

IMPACT OF FARMERS PARTICIPATION IN BANANA VALUE ADDITION IN HOUSEHOLD WELFARE IN KISII CENTRAL SUB-COUNTY

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ABSTRACT

Banana is the fourth most valuable crop in the world (World Africa Harvest, 2007). In Kenya banana is grown in many regions, but Kisii region is among the highest banana producing areas in Kenya with production of 17 tons per hectare way above the national average of 12 tons per hectare (Kwatch et al, 2002). Kisii households produce bananas for both family consumption and commercial purposes. Kisii County poverty rate stands at 59.8% (District-Wise Poverty Rates of Kenya, 2006) despite the huge banana economic potential. Selling bananas in its raw form has diminished the economic contribution of the crop in Kisii region. Banana is a highly perishable crop and farmers sell it fast and cheaply before it rots. Some farmers in Kisii Central have started practicing banana value addition to minimize losses and increase the economic value of bananas. Farmers are now producing crisps, flour, hypertension medicine, bread, jam and wine all from bananas. This has increased farmers' incomes and generated employment and also cushioned farmers from post-harvest. The study aimed at determining the impact of banana value addition on socioeconomic outcomes of Kisii central households. The study was guided by the following objectives; to assess the impact of participating in banana value addition on household welfare in Kisii Central Sub County, to determine the impact of participating in banana value addition on selected socioeconomic indicators in Kisii Central Sub County households, and to determine the impact of participating in banana value addition on youth employment

in Kisii Central Sub County. The research was guided by the sustainable livelihood approach framework and focused on banana value addition. Stratified random sampling was used to select the sample size. The sample size was 153 respondents. The instruments used to collect data are questionnaires, guides for interviews and Focus Group Discussion. From the findings, value addition through wine processing significantly affected house hold welfare. Value addition through from juice processing had insignificant effect on house hold income. Value addition through crisps processing was significant in affecting household welfare. Value addition through flour processing had significant effect on household welfare. From the findings, majority of the respondents from the value addition group were fully in positions to meet school fees as compared to those in the control group. From the findings, most of the respondents in banana value addition group were able to provide reading and writing books to their children as compared to those in the control group. On health, majority of respondents who engaged in value addition as compared to those in the control group afforded medicine due to income they generated from value addition. Majority of the respondents were self-employed while others worked in factories. The study concludes that Banana value addition influenced the house hold welfare, social economic indicators and youth employment. The study recommends that the County government of Kisii and other counties in Kenya generally motivate residents to embrace banana value addition in order to enhance the quality of living

standards. Since banana value addition enhances contribution towards NHIF while enhancing the ability to meet school fees and other expenses, the study recommends that measures should be put in place to create awareness to those people who have not embraced the practice. Because banana value addition results into creation of factories that help in processing, the study

recommends that more capital should be sourced by county governments to increase these factories that create lots of employment to youths on either permanent or temporary basis.

Key Words: *farmers participation, banana value addition, household welfare, Kisii Central Sub-County*

INTRODUCTION

Banana is a seedless edible tropical fruit mostly grown in Africa, through Asia to the Pacific (Nakasone, 2012). Banana fruit is the fourth most valuable agricultural product in the world behind paddy, wheat and maize cobs (Nkerbu, 2014). It is highly nutritious and helps in various functions of the body (Mohammad, 2009). Due to its high demand especially, ripe banana production has been high throughout the world. According to Food and Agriculture Organization (2012), India is the highest banana producing country in the world with a production of 39 million metric tons, representing 18 percent of the world's total production. In Africa, Uganda is the leading accounting for 7 percent of the world's total production, producing 9.8 million metric tons. High production means that there is need to find ready market to avoid wastage. The East African region produces half of Africa's banana crop, providing staple food and a source of income to an estimated 20 million people (Kasyoka et al, 2011).

Production of bananas in Kenya is majorly done in small scale and for family consumption, with a national average of 0.32 ha of bananas per farm (Mbogoh et al, 2002). Many farmers in Kenya produce bananas for own consumption and if there is any surplus it is taken to the market. Over the years banana has become a major cash crop for both medium and small-scale farmers who sell their produce to urban markets in the country (Nguthiet al, 2004). Kisii is the leading producer of banana in the country with an estimated production of 17 tons of bananas per hectare while the national farmer average production is 12 tons of banana per hectare. The high production is mostly due to banana being a staple food for the main community living in Kisii region. As in other regions production of bananas in Kisii is done in small scale for local consumption. But there is always a surplus of bananas due to the high production. Farmers have been selling the surplus cheaply to prevent losses due to the fact that bananas go bad after only a couple of days.

Banana growing has a potential of being a high economic earner for many farmers but this is not experienced by all the farmers within Kisii County. Currently in Kisii markets a bunch of 5 bananas costs 5 shillings while one banana in Nairobi and Mombasa costs 10 shillings (Muyanga, 2009). In some countries banana is a cash crop that generates billions of dollars in

revenue. For instance, between the years 2002 and 2006 Costa Rica was among the highest producer exporting their bananas to thirty-eight different countries around the world. Costa Rica generated close to 700 million dollars in revenue excluding revenue from bi products from value addition. And the profits were shared in a 50-50 share deal between the country and the banana farmers who sold their produce using farmers' cooperative societies (Barraza, Jansen, de Joode & Wesseling, 2011).

In Atlantic coast of Costa Rica, the government organized about 1500 small scale farmers to start their own banana cooperative to compete with Dola a multinational company that had exploited farmers. The farmers were selling raw bananas to Dola which dictated the banana buying price disadvantaging farmers (Phyllis, 2011). The cooperatives helped farmers know the best banana producing practices which helped famers increase their income and improve their socioeconomic status.

Some of the challenges that banana farmers in Kisii face is fluctuating of prices due to over production and lack of storage facilities for ripe bananas. It is important to come up with a raft of measures that will ensure extension of banana shelf life to cushion farmers against losses (Akubor et al, 2003). Value addition is one of such measures that minimal wastage of banana surplus.

Value adding is the process of changing or transforming a product from its original state to a more valuable state (Boland, 2009). Value addition can therefore be said is a process of enhancing a product to gain more from it. In agriculture the role of value addition is to maximize production and economic value of a produce. There are several products that can be made from bananas, such include wine, flour, yoghurt and crisp which are by-products once the bananas have been processed. In this case, then it can be noted that agriculture can be profitable and alleviate poverty in rural areas through value addition of the farm produce (Kumar et al, 2006).

In Uganda, small scale banana farmers depend on sale fresh produce for their livelihoods. This has generated minimal profits due to post harvest losses (Ssali, 2008). However, some farmers have started practicing banana value addition. They are now producing juice and flour from bananas and using the peels to manufacture animal feeds and fertilizer (Sanyang, 2012).

In Kisii Central farmers have started practicing banana value addition. Through Kenya Industrial Research and Development Institute (KIRDI) a government organization and USAID a non-governmental organization have started a banana processing factory in Kisii Town where production of cakes, crisps, biscuits, wine, jam, juice, beer, yoghurt and doughnuts are already in progress. They also make ropes, hats and mats from banana peels.

Socioeconomic Impact of Banana Value Addition

Rural areas in developing nations are worst hit by poverty. More than 218 million in Sub-Saharan Africa people live in extreme poverty (IFAD, 2011). The report recommends the rural

poor who depend on agriculture to venture into profitable agriculture as agriculture funding is diminishing. Profitable agriculture venture includes value addition to maximize the economic value of their produce. Kisii Central is a sub County of Kisii County west of Nairobi. Just as many other rural areas in Africa, majority of its residents are poor. 51% of Kisii residents live below the poverty line against the nation's 46% while the unemployment rate stands at 61% this is according to the Kenya National Bureau of Statistics (KNBS, 2012).

Banana along with avocado are the most produced and traded agricultural commodity within Kisii County (www.kisii.go.ke, 2013). Banana value addition has the potential to help individual farmers better their livelihoods and develop. (Sen, 1999) defines development as a package of overlapping mechanisms that progressively enable the exercise of a growing range of freedoms. The freedoms include economic protection from abject poverty including through income supplements and unemployment relief. Sen (1999) describes development as increase in choices that helps one maximize his/her capabilities.

A livelihood comprises people, their capabilities and their means of living, including food, income and assets (Chambers, 1991). Chambers description means that, livelihoods are all the activities an individual partakes to ensure that he /she is able to provide necessity to himself or his family. If means of living of a population is improved and sustained to a level one is comfortable in providing basic needs for their dependents' then positive development will be achieved. Adding value to agricultural products beyond the farm gate usually has several times the economic impact of the agricultural production alone (Anderson, 2009).

Anderson (2009) further states that value addition of agricultural products by the farmers in rural areas of United States of America, has enabled the farmers to double their revenue as the farmers convert waste materials from agriculture produce to finished marketable products. Value addition is a long term approach, not a "quick fix." It requires the willingness and ability to take on risk, as well as adequate capital, management skills, and personal skills—such as the ability to interact with the public—to succeed. Besides offering a higher return, value added products can open new markets, create recognition for a farm, expand the market season, and make a positive contribution to the community (Born & Bachmann, 2006).

A 40-50 kg bunch of banana retails at an average of 300 shillings in Kisii County but after processing it into crisps the same bunch fetches up to 1,680 shillings (Obebo & Omboki, 2016); in the article on 'Banana Queen' www.nation.co.ke. A dry bunch of banana can be processed into flour and the flour sold at 250 Kenyan shillings per kilo. Kisii farmers who engage in banana value addition are thus able to improve their livelihoods, increase their choices and freedoms as their incomes increase. With increased incomes and increased choices, the socio-economic lifestyle of Kisii residents improves as they are able to access better health care, better quality of education and better wellbeing in general (Obebo & Omboki, 2016).

STATEMENT OF THE PROBLEM

Kisii region is classified as arable with an average rainfall of about 1922 mm a year according to Climate–Data.Org. The main economic activity in the area is small scale agriculture with banana being the most cultivated crop. Kisii is one of the leading producers of banana in Kenya with an average farmer production of 17 tons per hectare while the national farmer average production is at 12 tons per hectare (Kwach et al, 1996). A bunch of banana that weighs between 70-80 kilograms can fetch around 350 Kenyan shillings but if processed to produce other products like banana juice, baking flour, wine, crisp the same bunch can fetch an upward of 2500 Kenyan shillings besides prolonging the shelf life of the banana. Banana has generated income and sustained livelihoods for many farmers' households around the world (Surendranathan et al, 2003). Farmers in Kisii County produce tones of fresh banana daily but with poor post-harvest handling many have not fully benefited from their produce. Some farmers in Kisii have started practicing value addition on the banana produce. Women and youth are the key players in the banana processing industry producing different banana products and by-products. The value chain in the banana value addition can create employment for the youths but there has not been any research to understand the effect of banana value addition in sustaining livelihoods therefore, this study wished to fill out this knowledge gap by determining the impact of farmers' participations in banana value addition in household welfare in Kisii central sub- county

GENERAL OBJECTIVE

The general objective of this study was to determine the impact of farmers' participations in banana value addition in household welfare in Kisii central sub- county.

SPECIFIC OBJECTIVES

1. To assess the impact of participating in banana value addition on household incomes in Kisii Central sub County
2. To determine the impact of participating in banana value addition on selected socioeconomic indicators in Kisii Central sub County households
3. To determine the impact of participating in banana value addition on youth employment in Kisii Central sub County

THEORETICAL REVIEW

Sustainable Livelihood Framework

A livelihood comprises the capabilities, assets including both material and social resources and activities required for a means of living (Conway, 1992). Scoones (1998) defines livelihood and sustainable livelihood as capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not

undermining the natural resource base. A livelihood is sustainable when it can cope with and recover from stresses and shocks and manage to enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Chambers, 1995),(Moser,1996). It implies a sense of longevity and resilience of external forces such as economics and politics. In livelihoods it implies that the current generation must use resources to fulfil their goals without depleting those resources for the future generations (Stephen et al, 2013).The phrase sustainable was conceptualized in 1987 by the Butland commission before being adopted by the United Nations Human development report in 1990. The International Fund for Agricultural Development (IFAD) describes sustainable livelihoods approach (SLA) as a way to improve understanding of the livelihoods of poor people. It points out and describes factors affecting poor people's livelihoods. The Sustainable Livelihoods Approach (SLA) is important since it helps in designing and planning new development to alleviate poverty.

The key components of the Sustainable Livelihoods Approach (SLA) are the framework that explains the complexity of poverty and a set of principles that guide actions that will address poverty. Identifying the people's existing livelihoods is also important before coming up with frameworks to alleviate poverty. (Chambers, 1992) define sustainable livelihoods as: In summary Chambers defines sustainable livelihoods as everything that the people use to carter for themselves are the livelihoods and must be able to cope with the external pressures and withstand the test of time and be able to carter for the needs of the future generals.

Different organizations have come up with different sustainable livelihood frameworks that they work with to alleviate poverty even though they are guided by the same principle of strengthening the live hoods of the poor. Many organizations have different frameworks or guidelines on how to reduce poverty or sustain lives over a certain period but the most common are: British Department for International Development (DFID), United Nations Development Programme (UNDP), and Cooperative for American Remittances to Europe (CARE). All three approaches to poverty reduction define what constitutes sustainable livelihood in a similar way. The only difference is that CARE and UNDP use SL to facilitate the planning of projects and programmes, while for DFID use the SL for analysis. This research will use the UNPD SL approach since the approach since its support activities are geared towards affecting households' livelihoods and also give room for emerging technologies to support and sustain livelihoods.

United Nations Development Programme Sustainable Livelihoods Approach

In 1995 the UNDP under the Sustainable Human Development (SHD) mandate adopted the sustainable livelihoods. The SHD mandates includes: poverty eradication, employment and sustainable livelihoods, gender, protection and regeneration of the environment, and governance. UNDP views Sustainable livelihoods as both a conceptual and a programming framework for poverty reduction in a sustainable manner. Conceptually, 'livelihoods' denotes the means, activities, entitlements, and assets by which people make a living. Assets are defined as: natural/biological (land, water, common-property resources, flora, fauna), social (community,

family, social networks), political (participation, empowerment sometimes included in the ‘social’ category); human (education, labour, health, nutrition); physical (roads, clinics, markets, schools, bridges); and economic (jobs, savings, credit) (Lasser, 2001). In the UNDP sustainable livelihood approach economic activities that are said to be sustainable if they are economically effective, socially equitable (one group opportunities should not block other groups from accessing opportunities), able to cope with and recover from shocks and stresses through adaptive and coping strategies and environmentally friendly.

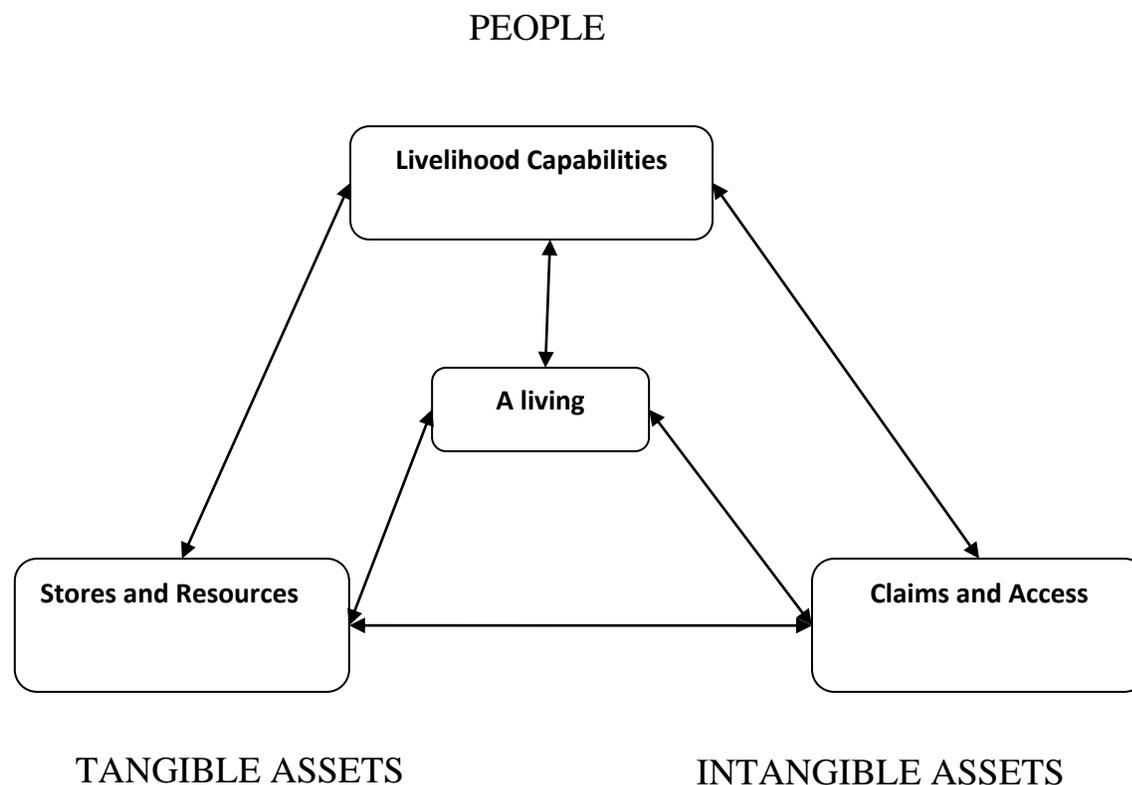


Figure 1: UNDP’s Approach to Promoting Sustainable Livelihoods

The UNDP sustainable livelihood approach emphasizes on an asset-based approach, promoting people’s access to and sustainable use of the assets upon which they rely as central to poverty reduction. The UNDP SL has both short and long-term strategies which are influenced by people’s assets. UNDP has developed a five steps procedure for the design, implementation, and evaluation of SL Programmes. For each of the five steps different methodological tools and guidelines have been developed that includes a manual for Participatory Assessment and Planning for SL (PAPSL). The five steps are: first is a participatory assessment is carried out of the risks, assets, and indigenous knowledge base found in a particular community as reflected in the coping and adaptive strategies pursued by men and women. The second is an analysis of the

micro, macro, and sectorial policies that influence people's livelihood strategies. Thirdly, is an assessment and determination of the potential contributions of modern science and technology that complement indigenous knowledge systems in order to improve livelihoods. Fourth is the identification of the social and economic investment mechanisms (i.e., microfinance, expenditures on health and education) that help or hinder existing livelihood strategies. And lastly an assurance that the first four stages are integrated in real time, so that this process is part of overall programme of development, rather than a series of isolated events.

The UNDP sustainable livelihood can be summarized by figure 1. In this diagram promotion of sustainable livelihoods is a measure of the tangible assets as indicated by the stores and resources and the intangible assets as indicated by the claims and access that impact of the livelihood capabilities of the people. This also showcases how sustainable livelihoods will impact positively on the lives of its people. They will have more choices and have a positive and better living lifestyle. Bananas in Kisii are the tangible assets and the economic potential of banana value addition are the intangible assets. The two can be utilized to provide sustainable livelihood for farmers in Kisii Central.

EMPIRICAL LITERATURE

Impact of Banana Value Addition on Household Incomes

With varying consumer trends and tastes, packaging and branding of farm products has come to constitute value addition. The material used for packaging, size, weight and capacity of packaged product has a bearing on how a product is perceived by consumers, meaning that packaging is also an aspect of value addition. Farmers can also add to their farm produce through adherence to certain farming practices. For instance, crops produced through organic farming systems where natural inputs are emphasized fetch high prices compared to those produced via the conventional husbandry practices that involve use of chemicals and other artificial inputs. This means that organic farming adds value to farm produce. This is noted by Wambugu, Njuguna, Acharya and Mackey (2008) in the study on socio-economic impact of tissue culture banana (*Musa spp.*) in Kenya through the whole value chain approach. And further confirming this is Sonnino, Dhlamini, Santucci and Warren (2009) stating that in Uganda, banana farmers in Kasenda Uganda started value addition ventures after incurring heavy losses due to a concoction of factors. KRC (Kabarole Research and Resource Centre) through their farmer enterprise development program that in part, seeks to increase smallholder farm production and productivity through the adoption of banana agronomic practices facilitated the farmers to incorporate value addition to the crop to maximize farmer's profits.

Kasenda Bataka Kweterane was facilitated by some of its members being exposed to a three days learning seminar on commercial banana wine processing in Bushenyi Uganda (Sonnino, et al., 2009). The three-day exposure enabled the group establish a winery to process, pack and market banana wine products. The group members say the profits from the wines are much more

than what they used to get from selling just bananas in the market. They added that a bunch of bananas can produce up to 76 bottles of wine which is equivalent to seven hundred and sixty thousand Uganda Shillings (760,000/-) in total sales and net profit of two hundred eighty-six thousand Uganda Shillings (286,000/-) this compared to an average of ten thousand shillings they would get if the sold the bunch raw in the market place. They currently produce four gallons per month but plans are under to increase their production up to twelve gallons a month and say even this will not satisfy their local market demand.

The economy of Rwanda depends on agriculture. It accounts for 41% of its GDP. Bananas are a major food crop and an essential source of income for households in the country. However, the production of bananas has been declining from 1990. This was noted by Joel (2005) in analysis of socio-economic factors affecting the production of bananas in Rwanda: A case study of Kanama district. The study reviewed the relationship between the output of bananas and various socio-economic factors such as land acreage, physical capital, fertilizer and price. And the study noted that to improve banana output, these socio-economic factors have to be in place. These are factors on which, the government should give emphasis, in order to increase the production of bananas in Rwanda.

Indimuli (2013) in the study on the factors influencing the discontinuance in adoption of tissue culture banana technology: a study of smallholder farmers in Maragwa district. The study notes that the smallholder farmers in Kenya have been cultivating bananas among other crops such as coffee since the pre-colonial times. Bananas before the 1980s were grown to provide rural households with food. Unlike in other countries where banana is considered a typical export crop, in Kenya banana is grown by peasant farmers for home consumption and for the domestic market. The Kenya Agricultural Research Institute (KARI) launched a tissue culture project in 1996/97 but some farmers have pegged the decision of discontinuance on technical factors including pests, crop diseases, costs of plantlets and labor requirements; the second reason for discontinuance is the socio-economic factors including things like inaccessibility to credit and information, poor infrastructure and access to markets. The study recommends that farmers be educated to understand and appreciate the benefits of tissue culture technology as a tool for crop propagation.

Banana is the readily available asset that farmers in Kisii use and can still use as a source of livelihood over a long period of time. Most banana farmers in Kisii are yet to benefit from the produce as they sell bananas raw therefore at a cheaper price. A 2012 report by Horticultural Crops Development Authority (HCDA) indicates that bananas in Kisii have been under-priced for a long time due to disorganized markets earning the county 7th place in the banana growing region in the country as compared to other counties growing the fruit. Various organizations like one acre fund that seeks to boost farmers' livelihoods has continuously blamed banana farmers' woes in Kisii to middlemen who take advantage of desperate farmers. The middlemen buy bananas cheaply from farmers and sell them at a higher price in major urban areas in the country.

But if farmers can process their bananas to add value and produce many products from bananas then the fruit crop has the ability to increase their incomes (HCDA, 2012).

During the early 1920s the preeminent leader of the Indian nationalism Mahatma Gandhi advocated for village based agro industries to revive the poor rural economy. He believed that the economy of the rural areas would greatly be enhanced through processing agricultural products. Since then agro industries have been guiding light in India's development policies. Farmers in India are now able to process their own produce instead of selling it raw. Though the main objective of agro industries in India's rural areas was for inclusive development so that the rural folks could also be included in all aspects of development the industries have now become the backbone of India's economy. The rural agro industries have propelled India to be the world's largest exporter of milk.

Despite Kenya being an agricultural economy, such value adding ventures have not gained ground especially in rural areas where farmers continue to get poor pay from their produce. In Kisii region banana is mainly hawked at the main roads with sellers competing for buyers. Though a staple food and predominantly grown in the area policy makers and scholars are yet to give a long-lasting solution to help the banana farmers. (Lentican, 1983), states that the gains in the production system as a result of improved technology, infrastructural development, or better financing schemes will not have much impact on the incomes of the rural population if the marketing system is inefficient farmers need to add value addition and incorporate aggressive marketing strategies to maximize their profits. Khan (1989) on the other hand says a good farmer has one eye on the plough while the other on the market.

Valles (1968) attributes low income of banana fruit crop to little economic research about how to profitize the banana crop since it is mainly grown in small underdeveloped countries. (Arthur et al, 1963) say that there is need for doing research on the banana industry because though grown exclusively in tropics they are practically consumed throughout the world and its one of the major products of international trade. Being a major product in the international trade and one of the most consumed fruit in the world, banana farmers in Kisii stand to benefit if they add value to their produce since there is a ready market for their product. Banana is profitable and can generate additional incomes to households.

Impact of Banana Value Addition on Selected Socioeconomic Indicators

Socioeconomics is defined as the study of how economic activities shape the social process (Jess et al, 2011), describes social economics as a discipline studying the mutual relationship between economic science and social philosophy, human dignity and ethics. Socioeconomics aims to bring about social development which can be measured in terms of life expectancy levels, GDP, literacy levels, poverty levels, freedoms, dignity etc.

Sonnino, et al, (2009) carried out a similar study to assess the socio-economic impact of tissue culture banana in Uganda. The study was carried out using the same approach in Banananika

Parish (I.uwero district in Uganda). The site is a fast-growing economy with staple food cropping, local markets for crop sales and several years of extension programs managed by the state. The survey showed a rise in adoption rate, area under banana farming, yields, and income with a high benefit cost ratio. The households reinvested their increased earnings in livelihood assets such as improved houses, school fees and cattle. The survey recommended that projects aimed at diffusion of new technology should include service packages to technically assist the adopters and that adoption patterns and impacts should be considered *ex ante* in the project design in order to maximize the socio-economic impact.

Household income is a measure of all combined income of a particular household. It includes all sources of income be it formal or informal, regular or irregular. Household income can be used as a development indicator of a particular region this was noted by Kassim (2009) in the investigation on socio economic impact assessment of tissue culture bananas in Kisii highlands and South Nyanza in Kenya. And this finding further affirms the Kenya National Bureau of Statistics (KNBS, 2012) report that indicates 51 percent of people in Kisii County live below the poverty line. Banana fruit crop being one of the major sources of livelihood for Kisii residents adding value to it will net additional income to its residents.

Van Asten, Wairegi, Mukasa and Uring (2011) in the study investigation in agronomic and economic benefits of coffee–banana intercropping in Uganda’s smallholder farming systems. The study findings reveal that intercropping enables better usage of land, thus gaining higher yields especially to farmers with small acreage of land. And the study further reveals that an increase in income of banana farmers ensure that farmers are able to develop as they have more choices to enhance their capabilities. Economic empowerment translates to better and improved access to healthcare. Such that farmers will be able to access medical services such as medical insurance policies for them and their families, basic maternal health that has been out of reach especially to expectant mothers and access to prescribed medicine. Within countries, poor people have worse health outcomes than better-off people due to the ease of accessing good healthcare. This association reflects causality running in both directions: poverty breeds ill-health and ill-health keeps poor people poor (Van Asten, et al., 2011).

Education is one of the pillars of development and greatly aids sustainable development. Education for Sustainable Development allows every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future (UNESCO, 2014). Education plays different key roles in developing societies key among them an equalizing agent. Inequalities in any dimension of society derail development of any region since sustainable development is participatory. Inequalities in quality and access to education often translate into differentials in employment, occupation, income, residence and social class. These disparities are prevalent and tend to be determined by socio-economic and family background. Because such disparities are typically transmitted from generation to generation, access to educational and employment opportunities are to a certain degree inherited, with segments of the population systematically suffering exclusion (Kenya National Bureau of Statistics, 2013).

Smale and Tushemereirwe (2007) in an economic assessment of banana genetic improvement and innovation in the Lake Victoria region of Uganda and Tanzania. This research report highlights findings from a set of studies undertaken by applied economists on the impact of improved banana cultivars and recommended management practices in the East African highlands. It focuses on genetic transformation so as to achieve pest and disease resistance of the cooking banana as a promising strategy for smallholder farmers in this region. This would then increase the exports on the world market and help farmers earn more from the crop which will translate to a better socio-economic lifestyle for the farmers and their families. The crop is both an important food source and a significant generator of rural income, which means that improving productivity could have great social benefits.

Impact of Banana Value Addition on Youth Employment

Maden (2012) in the study on transforming public organizations into learning organizations: observes that the number of people at work is generally closely related to whether an economy is growing at a reasonable rate. Maden (2012) further argues that unemployment is highly dependent on activity and when economic activity is high, more production happens overall, and more people are needed to produce the higher amount of goods and services. And when economic activity is low, firms reduce their workforce and unemployment rises. Therefore, it is important to start processing factories like banana factories in order to generate employment opportunities to the youth. Through banana processing more direct and indirect employment opportunities are created through value chain.

Only 28% of Kisii County residents have a secondary level of education or above. A total of 55% of Kisii County residents have a primary level of education only. Another 17% of Kisii County residents have no formal education. The overall illiteracy rates the county stands at 10.45%. The high illiteracy levels in Kisii can be largely attributed to poverty as initiated by the youths being unemployed. Majority of residents cannot afford education beyond primary level due to fees and other miscellaneous cost that accompany education in tertiary and secondary levels. With low literacy levels implementation of basic projects that will help locals like banana value addition will be hard to execute because of the reading and writing challenges (Murungi, 2016). This then means that the socio-economic lifestyles of the residents will be negatively affected. Literacy is fundamental for learning and also impacting ability to actively participate and understand society issues (Anderson, 2002). Increased income through banana value addition will aid residents to access education and acquire skills needed for development.

51% of Kisii County residents live below the poverty line. This is partly attributed to youth unemployment occasioned limited employment opportunities. (Taylor, 2002) argues that unemployment may have a negative effect on a family in future as young people who have unemployed parents are more likely to be unemployed themselves in future than youths who have employed parents. In Kenya the definition of a youth is that of a person who is aged between 18-35 years of age and this group of people are the ones that start a family. With Kisii

County registering unemployment rate of 3.5 per cent between the ages of 15-64 years old it means that there will be chronic poverty in the County.

RESEARCH METHODOLOGY

Research Design

Research design is the conceptual structure that within which research is conducted. It constitutes plan for the collection, measurement and analysis of data (Kothari, 2004). In this study the researcher used cross sectional design. Cross sectional design was suitable for this study because the researcher picked a sub group from the selected target population and expose on group to value addition and the other will not be exposed to value addition. Cross-sectional studies also allowed for examining multiple factors and multiple outcomes in one single study.

Target Population

Target population is a group of people or individuals that the researcher would like to draw conclusion from (Mugenda, 1999). The target population in this study comprised of people who engaged in banana value addition. This study targeted people who processed their bananas in Kisii Central. KIRDI which has been running the value addition programme in Kisii Central provides the number of farmers who practice value addition at 250 from five wards that make up Kisii Central. The five wards are Kiogoro, Nyakoe, Kitutu Central, Bogeka and Bugusero.

Sample Size

Researchers use relatively small number of cases in order to make inferences about a population to be studied (Nachmias, 1996). In the selection of the sample size, the following formula will be used (Israel, 2006).

$$n = \frac{Z^2 PQ}{\alpha^2}$$

Where: Z is the Z - value = 1.96; P Population proportion 0.50; Q = 1-P;
 $\alpha = \text{level of significance} = 5\%$;

$$n = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05}$$

$$n = 384$$

$$n = 384 / [1 + (384/250)]$$

$$n = 151 \text{ farmers}$$

For the control group which included banana farmers who did not practice value addition a 20% of the sample size was included as the control group for the study. According to Yakuel (2013), 20% of the sample size is sufficient enough for a control group in a study. Each ward contributed an equal number of banana farmers; thus 6 farmers were drawn from each of the five wards within Kisii Central Sub County to constitute the control. Thus the total sample size was 181 banana farmers in Kisii Central Sub County.

Data Collection Instrument

This study collected primary data from the field using structured questionnaires that had closed ended questions. The questionnaire covered demographic information and each of the three study variables. The questionnaire used the Five Point Likert scale to explain the extent of agreement in each of the study variables. The questionnaire was used since it was relatively quick and easy to develop code and interpret, and it produced standard responses that were easy to analyze to obtain findings, inferences and conclusions.

Data Collection Method

The study applied self-administration method in questionnaire administration to increase the response rate from the respondents. The researcher engaged 5 research assistants who collected information from the banana farmers in a span of four days. The research assistants were drawn from the local community so as to be able to translate the questions to some of the farmers who may be illiterate; they were also be trained on carrying out research. The five research assistants visited farmers in the five wards and filled the questionnaires, and at the end of each day, the researcher went through the filled questionnaires with them to check for completeness and to monitor the progress. To increase credibility of the information collected, contact information was collected and verified by the researcher.

Data Processing and Analysis

Kothari, (2004) says data processing involves editing, classification, coding, and tabulation of collected data so that they can be analysed. The term analysis refers to the computation of certain measures along with searching for patterns of relationship that exists among groups. The analysis included both descriptive, chi-square and regression analysis. The data was also analysed through multiple regression since the research sought to determine the statistical relationship between two variables i.e. dependent and independent variables (Kothari, 2004). The dependent variables are (Household Incomes; Socio-economic Indicators and Youth Employment) while the independent variable is (Banana Value Addition). The findings from the study were presented in charts, tables and graphs. The Multiple Regression Model was follow this format:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$$

Where: Y = Household welfare; X_1 = Value addition through Wine processing; X_2 = Value addition through Banana Juice; X_3 = Value addition through Banana Crisps; X_4 = Value addition through Banana flour processing; ε = Error term

RESEARCH RESULTS

The study sought to determine the impact of farmers' participations in banana value addition in household welfare in Kisii central sub- county. The study was guided by the following specific objectives: to assess the impact of participating in banana value addition on household welfare in Kisii Central Sub County, to determine the impact of participating in banana value addition on selected socioeconomic indicators in Kisii Central Sub County households and to determine the impact of participating in banana value addition on youth employment in Kisii Central sub County. The researcher collected data using questionnaires and interview guides, targeting 181 respondents. Most of the respondents were male. Majority of the respondents were married. Most of the respondents were banana farmers.

Participation in Banana Value Addition and Household Welfare

The study sought to find out the impact of participating in banana value addition on household welfare in Kisii Central Sub County. The findings are indicated in subsequent sections. Most of the respondents who processed their bananas were paid on a weekly and monthly basis respectively. Majority of the respondents afforded food, followed by housing and lastly clothing. The value addition business helped respondents to obtain live stocks and land. Most of the respondents lived in permanent houses followed by mud houses and semi-permanent house. Before value addition business, most of the respondents had other sources of incomes. Most of the respondents are able to meet the basic needs due to value addition business. Majority of the respondents agreed that their assets had increased as a result of value addition business.

From the findings of regression analysis, the study documents that value addition through wine processing significantly affected house hold welfare. Value addition through from juice processing had insignificant effect on house hold income. Value addition through crisps processing was significant in affecting household welfare. Value addition through flour processing had significant effect on household welfare.

Participation in Banana Value Addition and Selected Socioeconomic Indicators

The study sought to determine the impact of participating in banana value addition on selected socioeconomic indicators in Kisii Central Sub County households. Among the selected social economic indicators were education and health.

On education, the findings revealed that more children in the value addition group schooled in private schools as compared to the control group. Also, more children from control group as compared to the value addition group studied in neither private or public schools. On income

levels based on respondents from value addition and the control groups, less respondents from the value addition group as compared to the control group lived in mud houses. From the findings, majority of the respondents from the value addition group were fully in positions to meet school fees as compared to those in the control group. From the findings, most of the respondents in banana value addition group were able to provide reading and writing books to their children as compared to those in the control group. This shows that value addition of banana generated sufficient income to cater for learning materials of students in schools.

On health, majority of respondents who engaged in value addition as compared to those in the control group afforded medicine due to income they generated from value addition. From the findings, most of respondents who engaged in value addition as compared to the control group were able to contribute towards the National Health Insurance Fund NHIF

Participation in Banana Value Addition and Youth Employment

The study sought to investigate the effect of participating in banana value addition on youth employment in Kisii Central Sub County. From the findings, majority of the respondents were self-employed while others worked in factories. Of the respondents who worked in factories, most of them worked on permanent basis followed by contract and lastly casual. Most of these factory workers were paid on daily basis followed by weekly and lastly monthly. Majority of the respondents had other forms of income besides the banana value addition ventures.

REGRESSION ANALYSIS

The researcher conducted regression analysis to establish relationship between farmers' participations in banana value addition and their welfare in Kisii central sub- county. The findings are indicated in sections.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.817	.667	.607	.95203

The Model Summary above, the coefficient of correlation R is 0.817 an indication of strong positive correlation between the variables of the study. The coefficient of determination R square is .667 showing that 66.7% change in household welfare is explained by independent variables of the study (wine processing, juice processing, crisps processing and flour processing).

Table 2: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	43.851	4	10.964	86.130	.000
Residual	21.895	172	0.127		
Total	65.746	176			

The ANOVA findings of the processed data at 5% level of significance indicate an F calculated value of 86.130 while F Critical Read from F Table is 2.42. This shows that the overall regression model was significant in predicting relationship between the study variables as F calculated is greater than F critical. The p value 0.000 is also less than 0.05 and therefore statistically significant association of the study variables.

Table 3: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.233	.343		3.593	.000
Value addition through Wine processing	.214	.094	.166	2.280	.024
Value addition through Banana Juice	.116	.104	.082	1.115	.266
Value addition through Banana Crisps	.273	.075	.270	3.661	.000
Value addition through Banana flour processing	.088	.091	.072	.964	.037

From the findings, the established equation becomes:

$$Y = 1.233 + 0.214X_1 + 0.273X_3 + 0.088X_4$$

Where: Y =Household welfare; X₁= Value addition through Wine processing; X₃ = Value addition through Banana Crisps and X₄ = Value addition through Banana flour processing

From the findings, when all the variables of the study are held constant, house hold welfare would be at 1.233; a unit increase in value addition through wine processing would lead to 21.4% increase in household welfare, a unit increase in value addition through banana crisps would lead to 27.3% increase in house hold welfare and a unit increase in value addition through banana flour would lead 8.8% change in house hold welfare.

In view of significance level at 0.05, the study established that value addition through wine processing significantly affected house hold welfare p=0.024<0.05. Value addition through juice processing had insignificant effect on house hold income p=0.266>0.05. Income from crisps processing was significant in affecting household welfare p=0.000<0.05. Value addition through flour processing had significant effect on household welfare. From the above findings, (HCDA, 2012), cites that if farmers can process their bananas to add value and produce many products from bananas then the fruit crop has the ability to increase their incomes. According to Sonnino, Dhlamini, Santucci and Warren (2009), KRC (Kabarole Research and Resource Centre) seeks to increase smallholder farm production and productivity through the adoption of banana

agronomic practices facilitated the farmers to incorporate value addition to the crop to maximize farmer's profits.

CONCLUSIONS

Majority of the respondents who participated in banana value addition afforded food, followed by housing and lastly clothing. The value addition business helped respondents to obtain live stocks and land. Most of the respondents are able to meet the basic needs due to value addition business. Majority of the respondents agreed that their assets had increased as a result of value addition business. Banana value value addition through wine processing significantly affected house hold welfare. Value addition through crisps processing was significant in affecting household welfare. Value addition through flour processing had significant effect on household welfare.

More children in the value addition group schooled in private schools as compared to the control group. Most of the children from control group as compared to the value addition group studied in neither private or public schools. Less respondents from the value addition group as compared to the control group lived in mud houses. Majority of the respondents from the value addition group were fully in positions to meet school fees as compared to those in the control group. Most of the respondents in banana value addition group were able to provide reading and writing books to their children as compared to those in the control group. Majority of respondents who engaged in value addition as compared to those in the control group afforded medicine due to income they generated from value addition. A great number of respondents who engaged in value addition as compared to the control group were able to contribute towards the National Health Insurance Fund NHIF.

Most of the respondents were self-employed while others worked in factories. Of the respondents who worked in factories, most of them worked on permanent basis followed by contract and lastly casual. Most of these factory workers were paid on daily basis followed by weekly and lastly monthly. Majority of the respondents had other forms of income besides the banana value addition ventures.

RECOMMENDATIONS

The County government of Kisii and other counties in Kenya generally motivate residents to embrace banana value addition in order to enhance the quality of living standards. The county government should support the banana value addition venture through provision of capital to set up more factories for processing of wines, crisps and flour so as to enhance the welfare of residents. Intensive publicity and campaign for banana value addition should be made by the government to educate people on potentials for the business and encourage its uptake.

Since banana value addition enhances contribution towards NHIF while enhancing the ability to meet school fees and other expenses, the study recommends that measures should be put in place

to create awareness to those people who have not embraced the practice. Farmers taking part in banana value addition should leverage on the lucrative revenues generated from the business to provide quality education to their children in terms of private schools, adequately pay for school fees, further their education too and enroll for other medical insurance schemes apart from NHIF.

Because banana value addition results into creation of factories that help in processing, the study recommends that more capital should be sourced by county governments to increase these factories that create lots of employment to youths on either permanent or temporary basis. The study further recommends for prudent spending of the daily proceeds of those who work in factories. This calls for proper planning and budgeting of the expenses versus the incomes earned.

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