

As transactions grew faster and more efficient, the e-voucher system became the core of Mobile Transactions's business and during the 2010 peak input marketing season, its clients redeemed over \$1m in vouchers. PROFIT and Mobile Transactions persuaded the UN Food and Agriculture Organization (FAO) to pilot an e-voucher system for distributing inputs under their conservation farming programs—the initial program targeting 12 districts soon expanded to 27 with 3,500 vouchers redeemed monthly. FAO declared the e-voucher system 66% to be more cost-effective than traditional methods and scaled up the program for the 2011 season. By project end, Mobile Transactions was in discussions with both the Conservation Farming Unit and FAO to double the e-voucher system for the 2011 input marketing season. There also were multi-stakeholder efforts to utilize an m-payments platform for social cash transfers (government to people transactions). UNICEF and DFID were considering Mobile Transactions a possible service provider for piloting social cash transfer payments as part of an ongoing initiative. Clearly, the relationship between PROFIT and Mobile Transactions helped the firm expand its services far beyond its initial successes—and expectations.

### *Rural Finance Training for Banks*

PROFIT provided commercial banks including ZANACO with technical assistance packages to help them establish agricultural departments, rewrite credit policy manuals, conduct market research to identify rural delivery mechanisms and to train staff on agricultural credit. Project activities aimed to change the banks' behavior and some did move forward in developing products and services for the agriculture sector. However, the banking sector's conservatism and lack of an industry leader (champion) and the inherently high-risk nature of agriculture limited the success of the initiative. While some banks did establish agricultural-lending departments and increase the number of products and services, it was the commercial farming and agro-processing industries that benefited from these changes, not the smallholder or emergent farmers.

### *ZAMACE*

PROFIT supported the agricultural commodities sector, in response to a request from the private sector, to develop a volumes-based, transparent and structured agricultural trading environment. To this end, PROFIT had three key strategies:

1. The development of a commodities exchange and the integration of smallholders into the market environment that it would create
2. The integration of the financial sector into the structure and operations of a commodity exchange
3. The development of a policy environment that could facilitate both the development of a commodity exchange and a competitive agricultural economy in general.

As a result of these interventions, Zambia's first agricultural commodities exchange (ZAMACE) was established in 2007. By project end it had traded over \$78m of commodities and become a widely recognized institution with an influential seat at stakeholder and policy meetings related to agricultural trade. Its grades and standards have been adopted for use by the industry, its prices are used by the agricultural and financial sectors to value stocks, and it is seen by government as a valuable component of a more liberalized agricultural economy.

Serious challenges faced this strategy, however. External factors, namely highly distortive government intervention in maize markets, created a very difficult environment in which to introduce a new market mechanism. Despite considerable work by PROFIT, ZAMACE and their partners, as well as a demonstrated willingness on the part of smallholders to aggregate crop on a quality basis, an aggressive government maize purchasing strategy effectively ruled out smallholder participation in improved, private sector-based market mechanisms.

Equally challenging were internal factors, with the majority of ZAMACE members (who also were traders) trading off-exchange since they could make higher margins in the opaque, information asymmetric and adversarial trading environment that characterized the Zambian agricultural market.

To tackle some of these challenges and in response to an evolving policy environment, the end of the PROFIT program saw the start of a major restructuring of ZAMACE aimed at delinking membership from ownership and bringing in corporate investment. Eventually, the Lusaka Stock Exchange expressed interest in making a substantial investment in ZAMACE to ensure its long-term viability.



## CHAPTER THREE: SCALING-UP AND OWNERSHIP

Two major challenges that smallholder farmers faced in 2005 were access to affordable inputs (seeds, fertilizer, etc.) and the availability of a ready market for their crops (maize, soya beans, cowpeas and groundnuts). But agricultural industries—retail, livestock, commodity, financial, and commercial services—either were unaware of the opportunities and potential that small farmers offered or considered it too difficult and unprofitable to do business with them. PROFIT facilitation of communications, understanding and commercial linkages between smallholder communities and the private and public sectors led to 1) farmers willing to invest in new technologies and commercial relationships; 2) private sector firms willing to take risks and invest in the smallholder market; and 3) government willingness, in some instances, to support an enabling policy environment.

In pioneering the market facilitation methodology, PROFIT worked with the agricultural retail industry to develop pro-poor distribution models and private livestock service businesses to engage the under-served smallholder market. The project helped the commodities industry expand output markets beyond maize and make them more inclusive and it encouraged commercial and other financial institutions to deepen their involvement in agriculture. Finally, PROFIT prepared the way for the development of a commercial services provision market in the rural economy.

PROFIT's facilitation of backward and forward linkages in various commodity value chains led to real economic growth at the industry, firm and household levels and to substantive structural changes throughout the agriculture industry sector. The project demonstrated to the private sector that smallholders (as suppliers and consumers) could be a viable commercial investment for them, and to the government that the private sector was capable of providing small farmers with goods and services. One of the most important results of PROFIT's work was the thousands of farmers who began upgrading their farming practices and the tens of thousands of hectares that came under modern farm management practices.

None of this would have happened if PROFIT had not been willing to use smart subsidies and other incentives to buy down the uncertainty and risks that confronted the private sector and communities when they were asked to invest in project ventures. The ICSP network concept also played a key role in convincing industries that the concept does work.

### *Export Trading Company (ETC)*

ETC, a South African company with warehouses and partnerships with farmers throughout Africa and India, brings expertise to all points in the supply chain through its network of people, infrastructure, technology, market intelligence, logistics and distribution. ETC purchases commodities at the farm gate, processes and markets them and mobilizes resources to meet the needs of the international market. The entry of ETC into Zambia's rural markets stimulated the growth of input distribution and output markets for smallholders and encouraged them to upgrade their production. PROFIT began working with ETC in 2007 in Southern and Eastern provinces, facilitating competitive links between the firm and smallholder farming communities

to increase farmers' incomes. ETC offered farmers competitive prices and benefited from the crop aggregation and other services that the community-based agents provided.

ETC quickly expanded its market share through competitive pricing of commodities and by using the agent network. This competitive pricing pleased smallholders who made ETC their preferred supplier and many farmers upgraded their production of groundnuts and soya due to the favorable prices ETC offered. Since inception of their



**The Katete ETC outlet.**

work with smallholders, ETC has worked with over 5,500 farmers in Southern and Eastern provinces, 850 of them women. During the 2009-10 season, ETC bought over 500MT of maize valued at \$85,000 from smallholders in Southern province, 436MT of groundnuts worth \$278,298 in Southern and Eastern provinces and 96MT of soya valued at \$36,766 in both provinces.



**Enesi Choonya with groundnuts that she sold to ETC.**

Mrs. Enesi Hanansangwe Choonya, a farmer, is married and has two children and another dependent. She sold 600kgs of groundnuts to ETC for \$383, which allowed her to pay school fees for the children. Tedson Zulu, also a farmer sold 150kgs of groundnuts for \$98 and used the money to pay for immediate household needs.

### ***The PANNAR Seed Company***

By the end of the project, all of the major agricultural input firms in Zambia had adopted the agent network business model and were competing for market share. They also were expanding their networks into new geographical and product areas and by the end of the 2011 third quarter, the sale of inputs through the participating firm agent networks had reached US \$7.7m.

When PROFIT approached PANNAR with the concept, the company quickly realized that this innovative strategy could open the way for it to engage with smallholder farmers and substantially grow its share of the input market. Project staff introduced PANNAR to communities in Southern Province and facilitated win-win relationships that provided farmers with access to better seeds and lowered PANNAR's cost of delivering products through the aggregation and prepayment of orders. The agents were a direct link to the communities and local firm representatives and PANNAR paid them a 10%-15% commission on every order they delivered.

Prior to adopting the PROFIT in-community service provider agent business model, PANNAR's seed sales were about 20MT per year and it sold only through outlets in larger towns. After

developing its agent network, sales increased in its local shops and through stockists and the agents. The increase in sales was due primarily to the product knowledge that agents provided farmers who then lobbied the government's Farmer Input Support Programme (FISP) to include Pannar seeds in its input packs. During the 2010-11 season, PANNAR sold over 555MT—400MT through FISP, which previously had purchased almost no PANNAR product.

PANNAR's use of the agent model created employment in communities and the income agents earned enabled them to purchase products and services locally and to share their earnings with relatives and others through various transactions. And, the higher incomes that farmers realized from the sale of their increased maize production—due to better quality seeds and improved cultural practices—provided additional economic benefits to the region and the nation. In 2010, the economic value of PANNAR seed sold through agents was more than \$2,250,000.

## CHAPTER FOUR: MONITORING, EVALUATION AND INNOVATIVE LEARNING

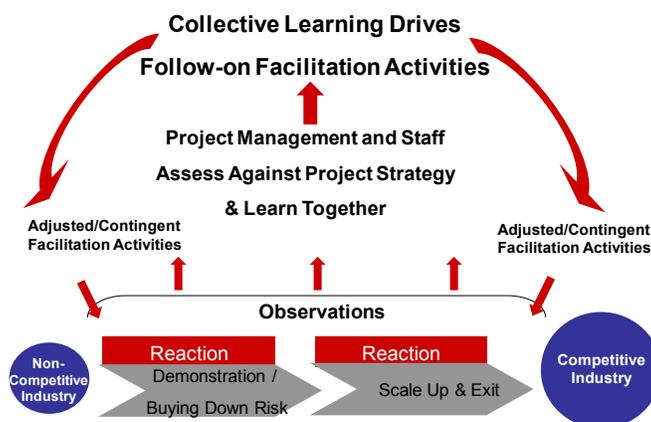
### *The Learning Loop*

Since the earliest stages of PROFIT, management knew there was a need to design and develop a more robust monitoring and evaluation system to meet the challenge of capturing results from this innovative program in which the private sector would benefit and where continuous learning and knowledge sharing would be the key to success. The PROFIT M&E system evolved beyond capturing data and impact results through its development of a systematic learning loop. The *learning loops* were designed to capture knowledge from all project interventions. The process of how the project integrated these loops into activities and how they drove decision-making began when a series of linked activities set in motion a continuous process of comparing how value chain actors and relationships reacted to threats and opportunities that the interventions stimulated.

The *learning loop concept* worked on the principle that collecting information and knowledge gained from all activities was not just a function of reporting on results but the basis for a well-functioning management system. To make this system work, the project had to develop open communications to provide the field-based business advisors (BAs) an environment in which they would see monitoring and evaluation as a mechanism for learning and coordination. Knowledge gained after each activity could help the BA make adjustments and improve their future activities. This information could also be shared with others to form a more global understanding of how interventions were influencing market actors and moving them along the desired pathways. PROFIT collected data from staff, provided timely feedback and guidance and then promoted shared learning by encouraging the BAs to share their experiences, both successes and failures alike. Central office technical staff served as advisors to the field staff by providing guidance in a consultative and timely manner, which helped build BA's confidence to contribute openly. It also encouraged learning at all levels by expanding it beyond the field to include staff retreats and other meetings. By year three of the project, as learning within and between teams and managers became more open and frequent, information-sharing was becoming institutionalized and this engendered both learning and a team spirit that freed the BAs to ask

questions and request assistance from other team members or any project manager, including the Chief of Party.

### Knowledge Management In Practice



*The PROFIT learning loop is replicable and effective if the working environment has a flat management structure and if management actively supports and rewards knowledge and information sharing at all levels and encourages staff to take knowledge-based risks. Other critically important elements are the design and use of appropriate, user-friendly tools.*

PROFIT shared the lessons it learned in developing and refining this system with its private sector partners so they could improve their ability to monitor and evaluate their own agent network activities, thereby enhancing their ownership of the learning process. Project staff worked with the industry firms to collect data and use the information extracted from it to improve their business management practices. By project end, firms started adopting learning as part of their business management information systems. Through PROFIT assistance, several agricultural retail input firms even established databases through which they could track and monitor smallholder sales information through the agent network.

### Using Industry Pathways to Manage Knowledge

PROFIT’s knowledge management system was central to its approach. Ensuring that the information used for decision-making was accurate was paramount—it drove PROFIT’s use of the best practice principles on which it based all of its data collection processes. At the same time, PROFIT developed innovative ways to cross reference and manage knowledge to meet the needs of its dynamic approach. For example, PROFIT used numerous methods of capturing both quantitative and qualitative information to achieve multiple levels of certainty. Further, it cross-referenced all data on an on-going basis to continuously hone intervention decisions and improve reporting practices. This process enabled PROFIT use its knowledge management system to:

- Understand and act on opportunities and threats quickly and efficiently
- Design and adjust the appropriate interventions
- Rapidly shift responsibility to local private sector actors to assure sustainability

- Report results and attribution with a relatively high degree of certainty.

To determine whether the behavior change that PROFIT fostered was sustainable, the project promoted shifts in systemic incentives such as developing an agent network by reducing acquisition costs of inputs for farmers and without increasing substantial overhead costs for the firms. And, to find out if industries institutionalized these changes, PROFIT adjusted the expected observations based on the interrelated characteristics that are essential to an industry's ability to establish and maintain a competitive position and compete over the long-term. These characteristics were:

1. *Relationships* that are transparent, long-term and focused on industry-level goals critical to the industry's ability to respond and adapt to demand. Incentives that promote win-win relationships allow industries to embed knowledge and skills in its overall upgrading strategy.
2. *Learning and innovation*, which can occur only when incentives encourage firms to invest in learning and/or adopt innovations, even if they are risky. When learning and innovation are integral to normal business practice, an industry is better able and more likely to maintain a competitive position.
3. *Benefits*—income, social status and reduced risk—that are sufficient and provide incentives for actors to take on new risks and relationships and to change the nature of their commercial relationships and embrace learning and innovation as the basis of how to compete and change behavior patterns.

PROFIT's experience with industry pathways as both a diagnostic and a monitoring and reporting tool offers an important contribution to the field in a number of ways:

- Implementers are looking for practical assessment tools to guide decisions on intervention choices aimed at bringing about systemic changes on a sustainable basis
- Donors and implementers are looking for ways to bring the dual requirements of flexibility and accountability into better balance. The pathway tools provide a method of documenting the change process (ownership of desired behaviors for more competitive firms/industries)—the foundation for lasting change without PROFIT support.
- The pathways system provides a tool for assessing the strength of the assumption that increased local ownership of an upgrading strategy can lead to significant changes in smallholder outreach and impact. This evidence makes an important contribution to industry wide learning.

**Note:** While not a member of the consortium, Engineers Without Borders-Canada (EWB) provided assistance to PROFIT through its volunteer program. EWB assisted PROFIT in the analysis and revision of its monitoring and evaluation system and plan, and provided on-going assistance including towards the end of the project assistance in building the capacity of several input supply firms to develop and manage databases to track and analyze smallholder farmer client activity.

## CHAPTER FIVE: INNOVATION GRANTS

Initially, the PROFIT grants (*smart subsidies*) program was to provide grants to U.S. and local NGOs to finance supply and demand-side activities along selected value chains to stimulate pro-poor, private sector development and reduce market distortions that donor or government funding might precipitate. However, the consortium recommended that it also involve the private sector and be used to buy down risk. The project awarded grants to NGOs, private sector partners and others to pilot ICT services, provide training, create improved industry standards and reduce risk by demonstrating new business models and offering incentives to work with non-traditional clients or enter markets considered too risky for investment. Over the life of project, PROFIT provided over \$7 million in grants and developed a manual that integrated the grant facility into the program implementation strategy.

PROFIT supported the development of a carbon finance market in Zambia through the *African Carbon Credit Exchange (ACCE)*, a subsidiary of *Lloyds Financial Services Ltd.* ACCE aims to provide a transparent and credible market-making exchange and trading center where projects with emissions reducing and/or sequestering potential can access the technical and financial resources needed to benefit from carbon markets. Grant funds helped ensure that Zambia would be ‘carbon ready’ by establishing ‘green credits’ agro-forestry and cook stove projects as a way of mitigating environmental damage. By project end, ACCE had become a respected and influential voice for African carbon market development. ACCE also had secured a seat on an advisory board to the UN International Panel on Climate Change and developed relationships with institutions that understood it to be an implementing partner poised to become a conduit for funding and projects related to climate change.

PROFIT provided a grant and worked closely with *African Parks*, local communities and traditional leaders to develop a land use proposal defining the relationship between agricultural development and wildlife conservation in the vulnerable ecosystem in and around Liuwa Plain National Park. The initiative provided farming communities living in close proximity to the park with new opportunities and the entrepreneurship training, market linkages and business services that could help them reduce their use of fragile natural resources and allow them to engage in tourism, livestock rearing or other activities.

PROFIT provided the *Conservation Farming Unit (CFU)* a grant to expand the use of sustainable husbandry practices in cotton and other crops by training 113,220 farmers in improved husbandry practices through the crop production chain from land preparation to harvesting, including crop rotations, minimum till technologies, precision farming, early land preparation and herbicide application. Most of the farmers, using traditional hoe and oxen farming methods, to apply low-input CF technologies to upgrade their production capacity and later by linking them with tillage service providers, both traction and mechanized, who used CF appropriate rippers. During the life of the project over 223,500 ha were put under conservation farming practices.

As mentioned in the Introduction and in Chapter 3 under Commercial Service Provision Market development, PROFIT provided a grant to assist *Mobile Transactions* in providing critical upgrading within the mobile technology sector. The grant also supported the creation of an ordering and stock-checking system for the agricultural input industry that suppliers could access with a mobile phone. The system allowed rural agents to check stock levels at their associated suppliers and place orders for pre-specified items. The system greatly improved agent professionalism and trustworthiness and helped them expand their businesses.

PROFIT collaborated with poultry, beef cattle and dairy industry players and veterinarians to share the equipment and start-up costs of developing *VetLab*, a private veterinary diagnostic laboratory, based in Lusaka, able to offer disease analysis, serology and bacteriology testing and the most advanced feed analysis facility in the country. Once ISO accredited, VetLab would offer analysis regionally and compete with similar services previously available only in South Africa.

In response to a request from private sector partners, PROFIT supported the creation of *ZAMACE*, a transparent, volume-based exchange for trading agricultural commodities. PROFIT's strategy included integrating smallholders into the market environment and the financial sector into the structure and operations of the exchange. It also facilitated the development of a policy environment that would support both the commodity exchange and a competitive agriculture economy. By mid-2011 ZAMACE had traded over \$78 million in commodities and become a widely recognized institution with an influential seat at stakeholder and policy meetings related to trade. The industry adopted its grades and standards and the financial and agriculture sectors began using its prices to value stocks. In addition, government saw it as a important element of a more liberalized agricultural economy.

PROFIT awarded a grant to the *Zambia National Farmers' Union (ZNFU)* to help leverage its unique position in the rural economy as a respected, unbiased and strong advocacy body with a diverse membership base and a large geographical footprint. The grant enabled ZNFU, with its reputation as an independent organization, to fill a critical gap in Zambia's rural markets by instilling confidence, transparency and credibility in its ability to perform as expected. ZNFU has concentrated its efforts on stimulating rural input and output markets by organizing commercially-focused trade fairs and livestock auctions and developing its capacity to act as a mediator in regional and national disputes. It also has been building market confidence at the district level through market assurance mechanisms, supporting and enhancing its national SMS-based price discovery system and developing its local information brokerage capacity at the district farmers association level.

### ***Other Grants***

PROFIT scanned markets to investigate opportunities to foster strong, beneficial linkages between lead firms and smallholder producers and awarded grants to firms with the potential to involve smallholders in helping them expand their businesses. While a few grants did not catalyze the expected level of industry development, most did increase small farmer access to extension information and output markets and persuade them to invest in improving their production.

When Hurricane Katrina devastated the US domestic chili pepper supply, the U.S. government increased the import quota of the *African Spices* company, which had a contract to supply raw material to the McIlhenny Company for its Tabasco products. PROFIT provided assistance in establishing a network of lead farmers responsible for seedling propagation, dissemination and extension.

A grant from PROFIT allowed *Kalahari Natural Oils Ltd* to purchase 10 tons of mungongo nuts worth \$10,000 from 500 producers, over 400 of them women, in remote areas along the Zambezi catchment corridor. In addition, the grant supported an ecological survey, development of the traceability and quality assurance systems needed for organic certification of the forests from which the nuts were gathered and processed, and a GIS database of company production locations. The outgrower scheme expanded to incorporate 700 producers (mainly women) and the company obtained organic status, which allowed it to access export markets.

PROFIT contributed significantly to the design of the *Chiansi Scheme*, which pooled smallholder land as an equity contribution to commercial agricultural development of the land and offered an innovative solution to smallholder commercial development issues. The model was seen as a best practice for the equitable and inclusive commercialization of smallholder land and by mid-2011, the project was in the process of securing financing for a substantial expansion of the pilot by bringing together development funding and private equity to finance a potentially significant sugar project involving smallholder outgrowers. To continue supporting and learning from this model, PROFIT worked with *Infraco*, a European development company, as well as with a local agriculture consulting firm, a consortium of commercial farmers and a smallholder community, to develop an innovative agricultural production scheme in Kafue based on the Chiansi Scheme. While PROFIT worked with all parties, its most important job was to help the smallholders and their cooperative define and understand their roles and responsibilities and to maximize benefits from commercially-managed and other farming blocks.

## CHAPTER SIX: CROSS-CUTTING ACTIVITIES

### GENDER

While women in Zambia continue to face constraints in mobility, control over income and biased attitudes, the traditional division of labor in farming is breaking down and men and women now play similar roles across activities. Women have become active consumers of inputs, information and technologies and users of agent services and they have benefitted from the decrease in weeding (traditionally done by women and children)—a direct result of PROFIT interventions like SSPs and other service providers. Many of the firms working with women farmers found that they delivered their entire crop at harvest and were more dependable than men who were likely to side-sell or not repay their input credit. They also reported that women tended to spend more time in the field, which resulted in better yields.

The monitoring and evaluation system captured data showing that women represented 29% of clients reached through the private sector as a result of PROFIT activities. However, anecdotal evidence found that this figure understated the actual degree to which women accessed improved technologies and services. For example, in a 2010 internal study on gender three out of seven

men interviewed in Mkushi reported that they brought animals belonging to their wives to be treated—a total of 16 cattle were owned by women. And, an interview in Chongwe found that 14 women sent their animals for dipping through male family members. These cattle would have been counted towards men’s participation and access. In addition, women comprised 80% of the producers who sold 10Mt of mungongo nuts to Kalahari Oils in 2008.

### *Women retail input agents*

There were approximately 350 female agents by the end of the project, representing 10% of the total. While the percentage of women agents was small, it grew and both the smaller input supplier and large supply firm staff said that women were often better agents than men because they were hard working and more honest. Many male agents agreed and added that women were usually better than men at implementing new technologies.

*“Dealing with women farmers ... women want men to agree first and tend to hesitate in making decisions. But they are better implementers than men. If a woman learns a new technique or, has knowledge about a new chemical, she will follow by the book. But men want to go back to what he used to do.”*  
[Male agent]

### *Women agents attract women farmers*

A study completed at the end of PROFIT revealed that female ICSPs were substantially more likely than their male counterparts to successfully facilitate access to inputs for women farmers. One female agent said that women agents usually did not experience problems when dealing with men and that both men and women farmers accepted them and valued their advice. However, she also thought that they attracted women clients because “as women we understand each other’s problems and empower women farmers by example.” In addition to the best practices of most agents, the women identified the following strategies to reach a more balanced client base:

- Focus any training for women on farming as a business and answer their farming-related questions
- Use women’s club meetings as a platform for information and sharing knowledge, such as the benefits of using hybrid seeds
- Leading by example; many women agents practiced what they preached and demonstrated the benefits of adopting improved technologies to improve their farming practices and results.

The most popular product women farmers purchased was hybrid maize seed, followed by herbicides and insecticides. While these were similar to men’s purchasing patterns, the study revealed that women actually preferred to purchase smaller packets of these products due to financial and land size considerations, but were often unable to do so with the current product lines. Women also sought, but were not able to reliably purchase, vegetable seeds through the network. A pilot activity designed with Zamseed in 2011 showed great promise in responding to the needs of women by packaging vegetable seeds and other inputs using smaller quantities and selected seeds. Zamseed developed and distributed vegetable packs through agents to women’s

groups. Zamseed also stimulated women’s interest after developing a training manual focused specifically on vegetable seeds with high nutritional value. This grower’s manual contained simple instructions including proper growing conditions and periods. Zamseed targeted 400 women with this program in the Lusaka region with this innovation.

*“...she is there to help us improve our farming. If there are issues with chemicals, she helps. There are many agents around, but we know her and go to her all the time. We also get help from her, new information that we might not know and she encourages us. She lives close to us so she can come to our fields and see the diseases herself. She is fair.”*

[Female farmers, Mkushi]

In addition, certain services appeared to address the concerns of women and vulnerable farmers more favorably such as in the spray service provision. For instance, in the cotton industry, **female, elderly, infirm and widowed cotton farmers** represent over 40% of the client base of the spray service providers. In general, women are high demanders of spray services.

## HIV/AIDS

With funding from the President’s Emergency Plan for AIDS Relief (PEPFAR), PROFIT adapted and built on the successful private sector business approach that Dunavant and the Comprehensive HIV/AIDS Management Programme (CHAMP) used to provide education, counseling, testing and treatment, and other support services to the company’s outgrower farmers. PROFIT awarded a grant to CHAMP to help its private sector partners mainstream HIV/AIDS in workplace operations—a widely acknowledged, strategic approach to addressing the causes and consequences of the disease—by raising staff awareness, facilitating behavior change, providing counseling and linking them to VCT providers. The project also provided Afya Mzuri grant funds to work with communities through training for peer educators and the agent network. Efforts to disseminate HIV/AIDS awareness and prevention messages using the firm-agent network model had limited success and PROFIT learned that it was difficult for market actors to effectively integrate social mandates into their business operations as an add-on activity. The project also realized that a better understanding of the impact the issue could have on business may have led to better results.

In addition, a subcomponent of the Zambia Dairy Industry Development Program managed by Land O’Lakes assisted processors in formulating, testing and manufacturing three new nutritionally enhanced food products for the Zambian market that specifically address the critical nutritional requirements of people living with HIV (PLHIV). Additionally, Land O’Lakes introduced the private sector to new market channels for these food products, such as HIV care and support programs, NGO and humanitarian feeding programs, and also hospitals. Capitalizing on the local capacity to produce nutritional foodstuffs, this activity proved that the private sector can play an important role in assisting PLHIV and other vulnerable populations to access nutritious specialized foods in a commercially viable way.

## NATURAL RESOURCES/ENVIRONMENT

Although PROFIT worked with limited number of natural resource industries, its efforts had a lasting impact on some notable pathways.

### *Honey*

An assessment of the honey sector found that it had the potential to provide remote communities income-generating opportunities that also could encourage them to protect the forests they farmed. PROFIT focused on improving the productivity of the large number of very poor producers working for honey export firms and increasing processing efficiencies of the firms.

With PROFIT support, Zambia's largest honey export company, Forest Fruits, recorded a 150% increase in production. In addition, initial harvest results from the top bar hives PROFIT issued to producers under the North Western Bee Products revolving fund program in Kabompo District showed a 150% yield increase as well as higher quality through improved traditional bark hive management practices. At the firm level, processing technology upgrades improved extraction efficiency and quality standards which led to higher quality honey and a 10% improvement in extraction rates. By the end of the honey collection season in March 2008, the company had purchased a total of 280t from 4,500 beekeepers for a farm-gate value of approximately a quarter of a million dollars. Five tons of wax was processed for export at prices 20% higher than in previous years. The purchased a further 19t worth \$19,000 during the low season in Mwinilunga to feed increased international demand.

Forest Fruits consolidated its value-addition process to further stabilize the company through the development of a retail packing plant and initiated research, supported by PROFIT, into the product characteristics of propolis, a very high value by-product used in the pharmaceutical and cosmetic industries. Unfortunately, the management capacity of other honey processors to weather the adverse macroeconomic environment for exporters and to implement improved management strategies proved a significant constraining factor and, since industry upgrading must focus on more than one firm, PROFIT withdrew support from the honey sector in 2009.

### *Tree Oils*

Kalahari Natural Oils, an export company, received assistance to develop a supply chain in Western Zambia (from Mongu to Livingstone along the Zambezi ecological corridor) based on the market for organic natural tree oils and to develop primary processing capacity at the village level. The premise for both honey and oil extractive industries is that sensitive economic utilization of the forest resource should mitigate the need by communities living in the forests to exploit the resource in a destructive fashion. The firm purchased mungongo nuts from producers along the Zambezi ecological corridor at the end of 2008, buying 10 tons valued at \$10,000 from approximately 500 producers, more than 400 of them women. The grant supported a complete ecological survey and the traceability and quality assurance system needed for organic certification of forests from which nuts are gathered and processed as well as the compilation of a GIS database of the company's production locations.

### *Game Parks*

PROFIT provided continuing support for African Parks and the organization's management of Liuwa Plain National Park in Kalabo, Western Province. PROFIT implemented a community economic development program on behalf of, and closely tied to the African Parks conservation initiative aimed again at using commercial markets and market signals to ensure responsible use of natural resources in an ecologically fragile area while also providing economic benefits to communities living in and around the park. To this extent, the collaboration developed improved value-added tourism products and services such as fishing, canoeing, traditional dancing and crafts.

These economic activities are an important part of keeping local communities around the park engaged in good management and stewardship of the park's natural resources. Working with the community campsite committees, PROFIT also contributed to establishing an investment fund with income derived from tourism activities that would be re-invested in infrastructure improvements (solar pumps, wells etc). In consultation with the Barotse Royal Establishment, Zambia Wildlife Authority (ZAWA), and local communities, PROFIT supported development of the ***Land Use Management Plan***, completed in 2008, for the Liuwa Plain National Park and surrounding areas. To maximize the benefits for all stakeholders while also maintaining park biodiversity the plan developed a map dividing the area into specific land use zones.

- *Intensive Cultural Use Zones*: Areas where existing cultivation/ agricultural activities and community uses will continue
- *Cultural Use Zones* : Areas where existing community uses will continue, (excluding cultivation/ agricultural activities), such as fishing or reed harvesting
- *Exclusive Use Zones*: Concession areas for proposed high-end tourist lodges
- *General Use Zones*: Areas for self drive tourists and private lease sites which will overlap with all three cultural zones
- *Buffer Zones*: Includes the Game Management Area comprising culturally-based activities and both consumptive and non-consumptive wildlife utilization;.

## CHAPTER SEVEN: CHALLENGES, SUCCESSES AND IMPACTS

### CHALLENGES

- *How to aggregate smallholder demand and supply in an efficient, low risk, scalable and commercially viable manner that could benefit both sides of the transaction.* PROFIT developed the agent model as a way to aggregate smallholder production, including cattle.
- *The ingrained behaviors and perceptions that traditionally had kept the various groups participating in PROFIT from working with one another or trying new approaches to doing something.* For example, private sector firms did not think that smallholder farmers could be a viable market for their products and farming communities did not trust private companies to treat them fairly. In another example, farmers did not want to use conservation farming techniques because the CFU way of preparing the soil and planting seeds was not what they were used to doing and they did not think it could work.
- *Facilitating the development of trust between groups as diverse as small farmers and large, private sector firms.*
- *Progress is always slower than anticipated; the private sector is cautious about making investments until it is sure that a return on its capital investment is possible.* While progress in getting commercial banks to lend to rural farmers and enterprises never really took off, PROFIT was able to engage the beef industry in smallholder production when demand for quality beef outpaced domestic supply.

In another example, initial PROFIT efforts in the agricultural equipment leasing arena suffered a severe setback with the poor behavior of Sapitwa Leasing, which took down-payments from emergent farmers to secure tractor leases and then failed to source funding to honor these deals. Although a director was charged with fraud, by project end Sapitwa still had not returned over \$20,000 in down-payments to several farmers who were early risk takers and jump-started the leasing program. As the project came to an end, PROFIT bought down a portion of these lost investments and facilitated access to new tractors and other technologies to support its goal of increasing service provision at the smallholder level.

- *Maintaining the momentum of project initiatives, especially innovative ones, in the face of the time it inevitably takes for them to bear fruit.* When PROFIT initiated the HHP, a number of veterinarians and farmers, as well as USAID and the GRZ, thought it a good idea and bought into it. Within two years, however, interest had flagged and most farmers did not renew their contracts. With support from PROFIT, the vets then adapted the model and began providing one-off services or bundling them in different ways to accommodate what farmers needed most and could afford. Interestingly, in the last year of the project, there was renewed interest in the HHP and farmers were requesting information and in some cases, signing contracts.

## SUCCESSSES

- *Market facilitation led to real economic growth at the industry, firm and household levels.* PROFIT facilitated the creation of over 2500 jobs through the agent networks and \$1.3 million in product and service sales through the private veterinary industry.

*Examples of structural changes occurring at the industry level:*

- All 15 leading agricultural input firms embraced the agent network model and made significant investments in upgrading their networks.
  - The Ministry of Livestock and Fisheries Development began supporting the development of key programs aimed at improving smallholder access to markets and services such as the development of Livestock Service Centers and the training and certifying self-employed community livestock workers (CLW's) supervised by private vets.
  - Veterinarians have established private business as a result of their experience with PROFIT instead of joining the public sector. Private veterinarians contract with 122 CLWs who perform basic services.
  - By project end, there were 10,000–12,000 spray race transactions per week with new spray races commissioned or planned in the coming months.
  - Access to improved technologies and services—agent networks, conservation farming, and tillage and spray services—enabled tens of thousands of farmers to upgrade their farming practices and put at least that many hectares under modern, environmentally sound production.
  - The private sector beef industry is making investments in rural abattoirs closer to smallholder cattle communities as supplies of healthier cattle from this market are increasingly available.
  - A commitment by the Lusaka Stock Exchange to make major investments in ZAMACE.
  - Five newly established milk collection centers built by the private sector—one in Southern Province by a farmer group supplying Parmalat, three in central province with assistance from Zammilk (the buyer), and one in Copperbelt built by Nice Products Ltd.
  - Mobile Transactions created a mobile platform that integrates the input supply, micro-finance banking, donor, and farmer sectors the use e-payments and e-voucher services to facilitate payments and transactions. In addition, it now has a nation-wide network of over 200 agents to provide multiple services to farmers and other customers.
- *PROFIT catalyzed the retail payments industry in Zambia,* particularly outreach to rural areas through its support Mobile Transactions, the second largest payments service in the country with more than \$1m of person-to-person transactions passing across the platform monthly. Mobile Transactions continues building financial services onto the platform and has secured international equity investment, giving it a solid commercial basis upon which to continue growing.

- *PROFIT played a major role in the development of the e-voucher platform.* While its initial intended use as a tool for a reformed public sector input subsidy system never materialized, the NGO sector adopted vouchers to deliver subsidies and payments in a more market-friendly fashion. Significantly, the e-voucher has evolved into a commercial tool with no PROFIT support. Dunavant uses e-vouchers to pay farmers for seed cotton deliveries redeemable against agricultural and household inputs. MRI-Agro has also started using e-vouchers as an incentive for farmers to purchase their ag inputs—the early purchase of a voucher redeemable against inputs at a later date attracts a 10% discount.
- *PROFIT and its partners pioneered the concept of agricultural equipment leasing to the mechanized service provider sector.* Working with Dunavant to successfully demonstrate the concept, PROFIT proved the bankability of the business model which—by the end of the program—led to over seventy new tractors providing smallholders valuable, productivity-enhancing services. The interest generated in the concept by financial service providers ensures that equipment leasing to small farmers has a future beyond the life of PROFIT.
- *PROFIT was instrumental in the early development of the Zambian carbon market* through longstanding support to the African Carbon Credits Exchange (ACCE). ACCE established several funds through domestic and international investors to support these efforts. Benefits are expected to flow from international markets into Zambia, including to the rural sector.
- *Demonstrated to the private sector that working with the smallholder market (as suppliers and consumers) could be commercially viable.* Major private sector firms—such as PANNAR, Cropserve, Zambeef, Parmalat, Mobile Transactions and others—experienced moderate to high growth in sales or purchased significantly more commodities from smallholder farmers by the time the project ended.
- *Demonstrated to government that the private sector could provide products and services to smallholders.* The GRZ should continue to support the establishment of Livestock Service Centers, but it need not manage them. Communities now have the knowledge and capacity to do that on their own. Government extension officers and veterinarians must, however, oversee the regulatory aspects of the centers to ensure public health and safety.

## IMPACTS

PROFIT delivered excellent value for money invested. Project interventions resulted in \$133 million in sales of agricultural commodities from Zambian smallholder farmers from formal market buyers and an estimated \$75 million in increased food production by these same farmers. By 2011 nearly 1.5 million people continue to benefit annually from PROFIT-facilitated linkages to private sector firms and smallholders receive an estimated \$20 million in benefits annually through the agent network.

According to life of project results reported through the end of quarter 3 in 2011, PROFIT exceeded the following indicator targets:

- *Number of clients engaged in improved and/or value added processing and production—* over 392,000 vs. a target of 330,000 over the life of the project.

- *Area or number of commodities under improved technologies—more than 445,000 heads of cattle vs. a target of 88,000; more than 528,000 ha under improved contract farming methods vs. a target of 341,000.*
- *Number of farmers (individual sales and trainings) reached with extension/outreach services—more than 497,000 vs. a target of 349,000.*
- *Value of production per client and per unit of commodity for cotton of 156% and 176% of target respectively.*

Areas in which PROFIT was less successful, as measured at the end of 2011, included:

- *Area under improved technologies—around 302,000 ha under improved technologies vs. a target of 564,000 (due primarily with smallholder financing constraints—clients relied mostly on a portion of their profits for any expansion of land under improved technologies because of a lack of financial service provision available to smallholder farmers).*
- *Increasing the volume of “processed” red meat produced by smallholders, i.e. sold on commercial markets, with results of slightly less than 2,800 head of cattle vs. a target of 3,900; however, the per animal gross margin of smallholders rose significantly over its baseline of \$7.33 to over \$314 by project end and the private sector buyers were increasingly participating in auctions from smallholders and building abattoirs in rural areas closer to the smallholder producer market.*
- *Increasing the volume and value of pineapple production by smallholder farmers*
- *Number of firms or enterprises integrating HIV/AIDS A & B outreach programs. While the Project exceeded targets for the number of individual reached with community outreach prevention programs (187,000 vs. a target of 180,000), integrating messaging into the business model of supported private sector firms remained a challenge.*

## CHAPTER EIGHT: LESSONS

### *General*

- *Project beneficiaries are not always easy to identify. They are clients of private sector providers who self-select using a commercial, decision-making process. This constrained PROFIT’s ability to pre-determine geographical and social (gender, vulnerable, poorest-of-the-poor, etc.) targets for project interventions.*
- *Focusing on and monitoring the elements that indicate positive behavior change is occurring in each pathway instead of individual transactions can lead to understanding why growth is or is not happening and how to catalyze change. Seeing smallholders as consumers (a market) and focusing on selling to them requires knowing why and where they may or may not buy products or services (demand driven). Not only does this give them access to information and the power to make more informed decisions, it increases trust and leads to behavioral changes in how smallholders view and manage their business activities.*
- *Understanding farmer cash flow and the value proposition for the farmers is critical when marketing new services to them. Developing the agent model product and service marketing*

activities based on when farmers had disposable income (shortly after harvest) rather than when they did not (just before planting) helped ensure that the prepayment plan would work. When farmers prepaid for products and services, they made a commitment to their future and to the project.

- *The government's role can be crucial in creating an enabling environment that fosters growth by allowing and supporting the development of viable commercial input and output relationships.*
- *The private sector has different expectations than the donor community when looking to work with smallholder farmers.* Donors consider poverty alleviation, gender balance and competitiveness among other indicators while private companies think primarily in terms of their bottom line. While donor-driven issues are important for the long-term development of sustainable commercial relationships, persuading the private sector to address and buy into them can be challenging. In some cases, such as Zamseed's pilot activity targeting women producers, PROFIT found that it could phase in attention to these issues over time as firms developed confidence in the project approach, appropriate new business models and the will and ability to innovate.
- *Partners often have different time horizons.* The private sector expects to see a rapid response to interventions and may lose interest in activities that take years, rather than months, to yield dividends. By focusing on tangible, incremental benefits and the industry pathway, projects can do much to reduce mismatched results and private sector concerns.
- *Many people considered women to be the best agents because they listened well, worked hard, followed through on requests and they were honest and often the first to use new technologies.* Although women agents faced two major constraints—travel restrictions due to family responsibilities and the risks associated with agricultural chemicals, particularly those that SSPs use—the firms, farmers and male agents who worked with them found female agents to be more conscientious and reliable than male agents.

### ***M&E and Pathways (Learning Loops)***

- *Teamwork was essential for monitoring and evaluation to be effective.* PROFIT did not treat M&E as an isolated activity, rather, it involved staff at all levels by making M&E a part of their day-to-day activities and gave them responsibility for collecting and analyzing data.
- *Reporting tools worked best when aligned to the causal model and/or pathway.* PROFIT revised its monthly reporting tools, which were not clearly linked to a pathway, by aligning them with each pathway stage. This change, in addition to on-going training in M&E and clear, well-defined indicators (observations), provided business advisors with guidance in collecting data and allowed them to analyze firm and industry progress along the pathway—from non-competitiveness to competitiveness.
- *Regular feedback ensured that reports included only the information needed to analyze a business and industry along the pathway.* Business advisors conferred with M&E staff by phone each reporting period to ensure there were no gaps in their analysis and to discuss both problems and ideas for improvements based on their work with clients. Technical support by senior staff was a result of analysis drawn from regular communications.

### ***Building Commercial Relationships between the Input Supply Industry and Smallholders***

- *Seeing smallholders as consumers, not just as producers, can foster behavior change.* Farmers proved to be a viable market and the upfront cash payment system, even in poor areas, was not as big an issue as initially anticipated. After seeing field demonstrations and the benefits of adopting new products and technologies, farmers willingly invested in upgrading.
- *A commercial input industry is a key driver of innovation on both farmer and input supply sides and it is critical to long-term upgrading.* Learning about the smallholder market and farmers' needs through close contact helps drive supply-side product innovation (e.g. new seed varieties or smaller packaging).
- *The input industry is a key component of agricultural value chains, not a public good.* Handouts or government-controlled subsidy programs lower the probability of upgrading by limiting access, increasing long-term costs and reducing innovation by crowding out private sector investment.
- *A volume-based business model is crucial to building a distribution structure for the smallholder market.* Targeting small farmers is not just promoting products to them; it requires changing the way of doing business and developing systems that can manage large numbers of customer relationships. Critical elements include agent management, staff training and performance compensation, as well as better order tracking and inventory management systems.
- *Building input supplier internal management capacity is critical to agent network effectiveness and expansion.* Crucial are input supplier capacity to: manage agents and see them as core to their business, not outsiders; forecast demand and manage inventory; and engage with communities through demonstrations, promotions and training to maintain agent quality, learn about farmers' needs and build credibility.
- *Trust and relationship-building takes time,* but can be strengthened by involving communities in selecting agents and by ensuring suppliers engage with agents and communities. Farmer and agent trust and satisfaction are strongest when suppliers are involved in product promotion and training.
- *Competition amongst suppliers can foster upgrading.* This happens as supplier interest in adopting the agent network model grows.

### ***Dairy and Livestock Sector***

- *Understanding smallholder perspectives and incentives is critical.* The limitations that social capital issues put on commercial relationships in cattle demonstrate this.
- *Overestimating smallholder knowledge can hinder the identification and dissemination of production enhancing techniques.* Dairy farmers' lack of knowledge about animal husbandry and milk production at all levels in the sector was the major factor contributing to low production of milk in Zambia.
- *Overly ambitious targets and the adoption of new technologies by smallholders in traditional sectors can be difficult to achieve.* It took time to convince beef farmers that adopting new

ways to raise cattle would benefit them. Having government and communities as implementation partners further slowed progress.

- *Market preparedness and timing are crucial to the successful adoption and sustainability of project interventions.* Though PROFIT had little control over the timeliness of its market interventions, in 2010/11 there were more tangible results than in earlier years as processors worked with the project and smallholders to obtain the type of carcass they required.
- *While a market-driven intervention may increase adoption rates, it can occur only if the market is interested or considers it a commercially viable activity.*
- *No one model can offer a complete solution to complex problems and the ability to adapt to changing market environments is crucial.* PROFIT learned that vet services had to be delivered in multiple ways through different mechanisms. For project implementers to see where momentum was occurring and know when to shift resources, they had to understand and maintain a system-wide perspective.
- *Economies of scale are crucial.* While the HHP was an excellent concept and catalyzed the vet services market, it was not going to be a predominant offering in the marketplace due to the low number of dairy animals and remoteness of beef herds. It was difficult to get significant numbers of animals to aggregation points and interventions did not reach as many dairy farmers as they did smallholders working in other sectors (e.g. maize and cotton).

### **Cotton Sector**

- *Gaining the confidence of an industry when using a market development approach can take time.* Despite considerable persuasive pressure, it took over a year for PROFIT to get buy-in from Zambia's largest cotton ginner, Dunavant, and initiate program interventions.
- *Competition opens doors.* Great Lakes Cotton Company (GLCC) management was the first to move on ideas—spray services, independent inputs and ICT integration. Although GLCC became a casualty of the domestic cotton industry and global financial crisis, its willingness to investigate new ways to manage outgrowers triggered a positive response from Dunavant.
- *Demonstration is the best form of learning.* PROFIT initiated the provision of tillage and spray services in the cotton sector and seconded staff to Dunavant, GLCC and Birchard to help them identify and train service providers. Once farmer productivity began increasing, the companies started investing in their own capacity to assume PROFIT's role.
- *Downturns can reveal opportunities to foster systemic shifts in an industry, leverage competitive pressure and promote industry-wide upgrading.* Dunavant's strategy showed how a crisis and increased competition led to dynamic shifts in its operating model and in the industry as a whole.<sup>6</sup>

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<sup>6</sup> "More firms will stop processing cotton until the price rebounds. When that happens, some will return and others will enter for the first time. This provides us a window of opportunity to restructure our business to make it more appropriate for a competitive environment by focusing our investments on well-performing farmers." [Dunavant representative]

- *Projects need to understand lead firm capacity and management.* During the initial stages of a project, it often is more important to work with a lead firm than it is to focus on the smallholder. Dunavant's Preferred Supplier Program demonstrated that understanding the incentives smallholders needed to produce was a critical part of building lead firm capacity.
- *Systemic shifts in an industry define the impact on value chain participants.* Shifts are not time-bound and often do not fit the [donor] project timeframe. This can pose a challenge to understanding what, if any impact occurred. All industries experience ups and downs and projects should be assessed in the context of the overall industry and business environment.

### **Honey Sector**

- *Industry upgrading cannot focus on a single firm.* Due to the limited capacity of the smaller exporters, PROFIT worked primarily with Forest Fruits. While there was a definite impact resulting from these interventions, the realization that there would never be industry-wide upgrading led PROFIT to end its interventions in the sector in 2009.

### **HIV/AIDS and Social Mandates**

- *Integrating HIV/AIDS awareness and prevention messages is challenging and traditional approaches and messaging do not work.* PROFIT efforts to use the firm-agent network model to disseminate HIV/AIDS awareness and prevention messages made it clear that market actors found it difficult to effectively integrate abstinence and behavior messaging into their business operations. However, under the Dairy Initiative, there was success in developing products and commercial marketing channels to support the nutritional needs of PLHIV.

### **ZAMACE**

- *Changing the behavior of an industry is a slow and complex business.* This is especially true when vested commercial interests want to maintain the status quo and the policy environment encourages short-term and/or adversarial trading relationships.
- *Smallholders are willing and able to aggregate agricultural commodities in viable, quality-based parcels.* Future policy reform will allow smallholders to participate in markets less distorted by the government's Food Reserve Agency.
- *Going against the grain of a market makes market development work very difficult.* This can occur when the market does not promote long-term, pro-poor growth such as when the Food Reserve Agency paid well over the market price to purchase an unlimited quantity of maize. This dealt ZAMACE a devastating blow.
- *Initial relationships are not always the best ones over the long-term.* The original owner-members of ZAMACE were major trading houses and milling companies whose market presence and commercial ability was an asset in driving growth of the exchange. However, when they realized that using the exchange affected their profit margins they stopped trading through it, which caused major financial problems for ZAMACE.

## CHAPTER NINE: SUSTAINABILITY—ENVISIONING THE FUTURE OF THE ZAMBIAN AGRICULTURE SECTOR

### *Hubs*

PROFIT defined hubs as networks of super agents (typically an agent with sub-agents) or agents who provide services such as spraying or tillage services in addition to providing access to input products and knowledge. Over time, these hubs will likely evolve into providers of multiple services and begin to resemble one-stop solution provision centers for smallholders. For example, in Eastern Province, under PROFIT at least one agent has expanded his services to include output market brokering working with Eastern Trading Company (ETC). With relationships developed with and growing knowledge of the needs of the farmers, these agents or a loose alliance of several agents could attract interest from additional sectors such as mobile, financial, transportation, and processing services to develop business models to serve smallholder farmers.

ZNFU has developed its Information Service Centers (ISC) found throughout Zambia. They provide limited access to agro inputs and output services for maize and select commodities while providing access to agricultural related information. Some Agents currently working with major input supply firms belong to these ISCs as members while other agents and ICSPs supplement these centers when input shortfalls occur. If ZNFU fully embraced the PROFIT approach with respect to these centers, they could serve as hub service incubators and would evolve to include specialized training services as well.

The Livestock Service Centers (LSC), developed under PROFIT, provide another model for the hub concept. These structures were designed to serve as aggregation points for vet related products and services such as spray race services as well as output market points of sale with cattle buyers.

Agribusiness firms and new rural entrepreneurs now have the confidence to engage with smallholder farmers. The existing hub “structures” provides a proven model and an entry point for more firms outside those that PROFIT targeted to experiment with developing services to smallholder farmers. As these hubs expand the types of services available, they could take varying forms depending on the dynamics of a given marketplace. For example, they may be organized and managed by an agent, super-agent, farmer-based organization, or exist as a cluster of complementary but independent services. Or, they could operate through an alliance of multiple industry firms or under incubator type structures to serve the changing needs of the emerging, small-scale farming sector. Although the existing hubs do not necessarily denote a physical infrastructure, they would evolve into a more permanent structures located in geographical areas in proximity to expanding smallholder markets.

### **Smallholder Equity Chiansi Model**

In 2007, PROFIT began working with a European infrastructure development company, Infracore, a local agricultural consulting firm, a consortium of commercial farmers and a small farmer community of 125 households to develop an innovative agricultural production scheme in Kafue District. PROFIT contributed to the design of the program and provided staff time, short-term technical assistance and volunteer time and logistical support in its work with all parties.

PROFIT's role was to assist the smallholders and their cooperative in defining, understanding and implementing their roles and responsibilities under the model and maximizing the potential benefits from both the commercially-managed and directly-managed farming blocks.

PROFIT held the view that the Chiansi Scheme model of pooling smallholder land as an equity contribution to commercial agricultural development of that land offered an innovative solution to smallholder commercial development issues. And, in the international infrastructural development arena, the model is increasingly seen as a 'best practice' for equitable and inclusive commercialization of smallholder land. By project end, stakeholders were focusing efforts on securing finance, both development funds and private equity, for a substantial expansion from the existing pilot project to develop a potentially significant sugar project involving smallholder outgrowers.



Figure 12: Chanyanya Cooperative members pack harvested maize at Chiansi, Sept '09

### ***The African Carbon Credits Exchange (ACCE)***

A number of strategic partnerships initiated by the African Carbon Credits Exchange with national and international entities in the private and public sector secured the financial sustainability of ACCE. By the end of PROFIT, ACCE had achieved both an international reputation for expertise within the African carbon market and was on a sound enough commercial footing to continue to catalyze carbon market development into the future. ACCE has developed a high international profile in its lobbying for the development of the African carbon markets, which were neglected in global terms. ACCE's prominent initiatives, a large rural cook-stove which has a low wood fuel requirement and a pilot carbon project (Mitengo Carbon Zambia) based on good agro-forestry practices on smallholder lands and involving the planting of *Faidherbia albida*-known locally as the *Musangu* tree, shows some limited signs of success.

Mitengo Carbon Zambia, working with the Green Knowledge Institute set up by Lloyds with PROFIT support, recently intensified village level field sensitization meetings on carbon credit. Again, through participation with Dunavant cotton farmers, lead farmers and group leaders under Dunavant's Yield program will train other farmers in Chipata and Katete. Mitengo Carbon Zambia is also collaborating with CFU, Total Land Care, MACO, COMACO, and Mskera Agro Forestry, to provide technical information and trainings to staff and farmers.

While developing activities and mechanisms for financing through carbon credit programs has many challenges and obstacles, ACCE and the rest of Lloyd's carbon credit related programs is determined to make it work in Zambia and through Africa. The *Musangu* tree has the potential to benefit both present and future generations through its agricultural and environmental benefits. ACCE together with its other partners will continue to innovate through investment in this field in Zambia.

### ***Dairy Industry***

The future for the Zambia dairy sector looks bright. However, the industry must continue to promote domestic consumption of milk and milk products to avoid a surplus that could negate the significant gains that PROFIT achieved. The establishment of the Dairy Association of Zambia (DAZ) and its integration into the Zambia National Farmers Union (ZNFU) helped raise the profile of industry-related activities, particularly the three years of funding DAZ received from the GATES Foundation. DAZ should become a hub and information centre for all activities within the dairy sector to avoid duplication and confusion of effort in this relatively small commodity sector. The association also should be the recognized voice of the dairy sector as milk production and consumption increase and as competition grows.

### ***Beef Industry***

By the end of PROFIT, smallholder acceptance and use of animal health services was wide and Vets supplied regular services such as vaccinations, de-worming and spraying through established aggregation points. MOLFD support of the PROFIT model of private sector service provision will help to ensure that the Livestock Service Centers continue providing services delivery to Zambia's smallholder beef sector. Given the current economic climate in Zambia and the increased willingness of the private sector to work with these farmers, the beef supply chain now has the potential to become the significant driver in the growth of Zambia's rural economy that it deserves to be. The beef industry road map, produced with the collaboration of all industry players and the GRZ, was a timely initiative and the current strong demand for meat products should provide sufficient incentive for such a template to help avoid a chronic shortage of quality beef animals arising in the next two to three years. Should the industry fail to address current production practice issues, a shortage would be inevitable.

### ***Progress toward an Improved Enabling Environment***

The passage of the Agricultural Credits Act presented an opportunity to move forward on the issue of warehouse receipt financing and PROFIT actively participated in a stakeholder workshop on implementation of the Act in July 2011. The outcome of the discussions pointed strongly to the Minister of Agriculture designating ZAMACE the Warehouse Licensing Authority. However the MOA felt that, in order to build confidence—particularly of the financial sector—in the legal framework of the warehouse receipts system there needed to be a technical review of the practicalities and implications of implementing the Act and of the perceived flaws, omissions and contradictions.

New legislative developments—the Paravet and Professional Act, Animal Health Act (including regulations on live cattle grading standards) and the Animal Identification and Traceability Act—will encourage the Ministry of Livestock and Fisheries to articulate a full strategic plan. Presented to Parliament in June 2010, these Acts were accepted and passed into law. However, MOLFD requested an injunction on the Paravet and Professional Act to delay its final ratification so additional amendments broadening the scope of its activities could be added.

### ***Musika Development Initiatives Zambia Ltd***

A few years before the start of PROFIT, several CLUSA staff were considering the possibility of establishing a local NGO that would ensure a sustainable local link to the agriculture sector in Zambia. Not long after PROFIT began operations, USAID/Zambia encouraged CLUSA to form just such a local entity, led by local project staff, to carry on the work of the project after it ended. *Musika*, a non-profit company owned and managed by Zambian professionals committed

to developing Zambia's agricultural sector, is governed by an experienced Board of Directors drawn from the country's agricultural and business communities. Musika is dedicated to building on and taking to scale the successful agricultural market development work which began under PROFIT. The emphasis is on commercialization of the smallholder livestock sector and carrying on PROFIT's livestock activities and innovations to help maintain momentum.

Musika hosts and implements the Innovations Against Poverty facility funded by SIDA; the DFID Business Innovation Facility contract is underway; and it continues working with the ACTESA COMRAP program to train financial industry stakeholders on weather insurance and microfinance. Musika aims to use the M4P market development approach to deepen its engagement with and to benefit both commercial markets and the rural poor. It will engage with private sector firms committed to working with smallholders as suppliers, consumers, clients or employees and to supporting the development of Zambia's agricultural markets.



## **ANNEXES**

- A. FINAL PERFORMANCE INDICATOR TABLE**
- B. STRATEGIC GRANT RECIPIENT TABLE**
- C. SELECT NOTES FROM THE FIELD (SUCCESS STORIES)**
- D. ADDITIONAL RESOURCES AND EXTERNAL DOCUMENTATION ON USAID PROFIT**

## ANNEX A: END OF PROJECT FINAL INDICATOR TABLE

USAID Zambia Production, Finance and Technology (PROFIT) Project

April 1, 2005 to September 30, 2011

PMP Indicator Table End of Project (EOP)

Final Report Annex A

NCBA CLUSA International

PROFIT PMP INDICATORS		BASELINE	EOP	EOP	EOP	EOP Variance	
			Target	(through July 2011) Achieved	(est. through Sept. 2011) Achieved	(Est. through Sept 2011) Achieved vs. Target	
<b>Trade/Exports related indicators</b>							
1	Value of purchases from smallholders of targeted commodities (domestic agricultural trade)	\$46,870,313	\$65,175,000	\$59,250,000	\$64,472,660	99%	
<b>Production/Sales/Value Addition related indicators</b>							
2	Value of Food and non Food Agricultural production by USAID supported groups.	\$5,523,455	\$31,284,000	\$25,126,029	\$27,595,864	88%	
3	Value of sales of all goods and services	\$5,397,833	\$33,161,040	\$28,323,122	\$32,656,124	98%	
4	Value of resources derived from sustainable natural resources or conservation initiatives.	\$714,978	\$3,163,557	\$5,801,662	\$5,801,662	183%	
5	Value of production per unit disaggregated by commodity sector.	Cotton (ha)	\$163	\$250	\$439	\$439	176%
		Honey (hive)	\$4.44	\$5	\$5	\$5	104%
		Red meat (animal)	\$116	\$400	\$353	\$353	88%
		Dairy (animal)	\$1,032	\$1,154	\$1,131	\$1,131	98%
6	Value of production per client	Cotton	\$192	\$424	\$659	\$659	156%
		Honey	\$35	\$30	\$50	\$50	167%
		Red meat	\$94	\$451	\$353	\$353	78%
		Dairy	\$5,160	\$5,496	\$4,524	\$4,524	82%
7	Gross Margin per unit	Cotton (ha)	\$10	\$177	\$282	\$282	160%
		Honey (hive)	\$2.44	\$4	\$4	\$4	105%
		Red meat (animal)	\$7.11	\$359	\$314	\$314	87%
		Dairy (animal)	\$537.50	\$660	\$636	\$636	96%
8	Volume of produce processed (mt)	Cotton	n/a	183,045	211,386	211,386	115%
		Honey	347	2,473	1,464	1,464	59%
		Red meat (mt)	0	3,899	2,591	2,798	72%
		Milk (Lts)	NBD	28,237,000	24,439,511	26,391,350	93%

PROFIT PMP INDICATORS		BASELINE	LOP	LOP (through July 2011)	LOP (est. through Sept. 2011)	EOP Variance (Est. through Sept 2011)	
			Target	Achieved	Achieved	Achieved vs. Target	
<b>Technologies related indicators</b>							
9	Number of clients engaged in improved and/or value added processing and production disaggregated by technology type.	Conservation farming	3,200	84,889	113,220	126,000	148%
		Vet contract/herd management	0	9,463	39,506	54,798	579%
		Contract production	37,500	120,000	110,000	110,000	92%
		Improved honey production	0	6,300	7,000	7,000	111%
		Input products and services	10,000	109,711	122,845	146,554	134%
10	Area or number of commodities under improved technologies	Conservation farming (ha)	3,200	260,200	223,797	223,797	86%
		Vet contract/herd management (hd)	0	87,668	444,984	534,476	610%
		Contract production (ha)	32,000	341,050	528,081	528,081	155%
		Improved honey production (hives/Q.C trainings)	0	45,750	139,725	139,725	305%
		Input products and services (ha)	10,000	564,472	302,070	325,779	58%
11	Improved technology adoption rate (%)	Conservation farming	10%	25%	79%	79%	316%
		Vet contract/herd management	0%	40%	60%	60%	150%
		Contract production	0%	20%	14%	14%	70%
		Improved honey production	0%	15%	23%	23%	153%
		Input products and services	10%	50%	50%	50%	100.00%
12	Number of hectares under biodiversity conservation.	3,200	120,000	113,220	150,000	125%	
13	Number of hectares under managed natural resource production systems	0	dropped	dropped	dropped	dropped	

PROFIT PMP INDICATORS		BASELINE	LOP	LOP (through July 2011)	LOP (est. through Sept. 2011)	EOP Variance (Est. through Sept)	
			Target	Achieved	Achieved	Achieved vs. Target	
<b>Finance related Indicators</b>							
14	Value of finance/capital accessed by USAID assisted groups (borrowers)	n/a	\$24,022,903	\$18,407,163	\$18,407,163	77%	
15	Number of loans by USAID assisted institutions disaggregated by gender	Male	168,013	387,537	387,537	231%	
		Female	42,003	90,155	90,155	215%	
		<b>Total</b>	32,000	415,016	477,692	477,692	115%
16	Percentage of the number of loans on schedule for repayment	90%	90%	80%	85%	94%	
17	Value of loans by USAID assisted institutions disaggregated by gender.	Male	n/a	\$19,224,914	\$15,879,924	\$15,879,924	83%
		Female	\$0	4,798,389	3,840,849	\$3,840,849	80%
		<b>Total</b>	n/a	\$24,023,303	\$19,720,773	\$19,720,773	82%
18	Percentage of the value of the lending portfolio on schedule for repayment	90%	90%	80%	80%	89%	
<b>BDS related indicators</b>							
19	Number of clients/entrepreneurs receiving BDS disaggregated by category e.g smallholder farmers, agribusiness firms	<b>Small Holder</b>					
		Male	0	257,283	355,271	442,696	172%
		Female	0	92,318	141,785	186,793	202%
		<b>Small Holder Total</b>	37,500	349,601	497,056	629,489	180%
	<b>Agribusiness</b>	2	5,714	4,413	4,671	82%	
20	Number of farmers reached with extension/outreach services	Male	0	257,283	355,271	442,696	172%
		Female	0	92,318	141,785	186,793	202%
		<b>Total</b>	37,500	349,601	497,056	629,489	180%
21	Number of people reached with HIV/AIDS A & B outreach programmes	Male	0	89,219	90,773	90,773	102%
		Female	0	90,780	96,539	96,539	106%
		<b>Total</b>	0	179,999	187,312	187,312	104%

PROFIT PMP INDICATORS		BASELINE	LOP	LOP (through July 2011)	LOP (est. through Sept. 2011)	EOP Variance (Est. through Sept)	
			Target	Achieved	Achieved	Achieved vs. Target	
<b>Policy Related Indicators</b>							
22	Number of policy areas worked on or affected if any	0	3	3	3	100%	
23	Policy progress milestones – Analysis, debate, submission, approval and implementation	0	3	3	3	100%	
<b>Training related indicators (disaggregated by gender)</b>							
24	Number of people trained in	<b>Agricultural Production</b>					
		Male		257,206	214,339	255,996	100%
		Female		92,394	76,995	111,126	120%
		<b>Total</b>	32,000	349,601	291,334	367,122	105%
		<b>Private sector growth</b>	40,000	356,593	297,161	368,512	103%
		<b>Natural Resource Management &amp; Conservation</b>					
		Male		52,945	93,487	93,487	177%
		Female		31,944	49,528	49,528	155%
		<b>Total</b>	5,500	84,889	143,015	143,015	168%

Comments:

1 The final column labeled "LOP (est. through September 2012) Achieved" includes estimates based on results data collected from a selection of project clients during the fourth quarter. LOP indicator targets were adjusted for the two extension periods and set annually.

A 10% increase over the previous year's 4th quarter results was added to the LOP totals in the preceding column. Where there is no difference between these two columns either the data collected in the final quarter was insufficient to modify the Q3 data or there was no additional results to report during Q4. In most cases the additional FY11Q4 results from the surveys exceeded the 10% estimates used. If the survey data indicated results lower than the 10% increase, the lower estimates were used.

2 The baseline column is provided to indicate progress in some key indicators beyond those of the targets set by PROFIT for each indicator. It is particularly insightful for comparisons within the commodity indicators.

3 **NBD**: indicates that sufficient baseline data did not exist or it was not captured during the initial baseline analysis conducted by DAI, Inc. in 2006 because the components did not exist at the time.

4 **n/a**: indicates that comparisons to the baseline data are not relevant because the LOP data contains cumulative data while the baseline represents data at a specific point in time.

5 Some of the EOP results are understated because they are expressed in USD terms and there has been extreme depreciation in the exchange rate between the Zambian Kwacha and the US dollar (47% over LOP); for instance, for indicator 6 Value of Production per Client, using US dollar figures EOP results indicate a decrease of 12% over the baseline; however when comparing in local currency over the same time period thus removing the impact of foreign currency exchange rate fluctuations, there is a 10% increase in the value of production per client.

## ANNEX B: STRATEGIC GRANT RECIPIENTS

	RECIPIENT NAME	GRANT AMOUNT	PURPOSE
1	Africonnect Zambia Limited	\$43,905	Develop an SMS based information system targeting small holders using Cropserv retail system as a pilot.
2	Agribusiness Forum	\$150,790	As a trade association serving as an umbrella body for firms operating outgrower schemes and a forum for sharing information on the contract farming industry in Zambia, the grant will serve as a means to provide not only support to an industry platform that seeks to address specific needs but also to ABF's capacity to meet those needs. ABF will focus on facilitating the expansion of financial services to the sector by organizing and supporting a series of events to promote interaction and networking opportunities between financial service industry and firms operating contract farming models. ABF will also developing or share innovative models by promoting learning and best practices within the industry.
3	ATI (Africa Trade Insurance Agency)	\$75,000	To establish an ATI office in Zambia to support the export market through ATI's risk mitigation and credit enhancement products and services
4	Conservation Farming Unit (CFU)	\$663,065	To increase 63,000 cotton producer's yields and income from cotton by 20% over 3 years within a sustainable CF system. To pilot an incentive scheme that (1) encourages farmers to engage proactively in disseminating and adopting the improved practices that increase yields and profits and (2) is economically viable and can be sustained beyond the life of PROFIT.
5	Forest Fruits Ltd.	\$126,000	Upgrade the honey sector by introducing modern technology to small holder producers.
6	Kalahari Oils Ltd.	\$45,000	Organize and upgrade small holder honey production through an out-grower model.
7	Land O' Lakes [Dairy Directive]	\$1,785,590	Under the Dairy Development Initiative, provide support to ZDPA and the small holder dairy industry to create improved processing standards, dairy products and related services that are delivered through the value chain. Coordinate the Dairy Development Fund to target upgrading opportunities within the sector. Establish and manage the integration of 5 Livestock Service Centers working with the MLFD.

8	Lloyds Financials Limited (ACCE—African Carbon Credits Exchange)	\$34,000	To provide a variety of technical and financial solutions to assist African countries and companies to take advantage of the opportunities presented by the emerging carbon exchange markets. The company intends to ‘fast-track’ the development of the Zambian low-energy market as a pilot country to provide ‘alternative’ sources of local and international finance with developmental and environmental spin-off benefits. Lloyds will seek to develop three mechanisms to accomplish this notably the Green Technology Credit Enhancement Fund, the African Carbon Credit Exchange, and the Low Carbon Africa Fund. Lloyd’s will also pilot the development of two development pilot activities related to cook stoves and At least 12,000 hectares of new <i>Faidherbia Albida</i> plantings established.
9	NIRAS [Dairy Directive]	\$2,034,279	<p>As a fully integrated component within the PROFIT consortium activities, NIRAS along with Land O’Lakes, will facilitate milk processors and private sector input suppliers to stimulate the smallholder dairy sector to organize itself into more productive and commercially viable producer organizations and dairy associations. Embedded extension from dairy input and service suppliers will help build loyalty and lead to a greater communication between value chain members.</p> <p>Under the project extension NIRAS worked in the farmer to processor value chains for both dairy and beef taking the lead in facilitating and developing processor linkages, embedding market related quality controls and standards into field aggregation points and following up of supplier and consumer demands and concerns. In this way, NIRAS will contribute considerably to increases in the volume of business conducted through field aggregation units – Livestock Service Centers – and hence contribute to a more vibrant commercial livestock sector supported by and supporting an expanding veterinary services sector.</p>
10	Mobile Transactions Zambia, Ltd	\$331,375	Provide critical upgrading within the mobile technology sector including the development of an m-payments platform and the development of an e-voucher system for government and other subsidized input programs. The grant also supported the creation of an ordering and stock-checking system for the agricultural input industry that suppliers could access with a mobile phone. The system allowed rural agents to check stock levels at their associated suppliers and place orders for pre-specified items.
11	Savanacom Ltd.	\$49,850	To develop a mobile accessed e-commerce procurement hub and mobile based payment service pilot project in partnership with the input retailer firm Croppack Agro Services Limited of Lusaka. To facilitate the development of SMS services targeting retailers and smallholders that can support the transaction costs of marketing and/or contracting with smallholders.

12	Vetlab Ltd.	\$44,650	Collaborating with poultry, beef and dairy industry players and veterinarians to cost share the equipment and start-up costs of developing <i>VetLab</i> , a private veterinary diagnostic laboratory, based in Lusaka, able to offer disease analysis, serology and bacteriology testing and the most advanced feed analysis facility in the country. ISO accredited, VetLab will offer analysis regionally and compete with similar services previously available only in South Africa.
13	ZAMACE (Zambia Agriculture Commodities Exchange)	\$1,015,000 plus in-kind contributions of laboratory, communications and office equipment	To provide startup, working capital and technical support for the establishment and development of a Zambian based Agriculture Commodity Exchange. The grant supported the integration of smallholders into the market trading mechanism; the integration of the financial sector into the structure and operations of the commodity exchange; the development of a policy environment that could facilitate both the development of a commodity exchange and a competitive agricultural economy in general.
14	Zambia National Farmers Union (ZNFU)	\$377,882	To support the goal of the institution to become responsive to its member's needs by developing more demand driven, commercially sound member services. ZNFU will establish itself as a key provider of mediation services by strengthening its capacity to mediate in commercial disputes; in developing information brokerage services at both the national and local level including support to make its Farmer Magazine more relevant and bolster the radio based information sharing programs. In order to build market confidence at the district level through market assurance mechanisms, support was provided to enhancing its national SMS-based price discovery system and developing its local information brokerage capacity at the district farmer association and national coordination level.
<b>Total</b>		<b>\$6,776,386</b>	

## ANNEX C: SELECTED NOTES FROM THE FIELD

### 1. April 2008

#### Investing in Cattle: Bringing Back the Days of Saka Yamali

PROFIT facilitates the connection of smallholder cattle farmers with private veterinarians and commercial buyers



*Cattle are led through a crush pen towards the mobile scale.*



*Cattle being weighed on the mobile scale.*

***At the mobile cattle sale, “I got double the price I would get selling within the community,” says Wisdom Shambosha***

“At first I didn’t want to sell,” said Wisdom Shambosha, a local producer, “but after seeing the sale prices, I wanted to bring my best cattle. I got double the price I would get selling within the community—\$400 instead of \$200!” “It is like back in the old days” said another producer as he led his cow towards the mobile scale brought to Nalubanda, located in the Mumbwa District of Central Zambia, by a mobile cattle buyer. The buyer, encouraged by news of an improving market opportunity—the smallholder cattle producer, came to the community for an organized market event facilitated by PROFIT.

Saka Yamali—a Tonga phrase meaning ‘bag of money’—was how the people in Nalubanda area once described selling their cattle to well-equipped mobile buyers in ‘the old days’. However the days of Saka Yamali disappeared. Commercial buyers became unwilling to engage with smallholders, citing decreasing levels of herd health, breeding inconsistencies and reliable output.

Since 2005, PROFIT worked to connect Agrivet, a private veterinary service, with smallholders to improve the health and management of cattle herds in their community. With healthier herds, cattle producers are reaping dramatically higher profits from selling their cattle.

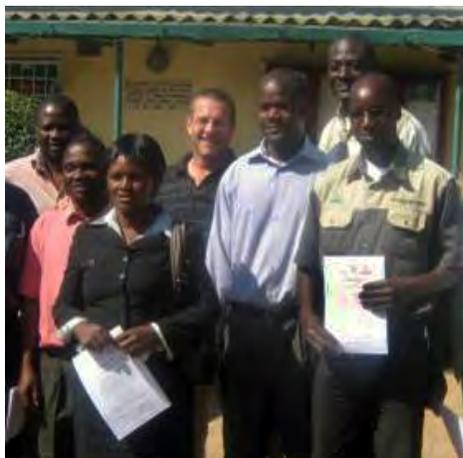
During the promotional event, 19 cattle were sold for a total of \$8500 and a few days later another 34 animals were sold for \$13,550. Charles, the mobile buyer, took time to explain to the farmers the criteria for choosing the animals he was buying and why he was paying a certain price. A \$100 premium was paid for cattle on the Agrivet Herd Health Plan, a preventative veterinary program, due to the assurance of buying a healthy animal. As a result of the premium, farmers said they were willing to start investing more in the health of their animals and buying more of the services offered by Agrivet.

As the farmers are taking advantage of the burgeoning private veterinarian industry, commercial buyers are taking notice. The days of *Saka Yamali* seem to be back.

## 2. July 2008

### An Industry Evolves: Overcoming a Common Challenge

PROFIT seeks to improve the competitiveness of the agriculture industry in Zambia to improve the livelihoods of small scale Zambian farmers.



*Firm representatives with the CropLife facilitator at the end of the first meeting of the major Zambian agrochemical firms – Lusaka (Jul 08). The meeting was facilitated by Herman Louw of CropLife, an international association of plant science firms and organizations.*

***“The facilitator did less of the talking and we did most of the talking. The practical approach to the training was good.” said Mathew Chisakuta of Syngenta.***

The agrochemicals industry in Zambia reached a major milestone in July 2008. In what is described as the first industry wide discussion of its kind, thirteen of the largest agrochemical firms met and discussed possible joint solutions to a common challenge: how to ensure the safe handling and application of agricultural chemicals by users. If unsafe and improper use occurs the reputation of the industry as a whole could be jeopardized. Recognizing the threat and the challenge of addressing the issue independently, the firms met at an event facilitated by the USAID-funded PROFIT Project to establish industry-wide standards for training of chemical users.

Initially, there was some skepticism among the participants in getting competing firms to cooperate on an industry wide issue. However, once the representatives of the firms identified ways where mutually beneficial cooperation could occur without compromising competitive advantage, the initial perceptions were replaced with a the resolve to meet the challenge.

The event led to the development of concrete plans for establishing standards within the agrochemical industry, including proper use and safety certification of spray service providers and eventually led to several firms developing in-house training programs for spray service providers contracted through the firms. The participatory nature of the event fostered a sense of ownership of the process amongst the firms and led to standards that were relevant to the Zambian context. In addition, the representatives developed new inter-firm relationships that may eventually strengthen the industry further.

The PROFIT project is active in supporting firms in the agrochemical industry to improve the competitiveness within the Zambian market through a market based facilitation approach. Most importantly, the Project assists firms by linking them to smallholder farmers which ultimately improves farm productivity and farmer livelihoods while expanding the markets for the industry. The meeting of the agrochemical companies to establish standards and to form an alliance is another way in which the PROFIT Project’s approaches and initiatives contribute to the long term goal of making this industry more competitive.

### 3. August 2008

## Idle to Active: The Benefits of a New Approach

PROFIT facilitates the creation of new rural income generation opportunities and the spread of improved tillage technologies, boosting agricultural yields and incomes in Zambia



*A woman sows seeds in a field that has been tilled by a Magoye ripper*



*Community agents are trained on how to market Magoye rippers in their communities*

Rose, a smallholder farmer in the Mumbwa district of Zambia, bought a Magoye ripper from a community agent in June 2008. She is now using it to rip her field and providing tillage services for others in her community. Currently she has 14 customers lined up for ripping, she expects to make over K1,000,000 (USD\$300) this season through ripping activities alone, enough to cover the purchase price of the ripper.

The Magoye ripper is an alternative to the traditional plough. Tilling by plough or hoe *after* the first rains is typical for small-scale farmers in Zambia. Each day that a farmer delays plowing following the first rains lowers the yield potential – research suggests that planting a week late may lower yields by 10%.

Adoption of the ripper provides two main benefits to farmers. First, it allows the farmers to plough their fields on time before the first rains because unlike the plough, the Magoye ripper is designed to till fields during the dry season. Second, ripping a field concentrates important soil nutrients and fertilizer, if used, around the seed, whereas, ploughing disperses nutrients and fertilizers, reducing their effectiveness. Using rippers instead of ploughs can improve yields by over 25%.

For years development organizations tried unsuccessfully to stimulate adoption of the ripper mostly through training events and demonstrations, or through a supply driven approach. Even though the technology was known to farmers to increase productivity through proper use, adoption by farmers was slow.

Then the USAID funded PROFIT Project tried something different. It embarked on a two-prong demand driven approach that helped lead to a more wide-spread use of the Magoye ripper. First, PROFIT worked with agriculture input suppliers to improve farmer's access to and knowledge of the technology by including the ripper as an additional product sold through their retail shops and through their community based agent networks. Second, PROFIT facilitated the development of the concept of the Tillage Service Providers, rural based entrepreneurs who buy a ripper then offer to rip others farmers' fields for a fee. In this way, those who made the investment had more than one way to get a return from the investment effectively shortening the payback period considerably.

The approach reduced the overall risk and made it a business proposition which appeals to entrepreneurs like Rose. The charge per hour is K28,500 (\$9) and it takes 3.5 hours to rip one hectare. A ripping tillage service provider can provide services for up to 40 hectares in a season resulting in income that could exceed \$1000 or three times the cost of the ripper.

## 4. October 2008

### Greater Choice, Stronger Voice

PROFIT facilitates greater competitiveness in Zambia's agricultural input sector, to the benefit of smallholder farmers.



*A farmer in Chikanta, Zambia shows off his maize cobs after a successful season. Behind him is a Pannar community agent who sold him seed and provided technical advice.*

'Any customer can have a car painted any color that he wants so long as it's black,' said Henry Ford in the early days of the auto industry. Over time, as the industry matured and became more competitive, consumer choice expanded and firms spent more resources on meeting consumers' demands. With assistance from the USAID-funded PROFIT project, the Zambian agricultural input sector is maturing in a similar way, and that is benefiting smallholder farmers.

PROFIT, taking a *market facilitation* approach, is working to connect input firms with smallholder farmers through community agents, selected from the community by the community to work for the firms and serve the farmers. Market facilitation entails stimulating pro-poor market growth without actually becoming a part of the market. All major agricultural input firms in Zambia now embrace the business model and are now competing for market share. Sales of inputs through the agent networks have surpassed US\$7,700,000.

Mr. Miyanda from Choma district in southern Zambia has been planting maize seed from different companies. "I'll plant 3 different varieties and see which one works best." He bought packages of seed right in the village from the agents instead of paying for transport to buy in the nearest town. Each of the companies had community agents in his village, competing to sell seed to the farmers. The firms try to out-do each other in how much knowledge they can provide to farmers through the agents; in how suited their products are to local conditions; in how well they can demonstrate their trustworthiness as input providers. This competition allows farmers to adopt a more discriminating approach to buying inputs. Farmers will test different varieties of seed and see what their friends and neighbors are using. After seeing the results, and with information from the agents in hand, farmers can choose what works best for them.

Having choice is important, but with choice comes something even more important: voice. Smallholder farmers, used to being passive recipients of assistance or targets of predatory traders, are now able to use their buying power to demand quality service and products from the input firms—they are no longer forced to have 'the only choice'. Mr. Miyanda put it well: "If I'm not happy with one company, I'll just go to a different one."

## 5. January 2009

### New opportunities, New markets

PROFIT is encouraging firms to use new innovative ideas to meet the changing market demands in the agricultural industry.



*Pannar marketing their products at Shimunenga traditional ceremony, Namwala, Zambia*



*“Farmers attending the Music festival in Monze, Zambia listen to Ernest, a Pannar agent, as he markets his products”.*

As the Zambian economy has become more competitive as of late, the agriculture inputs market has not been spared. As a result more innovation on the part of the agriculture input firms is required. Events such as traditional ceremonies, musical concerts, church gatherings and social games have taken place since time immemorial. The industry is starting to revisit these events as opportunities to promote their services and technologies.

Pannar seed company, an international firm with operations in Zambia, has been working with African farmers for nearly 50 years. Previously, the company's sales strategy centered on outlet shops in regional towns (walk-in) or through consignment to traders. The firm also targeted commercial farmers without much consideration or interest in addressing smallholder needs.

With the assistance of the USAID funded PROFIT Project, Pannar set up an agent network system last year in Southern Province with 26 agents. Currently, the firm has grown to 67 agents working in Southern, Lusaka, Western and Eastern Provinces and working with a total of 3,700 farmers.

With PROFIT's encouragement, Pannar now takes advantage of social events (traditional ceremonies, musical concerts, church gatherings) to sell their brand and build on their relationship with smallholder clients. The result is increased sales and demand for products and services that has led periodically to stock outs of certain varieties of seed early in the season.

Pannar started the 2008/09 seed marketing season four months early. In Southern Province, they sold 3.12 mT of seed worth ZMK 23,125,000 (\$6,607) by the end of July 2008. Traditionally, the sales started around November. By December 2008, Pannar had sales of ZMK260,564,100 (\$64,940) - a 30% increase over the previous year. Pannar's marketing campaign has been so successful that they represented about 51% of the total "Agent" sales in Southern region in 2008.

The hybrid seed sold through the agent networks in the villages not only enhance farmer productivity but they increase household incomes, in more ways than one. Agents receive 10% on sales which provide additional income streams to their households. For instance, Danny Muntanga from Namwala, was the agent who made the very first order for Pannar this year and wound up making a total of ZMK 3,120,000 (\$891) in commissions for the year.

Through the platform of social events, Pannar has been able to expand their market share and open new markets in new communities.

## 6. February 2009

### A Leader in the Community

PROFIT is facilitating the use of in-community service providers as way of enhancing productivity in cotton.



*Nyuma writing her spray certification Test organized by Birchard Cotton, Chama, Eastern Zambia*



*Spray service providers display their Safe use handbooks after the training and certification, Chama, Eastern Zambia*

Mrs. Nyuma Nkhata, 37 is a widow of Kawelele area of Chama district 950km east of Lusaka. She has been a cotton farmer for over 3 years, selling to Birchard Cotton. Nyuma said that she became a Birchard farmer because she saw the opportunity of becoming a spray service provider. She is a leader in her community, working as group secretary under the District Women's Association (DWA) in the area and as a care-giver in one of the HIV/AIDS programs.

Nyuma took up what is known as a men's job in the area, the job of a spray service provision for cotton. She attended a one-day training and certification workshop that was organized by Birchard cotton. Out of the 52 participants, Nyuma was the only woman who attended the training. The training included such topics as scouting, understanding pesticide labels and classification, personal protective equipment, transporting and storage of pesticides, preparation for spraying, working in the field safety, health and the environment and basic record keeping

She decided to take up spray service provision to be able to spray her own field better and to increase her income to enable her to pay her children's school fees. She has a client base of 5 for the 2008/09 season, spraying a total of 2.25ha five times in a season. Her work as a spray service provider will boost her income by K400,000 (US\$90) this year, and she is looking to expand her client base next year.

PROFIT has been facilitating the sale of agricultural inputs through cotton firms and the creation of spray service providers, but now the cotton firms are taking charge. Recruiting and training spray service providers has become an integral part of the strategy for these cotton firms. The number of spray service providers passed the 900 mark in early 2009, and sales of agricultural inputs through the cotton firms were K500,000,000 (US\$100,000) in the second half of last year alone.

## 7. April 2009

### The Product of Service

PROFIT's market facilitation approach is helping agricultural retail firms develop agent networks to link to farmers in rural communities.



*Clyde and his wife show off their maize harvest for the 2008/09 season*

Clyde Stimela, of Kalomo District in southern Zambia, made an additional ZMK 1,500,000 (\$300) last year by making 500 smallholder farmers in his community more productive and wealthier. Since 2007 he's worked as a community based agent or service provider for Pannar seed company. The community agents are trained representatives of the firms they sell for, such as Pannar. In the sparsely populated rural areas of Zambia, it is difficult for the smallholder farmer to access quality agricultural inputs or receive knowledge through extension. Through agents like Clyde and the service and product knowledge he provides, farmers not only can have improved access but they save up to 50% on the cost of inputs simply through bulking of orders. When the agent bulks the orders for inputs, transaction costs are reduced, making inputs more affordable to more farmers. With increased volumes and competitive pricing, input companies can now profitably service remote communities.

The USAID funded PROFIT project uses a market facilitation approach in promoting the agent model with agricultural input firms. A market facilitator works to improve how markets function without actually becoming a player in the market. PROFIT worked with a few input companies to pilot the idea of developing a community based agent network model as an extension and improvement of their existing distribution networks. Having proven the model, PROFIT currently works with 13 companies who have over 1800 community based agent representatives collectively having sold improved inputs worth US\$1,600,000.

To support his farmer client base, Clyde employs an additional 4 sub-agents, together covering 20 villages. During the 2008/09 season Clyde sold 150 10kg packets of seed worth ZMK15,000,000 (\$3,000) on behalf of Pannar seed effectively putting 75 hectares under improved seeds by knowledgeable farmers. As a result, these farmers expect to harvest a total of 325mt, or 5mt per ha, more than doubling the average yield using regular seed. While Clyde received a commission from Pannar, the farmers are the real winners with an expected income of ZMK390m (\$78,000) going into the farmers' pockets.

Clyde expanded his operations, leveraging his reputation as a service provider and the income he generated, by opening a shop where he sells household items, seeds and agro-chemicals that his community needs.

Now a steady stream of customers comes into Clyde's shop seeking quality service and knowledgeable advice, generating wealth for both Clyde and, most importantly, his customers.

## 8. September 2009

### Herd Health Program Boosts Family Assets

PROFIT facilitates the development of the herd health preventative schemes through the services of private veterinarians as a way of enhancing the herd productivity of smallholder cattle herds



*Cecilia with Romeo (her grandson) in their cattle kraal*



*Private Veterinarian vaccinating animals on the pre-paid herd health program.*

***“The herd health prevention scheme and one off service provision provides a cost effective way for farmers to pay for private veterinary services.”***

80 year old Cecilia Simununga of Susumambo village of Choma District in Southern Zambia lives with her 26 year old grandson, Romeo Bumba. Romeo is married and has 4 children. He is the secretary of the community herd health program and a chairperson of a youth group at the local church.

In June 2007, Romeo and his grandmother decided to join the Herd Health Plan (HHP) offered by a local private veterinarian. Romeo convinced his grandmother to sell 1 animal so that the money could be used to pay for vet services for the rest. He sold the animal for \$181.

In 2006, Cecilia owned a total of 10 animals in her herd. However, she used to lose animals nearly every year to diseases preventing her herd from growing. However, since going on the HHP no animal has been sick or has died. According to Romero, the “animals look healthy and the cows have given us calves every year. She now has 17 animals as a result – a 20% growth rate, never seen before. The animals give us 5 liters of milk every day after feeding their calves”. In addition to healthier cattle, they manage a monthly income of \$12 from selling some of the surplus milk. This additional income alone pays for most of the costs of the HHP for the entire herd.

The family used to provide maize and other crops using recycled seed at subsistence levels and never used fertilizers. And, she never sold her livestock or had other revenue streams.

The additional assets and revenue streams have provided the family with resources which the family uses to improve their crop production, particular, using hybrid seed – which increased their maize production from less than 500kg to 1,050kg, an added valued of \$223 even without the use of commercial fertilizer. Instead, they used the kraal manure provided by the cattle.

As the household asset base and food security increases, Romeo intends sending his children to school for the first time. Also, a brother, who was recently accepted at Nkrumah Teachers College to pursue a degree in teaching, is also a beneficiary of this household economic turnaround.

## 9. December 2009

### Spray Services Boost Cotton Yields and Farmer Incomes

PROFIT is facilitating the development of a spray service platform by lead firms such as Dunavant as a way of boosting the yields of cotton



*Grace Phiri (left) with her SSP Chaka Phiri, the only female spray service provider working with Dunavant in Katete.*

Grace Phiri, from Mtloloka village in the Katete District in Eastern Province in Zambia, is a 42 year old divorcee head of household who cares for three of her children. A cotton farmer since 1993, she increasingly found it difficult to provide the labor needed to weed and lacked training to effectively use and apply herbicide on her crops resulting in poor yields of 300kg per ha providing her with cotton related income of approximately \$85. As a result, Grace grew only maize and groundnuts as her priority cash crops reducing her hectareage of cotton to only one acre (0.5ha).

In 2007, Grace heard about spray service providers (SSPs) through testimonies from the farmers who bought these cost effective services in the neighboring village of Mushoka. For the 2008/09 growing season, Grace met Chaka Phiri, a female certified spray service provider (SSP) who uses an ULVA+ sprayer which is efficient in terms of water and chemical usage. Impressed by Chaka and her knowledge and skills, Grace bought a season's worth of professional spray and pest scouting services.

As a result of the services provided by Chaka, and although Grace planted late, the yields increased to 700kg per ha more than double what she was receiving previously. She attributed a significant amount of her increase in yield to well managed spray services that prevented weeds from growing, kept her crop clean from pests and even reduced the volume of chemical applied. She said "I had enough time to do my weeding in maize and groundnuts because the spraying for the cotton was taken care of by [the] SSP. This has now given me opportunity to use herbicides once again because there is a skilled SSP in our community."

Grace's cotton income of \$216 this season was almost three times that of last season. She used her money to buy food supplies and clothes for her family. She now plans to grow twice the area of cotton (1ha) because had someone to spray her cotton.

Her plan for the 2009/10 season is to invest some of her money to buy hybrid seed maize as well as herbicides to improve weed control in her maize.

10. January 2010

## Spray Service Provider Empowers Orphan

PROFIT works with commodities in selected value chains in which smallholders can participate, contribute and benefit. Cotton is one such commodity and has helped contribute towards increasing incomes and reduction of poverty in rural Zambia.



*Bydon Musukwa, student, leaving his home for school.*



*Bydon Musukwa with Bonnix Chawinga, his spray service provider*

Bydon Musukwa, 17 is an orphan and is a Grade 10 pupil at Chama Day High school in Chama district, 950km East of the Zambian capital Lusaka. Bydon lives alone in a village near his school and is self-reliant. Bydon encountered a number of difficulties after the death of both of his parents including how to raise funds to pay for his school fees.

Bydon decided to find a place to stay near Chama Day High School for ease of commuting. It was while looking for a house that he met Mr. Bonnix Chawinga a cotton buyer and qualified spray service provider (SSP) with Birchard cotton.

Bonnix encouraged Bydon to grow cotton as a way of raising money to pay for his school fees and Bydon decided to grow cotton on 0.5 ha with a loan of seed and chemicals from the cotton firm. Bonnix assisted Bydon by scouting and spraying his cotton crop for the entire growing season, agreeing to be paid only after he received revenues from the cotton. As a SSP, Bonnix was trained in pest scouting as well as safe use and effective spray application, serving farmers who may not be in a position to spray their crop on their own for various reasons including lack of access to mechanical sprayers, lack of spraying skills or knowledge associated with safe use.

With good advice, services and management, Bydon harvested 480kg of cotton from his 0.5ha plot and raised ZMK573,450 (\$122) of net income after the cost of the cotton firms' loan deductions. From his earnings, he paid his school fees amounting to ZMK330,000 (\$70). He then paid Bonnix's service fee of ZMK60,000 (\$13).

Bydon was grateful for the service he got from Bonnix, without which it would have been almost impossible for him to attend to the crop and school at the same time. He says, "I will continue growing cotton with the help of Bonnix to raise money for my school fees and other things which I need".

11. March 2010

## Seed Industry Innovation: Hybrids in rural communities

PROFIT facilitates the promotion of new technologies including the growing of maize hybrids as a way of enhancing better yields, food security and poverty reduction among the rural smallholder households of Zambia



*Joyce Zulu with her husband display their crop of ZMS 606*



*Betty Phiri (centre) with her husband and sister-in-law in their field of ZMS 606*

Tiyeseke women's club is situated at Kaleza village 60km from Chipata in Eastern Zambia. The club has 40 members, most of them growing only local maize seed varieties.

During the 2009-10 season, the club received 10 micro-demonstration packs of ZMS 606 from ZAMSEED. The club decided to give the packs to Betty Phiri and Joyce Zulu to manage the demonstrations on behalf of the club.

Betty was assisted by her husband to manage her part of the field. It was planted in early December 2009 and she only applied top dressing fertilizer. The field was weeded twice keeping it free of weeds. The crop performance was very good, and her neighbors wondered as to where she got her 'wonder' seeds from.

On the other hand, Joyce planted her field late (early January 2010) due to prolonged dry spells. She received fertilizer from the Farmer Input Support Program (FISP) late and decided to mix both basal and top dressing fertilizers upon application. Joyce weeded her field only once. Despite not adhering to good farming practices, her hybrid seed yields were better compared to local varieties.

The club learned some valuable lessons:

- Hybrid maize seed is not only the preserve for the 'big' farmers, but any farmer can get a good crop as long as one is committed to crop management practices to ensure good yields.
- Even when subjected to traditional practices under which most locally recycled seed are grown, such as applying basal and top dressing fertilizers as mixture; no fertilizers applied; late planting; weeding once, the hybrid crop did better compared to local recycled seeds.

ZAMSEED is planning to conduct a field day in Kaleza community so that more product knowledge is given to the farmers and promote further the village agent model so that access to the seed can be improved.

12. May 2010

## Micro-Pack Promotions and Conservation Farming Yield Winning Solution.

PROFIT facilitates the promotion of new technologies including the use of maize hybrids as a way of enhancing better yields, food security and poverty reduction among the rural smallholder households of Zambia.



*Maria in her field of hybrid maize. She is flanked by a Conservation Farming Unit (CFU) field officer who provides her with extension services.*

Most farmers in rural Zambia have a propensity to grow local and recycled seeds from their granaries. Many farmers never experienced the benefits of hybrid production. During the 2009/10 season, 10,000 micro packs of seed were distributed on promotion by 3 seed companies including Maize Research Institute (MRI), Zambia Seed company (Zamseed) and Pannar seed company (Pannar).

71 year old Maria Chiyabi who hails from Mbabala area of Choma district of Southern province has been a farmer since the 1960s. During this time, she mostly planted local seeds and occasionally some open pollinated varieties (OPV) resulting in yields barely enough to feed her family including her son and 3 grandchildren.

In December, 2009 she received a micro pack of hybrid seed from MRI through a promotion and decided to plant it in a field prepared using conservation farming techniques. A month earlier she planted an OPV along with some local seed in another field. As her two fields came to life, Maria observed that the MRI hybrid had excellent germination and healthier stalks compared to the OPV and local seed. When the corn began to form its tassels, once again the hybrid maize was more uniform and developed larger cobs compared to the others.

With these impressive results, Maria says that new seed and the use of conservation farming is the solution. She intends to purchase 10kgs of MRI seed for her farming during the 2010/11season.

Micro pack promotions, like the one used by MRI, farmers the opportunity to try the product to 'see' the results without making substantial initial investments. PROFIT continues to encourage firms to push new technologies, including the promotion of hybrid seeds, in new ways that minimize risks to the farmer. The growing of hybrid maize seeds along with conservation farming enables smallholders to achieve substantially better yields, enhancing food security and contributing towards the goal of poverty reduction.

13. June 2010

## The Benefits of CropLife “Brand” of Spray Service Providers

PROFIT works with CropLife to promote the safe use and handling of chemicals by smallholder farmers to enhance sustainable crop production. The spray service provision platform is being promoted to enhance safe chemical use.



*Charles Muswalo spraying 1.1ha of tomato for one of his farmer clients.*



*Charles and one of his sub-SSPs deluxe spraying in a tomato field.*

Charles Muswalo lives in Makolongo community, 65kms south of Mkushi district of Central Zambia. He is a spray service providers (SSPs) trained in 2008 by Cropserve, an agricultural retail company based in Zambia, to sell agro-chemicals and provide spray services. His business was slow during the first year as he had problems marketing his services. Makolongo community has a lot of tomato growing farmers and Charles was determined to take advantage of this opportunity in the dry season when tomatoes are grown.

In September 2009, Charles tested and was certified by CropLife, established in Zambia in 2006. It is a National Association of agrochemical distributing companies and a member of CropLife International, a global federation representing the plant science industry with a network of regional and national associations in 91 countries. Charles received a chemical safe use kit-a spray suit, goggles, gloves, mouth mask, safe use handbook- and identity card that indicated he was CropLife certified.

With certification by CropLife and its assurance of quality, the farmers started hiring Charles to spray their gardens and field crops such as maize. The demand was so overwhelming that Charles decided to employ 8 sub-SSPs to work with him who received training by Cropserve, and were later tested and certified by CropLife Zambia.

During the 2009/10 season, Charles's team sprayed 63ha and earned an income of K2,205,000 (\$429). The average weekly earnings is around K960,000 (\$187). With the earnings they bought 2 bicycles to use on their spray business which now covers a radius of 30km.

And the tomato fields? Charles's team now contracts services for 26 tomato producers covering 18ha!

14. July 2010

## COMMERCIAL SPRAY SERVICE PROVIDERS: DOUBLING BENEFITS TO SMALLHOLDER COTTON FARMERS

PROFIT works with cotton companies like Dunavant to improve out-grower programs with smallholder farmer through new commercial service platforms facilitated by PROFIT.



*Alvin Maanza, a spray service provider, in his work kit.*



*Alvin shows off a crop of cotton that is now ready for harvest.*

Alvin Maanza is a smallholder farmer of Shimbalamba village, Chief Moono in Mumbwa district. He is a trained spray service provider and has taken up spraying as a business. He started his spraying business in 2007/08 season, spraying only 3.5 hectares for four farmers but as a result of his reputation for providing quality services, his business more than tripled in the 2009/10 season. He now services 10 farmers, including 10 women, for a total of 15ha.

Alvin charges ZMK50,000 (US\$10) per hectare per season for comprehensive spraying and crop scouting service and for herbicide spray he is charging ZMK40,000 (US\$8) per hectare. For farmers, this is a bargain because cotton yields among his clients increased on average 54% to 1,000kg/ha. With the increased yields, farmers' incomes have also increased in direct proportion from ZMK1,170,000 (US\$234) to ZMK1,800,000 (US\$360). From the money they made the farmers paid off their cotton loans and had surplus money to spend on household necessities and children's school fees. The farmers are also planning to use some of their money to buy inputs for next season. Farmers who were interviewed indicated their desire to increase the amount of land they will plant for cotton during the 2010-11 season

Equally, Alvin had earned ZMK700,000 (US\$140) from his spray contracting business. He also applied his skills and knowledge on his own farm where he was able to get yields of 2,000kg/ha on his two hectares. He made ZMK6,700,000 (US\$1,340) from the sale of his cotton. He used some of the money to pay for his children's school fees. In addition, he is planning to increase the number of hectares of cotton and other crops next year. Flush with cash, he decided that he will purchase his inputs early this year, around September. His future plans are to continue offering spray services and begin selling agro chemicals to the farmers in his village and to nearby villages.

PROFIT works to develop spray and land preparation service platforms with entrepreneurial farmers, with proper equipment and technical and business skills, who provide these services on a commercial basis to their fellow smallholder farmers. The commercial service platform has led to the creation of employment in rural communities and much improved access to affordable and quality services. There has also been a remarkable drop in overall chemical use despite increased demand for the spraying service due to safer, more effective and timely application-skills provided by Alvin and over 860 other SSPs trained by Dunavant and CropLife Zambia, in conjunction with PROFIT.

15. August 2010

## INTRODUCING THE SPRAY RACE – AN INNOVATIVE SOLUTION TO CATTLE SPRAYING

PROFIT facilitates the transfer of commercially powered technologies to rural communities throughout Zambia. One such technology is the spray race for cattle which is used instead of dipping tanks to control the incidence of debilitating parasites on cattle.



*Cattle being sprayed using one of the spray races – Magoye, Mazabuka, Southern Zambia*



*One of the locally manufactured stationary spray races*

Zambia now has a private sector led and local manufacturing solution to combatting debilitating parasites that have long constrained the smallholder producer from reaching its economic potential from owning cattle. With over 600,000 cattle owned by smallholder producers, this is certain to be a transformative technology.

In 2008, PROFIT in collaboration with Fens Investments, a company based in Kafue, Zambia, developed a spray race model for cattle spraying. The model, based on a South African design, was launched in August, 2009. There are two models, stationary and mobile. Both are far more efficient, safer and more cost effective than the standard dip tank technology that was used prior to the introduction of this new technology. The mobile spray race units are designed to offer additional advantages of being easily collapsible-within 15 minutes-and portable, fitting on an average pick up.

With PROFIT's facilitation, a demonstration of the first spray race model was organized in Mapepe in Lusaka Province. The demand for this new technology was high enough that within the first nine months Fens Investments sold 35 units for ZMK875,000,000 (US\$179,000). The original Spray Race at Mapepe is currently servicing an average of 100 animals per week providing an additional weekly income of ZMK100,000 (US\$20) to the owners.

Another demonstration of the prototype took place in Namwala in the second quarter 2009. Here, smallholder producers' enthusiasm for the new product was also extremely high, so much so that a local fabricator replicated the model and is building it locally. The cost of this locally made spray race unit is ZMK13,000,000 (US\$2,600) a significant cost savings from the original model. There are now over 6 units constructed by the local manufacturer that are used to service a total of 9,000 animals in the Namwala district of Southern Zambia. The average charge per animal is ZMK750 (US\$0.15) per cattle sprayed. At the moment, there are an additional 3 spray races set up on the Namwala plains servicing a total of 6,000 animals per week.

An owner of a locally made model constructed at Maala in the Namwala district and cattle producer, George



*George, the local spray race owner, standing in front of his spray race*



*Animals being sprayed at a mobile spray race in Monze*

Shimusako, explained more about this technology, "When I saw the spray race, I was excited and shared the news with a friend, Collins Lubezhi. We decided to try out the innovation and shared the costs to manufacture the first locally made spray race. It worked well and we never looked back". He went on to say that "some of the benefits of the spray race were the significant time and labour reductions when spraying the animals". He says "it takes about 1 hour to spray 1,300 animals with only 5 people managing the animals" at a cost of only ZMK750 (US\$0.15) per cattle sprayed.

The Makamu dairy women's cooperative at Kayuni 10 km north of Monze, operates a spray race. They received a donation of the spray race from the Republican President of Zambia, Mr. Rupiah Banda during the launch of the 2009-10 season held at Kayuni, Monze.

The group was formed in 2005 and now consists of 29 women dairy farmers. They decided to use the spray facility to raise income for the group through the joint operation of the spray race. The spray race is managed by a committee selected by the cooperative and is spraying over 300 animals per week for an additional weekly income of ZMK300,000 (US\$ 60). As one member of the group, Felistus Munsanje puts it "the spray race is a cheaper way of managing ticks as the amount of dip and water used is minimal. She further says that the mortality in her herd has also gone down because they can afford to regularly dip their animals with the spray race."

The spray race facilities also act as aggregation points to stimulate the demand for different products and services. Farmers access one off vaccinations, vet drugs, seeds, chemicals and trainings at spray race sites. So it is easy to see why cattle producers are excited about the new technology. It not only fills a need but it has led to the creation of local manufacturing jobs and an entire new service provision platform.

16. September 2010

## Facilitating Access to Financing

PROFIT facilitates access to financing for smallholder farmers to expand or enhance their farming businesses.



Farmers participate in training on the Emerging Farmer Finance Programme run by ZANACO.



Woman mechanized service provider during a training for tractor operators.

Access to finance is a serious constraint to the development of the smallholder and emergent farming sectors in Zambia. PROFIT is tackling this constraint with two key interventions. First, PROFIT works with Zambian financial institutions to upgrade their capacity to provide a range of financial and risk management products to the agricultural sector. PROFIT has worked with several commercial banks, micro-finance institutions and leasing companies, and assisted the institutions to develop products and services appropriate for the lower end of the agricultural market. But this sector has been slow to follow through with marketable products.

However, equipment leasing is the exception gaining some traction lately and shows great interest and promise. PROFIT has been instrumental in developing a business case for the financing of agricultural equipment to support several commercial based service provision platforms such as mechanized tillage and maize shelling that has experienced increased demand from farmers.

Over the past two years, 52 lease agreements were signed with commercial firms to bring 24 tractors and 28 maize shellers into service. The fees, generated from these services and paid by local farmer to these entrepreneurs, provide additional income streams that make the lease feasible. The maize shellers are particularly popular with women and children as it reduces labor requirements at an effective cost.

One of PROFIT's clients in the microfinance sector, CETZAM, recently signed a \$1million credit facility with the Development Bank of Zambia targeted at the smallholder sector, aimed at assisting the smallholders to access capital for their existing operations as well as scaling up of their farming businesses.

The second major PROFIT intervention in agricultural finance is upgrading the capacity of borrowers and potential borrowers. A study into the dysfunction of the agricultural finance market by PROFIT and the Zambia National Farmers Union (ZNFU) in 2009 highlighted the fact that one key reason that financial institutions perceive agriculture to be a high risk sector is the generally low levels of financial literacy and financial management skills. PROFIT has been working on a number of fronts to increase the ability of smallholder and emergent farmers to apply for and manage credit facilities.



Maize sheller in operation.

In conjunction with the International Finance Corporation (IFC) and the ZNFU, PROFIT has been active in conducting financial literacy and management training to farmers participating in the Emerging Farmers Finance Programme run by ZANACO. In the dairy sector, a number of farmers have benefited from the Programme through the provision of loans to purchase animals, equipment and improve infrastructure such as milking parlors and storage sheds. The loans are accompanied by technical training and linkages to veterinary services, both of which PROFIT has facilitated.

PROFIT's financial literacy training also assisted farmers to obtain loans from CETZAM, Citizens Economic Empowerment Fund, FINCA and Micro-B.

17. January 2011

## “Twafwidwa Huma” – Opportunity for Smallholder Cattle Producers.

PROFIT facilitates the introduction of new services and technologies to smallholder farmers including the livestock service centers (LSCs).



*Livestock being loaded into Zambeef truck at Lukunka Livestock Service Centre – October, 2010*

In October 2010 Zambeef, one of the largest buyers and processors of beef cattle in Zambia, bought 40 animals from 18 smallholder farmers in Lukunka village located in Mumbwa district in Southern Zambia. What made this sale remarkable is that it was organized through the recently established Livestock Service Centers or LSCs. This was the first of its kind in Zambia. A total of 75 smallholder producers attended the sale which saw approximately \$20,638 trade hands.

The establishment of the LSC was a result of a Public Private Partnership between the Ministry of Livestock and Fisheries Development (MLFD) and the USAID funded Production, Finance, and Technology (PROFIT) Project. MLFD, who developed the concept, asked PROFIT to help establish five functional centers through grants and technical assistance that will serve as models for future LSCs. The centers are owned by the Government of Zambia but managed and operated by LSC Committees who are local producers through contracts with MLFD.

The LSCs, located in rural areas, serve as aggregation points for cattle sales like the one in Lukunka while also providing access to services such as livestock disease prevention services, drugs and spray services for cattle. Also attractive to the cattle producers and buyers, like Zambeef, is the availability of reliable scales which provides more transparency to the process. As a result, cattle are sold based on live weight bringing more value to the producers.

Soft Mulambo, a cattle producer with a herd size of over 400 animals, applauds the arrival of the LSC and thinks it is one of the best options for selling cattle in the rural areas. In the past, if smallholders wanted to sell their cattle, they would receive low prices by traders who would then sell them at more lucrative markets in Lusaka, Copperbelt, and more recently as far away as Eastern Province. Soft sums up his satisfaction by using a Tonga phrase “*Twafwidwa huma*” which means “an opportunity to have something being brought near to you”.



*Soft Mulambo, a cattle farmer in Lukunka, Mumbwa. He sold some*

PROFIT is working with the LSC Committees to build capacity to both handle the operations and organize sales in the future. As this new market develops, the buyers, such as Zambeef, will also need to play a coordination role to ensure that veterinarians, security, and the committees will be available. The signs are there that the concept was a success as Zambeef has participated in more sales at the LSC in Lukunka buying an additional 38 cattle for a little over \$22,000.

Among the many challenges, the livestock sector in Zambia faces, are livestock diseases and the poor or disorganized marketing.

of his animals through the LSC.

Moving forward, PROFIT staff are working towards preparing the LSC committees to prepare them to handle future cattle sales via the LSC.

In the demonstration phase, PROFIT used to facilitate the coming in of the vet, council and the Police. Moving forward, PROFIT has engaged Zambeef to take over this responsibility of mobilizing the other stakeholders including the police, council and vet. Zambeef has shown good buy in and ownership of the process.

Soft Mulambo, a cattle farmer with a herd size of over 400 animals is one of the excited farmers with the construction of the LSC. His animals were on the HHP with Dr. Moosa and now receiving herd health services from Dr. Chazyza (Vethaven). Among the benefits that Soft explains of is the increase in the number of animals, low disease incidence and low mortality.

On the LSC, Soft applauded the use of the LSC as one of the best options for cattle sales in the rural areas as animals are better priced due to the use of scales which gives a lot of transparency to both the buyers and sellers. The animals are also sold on live weight. He says in one of the local languages - Tonga "*Twafwidwa huma*" which means an opportunity to have something being brought near to you. The other farmers said they were happy that via the LSC they were no longer being cheated on the value of their animals. The LSC has answered the prayers of many farmers in that beyond the sale of animals the LSC is like a one stop shop for livestock smallholders in Nalubanda.

18. March 2011

## WIDOW APPLAUDS THE SERVICES OF THE ICSP

PROFIT facilitates the development of the agent network and the spray service platform which have been useful for the delivery for product and service delivery by the firms. This network of product and service delivery has been instrumental in facilitating better crop production and improved farmer incomes.



*Maggie Mwewa in her field of maize crop following the 2010/11 season. (Mpongwe-Feb. 2011)*



*Maggie, with her sister and dependant, in front of their newly constructed house. (Mpongwe-Feb. 2011)*

Maggie Mwewa, a 48 year old widow from Mambwe Lumpangala village, is a small scale farmer. She has farmed for the past 7 years on her own since her husband died and is responsible for the care of 9 children, 6 of her own and 3 orphans. Five of the children go to school and Maggie depends on her agricultural activities to pay the school fees. She grows maize, groundnuts, beans, sweet potatoes, watermelons and household vegetables.

Maggie began working with a Cropserve agent named Charles Halwiindi during the 2009/10 season after participating at an in-community promotional event that Charles organized. Charles provided valuable information on many of the products and services he provided including his spray services. Maggie was attracted to the spray service because of the promised cost savings and impact on yields. For a fraction (\$43) of the cost (\$374) of hiring labor to weed her fields, she was told that her yields would likely increase as well. She decided to use the spray services on 2.5ha of maize.

The investment in the services paid off. Her yields increased by 70%. With the increased production she had for the first time a windfall, earning \$2,000 after costs of production and the 1.5T she reserved for her household food consumption. She invested this money into the most important to purchase agricultural inputs for the next season, pay school fees, install a zinc roof her house, and purchased 1 cow.

she was only able to cultivate 2 hectares of maize. Maggie used to harvest less than 2,000 kgs per hectare. From the information that Maggie got, she decided to start working with the agent. She decided to upgrade her production to 2.5ha. Maggie attributes her upgrading of her agricultural production to the good extension information she receives and good quality products and services from the Cropserve agent and SSP. During the 2010-11 season she has further upgraded her field of

maize to 4ha and is expecting to harvest over 14,800kgs.

From the 2.5ha of maize planted during the 2009-10 season, Maggie harvested 8,500kgs. From the 8,500kgs harvested she reserved 1,500kgs for food and sold 7,000kgs and earned total income of \$2,000. In addition, she earned \$500 from the sale of watermelons. Maggie's current crop is looking very healthy and she anticipates an increase in her yield for this year.

Maggie bought the services of the Spray Service Provider (SSP) at a cost of \$43 for his 4ha. If Maggie was to use manual weeding, she would have spent \$374 on the same plot for a minimum of 2 weedings. She says the services of the SSP enabled her to save time for other farm and household activities. Maggie says "I am grateful to Cropserve and Mr. Halwiindi for bringing the herbicides because hunger has now left my home". She also said she was now looking healthier because she was not spending a lot of time weeding the fields. She further went on to "encourage my fellow women farmers to use the services of the agents and spray service providers to liberate themselves from poverty".

Charles Halwiindi, the agent for Cropserve works with 173 households out of over 1,400 households in Mikata camp of Mpongwe district. He has a network of 5 sub-agents who help him to reach out to the remote communities.

19. May 2011

## KABWE FARMER APPRECIATES SERVICES FROM SPRAY SERVICE PLATFORM

PROFIT facilitates the development of new technologies such as use of herbicides. The introduction of herbicides by various retail firms in the rural communities has contributed to increases in yields and better crop incomes for smallholders. This has led to reduced poverty levels in the targeted communities.



*Brig. Gen. Banda attending a SH farmers meeting – February, 2011*



*Maize that was sprayed with herbicides – February, 2011*

Many civil servants in Zambia usually take up farming or other economic activities after they retire from active service but Brigadier General John Christon Banda, serving in the Zambia army, has decided to get an early start. John, at 57 is still a few years away from retirement. He began developing his 10 ha farm five years ago in Kabwe, a district 140km north of Zambia's capital, Lusaka. He currently has 5ha under production with maize, sweet potatoes and cassava.

John has a large family to support, 1 wife, 3 children and 4 other dependants. He farms to supplement his family income and to learn farming before retiring from the military so that he can continue to provide for his family in retirement.

Edward Lwabilia is a Cropserve agent and spray service provider (SSP) working in Kabwe for the last 3 seasons. Edward employs a spray team of 6 including a few of his adult children. The team sprays the fields of farmers who buy herbicides and pesticides from the agent. Edward was trained by Cropserve on the safe use and handling of chemicals, proper sprayer calibration, and also received training on proper application and use of Cropserve line of products. His spray team received training from Edward on the same aspects.

PROFIT facilitates the development of new technologies such as use of herbicides. The introduction of herbicides by various retail firms in the rural communities has contributed to increases in yields and better crop incomes for smallholders. In addition, PROFIT supports the firms by providing business trainings for the agents and SSPs.

For the past growing season, 2010/11, Edward and his team worked with John. Prior to hiring Edward to spray his fields, Mr. Banda said, "I struggled to use herbicides [correctly] in the previous 2 seasons and it has not worked for me." He went on to say "When I met Edward, he told me about herbicides and the benefits of the spray service that he was able to offer. I hesitated because of the past experience that I had on my own. However, from the information he gave me, I decided to give it a try." He contracted the SSPs to spray on 2 or his 5ha at a cost of approximately \$21 which was a substantial savings from hiring labor to do it by hand and from improper use he experienced previously.

The quality of services from Edward and SSPs has impressed John. He just can't hide his happiness. "Today as I speak, I am happy with the crop which was sprayed by the spray service provider compared to the other crops which didn't receive the spraying services." John further added "the SSPs/agents are important in our communities because they help us understand the instruction on the labels of the chemicals; they also teach us how to handle chemicals safely as well as show us the right nozzles to use. For me, I sacrificed myself to pick him (Edward) up to do the service for me and now I am going to hire him again. I really appreciate the work of the SSP."

With successes like John's and other promotions, demand for Edward's services has increased. "Women, especially, are pressurizing me for spray services. I think I need to get more sprayers for my SSPs to use".

Cropserve, an agricultural input retail firm, through 45 contracted agents and SSPs like Edward in Kabwe district, sells agricultural chemicals, veterinary products, and tillage services as well as irrigation equipment.

## ANNEX D: ADDITIONAL RESOURCES AND EXTERNAL DOCUMENTATION ON USAID PROFIT

1. “Assessing the Impact of PROFIT Zambia in the Cotton, Beef Cattle, and Retail Input Services Value Chains: Baseline Research Report” by Gary Woller for DAI for review by United States Agency for International Development. [http://pdf.usaid.gov/pdf\\_docs/PNADN206.pdf](http://pdf.usaid.gov/pdf_docs/PNADN206.pdf)
2. “Causal Models as a Useful Program Management Tool: Case Study of PROFIT Zambia” Impact Assessment Primer Series, Publication #5, Private Sector Development Impact Assessment Initiative, prepared by Gary Woller, of Woller and Associates, and Jeanne Downing, of USAID. [http://pdf.usaid.gov/pdf\\_docs/PNADN199.pdf](http://pdf.usaid.gov/pdf_docs/PNADN199.pdf)
3. “Assessment of USAID/Zambia’s Economic Growth Portfolio Final Report September 2008” by Development & Training Services, Inc. (dTS), Prepared for the United States Agency for International Development, USAID Contract Order Number AID-RAN-I-00-09-0015, Task Order Number: RAN-I-04-09-0015 Task Order Title:USAID/Zambia Economic Growth End of Projects Evaluation, [http://pdf.usaid.gov/pdf\\_docs/PDACL909.pdf](http://pdf.usaid.gov/pdf_docs/PDACL909.pdf)
4. “PROFIT Zambia Impact Assessment Final Report”, DAI, August 2010.
5. “Zambia PROFIT Impact Assessment: Endline Qualitative Research Findings Summary Report” by Jennefer Sebstad and Marina Krivoshlykova, DAI [http://microlinks.kdid.org/sites/microlinks/files/resource/files/ML4516\\_42\\_sebstad\\_krivoshlykova.pdf?file=http://microlinks.kdid.org/sites/microlinks/files/resource/files/ML4516\\_42\\_sebstad\\_krivoshlykova.pdf&nid=2597](http://microlinks.kdid.org/sites/microlinks/files/resource/files/ML4516_42_sebstad_krivoshlykova.pdf?file=http://microlinks.kdid.org/sites/microlinks/files/resource/files/ML4516_42_sebstad_krivoshlykova.pdf&nid=2597)
6. “Pathways out of Poverty Case Study: PROFIT: Creating Access to Agricultural Inputs through an Agent Network Model” by Joe Dougherty and Cinar Akcin, CARDNO Emerging Markets, 2012 for ACDI/VOCA with funding from USAID under the Accelerated Microenterprise Advancement Project (AMAP) Know-ledge and Practice II task order. [http://microlinks.kdid.org/sites/microlinks/files/resource/files/PoP\\_Case\\_Study\\_Cardno.pdf](http://microlinks.kdid.org/sites/microlinks/files/resource/files/PoP_Case_Study_Cardno.pdf)
7. “FS Series #9: Enabling Mobile Money Interventions”, Section C2: Zambia PROFIT, pp. 22-2, prepared by Chemonics International Inc. for the Financial Sector Knowledge Sharing Project, delivery order number EEM-03-05-0006-00. [http://pdf.usaid.gov/pdf\\_docs/PNADW294.pdf](http://pdf.usaid.gov/pdf_docs/PNADW294.pdf)
8. “Strengthening the Hybrid Seed Value Chain in the Southern Province of Zambia: Case Study” by Brook Johnson, NCBA/CLUSA International.
9. “From Subsistence to Business: The USAID PROFIT Video Documentary” produced by NCBA/CLUSA International and funded by the United States Agency for International Development.
10. “Zambia’s Agricultural Finance Market-Challenges and Opportunities” prepared for ZNFU and PROFIT by Mike Taylor, Joe Dougherty, and Rob Munro. [http://www.znfu.org.zm/index.php?option=com\\_content&view=article&id=169:zambias-agricultural-finance-market&catid=35:position-papers&Itemid=66](http://www.znfu.org.zm/index.php?option=com_content&view=article&id=169:zambias-agricultural-finance-market&catid=35:position-papers&Itemid=66)