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Mitigation Measures to Improve Agricultural Markets on the Wellbeing of Small-Scale Farmers in Murang'a County, Kenya

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ABSTRACT

The purpose of the study was to find mitigation measures to improve agricultural markets on the wellbeing of small-scale farmers in Murang'a county. The study used innovation, collaboration, and networking theories. Target population was 337,042. Calculated at 31 percent of Murang'a county 2019 population census of 1,056,640 people. 31 percent was estimated to represent the population of poor small scale farmers who depended on agribusiness for their wellbeing. Descriptive research design was used. A sample size of 384 participants was used to represent the target population, calculated using fisher's statistical formula. Purposeful stratification method was used in sampling seven the sub-counties which acted as fieldwork venues. Purposive sampling was used also in selecting, participants per strata. Three data gathering instrument was used, namely: Questionnaires were distributed to 280 farmers, 40 from each of the seven sub counties who were given enough time to respond to the research questions. 84 respondents, were organized into seven (7) Focus group discussions of 12 respondents each, comprising of the secretaries and treasures of different farmer's groups. 20 key informants composed of chairpersons of farmers growing fruits, vegetables, poultry, and diary were scheduled for an in-depth interview. A pilot study was undertaken using 20 respondents from Kirinyaga West sub-county. Test and re-test method using Cronbach alpha formula during the pilot, were used in evaluating the reliability of the research instruments. Data was recorded and stored in field notebooks, video tapes and photography. Quantitative data from questionnaires was analyzed using descriptive statistics. They were presented in tables, graphs and pie-charts. Qualitative data from both focused group discussions and in-depth interviews was analyzed, according to teams and patterns formed. They were presented in narratives and verbatim quotations forms. Regarding mitigating market risks, this study concludes that agribusiness should not operate as an independent entity, but should partner with other like-minded social enterprises; that it would not be save for the small scale agribusiness to operate independently. This study concludes the need for small scale farmers to form collectiveness to be effective in their businesses, such as registering as members of farmers associations and cooperatives. For successful agribusiness to occur, among the small-scale producers, farmers will need to be consulted about their marketing challenges. Especially at the international market, where currently, the farmers are least informed or education about.

1.0 INTRODUCTION

The Agricultural value chain development (AVCD) presents challenges to development practitioners and governments, civil society organizations and donors. AVCD focuses at the involvement of different agribusiness stakeholders at different levels of the value chain. It helps in constructing development interventional activities that could better recognize similar problems at the various levels of the value chain. AVCD helps in identifying solutions for the stakeholders' needs and expectations. AVCD helps in improving relations and performance that help to achieve poverty reducing and economic growth, (Donovan, et al., 2015). In India, Sharmar and Kumar, (2011), present an Indian case, showing, in India Agribusiness contributes 17.7 percent of its Gross Domestic Product (GDP). And that Agribusiness is the biggest employer in India, employing 52 percent of Indian labour force. In quantitative terms Agribusiness in India would be termed as the major tool for poverty reduction.

In South Africa, (SA), Modirwa and Oladimeji, (2016), argue that agricultural innovation in SA would be adopted in the context of stakeholders' collaboration. Furthermore, according to them, grassroot farmers or the small holder farmers constitute the biggest share of the benefiting or the primary stakeholders. The role of primary stakeholders in the agricultural innovation in South Africa would be defined as involvement in initiating, and exercising control and executing the Agribusiness innovation process. Stake holding in agricultural innovation in South African is said to be largest among the disadvantaged smallholders. In effect, agribusiness innovation in South Africa has become a means of economic empowerment for small holders' stakeholders.

In Malawi, the gross domestic product depends largely on its 80 percent smallholder rural subsistent farmers (Phiri, 2018). Largely, rural agribusiness in Malawi depends on renewable natural resources. Agribusiness in Malawi is the main source of income and food security. But rural small farmers are faced by many challenges for example, the effects of environment protection and weather shocks; poor water, soil and land management; poor and low access to adoption of agribusiness technology; and absence and or low access to agribusiness credit (Phiri, 2018).

Long, Omariba, and Song, (2018), argues that poverty in Tanzania stood at 48.8 percent in 2012. However, they observed a discrepancy between favourable economic growth and lower agricultural growth in Tanzania. And that the favourable economic growth did not translate into poverty reduction in Tanzania. Yet, agribusiness in Tanzania employs 66 percent of productive labour. Consequently, the lower agricultural growth in Tanzania contributes to increase in poverty. More specifically, cash crops in Tanzania, such as cotton and coffee, have experienced decline in growth, and lack of scaling up irrigation among the smallholder farmers, have contributed to decline of agribusiness in Tanzania, (Moff, 2016; in Long, Omariba and Song, 2018). Private farming companies have taken advantage of the situation in scaling up both cash crop and irrigation.

Agribusiness in Kenya provides 294, 000 direct jobs and 3.4 million indirect jobs. In Kitui County, agribusiness and its related activities are described as the main economic activity. Responsible for county's food security and 87 percent of rural income. Kitui County agribusiness emphasizes small animals, fruits and pulses crops. Environment protection is emerging as the primary challenge to agribusiness in Kitui. Environment protection in Kitui would be characterized by weather variability, unpredictable floods and prolonged droughts.

In Murang'a county, environment protection has wellbeing negatively the small-scale agriculturally based employment. In the county, environment protection has caused seasonality unpredictability, unpredictable floods, droughts, locust infestations, to name just a few. In the county, youth are deterred from participating in the agribusiness by the factors already stated above. Especially the high cost of doing Agribusiness as business, at the county and beyond. Youth in the county are wellbeing by high unemployment rate, resulting to food poverty affecting 27 percent of the population in Murang'a county, (five-year development plan, 2014).

1.2 Problem of the statement

In Murang'a county, many small-scale farmers have engaged in the agri-business on, diary, poultry, vegetables, grains and fruit farming. Currently agricultural marketing for these products from the small-scale farmers is non-formal and unlawfully regulated, and managed through a system of middlemen and brokerage. This system excludes participation of small-scale farmers, and works for the best interest and benefit for the middlemen and the brokers. Therefore, small-scale farmers have no voice in participation and negotiations of the good prices for their products. Resulting to increased poverty, ignorance and diseases among small-scale farmers and increases their disorganizations, denying them opportunity for registration.

Exclusion from participating and lack of voice in the agribusiness value chain development deters small-scale farmers from being interested with agribusiness value chain development. Farmers end up losing confidence with the agricultural returns, especially the amount of income they would receive from agribusiness sector compared with income from other employing sectors. Small-scale farmers should be involved not only in the farming, but also access information through training on the agribusiness value chain. This will empower them to appreciate the agribusiness value chain methods such as production, harvesting and storage, processing, marketing and consummation. Consequently, agribusiness will become a friendly enterprise. They should be accessing agricultural extension services from the government. They should access credit from banks, governments, donors and well-wishers. Also, they should be accessing from public service, water for farming, (irrigation) and land. They will be trained in smart agribusiness methods, especially in, agro-industries, and agro marketing.

1.3 Objective of the study

i. To find mitigation measures to improve agricultural markets on the wellbeing of small-scale farmers in Murang'a county.

2.1 EMPIRICAL LITERATURE REVIEW

2.1.1 Agribusiness Market Risk Mitigation Measures for Small-Scale Farmers.

The successes or failure of small-scale agribusiness would depend on the management methods applied. In the first instance, any farming activity involves risks. But more so the small-scale ones. Because, by virtue of being small scale in size means also being small scale in capacity for responding to the exposure they face in the farming environment, which would be equally risky (Ndekwa, Kalugendo, Sood & Grima, 2023).

Farming as business has been faced with uncertainty, for example caused by climate, technology, economic, social, etc. Geographical location of agricultural activities would be a major factor in increasing market risks, requiring appropriate market risk mitigation approach (Schoneveld, 2022). Measures for mitigating small-scale farmers against market forces may for example include encouraging introduction of systems that will encourage public to partner with private in innovating value addition methods. Increased public investment in extension service and research for small-scale farming would be considered as a mitigation approach. Well trained and informed local governance for small-scale farming would be another mitigation measure. Forming and participating in local farmers' cooperative societies, and other related organizations, for example, farmer schools, and associations, will help in meeting the needs of small-scale farmers and act as mitigation measures and assist in adding value in all the stages of the agriculture value chain (Syahza, Savitri, Asmit & Meiwanda, 2021).

2.2 THEORETICAL FRAMEWORK

This study used three theories namely: Networking, innovation, and collaboration. The study was categorized under social enterprise, a hybrid of the for profit and the not for profit.

2.2.1 Networking

Networking in society will refer to relationships and their methods or roles as channels of transmitting information of personal and or media interest, to promote perspectives, attitudes or behaviour change. In agribusiness social theory will help in explaining how the stakeholders' relations will be structured and sustained. Also help in understanding how they are formed, and how they influence their understanding of the agribusiness value chain development. Within the agribusiness structure, networking will help in measuring the objectives and the social relationships within the stakeholders' structure and the wider society.

This study located agribusiness among social enterprise. Therefore, it qualified to be interpreted or be seen through social network lenses or theory. Social network theory defined how people related, co-operated or reacted to certain events affecting them. Social activities like agribusiness, were embedded with tools that enabled the activation. Social activities stem from incubation of ideas on how they could be done. Social networking in this study was conceptualized as an idea or theory that could help to ease the process of implementing agribusiness value chain development.

2.3.2 Innovation

Innovation originally emerged as one of the communication theories. It emerged to explain how overtime a product or idea emerges and develops. In practice, in this study, innovation was used and seen as a critical concept in relation to agribusiness competitiveness. In Latin, innovation means to renew. In common English, innovation means improvement or replacement of something. This study used innovation in relation to improving small-scale farmers' agribusiness services, products and process. Specifically, agribusiness was seen as a tool to help in achieving improvement in productivity and profitability. Where its stakeholders played inclusive role in delivering new products, processes, and services for the first time. Small-scale farmers become more effective, efficient competitive, and resilient to the problems affecting them.

2.3.3 Collaboration

In theory collaboration is a process where individuals or groups work as a team in learning from each other methods of solving common problems. The team members will share opinions, and partner in creating products and completing tasks. In practice, agribusiness stakeholders at the four value chain levels will work together to achieve win-win result. The aim of the result will be to outperform others. Agribusiness stakeholders will be aware of business complexity, and learn to efficiently cooperate with all the team players. Team members will include suppliers, customers, etc.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

The study utilized a case study design. The case study design was useful in targeting and focusing on agribusiness stakeholder structure. Agribusiness value chain development was the platform of studying the wellbeing of small scale farmers, qualitatively and quantitatively.

3.2 Study Area

The study was done in Murang'a County. Murang'a County is one of the five counties in the central region of the republic of Kenya. The 2019 population and housing census recorded a population of 1,056,640 persons for Murang'a County, consisting of 523, 940 males and 532,699 females and a growth rate of 1.1 per cent per annum. This population was projected to rise to 947530 in 2012; 958,969 in 2015 and 966,672 persons in 2017. However, according to 2019 census, the recorded population reached 1,056,640 persons.

3.3 Target Population

The target population was 337, 042 small-scale farmers in Murang'a county. This number was arrived at after finding the 30 percent of 936228 people. Which was the population in Murang'a county according to the 2009 population census. The method used to arrive at 30 percent was purposely arrived at. In Murang'a county, small-scale farmers were divided in two categories. The middle class and the poor. The middle class cadre were so classified because they owned between 0.2 and 3 hectares of land. In terms of farming they do mixed farming including, cash crops, dairy and food crops. They have mechanized farming, use technology, and operate individually and independently, etc.

3.4 Sample Size Determination

The study utilized fisher formula in calculating sample size which was 385. Fisher's formula will be suitable for this study since the target population will be more than 10,000. The most essential indicators when using this formula are confidence or risk level, precision level or the sampling error and degree of variability (Israel, 2014).

Using the formula below, a sample size is determined as shown in the first paragraph above:

$$n = \frac{Z^2 * (p) * (1-p)}{d^2}$$

Where: n=sample size for large population;

z= Normal distribution z value score, (1.96);

p= Proportion of units in the sample size possessing the variables under study, where for this study it is set at 50%

d = Precision level desired or the significance level which is 0.05for the study.

The substituted value in determining the sample size for a large population are as follows:

$$n = \frac{1.96^2 * (0.5)\ (0.5)}{(0.05)^2} = 385$$

The respondents were selected randomly.

Sample population for this research was built in the following manner as: Seven groups representing seven sub-counties, which were the designate venues of the fieldwork, named as: Mathioya, Kangema, Kiharu, Maragwa, Kandara, Gatanga, and Kigumo. At each venue 12 respondents participated in focus group discussions, making a total of 84 participants. Also, at each venue 3 respondents participated in in-depth interviews, making a total of 21 participants. And, at each venue, 40 respondents completed the questionnaires, making a total of 280 less 7 absentees, equal to 273 participants. Table 1 below show details of sampling and implementation procedure or fieldwork protocol, as:

Table 3.1: Sampling and Implementation Procedure

GROUP	Focus Group Discussion	In-depth interviews	Questionnaires	Totals
Mathioya	12	3	40	55
Kangema	12	3	40	55
Kiharu	12	3	40	55
Maragwa	12	3	40	55
Kandara	12	3	40	55
Gatanga	12	3	40	55
Kigumo	12	3	40	55
Total	84	21	280	385-7=378

Source: Author, (2023)

3.5 Research Instruments

The study used three research tools: questionnaires, focus group discussions and in-depth interviews guides. The questionnaire was the main data collecting method for this study. The questionnaires were distributed to the 273 as respondents' farmers. respondent meaning the person who takes part in a research survey.

Focus group is defined as a gathering of likeminded people, in issues of development, who come together to discuss a topic of interest for certain purpose such as planning, research etc. for the purpose of this study 84 respondents were organized into seven focused group discussions each with 12 members composed of the secretaries and treasurers of all the five sectors of farming. The researcher mobilized participants comprising the secretaries and treasurers of different agribusiness groups.

Face to face interviews were scheduled with 21 key informants, all gotten from the chairmen of five sectors, namely, fruits, vegetables, cereals, poultry, and dairy. Key informants were interviewed separately, on one to one.

3.7 Data Analysis

This study collected variety of data gathered through technical methods and equipment, and limited to, discussions in the focus group discussions, interviews in the in-depth interviews and completing of the questionnaires. In this research the collected data was both qualitative and quantitative. The data was recorded in notebooks, videotaped, and photographed taken. To help data analysis, the data was tabulated, and calculated in percentages. The percentages were used to develop pie-charts and bar-graphs. Data was also transcribed. These tools helped in data description and forming patterns and themes. And the analysis was done and findings, conclusions and recommendations arrived.

4.0 RESULTS AND DISCUSSIONS

4.1 Mitigation against Marketing Risks

This section on research findings and data analysis on small-scale food value addition chain and mitigation against marketing risks, Quantitative data was obtained after conducting the questionnaire, tabulated and recorded in table 2:

Table 2: Mitigation Measures to Improve Agricultural Markets for Small –Scale Farmers

SECTION F	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
How much does your agribusiness partner with private business	13%	37.50%	17.50%	23%	13%
Does the government finance your research and extension services?	15%	30%	20%	23%	12.50%
Are all your members trained and informed on agribusiness?	13%	35%	22.50%	25.00%	5.00%
Is your agribusiness a member of cooperative or farmers' association	10%	40%	28%	15%	8%
involving farmers in stakeholder's forum will help mitigating existing marketing challenges	10%	23%	32.50%	18%	18%

4.1.2 Partnership with Private Sector

Majority respondents at 50 percent disagreed that small-scale agribusiness holders partnered with private sector. Only 36 percent agreed about represented partnership with private sector. The study found few private companies locally present, dealing with products sourced from the local small-scale farmers. Fruits, dairy and poultry were some of the products that both private and small-scale farmers were dealing with. Small-scale farmers sold the products to the private companies. And in turn, the private companies sold its product to the farmers. This research observed working relationship between dairy, agrovet, and fruits farming with the related private companies. As individuals, farmers sold to the relevant companies, milk, and avocados. Sometimes there were go-between the farmer and the private company, in the name of brokers. Farmers sold nothing to agrovets. The dairy companies sold animal feeds to the farmers. They sold also, over the counter animals' medications, fertilizers, seeds, etc. The avocado companies sold to the farmers fruit tree seedlings. Farmers have no say in determining the prices they are paid by the private companies, for the produce.

4.1.3 Government Funding Small-Scale Farmers Research and Extension Services

15 percent strongly disagreed with the question on government funding small-scale farmers research and extension services. 30 percent disagreed. 20 percent were neutral. 23 percent agreed. 12.5 percent strongly agree. Only 36 percent agree on the government funding research and extension service for small-scale farmers. This number indicate that small-scale farmers have very little research information. Regarding the extension services, this study is a bit surprised that extension service, although combined with research, was rated very lowly. The researcher's experience, was that due to absence of staff in the field the extension services was limited by lack of training staff and working equipment. Staff were available mainly in the office, as a result reducing the availability of contact between them and the farmers. Furthermore, since not many farmers could afford to go to the office, extension services were also reduced and limited throughout the county.

4.1.4 Mitigation Against Marketing Risks and Training in Agribusiness

13 percent strongly disagreed that all members are trained in Agribusiness. 35 percent disagreed. 22.5 percent were neutral. 25 percent agreed. 5 percent strongly agreed. Only 30 percent of the respondents agreed that they are trained in agribusiness. This begs the question why such low number. Majority of the respondents at 48 percent disagreed that members are trained, yet training is very critical to the farmer. Field staff, by way of job description, were required to train the group members on managing market risks. The high number of those disagreeing on the training may indicate shortages of field staff. It also indicated lack of motivation of the field staff and commitment to the job description. Also, the change of working strategy. Previously, when the trainings were funded by donors, field staff were available in the field. The staff visited individual farmers, together they identified the needs and trained them accordingly. Presently farmers are required to work in groups, but the staff are not available to visit them. Because they are invited for trainings instead of being visited. This problem was not uniform but depended on individual sub-county.

4.1.5 Farmers' Associations and Cooperatives

Regarding membership in the farmers' cooperative and or association. 10 percent strongly disagree that their agribusiness is a member of cooperative or farmers association. 40 percent disagreed. 28 percent were neutral. 15 percent agreed. 8 percent strongly agreed. Only 23 percent of the respondents

agreed on the membership of farmers cooperatives and or associations. Yet membership in these organizations was beneficial to them. The researcher could not understand why the neutral position question had the majority percentage. Because it would mean several things, for example they did not understand the question. They did not want to disclose their membership status. The problems and or benefits encountered by members were the same to both members and non-members, etc. However, this issue would need further investigation, albeit stated differently.

5.0 CONCLUSIONS

Regarding mitigating market risks, this study concluded the following: agribusiness should not operate as an independent entity, but should partner with other like-minded social enterprises; that it would not be save for the small scale agribusiness to operate independently, instead it would need to be legalized, legitimized and formalized by the government; Information and education is power, therefore, members of agribusiness should be trained and updated frequently; In Murang'a county, the site of this study, there is a social saying that, 'collectiveness is power'. This study concludes the need for small scale farmers to form collectiveness to be effective in their businesses, such as registering as members of farmers associations and cooperatives.

6.0 RECOMMENDATIONS

For successful agribusiness to occur, among the small-scale producers, farmers will need to be consulted about their marketing challenges. Especially at the international market, where currently, the farmers are least informed or education about. Farmers have no clue how it works or how they could be involved in it, to benefit.

The County government of Murang'a should establish and maintain market information systems to provide small-scale farmers with real-time information on market prices, demand, and supply trends. This helps them make informed decisions about when and where to sell their produce.

The should also facilitate access to credit and financial services tailored to the needs of small-scale farmers. This can help them invest in better farming practices, equipment, and inputs.

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