

Assessment of the Spin-off Effects of Improved Market Access on Rural Households



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FOREWORD

This report was generated to serve as a reference document for Musika and its implementing partners. Musika Development Initiatives (Musika) is a non-profit company that works to stimulate private sector investments in rural and agricultural markets. It achieves this by helping businesses to develop mutually beneficial and transparent commercial relationships with smallholders that integrate the provision of information and technology adoption, and provide confidence and long term incentives for smallholders to invest in their farming business. It provides its corporate clients with high quality, commercially focused technical advice, business model support and where relevant, smart subsidies to bring down some of the initial risks in doing business with the smallholder market. Musika also supports innovative market-based solutions to environmental issues and strives to ensure women are key participants in improved agricultural markets. Musika acknowledges and appreciates the financial support from the Swedish Embassy in Lusaka.

EXECUTIVE SUMMARY

Musika's methodology involves facilitating the creation of a beneficial market environment that supports improved access to markets that in turn stimulates higher levels of farmer investment in production and productivity. The changes in farmers' levels of production, productivity, incomes and general livelihoods as a result of their access to improved markets have all been measured, and positive results have so far been recorded. However, through this survey, Musika sought to identify the indirect spin-off effects, if any, of its interventions on the socio-economic status of the communities within which the interventions are taking place. In theory, with improved incomes, farmers can have the capacity not only to re-invest in their production and employ additional labour, but to engage more in the purchase of food and non-food goods within the community which can have a 'spin-off' or economic multiplier effect within the local community.

In order to determine the presence and the characteristics of any 'spin-off' effects, Musika conducted a survey in Eastern and Southern Provinces of Zambia. It focused on farmers working with two agribusinesses it supports: one provides livestock services such as dipping, spraying, extension services and off-take opportunities to local cattle farmers whilst the other one is engaged in providing an output market for leguminous crops through an out grower scheme in which farmers are supported.

The study captured a total of 252 farmers from both intervention and non-intervention areas but the majority of the farmers interviewed (229 farmers) were from the intervention area. This study mainly focused on the 2016/17 agricultural season, benefits, challenges and overall community welfare² that could be attributed to the improved market access by farmers. A summary of the key findings is as follows:

❖ The majority of the farmers (95%) observed an improvement in welfare as a result of having access to improved markets. This was evident in the economic activities observed to be taking place in the communities by farmers. Of the total number of farmers interviewed with improved market access, 86% observed an increase in the number of non-agricultural traders whilst 84% observed an increase in number of shops

¹ Improved market services are defined as not simply 'buy' or 'sell' transactions but the integration into the transaction of other 'value added' services such as extension and information delivery, technology transfer, assured access to off-take markets, facilitating access to finance, etc.

² Welfare here refers to the wellbeing of individuals or groups of individuals in relation to their income earnings, availability of food, health, housing, education and general security.

- in their communities. Furthermore, 76% observed an increase in the number of agricultural traders in their communities. These increases were attributed to improved market access, which brought about an increase in the number of economic activities in their communities.
- ❖ Farmers generally recorded a decrease in the amount of time they spent on agricultural activities such as tilling, planting, harvesting, spraying etc. The study showed that the majority of the farmers mainly attributed the decrease in time spent on agricultural activities to increased access points for improved markets (44%), access to improved production methods (18%), additional human labour (15%) as well as access to extension services (14%).
- ❖ Because farmers had more time on their hands due to decreased time spent on various agricultural activities, some farmers (24%) used the additional income earned due to improved access to markets to start up small businesses such as selling fritters, talk time, clothes, and grocery stores, to engage in livestock and/or horticultural production. The implication of this is that farmers have diversified their income sources, which has a potential of safeguarding households against economic and climatic shocks.
- ❖ About 48% of the farming households had at some point since the inception of the intervention hired additional labour for their agricultural activities. Of the farmers that engaged additional labour, it was discovered that 52% of the labour employed were women and 33% were youths.
- ❖ The majority of the non-intervention participants (91%) stated they observed an improvement in the welfare of their communities due to the intervention, while 70% observed an increase in off-farm employment and 57% cited increase in non-agricultural traders.
- ❖ Of the non-participants interviewed, 44% highlighted having received assistance from participant farmers on better production practices while 4% received assistance in form of having their produce sold for them to improved markets by the participants.

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ABBREVIATIONS AND ACRONYMS

CSO Central Statistical Office

FAO Food and Agriculture Organisation

HH Household

ILRI International Livestock Research Institute

Kg Kilograms

Km Kilometre

Musika Development Initiatives Zambia Ltd

PEA Private Extension Agent

SME Small and Medium-sized Enterprise

SSF Small Scale Farmer

USAID United States Agency for International Development

ZMW Zambian Kwacha

1. INTRODUCTION

1.1 Background

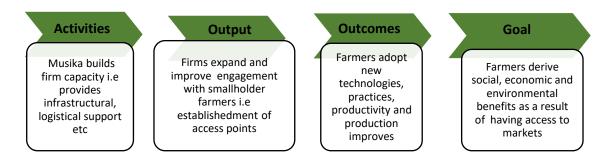
The majority of the Zambian population (over 58%) is isolated in rural areas surviving on subsistence agricultural activities (CSO, 2016). However, the prospects of eradicating hunger and poverty in areas where the majority are mainly engaged in subsistence agriculture is overshadowed by low productivity (FAO, 2017). Given the predominant role of agriculture in rural households' livelihoods, any strategy targeting at reducing poverty and hunger must centre on rapid growth in the agricultural sector.

There is evidence that improved market access by rural smallholder farmers leads to improvement in their livelihoods. Studies have shown that farmers who have access to improved markets have realised both monetary and non-monetary benefits. (Musika, 2017) One of the key benefits is improved income, which may be channelled towards purchase of agricultural inputs and productive assets, health and education among other things. Many farmers observe an increase in their knowledge base, and in the number of market opportunities to which they get exposed. Therefore, market access is important for the Zambian agriculture sector as it can be the main driver of poverty eradication among the rural poor smallholder farmers.

According to Loison (2015), better functioning markets and improved infrastructure in rural areas leads to rural households diversifying their livelihood to include non-farm activities as a way to increase their incomes. In theory, with improved incomes, farmers can have the capacity not only to re-invest in their production and employ additional labour, but to engage much more in the purchase of food and non-food goods within the community. Thus this can have a 'spin-off' or multiplier effect within the local community. In the same light, Musika is cognizant of the fact that there are 'Latent Functions' that its various interventions perform which impact on the social and economic welfare among rural households.

While Musika had successfully tested its hypothesis that improved market access leads to improved production, productivity and incomes at the farm level, it had never before tested the parallel hypothesis that improved production, productivity and incomes at the farm level leads, in turn, to socio-economic improvements in the wider community, see figure 1.1. In other words, Musika had never examined the 'indirect' effect of its interventions before.

Figure 1. 1: Musika's theory of change



It was against this background that Musika sought to conduct a study to assess the effects of improved market access on the social and economic welfare of rural households (both those directly engaged with improved markets and those living in the rural communities alongside those households, identify gaps and orient an effective response. To demonstrate the effects of markets on the social and economic welfare of smallholder farmers and the surrounding communities, the study targeted two firms, based on their potential to generate community spill over effects: a firm involved in providing a market for leguminous crops in Eastern Province and a firm providing livestock veterinary and output market services in Southern Province. In addition, it accorded the assessment different perspectives as the firms offered different services. The main objectives of this study were;

- 1. Determine whether access to improved markets had led to a change in rural households' engagement in off-farm employment for both direct and indirect intervention participants.
- 2. Determine whether access to improved markets had led to a change in rural households' annual disposable income³ and if so, what it was spent on.
- 3. Assess as to whether access to improved markets led to a change in labour requirements of rural households regarding field preparations, planting, weeding, harvesting, etc. And if so, determine what made up the change in labour requirements (e.g. youth, women, animal power, hired mechanisation etc.)
- 4. Ascertain whether access to improved markets had led to a change in rural households' investment of resources in social (education, health etc.) and/or economic activities (new businesses, etc.)
- 5. Ascertain whether access to improved markets by smallholder farmers had led to indicative changes in the economy of the community (more shops, more non-agricultural traders, more money circulating, etc)

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³ Annual disposable income in this case means any money that remains to be/was spent on household expenses, health services, education services, agricultural and non-agricultural assets, and general savings.

6. Assess whether access to improved markets had led to a change in the range of income generating activities that farmers engaged in.

1.2 Methodology

The study adopted a quasi-experimental design as participants were not randomly assigned to the study regions, intervention implementers (i.e. the livestock and legume out grower schemes) identified areas which were targeted for the livestock service delivery and farmer trainings through Private Extension Agents (PEAs) respectively. The survey had also captured non-intervention participants in both Southern and Eastern Provinces which were identified within implementation areas. A total of 136 participants were purposively selected from 2 districts in Eastern Province, whilst Southern Province had a total sample of 116 purposively drawn from 1 district. The overall sample size of households included in the survey was 252. The survey covered the 2016/17 agricultural farming season. To collect the quantitative and qualitative data, structured interviews were administered to households using mobile phone-based questionnaires. The household was used as the main unit of analysis.

2.0 RESULTS AND DISCUSSIONS

2.1 Demographic Characteristics

Table 2.1 below presents the demographic characteristics of the households that participated in the survey from the 3 participating districts. The study showed that from the total of 252 households which were captured in the survey, 91% were male headed and 7 was the average household size. The study further showed that the majority of participants were married (92%). Although tertiary was the highest level of education recorded, the majority of farmers (51%) only managed to reach primary level of education and this was closely followed by secondary level of education at 37%.

The study also highlighted that households in both Eastern Province and Southern Province had to cover an average of 4km to the nearest aggregation point or dip station in Eastern and Southern Provinces respectively in order to access either an assured crop output market or livestock service in their communities.

Table 2. 1: Background characteristics

DISTRICTS				
Variable	Total/Average	Zimba	Vubwi	Kasenengwa
Number of Households	252	116	84	52
Household size	7	7	7	6
Age (Years)	41	41	41	41
HH's Gender				
Male	91%	98%	85%	87%
Female	9%	2%	15%	13%
Marital status				
Single	1%	0%	1%	0%
Married	92%	97%	89%	88%
Divorced	2%	1%	4%	4%
Widowed	5%	2%	6%	8%
Education level				
None	11%	3%	23%	10%
Primary	51%	53%	48%	52%
Secondary	36%	41%	28%	38%
Tertiary	2%	3%	1%	0%
Distance to improved market access point (Km)	4.0	4.0	4.4	3.2

3.0 SOCIAL AND ECONOMIC WELFARE

3.1 Changes in time spent on agricultural activities and their attribution

Farmers were asked if they had observed any change, attributable to improved market access, in the amount of time they spent on various agricultural activities such as tilling, spraying, planting etc. and the kind of change they had observed. Table 3.1 shows their responses. The study showed that the majority of the farmers had experienced a decrease in the amount of time they spent on these agricultural activities. This could be because the improved markets provided them with more efficient and effective ways to perform various tasks hence having more time on their hands, or having more resources to assist them so as to spend less time on these tasks. The changes in time shown in table 3.1 are firm specific, apart from tilling and spraying which is applicable to all farmers interviewed. Interestingly, most of the farmers (98%) under the livestock intervention experienced a decrease in time spent on movements to a veterinary access point compared to the time before they had access to improved markets. This significant change is a perfect example of positive impact of improved market access.

Table 3. 1: Changes in time spent on various agricultural activities

Activity	Increase	Decrease	No change
Tilling	10%	75%	15%
Spraying	1%	76%	23%
Planting	17%	69%	14%
Weeding	11%	76%	13%
Harvesting	13%	74%	13%
Vet access point	0%	98%	2%

Figure 3.1 shows the proportion of farmers and factors to which they attributed the decrease in time spent on their agricultural activities. The study showed that the majority of the farmers mainly attributed the decrease in time spent on agricultural activities to increased access points for improved markets (i.e. dipping/spraying in this case) (44%), access to improved production methods (18%), additional human labour (15%) as well as access to extension services (14%). These findings are quite significant because they mimic Musika's theory of change as outlined above. After firms expand and engage with the lower end of the market, the expected output is farmers accessing improved markets, information (including extension) and technology followed by farmers understanding and adopting new technologies and farming systems and practices which includes improved production methods which may call for additional outsourced labour and eventually a positive change in production and productivity of the farmers.

The study further revealed that only 4% of the farmers highlighted that they did not experience any decrease in time spent on various agricultural activities even though they had access to improved markets.

Overall, the majority of the farmers experienced a decrease in time spent on agricultural activities which left them with plenty of time to engage in other income earning activities such as selling fritters, talk time and, producing and selling of horticultural crops among others. This showed that farmers' access to improved markets was positively affecting the farmers as they worked toward getting out of poverty in line with one of Musika's objectives.

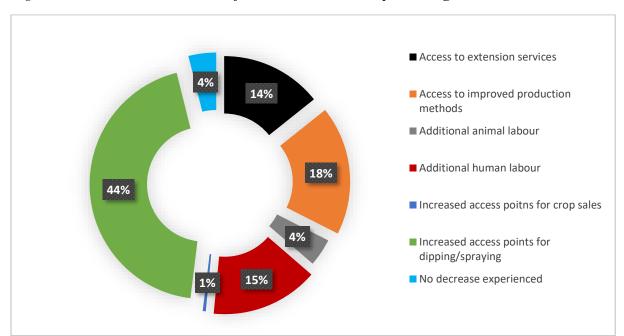


Figure 3. 1: Farmers' attribution of the decrease in time spent on agricultural activities

The study highlighted that the majority of the households (65%) had accessed extension services from participating in improved markets. Extension services are very important in assisting farmers improve productivity which translates into improved income. It is because of extension services provided to these farmers that 14% of them (see figure 3.1 above) managed to reduce the amount of time they spent on various agricultural activities. This means that extension services helped farmers learn of a more time efficient way of producing various agricultural products.

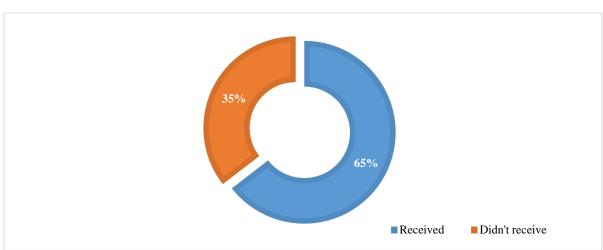


Figure 3. 2: Farmers that received extension services

Source: Spin-off survey 2018

3.2 Additional labour and off-farm employment

Labour is an important aspect of agriculture and studies have shown that the majority of poor rural households in Africa obtained most of their income from agriculture. In fact, the only option for poor households in Malawi to earn some income was discovered to be engagement in farm labour on other farmers' lands (USAID, 2016). The importance of labour can therefore not be overemphasised.

In this study, it was revealed that 48% of the farmers interviewed had engaged additional labour at some point after they began participating in the Musika-supported interventions. The study also highlighted, as shown in Figure 3.2, that this additional labour mainly comprised of women (56%) and youth (35%). This is a critical finding given that in most societies women are marginalised when it comes to involvement in the whole agricultural production process especially direct earning of income for their labour. This is in line with one of Musika's gender objectives which is to ensure that women are key participants in and beneficiaries of improved agricultural markets.

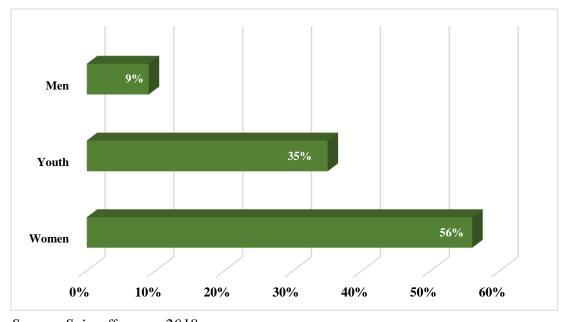


Figure 3. 3: Labour engaged most frequently by farmers that employed additional labour

Source: Spin-off survey 2018

The additional farm labour that is engaged often comprises of individuals or households that are farmers themselves but have free time and need to earn extra income. Table 3.2 below shows farmers' engagement in off-farm employment and those with new sources of income that are attributable to farmers' access to improved markets. The study found out that 21% of the total sample of farmers were engaged in off-farm employment due to having more job opportunities and/or more time to themselves due to the intervention. The study also found that

a large proportion of the farmers (66%) had acquired new sources of income that they could attribute to improved market access as well as their participation in these markets. This high proportion of farmers with new sources of income shows that the intervention is working in line with one of the objectives of Musika which is to stimulate economic growth among the rural poor through private sector participation so as to alleviate poverty among the rural poor.

Table 3. 2: Off-farm employment and new sources of income due to the intervention

Category	Proportion of farmers
Farmers engaged in off-farm employment due to the intervention	21%
Farmers with new sources of income due to the intervention	66%

Source: Spin-off survey 2018

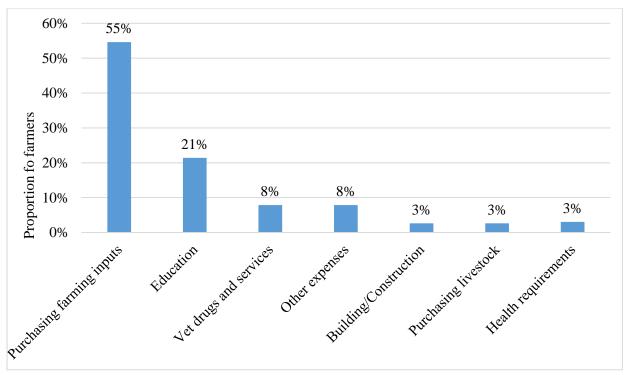
3.3 Average farmer annual Incomes

The increase in farmers' engagement in off-farm employment and sources of incomes means an increase in farmers' household incomes. The study revealed that access to improved markets raised a total of ZMW1, 128,143 in annual revenue for the interviewed farmers during the 2016/17 farming season and this comprised of income from off-farm employment among other sources. This figure translated into a household per capita annual income of ZMW4, 926, this is besides the incomes from other activities the farmers were engaged in before and after the improved market access but cannot be attributed to improved market access.

3.3.1 Use of Income

When asked about how this additional income was spent, the majority of the farmers pointed out that most of it was spent on purchasing farming inputs i.e. seed, fertiliser etc. (55%), education for their household members (21%) and purchasing veterinary drugs and services (8%) together with other expenses. This is shown in Figure 3.3.

Figure 3. 4: Annual use of the income due to improved market access



The study also highlighted that 24% of the farmers used this money to start up Small and Medium-sized Enterprises (SME's). Among these SME's were grocery stores, livestock production, horticulture and other cash crop enterprises. Some started carpentry businesses while others went into beer brewing. Some even opened up milling business, others ventured into selling cooking oil, clothes, talk time and fritters among others.

With an increase in income, farmers' expenses were expected to increase as their purchasing power would have increased. Table 3.3 shows the changes that farmers experienced in their use of income. It was discovered that about 90% of all the farmers experienced an increase in the money they saved for production the next season, household expenses, health and education expenses, purchasing assets as well as general savings due to the increase in income experienced as a result of improved market access by farmers.

Table 3. 3: Changes in Farmer Expenses

Expense	Increase	Decrease	No change	Total
Savings for production next season	91%	6%	3%	100%
Household expenses	94%	4%	1%	100%
Health and Education	86%	0%	14%	100%
Purchasing assets	90%	6%	4%	100%
General savings	90%	6%	5%	100%

Farmers interviewed were involved in various income generating activities that were as a result improved access to markets. Figure 3.4 shows income sources to which farmers attributed their increased expenses. Most of the farmers interviewed highlighted off-farm activities (21%) and legume crop production (19%)⁴ as their main sources of the income that led to an increase in their expenses. Cattle trading (18%) was the third most attributed source of income although all the farmers that made this attribution were from the livestock intervention. Access to improved production methods (13%) and extension services (11%) were among the income sources with the highest attribution for the increase in farmers' expenses.

Figure 3. 5: Farmers attribution of increases in expenses

⁴ Most of these were actually from the GNA intervention, less than 1% of the farmers from the Silverlands intervention attributed the increase in expenses to legume crop production.

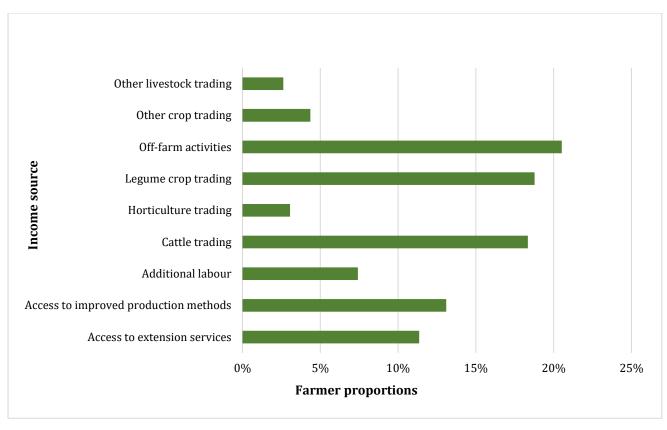
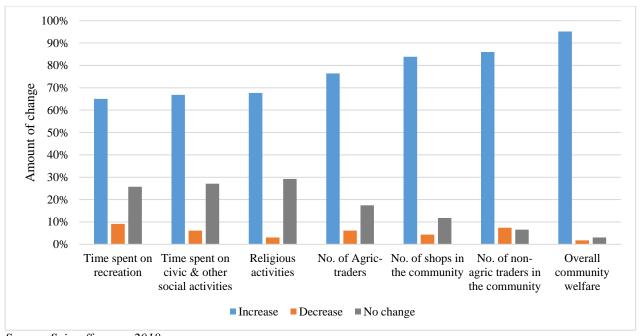


Figure 3.5 shows the changes farmers experienced in time spent on various social activities, number of firms that offered improved market services in farmers' communities and the overall welfare of farmers. The study highlighted that overall, the welfare of the community as a result of the farmers having improved market access had increased, over 90% of the farmers interviewed indicated this change. It was also highlighted that the number of shops, agricultural and non-agricultural traders had increased as a result of improved market access by farmers. The same change was noticed in the time spent on religious activities, recreation and, civic and other social activities. This could be because farmers were left with more time to themselves after getting exposed to better production methods in terms of efficiency and effectiveness. They then spent this time on these activities as they saw fit.

Figure 3. 6: Changes experienced in overall welfare and economic activities



4.0 NON-PARTICIPANTS SPILL-OVERS

4.1 Agricultural activities and market participation

The major main agricultural activity of the intervention non-participants was grain production which was cited by 96% of the farmers, with 65% mainly producing maize, followed by 17% producing soya beans. As can be seen in table 4.1 below.

Table 4. 1: Agricultural activities of Non-participants

Non-Participants: Main Agricultural Activities		
Grain Production	96%	
Livestock Production	4%	
Main Production		
Maize	65%	
Soya Beans	17%	
Cotton	13%	
Cattle	4%	

Source: Spin-off survey 2018

The study further revealed that almost half of the non-participant farmers (48%) had at least once received assistance from fellow farmers who were accessing improved markets. The forms of assistance received were said to be information on better production practices (44%) and selling of produce by market participants on behalf of non-participants (4%). These findings are evidence of the spin-off effects of improved markets accessed by the participating

farmers who then trickle down these benefits to non-participating farmers in their community causing them to benefit from the intervention. The majority of the non-participants (52%) did actually indicate an increase in their welfare as a result of the intervention while 48% observed no change. These findings suggest that farmers were either made better off by the intervention or not but not worse off. This is shown in Table 4.2.

Table 4. 2: Non-participants benefits from improved markets

Non-participants that once accessed improved market services	22%
Non-participants who had never accessed improved markets	78%
Assistance received by non-participants due to the intervention	
Information on better production practices	44%
Assistance to sale produce to the firm	4%
Non-participants Welfare change due to the intervention	
Increase	52%
No change	48%

Source: Spin-off survey 2018

4.2 Non-participants: Changes due to the intervention

Non-participants were also asked to rate the changes in socio-economic welfare due to the implementation of the intervention in their communities and livelihoods, this is shown in figure 4.1. About 91% of the non-participants stated they had experienced and/or observed an increase in the welfare of their communities due to the intervention, while 70% observed an increase in off-farm employment and 57% cited increase in non-agricultural traders. It was also highlighted that 52% observed an increase in the households' financial status and number of shops in the community while 48% observed an increase in the number of agricultural traders as can be seen in figure 4.1 below. This supports the results of some studies that highlighted that these factors shown in the graph are actually indicators of community economic development and welfare growth. For instance, Nummenmaa (2009) in his study highlighted agriculture and non-agriculture income (This income includes that obtained from off-farm employment) was a major component of Community Development Index (CDI). Another study by Sharkey & Fricker (2009) discovered 12 indicators of rural economic development among which was capital investments, both local and non-local businesses, make within the community such as building shops, sheds etc.. Others included number of businesses and activities both new and old (Retail, industrial, commercial etc.) and number of new jobs created within the area. The average percentage of these community welfare factors/indicators shown

in figure 4.1 are at an average percentage of about 56% which means there is a positive impact on these communities due to the intervention.

100% 91% 90% Percentage of Farmers 80% 70% 70% 57% 60% 52% 52% 48% 50% 40% 30% 20% 10% 0% Community Off-farm Non-agric Traders Households Number of Shops Agric Traders Welfare employment Financial Status Social Economic factors

Figure 4. 1: Non-Participants: Changes due to the intervention

Source: Spin-off survey 2018

5. CONCLUSION

The study was conducted to determine the spin-off effects of farmers having access to improved market and the benefits in terms of welfare of the community members at large regardless of whether these community members participated in these markets or not.

The study found that farmers experienced a general reduction in the time they spent on their agricultural production activities due to improved market access. They also observed an increase in employment, access to extension services and an improvement in economic activities in the community and the overall welfare of farmers. As a result of improved market access, non-participant farmers benefited from the spin-off effects of the participating farmers. Some of the spin-off effects included an increase in the financial status of non-participants which was attributable to the intervention, access to knowledge through participant farmers, increased economic activities in the community (i.e. New shops opened, business booming because of increased farmer incomes etc.) and access to assured output market in the case of communities near Silverlands. Close to 40% of non-intervention participants stated that they observed other benefits which included free sunflower grinding, access to high yielding varieties, extension of good production practices and favourable prices

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