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Improving Productivity and Access to Edible Oil Markets for farmers in Uganda

A NU-TEC MD case study

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Contents

Abbreviations and Acronyms

DFID	Department for International Development
GAP	Good Agricultural Practices
GBP	Great British Pound
M4P	Making Markets Work for the Poor
MT	Metric Tonne
NTH	Ngetta Tropical Holdings Ltd
NU	Northern Uganda
NU-TEC MD	Northern Uganda: Transforming the Economy through Climate Smart Agriculture: Market Development
QDS	Quality Declared Seed
RoI	Return on Investment
SDC	Swiss Agency for Development and Cooperation
SHF	Smallholder Farmer
UGX	Uganda Shillings
USD	United States Dollar
VA	Village Agent
WEE	Women's Economic Empowerment
WV	Women Village Agent
WU	Western Uganda

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1. Introduction

Uganda's rural agricultural markets, like many in Africa, can be typically characterized by low farmer productivity. One of the primary reasons for this is that farmers have poor access to inputs and inadequate information on how to correctly use them[1], resulting in lower yields and, ultimately, reduced household income.In Northern Uganda (NU), low productivity causes farmers to produce low quantities of crops, making it difficult for processors and off-takers to obtain sufficient amounts of raw materials for processing in order to generate a steady profit. This is particularly true of sunflower production in Northern Uganda.

Sunflower is one of the main cash crops produced in the region and many farming households grow it within a mixed farming production system. Sunflower production in NU has faced several challenges, the key ones being; poor quality seeds, poor agronomical practices and poor post-harvest handling. Such challenges typically result in losses to the farmer. As NU is a traditional sunflower growing region, it contains approximately 70 sunflower oil processors, many of them SMEs, with few that can be considered as large-scale. While yield of sunflower seed has been consistently low (approx. 500kgs per acre) over the last five years, demand for grain has steadily increased and can be attributed to the growing demand for sunflower cake from animal feed producers in Kenya, and a growing market for unrefined vegetable oil in East Africa.

However, both small and large-scale sunflower oil processors have consistently reported that they cannot obtain sufficient quantities of sunflower grains to sustain production; 70% of processors interviewed in May 2016 reported that they were operating at less than 37% capacity due to this shortage. Separately, interviews conducted with farmers revealed their belief that processors offer a poor price for grains, providing them with little incentive to produce more. Processors have reported that there is no incentive to invest in farmers because they doubt their loyalty and past attempts to collaborate have led to losses due to side-selling.

This is the scenario that attracted the Northern Uganda: Transforming the Economy through Climate Smart Agriculture: Market Development (NU-TEC MD) programme to this market space, to explore a business model that could resolve the issue of low productivity and, in the short to medium term, resolve the challenge of low production volumes of edible oil. NU-TEC MD also wanted to explore a model that would increase private sector investment into the smallholder farmers to increase productivity.

NU-TEC MD has been implementing the Village Agent (VA) model intervention over the past three years. During this period, the model has increasingly influenced the behaviour of private sector partners. This report captures how the programme introduced the VA model to the private sector that enabled farmers in remote villages to have access to quality inputs and markets for their edible oil crops. The report also compiles lessons learned by the programme related to the VA model and provides thoughts on scaling up the model to benefit larger numbers of farmers.

2. About NU-TEC MD

NU-TEC MD is a £19m component of a seven-year programme funded by the UK Department for International Development (DFID). The objective of the programme is to increase the incomes and climate resilience of poor men and women in NU by a) stimulating sustainable, pro-poor growth in selected agricultural markets and b) improving the position of poor men and women within these market systems by making them more inclusive for poor people. NU-TEC MD achieves this by providing expertise and consulting services to innovative Ugandan agribusinesses and by shifting agricultural market dynamics in a way that improves the economic, social and environmental performance of businesses and markets. The aim is to transform the markets to be inclusive and responsive to climate change while remaining commercially viable. NUTEC-MD focuses on three sub-regions of Northern Uganda: Acholi, Lango and West Nile.

NU-TEC MD adopts the Making Markets Work for the Poor (M4P) approach, which seeks to change the way that markets work so that poor people are included in the benefits of growth and economic development. The approach does not involve working directly with farmers, but rather, by working with private sector entities through providing technical assistance and catalytic grants to influence or implement business models that cause key market actors to be more inclusive and address challenges posed by climate change. The business models should be such that they increase the poor's access to markets, and thereby increase the share of benefits that such improved access provides. By adopting this approach, the project trials several interventions that are designed to make markets more inclusive. The M4P framework is presented in the figure below.

[1] Sunflower MSA

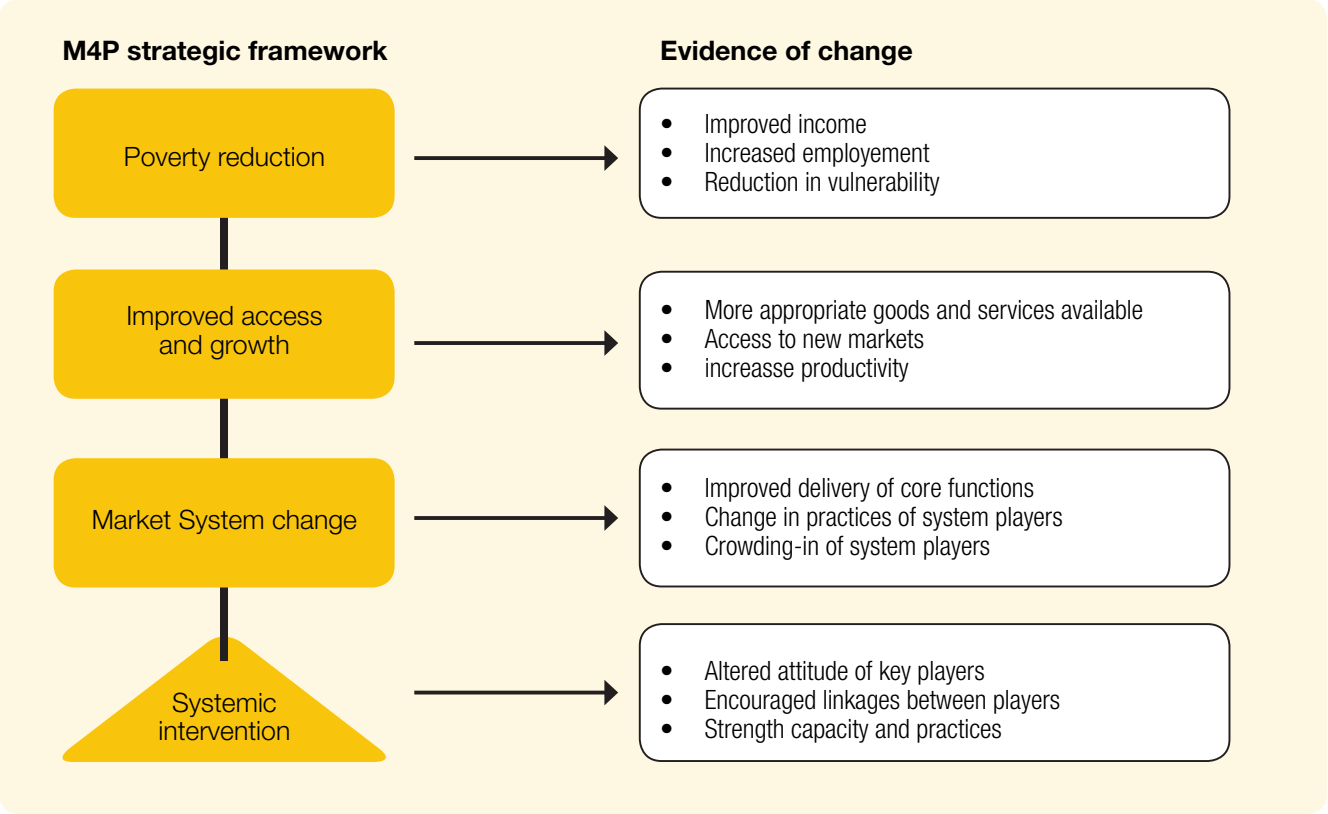

Figure 1: M4P strategic framework levels and evidence of change (Source: DFID and SDC 2008)

3. Background

3.1. An evolution of the village agent model

The Village Agent Model has been implemented in various forms throughout Africa by development programmes since 2009.

The USAID-funded MARKETS I project[2] tested the Village Promote (VP) model in Northern Nigeria during 2009 – 2011 and their strategy was to increase the sale and distribution of fertilizer to dispersed farming villages in Northern Nigeria. The model was premised on the assumption that by bringing the fertilizer closer to farmers, uptake of it would increase, resulting in increased productivity amongst smallholder rice and maize farmers. Within this model, the Village Promoters acted as extension agents for rural-based fertilizer distributors that had limited incentive to extend their outreach to smallholder farmers. Between 2012 and 2017, the Rural and Agriculture Markets Development programme for Northern Nigeria (Propcom Mai-karfi) implemented by Palladium introduced additional elements to the model, rebranding the VPs as "Rural Distributors" and ensuring that they had the capacity to sell increased volumes of fertilizer to smallholder farmers. Many of these Rural Distributors started to sell other farm inputs as well, including crop protection and tractor services (such as ploughing), and some became buying agents for off-takers and processors during harvest periods. In Zimbabwe, the Rural Agricultural Revitalization Programme tested an approach in which rural based agents (known as Fertilizer Agents), worked in collaboration with fertilizer distributors to promote fertilizer use among smallholder farmers. In this model, the promoters largely focused on fertilizer promotion and educating farmers on how to utilize it for maximum yields.

In Western and Central Uganda, a similar model was trialed under USAID's Feed the Future Uganda Commodity Production and Marketing (CPM) project[3], in which VAs were trained and linked to aggregators and off-takers. These VAs were also expected to act as major extension agents that disseminate key information and lessons learned to farmers on best agronomic practices[4]. In the above forms, the VA model was envisaged as providing a link between sellers of agricultural inputs to farmers, and buyers of

[2] MARKETS stands for Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites
[3] The CPM project operated from 2013-18 and reached 435,000 farmers across 34 districts.
[4] Final Proof of Concept Technical Briefs

produce on behalf of aggregators and processors. Other USAID funded value chain development activities e.g. Ag-Input activity by TetraTech ARD and LEAD by Tetra Tech have also implemented variants of the VA model.

NU-TEC MD adopted and modified CPM's VA model with two objectives so that it would a) enable the dispersed rural farmers of NU to access markets for agricultural produce and b) enable private sector (off-takers mainly) to aggregate large volume of edible oil thus motivating them to invest resources in procuring through VAs in their respective regions. A key feature of the model was that it was not designed solely for extension or information dissemination. NU-TEC MD's VA model is one in which at its core lies a viability and profitability mechanism, and an appeal to private sector firms through a promise of improved volumes and better-quality products.

3.2. Role of traders and 'middlemen' in Uganda's rural agricultural market system

Traders or, more informally, 'middlemen' (hereafter referred to as 'traders'), have long functioned as an important link within the supply chain of Uganda's rural agricultural market system. They buy produce from farmers to sell to other traders or processors. The following figure presents a broad agricultural value chain map of Northern Uganda.

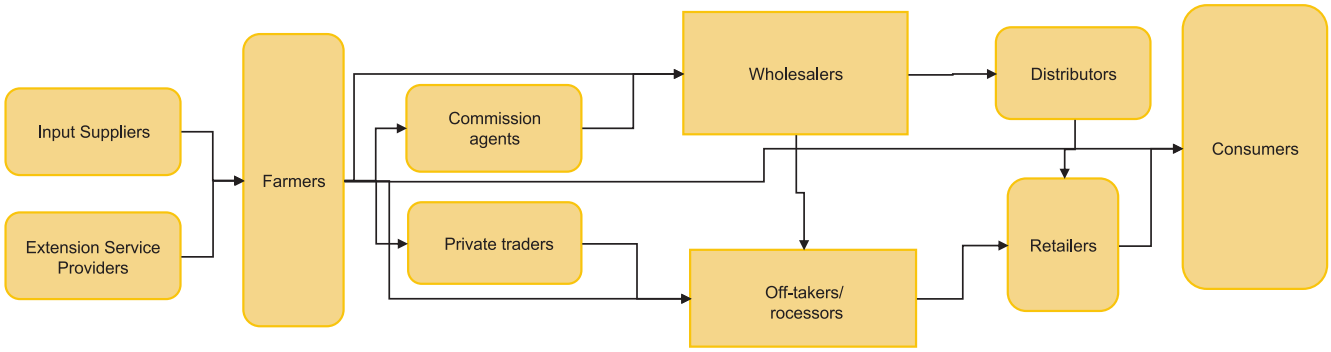

Figure 2: Broad Value chain map of agriculture in Uganda

Once harvested, the farmer sells their produce to commission agents and/ or traders who then sell these raw materials to various off-takers for a profit or a commission. Where possible, the farmers also tend to sell to wholesalers and/ or processors directly, bypassing the traders. However, in case of remote locations, the farmers must rely on traders to sell their produce as they are disconnected from the larger buyers/ off-takers.

The role of traders towards farmers has always had its challenges. Farmers have expressed that they do not always transfer value to them and have claimed that they can be exploitative and withhold vital information. Such a mistrust dominates debate and dialogue between traders and farmers. In many cases, traders have relied on information asymmetry to take advantage of farmers in order to enhance their role in the supply/value chain. They undertake aggregation, something that most off-takers and processors are reluctant to do (due to the high costs of doing this on behalf of dispersed, rurally-based farmers) and find non-local markets to sell into. Off-takers and processors also prefer to work with a limited number of large suppliers and traders have the ability to sell on behalf of multiple farmers and act as a single supplier. The role of trader therefore cannot be avoided and the challenge is to ensure that they become more responsive to the needs of the farmers and establish better relationships that are based on mutual trust and value sharing.

3.3. NU Sunflower and Soya Bean Markets

Within the sunflower and soya bean market, low productivity at farm level causes low volumes of raw materials to be available to oil processors. This is a major challenge which can be attributed to several factors. Since most processors operate at below optimal capacity, limited additional investment are realised in the market. Separately, agro-processors do not fully realise their margins due to lack of quality raw materials, hence they end up importing the raw materials. This discourages production and impacts the overall sector. Research[5] shows that use of high-quality seeds is essential if reasonable levels of productivity are to be achieved. The NU sunflower and soya bean seed market has historically seen a restricted supply of good quality seeds because there have only been few certified suppliers that can meet the quality specifications required by edible oil processors. By unlocking seed supply to farmers there could be an immediate impact on productivity and hence increased supply to agro-processors.

Productivity can further be enhanced through increasing farmer access to, and use of, Good Agronomical Practices (GAP). However, the government extension services system is overwhelmed

[5] MARKETS stands for Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites

and does not function very well. Farmers are known to rely on NGO-provided training, general knowledge gathered from traders and other value chain actors and, even, local radio stations. However, these channels are not formal, and farmers still require practical guidance at farm level in order to adopt new technologies.

The challenges of marketing sunflower and soya bean grains also inhibit market performance. Despite the shortfall in supply, farmers are still reluctant to increase their investments in production because they are not realizing enough profits from their produce. Traders also use their bargaining power to push down prices so that they can make a profit out of the low volumes aggregated. This creates an ineffective and vicious cycle impeding gains for both the traders and farmers.

3.4. Transforming the role of the trader/ middleman

NU-TEC MD sought to resolve the challenges (mentioned in the above section) by implementing a business model that encourages better collaboration throughout the value chain. The programme initially planned to work with large cooperatives to improve the aggregation function for the farmers but it did not work out largely due to lack of working capital of the cooperatives.

NU-TEC MD then conceived that in order to improve supply linkages between producers, farmers and off-takers, the role of trader must transform from being one that is driven by earning profit sporadically by transacting with different actors during each farming cycle, to one in which they earn sustainable profit by building their own supply chain incorporating value added services. The model implemented by NU-TEC MD aimed to transform the trader into a trusted partner of the farmer, and a trusted aggregator of the processor. At the same time, the trader performs several roles which are aimed to increase his/her profitability over time, while allowing them to build a loyal network of suppliers and processors. This transformed version of the trader was referred to as Village Agent, to reflect their new remit to serve actors operating within the market. The following figure shows the change (from the earlier figure) in the value chain due to the role played by VA.

In other words, the VA plays the role of a trader but coupled with further value-added services, that include:

i) **Sale of Agricultural Inputs.** The VA is linked with suppliers of key inputs required by farmers in the area. The VA can enter into a contractual agreement with the supplier and become its local agent. Where the VA has enough working capital, they can buy the inputs and sell to farmers. This adds an additional income source for the VA;

ii) **Linking Farmers to other agricultural services.** Farmers require more than just seeds and crop protection products. In NU, many farmers still use ox-drawn ploughs and human labour to open land for production. NU-TEC MD has built the capacity of VAs to advice farmers on appropriate mechanization, and direct them to mechanization service providers in return for a commission;

iii) **Aggregation and sale of produce.** The VA buys produce from farmers and sells it to a range of processors with whom they have formal/informal agreements. The VA aggregates several types of produce to diversify investment. The VA is encouraged to enter into individual agreements with different processors for different crops so that there is no temptation to default on an agreement. The VA is encouraged to perform a gross margin analysis to ensure that his price does not discourage production, nor drive away processors. This ensures that the VA is earning meaningful economic returns on his investment;

iv) **Extension services.** The VA provides farmers with key production information regarding input use, prices, diseases and weather. This role is not paid for by the farmers but provides an

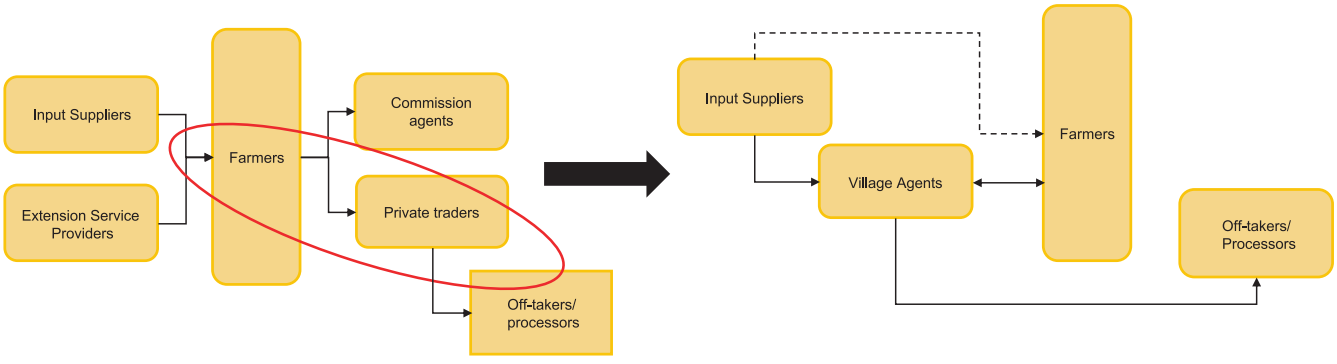

Figure 3: Transformation of trader to Village Agent

embedded service that enables the VA to build trust and "know your customer" - KYC. This role is to aid marketing activities and allow trust to be built with farmers;

v) **Other roles.** The VA performs other roles which generate revenue. These include selling storage and transport services and providing quality control services to earn a premium from secondary aggregators and processors. By diversifying their revenue sources, the VA is motivated to pay fair prices to its farmers, making the model sustainable.

The above range of services vary among VAs depending on their capability and needs of the market. NU-TEC MD's intervention supported capacity building activities for the VAs so that they are able to embrace these roles to the extent possible.

4. NU-TEC MD's intervention strategy

4.1. Piloting a "pull-driven" VA model with large enterprises – the initial intervention strategy

NU-TEC MD approached an agribusiness that had successfully implemented its own version of the VA Model in Western and Central Uganda and pitched the idea of introducing NU-TEC MD's model within NU's edible oils market. However, after lengthy discussions the company chose not to partner with NU-TEC MD as it felt that their RoI (Return on Investment) would be inadequate, dealing the intervention an early blow. NU-TEC MD decided that, in order to reduce the impact of partner drop-out, it would be wise to approach several large-scale businesses in NU, instead of just one. The belief was that securing partnerships with such large businesses would lead to substantial investment, thereby creating impact at scale.

A Sunflower Farmer in Northern Uganda

A large grain miller operating in NU showed interest in the model and subsequently co-invested with NU-TEC MD. Working in collaboration, the miller recruited an agribusiness agency to serve as a high-level VA to work with between 6,000 – 10,000 SHFs. This was designed to drive higher productivity at farm level, thereby increasing volumes collected by the VA and supplied to the miller.

After months of negotiation and planning, it became clear that the grain miller did not want to invest as much of its own capital in the model as had been expected, causing the partnership to stall. Reflecting on this, it could be attributed to the fact that the model was new and lacked 'proof of the concept'. At the same time, NU-TEC MD had a relatively new standing within the market and its acceptance within the business community was low. NU-TEC MD as a programme was still at its learning stage then and hence had limited knowledge on the market dynamics.

All these made it obvious that large-scale businesses were reluctant to change to a VA-based supply model from their traditional model. With limited progress, NU-TEC MD decided to switch its focus to medium-sized millers and off-takers who were either start-ups or at early growth stage, in a final effort to test the VA model in NU.

4.2. Partnering with medium-sized enterprises – the revised intervention strategy

The decision to focus on medium-sized enterprises[6] (MEs) was informed by the realization that, MEs often must compete with large ones and need to be innovative in building an efficient and sustainable supply chain. They also tend to have the most pressing need to build customer loyalty to secure their market.

During the early stages of intervention development with targeted MEs, it also became apparent that they had some capital to invest and more incentive to expand, than the larger firms. It also emerged that their supply chains are often weak and inherent of poor-quality raw materials and are prone to interference by large processors/off-takers. The MEs also had good ideas regarding how they could help farmers to supply quality raw materials on a more consistent basis but had limited resources to implement them. Importantly, it became apparent that the MEs were skeptical of investing money in developing farmers or providing credit to them, due to negative past experiences of trying to do so. These were important insights that helped to refine the intervention's model and approaches. NU-TEC MD examined the unique characteristics of each ME and refined their intervention pitch and business plans to address the key needs of each prospective partner. Also, NU-TEC

[6] MARKETS stands for Maximizing Agricultural Revenue and Key Enterprises in Targeted Sites

MD's knowledge about the market was stronger than the initial stage of the intervention, hence they had more confidence in making the deals with MEs.

Within four months of working with selected ME partners, promising results regarding investment size, outreach projections and partner commitment started to emerge. Each partner implemented their plans with variations depending on the requirements of the regions/geographies they were serving. Upon implementation, two variations of the VA model emerged almost immediately. The first variation of the model was adopted by Ngetta Tropical Holdings (NTH), who chose to utilise farmer cooperatives as VAs for its market penetration. By working through a cooperative union containing several primary cooperatives, NTH was able to reach many farmers in rural villages. Through these primary cooperatives NTH was able to sell hybrid sunflower seeds to farmers, pass on agronomic practices and, at the end of the season, aggregate grains for delivery to the factory for processing. In one year of implementing the VA model, NTH increased its supply of sunflower grains from 571MT to 1259 MT, a 120% increase over the previous year. Through the same network of cooperatives, the company is selling its own vegetable oil 'Virgin Gold', and hybrid seeds directly to customers, and through medium and large retail outlets in the city.

The second variation of the model was first adopted by Komar Ngetta Agribusiness Ltd, who chose to utilize several village-based businesses (mostly traders and farmers, and youthful men and women) to act as its network of VAs. Through training and mentoring, these businesses have helped to sell sunflower seeds to 2500 farmers and reach 8600 farmers with good agricultural practices in growing sunflower. By the end of the VA model's first year of implementation, Komar Ngetta Ltd was able to aggregate 3,552MT of sunflower grains through the VAs - 70% higher than the previous year.

Other partners implemented their business plans with varying success. A key factor that determined success was the amount of working capital available to the aggregator and the VA. In all cases of success, the aggregator, off-taker and the VA were sufficiently capitalized at the beginning of the buying season to purchase sunflower grains. Funds were available to the VA either through a credit arrangement provided by the off-taker or through their own finances.

"Before we used to have several challenges, the volumes and quality of grains were not as compared to now… [our] vision of exportation is becoming very near"

- Operations Manager, Grain Aggregator

Ngetta Tropical Holdings (NTH): Case Study

NTH is a sunflower oil processing plant that organises farmers into cooperatives for joint input access, grain aggregation and marketing, and product sourcing. NUTEC-MD and NTH collaborated to adopt the VA Model to fit the context of farmer cooperatives, by providing trainings within the cooperatives so that lead farmers within the cooperatives would have capacity to provide agronomy and business management extension to the members of the cooperatives, as well as share vital market information with members.

NTH sources for imported sunflower seeds that it sells to farmers through the cooperatives, improving access to inputs and helping increase productivity at farmer level. In two years of implementation, NTH is working with 48 Cooperatives in NU and has a membership of over 24,000 SHFs, who have access to high quality inputs, with ready market for the produced sunflower grains. NTH realized a three folds increase in supply of grains during this period.

The company's CEO, Paul Omara, believes this has led to a positive change within NU's sunflower sector and as such is planning to expand NTH's factory size, establish a big seeds silo and launch new product lines, including expanding production of their current product.

The most consistent result achieved was that partners received increased volumes of grain through their network of VAs. This was because the VAs were able to aggregate increased volumes of sunflower grains and farmers reported they were able to access good quality sunflower seeds more easily than before. Farmers interviewed at the end of the first year reported increases in productivity of between 15% and 24% within one year alone, confirming the belief that access to good seeds has an immediate impact on farmer productivity.

NU-TEC MD was also keen to benefit women through this model. A research done in 2018 on opportunities and constraints of women to engage in the VA model revealed several benefits accruing to off-takers as a result of working with women VAs and recommended the programme to motivate and encourage off-takers to hire women as VAs. NU-TEC MD has since partnered with off-takers to co-fund an incentive programme that seeks to reward proactive and committed WVAs for volumes and quality of grains delivered per season. The incentive structure was designed as follows;

- **Gold award:** Women VAs who have delivered more than 500MT, quality of purity above 95% and

moisture below 12% and who have fully accounted for advance funds received from off-taker (0% financial loss) – will receive a maximum pay-out of UGX 500,000

- **Bronze award:** Women VAs who have delivered more than 400-499MT, quality of purity above 95% and moisture below 12% and financial accountability between 0% and less than 3% financial loss – will receive a maximum pay-out of UGX 400,000

- **Silver award:** Women VAs who have delivered more than 300-399MT, quality of purity above 95% and moisture below 12% and financial accountability between 0% and more than 3% financial loss - will receive a maximum pay-out of UGX 300,000.

Such structures will provide motivation to women VAs and assist them in having access to working capital. NU-TEC MD supported this pilot incentive structure with the aspiration that the off-takers will continue it later without the programme's support - with whatever financial amount they can afford, to engage more women VAs.

4.3. Reasons behind failed partnerships

Two out of the five partnerships implemented during this first phase failed to make any significant progress, due to the following reasons:

- In order to implement an aggregation business successfully, sufficient amounts of working capital must be available. In the first season, both partners lacked working capital to facilitate their VAs to procure sufficient volumes of grains and chose to limit their investments in sunflower seeds, making it difficult for farmers to purchase seeds on time for planting.

- On the other hand, NU-TEC MD had limitations in managing and in allocating sufficient staff to implement the intervention.

- Furthermore, some of the assumptions made during the design phase were incorrect. For instance, some partners assumed that sunflower seeds would be readily available for farmers to purchase at the appropriate time. The reality was that some of the available seeds were of poor quality and were more expensive than what farmers were willing to pay, causing them to use recycled seeds instead.

- Ensuring quality planting materials/seeds available to its customer base in required volumes is an important task of VAs. Farmer productivity heavily relies on the quality and timeliness of the seeds sold to them and a VA must be sufficiently capitalized to have enough seeds to sell to its farmer network. Where quality seeds were not sold to farmers in adequate quantities, productivity and volumes were low, affecting the viability of the VA, and the interest of the off-taker. NU-TEC MD tried to connect VAs and aggregators to other sources of finance for working capital. Such financing alternatives were not feasible: the loans being too expensive and, in some cases, the VAs being informal with little or no track record to access formal capital. NU-TEC MD could not directly finance the VAs as it would negate its role as a catalyst.

4.4. Scaling up through replication

Having partnered successfully with MEs, NU-TEC MD leveraged its newly found reputation by pitching evidence of results achieved by the VA model to some of Uganda's largest oil processors. By demonstrating proven results where ME partners realized a) a production capacity growth from 39% to 70%, b) a drop in wastage of almost 21% and c) an increase in the consistency of the moisture content of sunflower grain of 10%; NU-TEC MD used facts to demonstrate the value of the model to large-scale processors. This resulted in partnerships with three large off-takers looking to expand their operations into NU. Such partnerships were designed to scale-up the impact of the intervention to achieve widespread market transformation and change.

5. Evidence of systemic changes

5.1. Changing behaviours of off-takers and causing crowding-in

A strategic objective of the intervention was to ensure that NU-TEC MD partners appreciate the value of the services being provided by a VA, leading them to finance the growth of their own network of VAs independently. Three of the largest partners have all invested in upholding and improving the model introduced to them by NU-TEC MD and currently engage in excess of 200 VAs[7] by providing training, mentoring and financing so that they become established businesses within their localities and act as the main contact point for services such as the sale of seeds, market information and price negotiation. This allows firms to be assured of a steady supply of raw materials and demonstrates sustainable change taking place within the market system.

[6] NU-TEC MD programme log frame, as of 31 March 2019.

The success of the VA model has been widely acknowledged within NU's agriculture sector – roughly 15 to 20 off-takers have adopted the model with intervention from NU-TEC MD. Most uptake of the model is being seen in the rice intervention (where more than five off-takers have adopted the VA model). There is also potential to roll out the VA across the other mature interventions of NU-TEC MD e.g. mechanisation, chia and fertiliser.

For instance, two agro-processors have adopted it to benefit the sesame and rice value chains and variants of it are being implemented within the chia value chain by an aggregator. This is expected to increase as the model continues to benefit NU's agri-economy. Separately, a grain aggregator has expanded it into the West Nile region. These are examples of changes taking place within the market system, as variants of the model are being adopted and used by new players.

One large grain aggregation firm operating in Lango and Acholi saw volumes in both soya bean and sesame double within one season after adapting the model to suit. Separately, a cotton processor has initiated discussions to adapt the VA model to benefit its cotton production system in the Lango and Acholi regions. Such continued market adaptation will strengthen the overarching market system of these value chains and lead to better delivery of agricultural inputs and advisory services to farmers, whilst enabling them to have diversified markets to sell produce to. It also creates sustainable employment opportunities for VAs.

"Before I was not linked to agro-input dealers to sell improved seed but now have a network of sub-agents to reach out to over 10,000 farmers with inputs and grains collections"

- Champion VA

5.2. Advent of new services leading to efficiency within markets

Due to the increased volume of transactions using the VA model and its replicability in different sectors, opportunities for new services emerged. The concept of Champion VAs evolved – they are the more entrepreneurial VAs by nature who realised the gap and opportunities to leverage on the high demand of products from off-takers. Champion VAs connected with smaller VAs in different regions and coordinated the aggregation from of large volumes for off-takers.

One of the Champion VAs even opened an ICT firm with his own initiative, partnering with aggregators and processors by selling them a platform which facilitates communication among the market actors. This platform can be accessed remotely and information (regarding as weather patterns, production trends and sales information) can be sent and disseminated by its members. Such data sharing allows all actors to easily communicate and transact, stimulating the market and making it more efficient, whilst also increasing its transparency and improving governance within it. The platform is now performing a major extension role and has further increased collaboration throughout the value chain. The ICT company makes a commission on transactions made on the platform.

Champion VA: Case Study

Walter Odyek became a VA in 2017 as an agent of Komar Ngetta, a vegetable oil processor. Walter specialized in sunflower seed and grains. Within two seasons, he became a top VA aggregating 74 MT in two seasons. Having established himself as one of the performers, he decided to become a super VA, with his own network of 10micro-agents, reaching over 6,000 small holder farmers (SHFs). In addition to providing seed, Walter teaches small holder farmers basic agronomic practices and provides them with up to date market information. Such training led him to realise that pests were a common problem encountered by SHFs, causing him to invest in pesticide spray pumps, which he rents to SHFs at a fee. Walter plans to expand his district reach and double the number of micro-agents he employs to 20. "My goal is to build a business company targeting the international grain market," Walter says, an ambition that is driven by the low margins, high volumes he is able to trade. To manage his network of micro-agents and farmers, Walter has implemented an ICT platform that he uses to reach each one of the micro-agents and farmers with information. The platform is being transformed to also serve for financial transactions among the actors.

5.3. Increased availability of financing for grain trade

One of the challenges realised during the early stages of implementing the model was that many VAs did not have enough working capital to aggregate grains and small off-takers were not willing to provide them with financing services. Due to the success of the model, several dynamics have changed.

For example, MEs and large-scale partners of NU-TEC MD are now more willing to provide working capital financing to VAs - one partner is offering more than UGX 147,000 per week in VA-financing. Many partners now offer VAs low interest financing that allows them to purchase grains when the season offers optimal prices and provides the flexibility to recover the loan/credit line at time of grain delivery. Most encouragingly, off-takers with no affiliation to NU-TEC MD are offering such financing solutions within the market.

A local bank – with support from the financial service component of NU-TEC MD - has also entered the market to perform an assessment of VAs in NU with a view to developing a financing product that is suited for the market. The bank is currently developing

> **"Before it would take 5 days and above to approve a loan. But now it takes less than three days… [a colleague] said he is inspired by the farmers who borrow and expand the farming and he wants to go in for farming"**
>
> ***- Loan Officer, Opportunity Bank***

a database of VAs and building an information management system that will track the production, consumption and selling behaviour of those farmers working with them so that they can be offered credit services. Banks are also finding it easier to lend to farmers who are connected to VAs. Two banks, eying the benefits of the model, are known to have started discussions internally on possible product development for the VA model.
All these are early signs of market transformation creating (required) new services that did not exist before the intervention.

5.4. Creating alternative channels for quality seed supply

Prior to the introduction of NU-TEC MD's VA model in NU, there were very limited suppliers of hybrid sunflower and improved soya bean seeds that met the quality specifications required by edible oil processors. Anticipating the possible dearth in quality seed supply in the market, NU-TEC MD partnered with Local Seed Businesses (LSBs) to produce Soya bean QDS (Quality Declared Seed) – supporting them in planning, management and increasing supply of OPV seeds. The VAs were connected to these LSBs as a channel to sell seeds to farmers.

Furthermore, two of the NU-TEC MD partners have started importing a climate adapted, high oil content variety – for the first time - from South Africa and are distributing via the VAs to farmers. Another seed company has imported another hybrid sunflower seed variety from India which is also being distributed and sold to farmers through VAs and retail agents in NU.

Hence, establishment of the VA model also enabled creation of an alternative channel through which farmers obtained good quality edible oil seeds, improving their productivity and production.

> **"Before I was not linked to agro-input dealers to sell improved seed but now have a network of sub-agents to reach out to over 10,000 farmers with inputs and grains collections"**
>
> ***- Champion VA***

A sunflower farmer who benefited from the VA model

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6. Intervention Results and Impact

The intervention has significantly increased incomes of smallholder farmers in NU, results that continue to grow substantially. Whilst the VA Model has performed extremely well, it should be noted that it was always expected to deliver impact faster than other interventions because it targets established off-takers, who have the resources to act quickly.

As of 31 March 2019, the intervention has led to the recruitment and training of 358 VAs and 56 cooperatives across NU that are linked to aggregators or edible oil processing firms. These VAs established viable businesses and were able to make a sustainable living out of their role in the value chain. NU TEC-MD partner firms have realized a combined turnover of £10,811,008 in two years based on a total investment of £17,248,042 over the same period. NU-TEC MD has contributed £158,438 (0.91%) as co-investment with the firms during this period. A total of 12 firms are continuing to implement the VA model with little or no further investment by NUTEC MD. Resultingly, partner firms have reported increased volumes of grains being delivered to their factories by VAs. During the 2018 period, 80% of NU-TEC MD partners reported capacity utilisation of over 69%, compared to 37% in previous years.

As of 31 March 2019, the VA Model in NU has impacted 37,283 direct beneficiaries who, through access to quality inputs and sale of produce through VAs, now have increased resilience to climate change through improved use of inputs, practices, or post-harvest handling, or through better access to output markets. The number of indirect beneficiaries (defined as household members) with increased resilience reached is 160,317.

7. Conclusions, Lessons Learned and Way Forward

NU-TEC MD's version of the VA model ensured access to quality inputs and access to markets for remote small-scale farmers through a coordinated supply chain. Farmers have more trust in working with VAs who are people from within their own village/community than directly producing to MEs or larger off-takers. Furthermore, VAs also provide other services such as GAP advice, storage facilities, etc. to farmers. The model has evolved and the advent on new services in the market, particularly access to finance, is evident. Scaling up of the model in different sectors is happening and will eventually benefit larger number of farmers.

The following points summarize key lessons for development programmes, from implementing the VA intervention:

a) Acceptance by private sector: It takes time for a new market systems development (MSD) programme to gain traction from large businesses in markets as such businesses often are interested to partner with agencies that have track records and that have proven models for implementation.

b) Choice of entry points: MEs are good entry points for interventions to test such supply chain models as they are keen to invest in innovative ideas that can help them compete with the large enterprises. Although they may not have sufficient capital to invest in such models, they are willing to try small pilots and change their priorities if profits from such pilots are realized. This will also allow the programme to test the model and establish reputation within the market during early stages of the intervention.

c) Validate assumptions: When introducing such new models, MSD programmes should anticipate risks and challenges that may arise due to the market dynamics. Assumptions taken that are key to the success of the model should be validated as early as possible to ensure proper steering of the intervention. For example, realizing that there may be a shortage of quality seed supply when the demand for volumes increased (due to the VA model) is an important aspect that needs to be tackled early on.

d) Working capital: Success of the VA model depends on the availability of working capital at the level of the VAs but also at the level of the off-takers. Grain trade is capital intensive and margins are heavily influenced by the size of volumes traded. Interventions should aim to build mechanisms that facilitate flow of finance to the VAs and if possible, to the off-takers.

e) Diversified sources of revenue: The model must also be based on increasing and diversifying sources of revenue available to the VA. Traders will exploit farmers if they expect to be idle for long periods in a year. By increasing revenue sources and ensuring that the VA is busy throughout the year, they become less incentivised by high, short-term margins and consider the long-term gains instead. In other words, the role of the VAs should

be diversified organically to the extent possible. For example, a VA aggregating from farmers can leverage an expansive range of business opportunities that not only offer quality inputs but also offer extension, shelling, drying, fertilizer and consultancy services. Such additional services become additional sources of income for the VA.

f) Capacity of VAs on managing finances: VAs should have a basic understanding and management capacity of assessing their costs of operations, profits and losses. With proper understanding of the finances, the VA can decide whether to change/ review/ terminate their arrangements with the off-takers as well as the farmers. This calls for targeted capacity building intervention activities by development programmes.

g) Opportunities for Women VAs: From a separate research, it was found that the women VAs perform better on average than men VAs on supplying to off-takers as they do not default on credits, are serious regarding quality of produce sold, and have good communication/ negotiation skills with farmers. Hence, conscious steps to promote women VAs within the systems of the off-takers should result in more profits for the off-taker as well as create opportunities for more women VAs to engage.

Based on the above lessons and the context of the agriculture sector in Uganda, following are some of the way forward steps NU-TEC MD plans to implement in order to make the VA model more inclusive and impact scale:

a) Integration of small-scale millers: The VA model is still not lucrative for most small-scale millers considering their size and investment capacity. Action pilots or more analysis into how the VA model can streamline the supply chain of small-scale millers and make them more competitive in the long run, need to be conducted.

b) Expanding to remote areas: The VA model has the opportunity to impact farmers in remote locations. Replication of the model in remote regions such as Adjumani will create more production and connect farmers to high price market. The concept of Champion VAs may be used to expand the model in such locations.

c) Intervention strategies targeting women: Research has concluded that women exhibit stronger attributes than men in many of the skills and characteristics required by a VA, such as greater accountability for business funds advanced to them, more persuasive marketing skills and a greater likelihood of selling higher quality goods. By employing more WVAs, off-takers and processors would have lower procurement costs, higher volumes and lower financing and debt management costs[8] yet most firms are engaging less WVAs than expected. Going forwards, while NUTEC-MD is using the findings of the research to motivate off-takers to hire more women VAs, targeted activities such as developing a feasible incentive structure for women VAs within the systems of the off-takers or facilitating development of financial products targeting women, etc. will result in greater impact on women. Furthermore, more women VAs in the market will lead to reaching more women farmers in the agriculture sector, thus benefitting them with quality inputs, extension and markets.

d) Sustainable capacity building services for VAs: NU-TEC MD had developed the capacity of the VAs on financial management, linkages with the off-takers, etc. through its intervention activities. Going forward, the programme should critically look for sustainable mechanisms that can build capacities of new VAs in the market system. These could be sone by off-takers (willing to invest further on VA development), financial institutions or other market players.

e) Dissemination events: The success of the VA model should be disseminated through media or knowledge-sharing events to entice crowding in - so that more (non-partners of NU-TEC MD) large and medium-sized enterprises in different agricultural sectors understand the value-proposition of the model to their business.

[8]The Village Agent Model under NU-TEC MD: Analysis of Constraints and Opportunities for Women Village Agents, by Fouzia Nasreen and Irene Among, 2018

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