

An Assessment of Socio-Economic Benefits Accrued by Farmers in Donor Funded Community Development Projects in Kibwezi Irrigation Project, Kenya

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Abstract

The Kibwezi Irrigation Project, just like the Gezira Irrigation Scheme of Sudan was started with the aim of developing and transferring dry land farming technologies to the local farmers and like the Israel Kibbutz, reclaim dry land areas and eventually improve the standards of living of the populations living in such areas. This study sought to establish if there was actual transfer of farming technologies from the project to the local farmers and if the locals were able to derive any socio-economic benefits from the project. Furthermore, the study examined if the effects of the project caused an improvement of the standards of living of the local farmers and if the KIP trainees were able to train other local farmers through peer consultation. The study adopted a cross-sectional survey design, choosing 56 farmers as the sample frame out of a target population of 531 KIP trained farmers. Cluster sampling design was used in selecting the sample frame and data was collected using open and closed ended questionnaires and interviews. The collected data was analysed using Statistical Package for Social Sciences in order to generate tables, frequencies and percentages. From the findings it was established that apart from electricity supply, KIP had a strong influence on many socio-economic benefits, namely influencing efficiency on utilization of water in the region, improving on literacy levels in the region and in creating employment opportunities in the region. Majority of the farmers have experienced a rise in economic status after attending the KIP Trainings while a significant number affirmed to no longer depending on relief food. It was also evident that the Project has been able to introduce sustainable growth in the region thus proving wrong the critics of the Aid Industry that have argued that donor aids breeds dependency syndrome and consequently poverty and is therefore not conducive to long-term sustainable growth in African. Majority of the farmers affirmed that KIP brought with it indirect gains like increased employment opportunities; business growth and reduced crime rate in the region. The Kibwezi Irrigation Project, and in particular, the extension part of the project is today a shining example in that, it has been able to sustain its services after the withdrawal of the donor support.

Keywords: Socio –Economic Benefits, Kibwezi, Irrigation ,Farmer

Introduction

Economic analysis shows that irrigated crops yield higher income than rain fed crops that are commonly grown by small holders in the dry land areas of Kenya. Therefore, significant changes in agriculture and the standards of living of the population in such areas can only be realized by the introduction of irrigated crops and advanced technologies. Source: The draft report of the Evaluation of the Kibwezi Extension Project, Findings, Conclusion and Recommendations, 2001. Successful development of advanced agriculture will depend on three main factors. First, teaching farmers about various cropping, irrigation and post harvest technologies. Secondly, teaching them about efficient planning of production and marketing. The third factor is ensuring availability of appropriate credit facilities to the farmers. Intensive irrigated agriculture requires capital for investment in equipment and inputs. Because majority of the farmers in this country own land without title deeds, it surely becomes quite difficult for them to access collateral loans and hence the need to facilitate them financially.

The search for suitable dry land field station by the Faculty of Agriculture of the University of Nairobi, dates as far back as 1970. The need for such a station was based on the fact that dry lands, which include arid and semi-arid lands receiving 250-800 mm of rainfall, constitutes about 80 percent of Kenya's total land resources. Further, a substantial part of Kenya's population (about 20%), comprising mainly of the nomadic and semi-nomadic communities derive their livelihood from these resources. That 50 percent of native beef cattle are found in these areas and combined with the current population pressures which have pushed sedentary cultivators into dry lands, the need for research of such lands was, and still, is evident. Most of the Kenya's agricultural research had hitherto been restricted to the high potential areas that constitute the remaining 20% of Kenya's land area. Source: Proposed Statutes of the Institute for Dry land Research. Dean's committee. UoN, (1995).

Evidently, the development of viable productive packages for the arid and semi-arid lands(ASAL) is

highly required in Kenya so as to boost the standards of living and quality of life of the local people in particular and the country in general. This will be achieved through appropriate and increased food production and alleviation of poverty through stable income. This is in accordance with the Kenya Sessional Paper No.2 of 1996 which states that, “ it is the ambition of the Kenyan Government that every Kenyan should benefit fully from the fruits of independence and be able to face the future with the confidence that, the quality of life will improve”.

The problems of dry lands cut across most academic disciplines. The land management technologies, food production, health, education, natural resource base (e.g. water, vegetation, animals and soils) and environmental problems require special orientation to develop an appropriate technological package that is environmentally suitable while at the same time integrating the survival and welfare needs of the inhabitants of these dry lands. Recent development emphasis on arid and semi-arid lands in Kenya has created public awareness regarding the special development needs of such lands. Source: Proposal for the project of the establishment of the University of South Eastern Kenya (USEK),2005.

Kibwezi Dry land Field Station (KDFS) became operational in 1987 and it was later upgraded to the status of an Institute in 1995 when it became, the Institute for Dry land Research, Development and Utilization (IDRDU) which comprised, Kibwezi Field Station, Machanga Station and Ngong Station. This research focuses on Kibwezi Field Station.

Literature Review

Historical background to Kibwezi Irrigation Project

Kibwezi Irrigation Project phase I was established in 1990 jointly by the University of Nairobi and the Israel Ministry of Foreign Affairs Division for International Cooperation (MASHAV).The purpose of the project was to improve agriculture and consequently, the standards of living of about 42,000 people living in the area. The project was divided into two phases:

Phase I, included the establishment of the demonstration farm with the aim of carrying out demonstration of irrigated crops and other varieties under local conditions. Another important aspect of the farm was to generate and introduce advanced agricultural technologies applicable to the dry land areas.

Phase II, the extension project came in immediately after successful completion of phase I in 1995. Its aim was to transfer dry land farming technologies that were tried and successfully applied on the demonstration farm to the local farmers participating in the project. A list of activities exposed to the farmers during the training sessions is endless, but of importance to note are: weed control; crop establishment and spacing; irrigation techniques; crop rotation; land preparation; use of certified seeds; fertilizer application; crop protection and record keeping. Market monitoring and organization is also another area that was exposed to the project participants. Source: Kibwezi Project and Yatta Farms mission summary report, 2004.

Goals and Objectives of the Kibwezi Irrigation Project-Phase II

- i). One of the KIP objectives as detailed in the memorandum of understanding between the University of Nairobi and the Israel Embassy relate to the establishment of an extension system, continuation of the activities of the demonstration farm as an income generating and research centre, and as the basis for extension activities for the introduction of new technologies to the farmers of the region;
- ii). It was also expected that at the end of three years of intensive activities in the fields of extension, applicative research; marketing with the focus on a marketing centre; supply of inputs and agricultural outputs; far reaching and sustainable changes for the better will occur in agricultural production of the Kibwezi area;
- iii). It was envisaged that, the Kibwezi Irrigation Project would be integrated in the applicative research of the University and work within an effective extension system of the satellite system and with the cooperation of the local office of the Ministry of agriculture, transform Kibwezi into a horticultural producing zone;
- iv). The entire Kibwezi area is considered semi-arid with an average annual rainfall of 500mm, but its distribution over the year is inefficient and does not facilitate intensive agriculture. Therefore, development of irrigation and moderate capital-intensive crops such as vegetables for export using appropriate technology was seen to be a way of improving the standards of living of the Kibwezi inhabitants;
- v). The project with its professional manpower was expected to render support to the existing extension system of the Ministry of Agriculture, carry out applicative research needed for the region and provide professional up-to-date support to the extension system;
- vi). Scientific research was to re-examine the possibilities of establishing in the project, a supply centre for agricultural inputs of high quality and reasonable prices. Without such inputs, it would have been impossible to introduce innovations such as: use of improved seeds; fertilizer and pesticides application;
- vii). The Kibwezi Irrigation Project was also expected to research on the possibility of using the demonstration farm as a marketing centre for the produce of the farmers of the area. The purpose was to solve the problem that the local farmers faced while marketing their farm produce;
- Viii). In the KIP proposal, it was also expected that there will be a sustainable transfer of technologies to the

farmers of the region and a continuation of applicative research, essential for developing crops that are suitable for dry land areas. The project planners also envisaged that, the KIP trained farmers will be able to pass on, through peer consultation, the acquired farming techniques to other local farmers that did not have the opportunity to attend the KIP trainings. A continual cooperation between the University of Nairobi, the Embassy of Israel, USAID, and the Extension Division of the Ministry of Agriculture was expected to advance and promote agriculture and improve the standards of living of the people living not only in the Kibwezi region but also in other ASAL areas of Kenya. Source: A mission report on agricultural extension needs and the establishment of an extension system for the Kibwezi Irrigation Project Phase II, Kenya, 1994.

To achieve the project goals and objectives, the project participants were exposed to a rigorous training process as is seen in the following sub-topics under technological transfer.

Technological Transfer

Technological transfer, as explained in 'The Draft Report of the Evaluation of the Kibwezi Extension Project', is the process through which people are able to acquire new knowledge which they subsequently make use of in their future life. The local farmers of the Kibwezi region were trained on modern dry land farming methods by the project as is seen from the following sub-topics.

Weed control

Weeds should be controlled at the right time to avoid adverse effects on the crops, like competition for light, nutrients and water. Weeds also can act as hosts for diseases and pest and also contaminate the produce. Timely weed control in relation to the stage of growth, irrigation and methods of weeds control are important messages that were conveyed to the farmers.

Crop establishment and spacing

Poor crop establishment limits the potential yields. To overcome this, the farmers were exposed to the following essential farming techniques: crop planting and transplanting; timely and correct irrigation procedures; use of quality seeds; nursery management and crop spacing methods.

Irrigation

Availability of moisture to the crops in the Kibwezi area is particularly critical because of the dry and hot climate prevailing during most of the time. Application of less water than required leads to stunted crops and hence poor yields and quality. Excessive water is unnecessary, expensive, deteriorates the soil and encourages some diseases. There was definitely a need to train farmers on irrigation scheduling like, applying the right amount of water at the right interval; preparation of furrows and prevention of excess evaporation.

Crop rotation

Crop rotation is important for controlling soil-borne diseases, soil pests, nutrient requirements and physical soil properties. Most farmers were aware of the importance of crop rotation, but the sequence of rotation was not correctly determined. Most of the horticultural crops are in the same family and therefore are not effective in the rotation. The crops share common pests and diseases and have the same rooting depths. This is another important area that the farmers were trained in.

Land preparation

Most farmers did not plough their plots. They mostly did shallow weeding. As a result there was poor aeration due to competition. This, together with hardpan limits roots development. This can be corrected by sub soiling or deep ploughing where a tractor is available, or double hoeing with a fork jembe. Turning over the soil helps in disease and pest control, it also assists roots development and also helps in nutrients availability. It also makes certain operations, like planting/transplanting, weeds control, fertilizers application and irrigation, easier. Local farmers were introduced to these new ideas.

Use of certified seeds

Poor seeds limit the potential yields and quality of the produce. Most farmers by then used their own seeds or seeds bought from the local seed outlets that were of low quality. The project identified a source (Amiran Kenya) of high quality seeds and advised the farmers on the same and availed quality seeds for sale to them. Farm demonstrations on the use of quality seeds were conducted.

Fertilizer use

Many farmers in Kibwezi did not use fertilizers regularly and those who did, used very low rates. Most of them seemed to be aware of the need for applying fertilizer but either, due to none availability, lack of money, or due

to uncertain market outlets, they did not use them. The farmers were not aware of how much yield is forgone due to lack of fertilizer application. Availability of inputs was improved and demonstrations performed on types of fertilizers to apply, timing, methods and rates of application.

Crop protection

This was one of the major limiting factors in crop production in the Kibwezi area. It was a complicated issue because many farmers were not even able to differentiate the crop damage according to pest, diseases, nutrient deficiencies or physiological disorder. When considering the dynamics of pest and diseases in the Kibwezi area, this limited the effectiveness of pesticide use. However, it was not easy to produce quality horticultural produce in this area without the use of pesticides and hence the need to train the farmers on the same. Farmers needed to be trained on differentiating various disorders and correct methods of using fungicides and insecticides. The issue of availability of high quality pesticides was also tackled. The project personnel were able to identify and address most of the problems through regular visits to the farmers.

Records keeping

Record keeping was a necessary tool for training the farmer so that he/she could perform an economic analysis of his/her farm. This helped the farmer to clearly see the advantages of using various technologies like fertilizers and pesticides.

Market monitoring and organization

There was excessive exploitation of the farmers by the middlemen in the Kibwezi region. The middleman pocketed as much as 70% of the price offered by the exporting farms in Nairobi. Farmers also produced irregularly and without checking the possible outlets. This led to an over-supply of some produce and under-supply of others (usually the buyers bought the horticultural crops in ratio mix). This depressed some prices, raised others and confused farmers when designing their cropping programs and even the exporter was unable to meet his pledge order and hence the marketing outlet brought losses to the farmers. Farmers were therefore trained on organized marketing strategies in order to avoid exploitation by the middlemen. Source: The Draft Report of the Evaluation of the Kibwezi Extension Project, Findings, Conclusion and Recommendations, 2001.

Standards of Living

Standards of Living include not only the ownership of consumer goods, but also aspects of living that cannot be purchased or are not under an individual's direct control. For instance, environmental quality and services provided by the government. Social scientists debate how exactly to measure standards of living. In a comparison among nations, often the yardstick is per capita national income, although some scholars prefer the related measure, per capita consumption of goods and services. However, using per capita income, or consumption of those goods and services that are measured by economists, to calculate standards of living can obscure both significant social problems and significant noneconomic values. For instance, despite the high per capita standard of living in the United States, infant mortality in some U.S. cities including the nation's capitol equals or surpasses that in some countries with extremely low per capita standards of living. Per capita figures in general do not reveal the extent of gaps between rich and poor. Furthermore, not only do income figures fail to measure such factors as access to safe drinking water or political freedoms, they also do not measure wealth that does not appear as "income." Thus, for instance, value-producing activities such as unpaid household labor may be rendered invisible, though access to the fruits of such labor improves one's living standard (Davis, 2002).

Davis(2002), further argues, that standards of living can also be looked at as the level of wealth, comfort, material goods and necessities available to a certain socio-economic class in a certain geographic area. The standard of living includes factors such as income, quality and availability of employment, class disparity, poverty rate, quality and affordability of housing, hours of work required to purchase necessities, gross domestic product, inflation rate, number of vacation days per year, affordable (or free) access to quality healthcare, quality and availability of education. Other factors considered include life expectancy, incidence of disease, cost of goods and services, infrastructure, national economic growth, economic and political stability, political and religious freedom, environmental quality, climate and safety. The standards of living are closely related to quality of life.

The Meaning of a Community

According to Mulwa (2008), Community is usually defined in terms of geographic locality, of shared interests and needs, or in terms of deprivation and disadvantage. It is a grouping of people who reside in a specific locality and who exercise some degree of local autonomy in organizing their social life in such a way that, they can from that locality, satisfy the full range of their daily needs.

Often when we think of the term community development, we think in geographic terms. Our

community is the location (i.e. city, town or village) where we live. When community is defined through physical location, it can be defined by precise boundaries that are readily understood and accepted by others. Defining communities in terms of geography, however, is one way of looking at them. Communities can also be defined by common cultural heritage, language and beliefs or shared interests (Chikati, 2009). Chikati further argues that, even when community does refer to a geographic location, it does not always include everyone within the area. For example, many Maasai communities are part of a larger non-Maasai geography. In larger urban centres, communities are often defined in terms of particular neighbourhoods. Most of us belong to more than one community, whether we are aware of it or not. For instance, an individual can be part of a neighbourhood community, a religious community and a community of shared interests all at the same time. Relationships, whether with people or the land, define a community for each individual.

The overriding goal in running community projects is to bring about community development and eventually improve the standards of living of the people. It is of essence therefore, to understand the history of community development and be able to connect it with community projects.

The Genesis of Community Development

According to Mulwa (2008), community development has been perceived as the vehicle that has been used to carry modernization through the key epoch of development history that followed the World War II. He further argues that a more recent origin of community development is attributed to the practice of agricultural extension instituted in 1870 in some Midwestern states of United States of America. The aim of the agricultural extension is said primarily to have been to transfer knowledge regarding agricultural practices and techniques and consequently promote self-help projects in rural areas. Other social scientists argue that community development started in 1908 with the launching of Country Life Commission Report and the subsequent enactment of Smith – Lever act in 1914 (Mulwa, 2008).

These developments are said to have brought the institution of cooperative extension service characterized by the promotion of community organization in order to promote better living, better farming, more education, more happiness and better citizenship. All these efforts are categorized as the genesis of community development, where people sought to organize themselves and articulate their needs and wishes towards common good (Mulwa, 2008).

The term development often carries with it an assumption of growth and expansion. During the industrial period, development was strongly connected to increased speed, volume and size. Many are currently questioning the concept of growth for numerous reasons. There is the realization that more is not always better. Increasingly, there is respect for reducing outside dependencies and lowering levels of consumerism. The term development therefore may not always mean growth. It does, however, always imply change. The community development process takes charge of the conditions and factors that influence a community and changes the quality of life of its members (Chikati, 2009)

Community development is a planned evolution of all aspects of community well being (economic, social, environmental and cultural). It is a process whereby community members come together to take collective action and generate solutions to common problems. The scope of community development can vary from small initiatives within a small group, to large initiatives that involve the whole community. Regardless of the scope of the activity, effective community development should be a long term endeavour, well planned, inclusive and equitable. It should also be holistic and integrated into the bigger picture. It should have the support of the community members and should bring benefits to the community (Chikati, 2009).

The primary outcome of community development is improved quality of life. Effective community development results in mutual benefits and shared responsibility among the community and recognizes the connection between social, cultural, environmental and economic matters. It also recognizes the diversity of interests within a community and its relationship to building capacity. Community development does not just happen but it requires both conscious and conscientious effort to do something or many things in order to improve the community (Chikati, 2009).

Community development requires and helps in building community capacity to address issues and take advantage of opportunities, find common ground and balance competing interests. Community development is actually a capacity building process and the two concepts may sometimes be interchanged.

Community Capacity Building

The overriding goal of any development agent is to get communities out of poverty traps by ensuring that such communities have basic needs like food, shelter, clean water and so on. The principle underlying community development projects is to alleviate poverty and suffering through meeting peoples basic needs. The good news is that, as people strive to achieve concrete objectives, they at the same time attain abstract goals that they may not have thought of (Mulwa, 2008). Such abstract (social and psychological) needs may include the ability to exercise self reliance, the ability to be happy and the ability to exercise self esteem or human dignity.

At the end of it all, community projects empower the poor by way of enabling them to take more control over their lives and securing a better livelihood with ownership and control of productive assets. Decentralization of responsibility to the local people in the name of devolvement enables them generate their own innovations, find their own solutions and become masters of their own destiny within their cultural and socio-economic realities (Mulwa, 2008).

Community capacity building involves many aspects and considerations. There is no clear agreement about what should or should not be included when discussing capacity building. Most often, it refers to skills, knowledge and ability but can also include things such as access, leadership, infrastructure, time, commitment and resources (Chikati, 2009). Chikati further argues that, developing community capacity, means taking risks, improving things and sharing control. It involves change, training and increased power for those who have previously not had it. Community development is actually a capacity building process. Community capacity building is based on the premise that community sustainability can be improved overtime. Capacity or the lack of it, is reflected in the people; their economy, culture, attitude, environment and appearance of the community (Chikati, 2009).

Development agents, through community projects aim at meeting the needs and priorities of the community groups, raising self-esteem and confidence, and stimulating creativity amongst participants as well as raising community expectations and educational attainment. Development agents will also endeavour to teach new skills which can be sustained beyond the life of the project; build community cohesion and reduce social exclusion. They also work towards an enhanced sense of place and identity that increases the value that communities attach to their local environment and the sense of pride and ownership in the place where they live. They enrich communities by challenging them to analyze and make choices when faced with different priorities and perspectives. Development agents, with the support of the aid donors, endeavour to empower communities to understand their holistic environment in a sustainable way that guarantees its long-term future (Mulwa, 2008).

Project Funding

Many development agencies are investing heavily on community projects and especially in the third worlds. The major goal here is to improve the livelihood of the societies involved. The success of such investments are observed when such communities become independent in the provision of the intended goods and services, and when such benefits are sustained after the donors' exit. In this way, donors become motivated to invest more in new projects or even replicate successful projects elsewhere. Most community projects are financed by international organizations like the USAID (United States Agency for International Development) and JICA (Japan International Cooperation Agency). Majority of the Non Governmental Organizations (NGOs) popularly known as change agents that are running most of the community projects derive their financial support from such international organizations or from their mother states. Local borrowing either through equity or sale of treasury bonds is another way through which local governments raise funds to support community projects. Bilateral state funding as well as loans and grants dispensed through the World Bank and the IMF (International Monetary Fund) are other sources through which community projects are funded. Source: USAID, 1994. Fundamentals of NGO Financial Sustainability.

The intentions of the Kibwezi Irrigation Project like many other community irrigation projects in the developing countries were geared to introducing and transferring new farming technologies to the local farmers for better utilization of dry land areas and subsequent improvement of the lives of people living in such areas. The Gezira irrigation scheme is one successful story at the regional level that can be related to the Kibwezi Irrigation Project. On the other hand, the famous Israel Kibbutz movement is one international community undertaking that both the Kibwezi and the Gezira Irrigation systems may have a lot to borrow from.

There is quite substantial relevancy in comparing the three. The historical Kibbutz undertook the pain of draining and reclaiming swamps and deserts respectively and transforming them into productive agricultural land. The Sudanese did the same when they reclaimed their desert under the Gezira Irrigation Scheme. On the same breadth, the Kibwezi Irrigation Project endeavoured to transform Arid and Semi Arid Lands into productive farmlands. The ultimate goals of the three entities were to improve the standards of living of their respective inhabitants and hence their commonalities.

Objective

To determine the socio-economic benefits derived by farmers from the Kibwezi Irrigation project in Kenya.

Research Question

What are the socio-economic benefits derived by farmers from the Kibwezi Irrigation project in Kenya?

Methodology

The study adopted a cross-sectional survey research with 56 farmers comprising the sample frame out of a

target population of 531 KIP trained farmers. Cluster sampling design was used in selecting the sample frame and data was collected using open and closed ended questionnaires and interviews. The collected data was analysed using Statistical Package for Social Sciences version 17 software package.

Findings and Discussion

Table 1: Respondents' rating on the project's Socio-economic benefits

Statement	no extent	Small extent	Non-committal	moderate extent	great extent
KIP has contributed towards efficient utilization of water in the region.	.0%	3.6%	10.7%	30.4%	55.4%
KIP has influenced electricity supply in the region.	34.0%	26.4%	17.0%	9.4%	13.2%
KIP has contributed in improving literacy level in the region.	3.6%	12.7%	10.9%	29.1%	43.6%
KIP has contributed towards business growth in the area.	1.9%	5.6%	5.6%	55.6%	31.5%
KIP has contributed towards creating employment opportunities in the region.	.0%	5.6%	3.7%	38.9%	51.9%
KIP has contributed towards improving health standards in the region.	1.9%	9.4%	7.5%	39.6%	41.5%
KIP has contributed towards environmental conservation in the region.	.0%	7.3%	9.1%	25.5%	58.2%
KIP has contributed towards poverty reduction in this area	1.8%	7.3%	1.8%	32.7%	56.4%
KIP has contributed towards improving communication net-work in the region.	13.0%	18.5%	27.8%	29.6%	11.1%
KIP has contributed towards crime reduction in the area.	1.8%	12.7%	21.8%	45.5%	18.2%

The respondents were also asked to rate, on a scale of 1 – 5, the level of indirect gains that the community may have derived from the Kibwezi Irrigation Project. The results were as displayed in Table 1. From the table above, it was established that apart from electricity supply and communication net-work, KIP had influenced to some extent all the other socio-economic benefit indicators. Majority of the respondents stated that the following had been influenced to some extent by the project: efficient utilization of water in the region (85.8%); i literacy improvement in the region (72.7%); business growth in the area (87.1%); Creation of employment opportunities in the region (90.8%); health standards improvement in the region (81.1%); environmental conservation in the region (83.7%); poverty reduction in the area (89.1%) and crime reduction in the area (63.7%).

Further, it was found that, KIP had little influence on the supply of electricity in the region. Only 22.6% of the total 56 respondents attested to this. In collaboration with the farmers rating, all the former KIP managers agreed that the project has generated some socio-economic benefits to the locals.

Standards of living

Table 2: Respondents' rating on the community's improvement of the Standards of living.

Statement	Strongly disagree	Disagree	Indifferent	Agree	Strongly agree
Because of the KIP training, my earnings have increased and I no longer depend on relief food.	.0%	3.6%	5.5%	49.1%	41.8%
Skills I acquired from the KIP have enabled me earn more from my plots and as a result, I have been able to put up a permanent house for my family.	1.8%	9.1%	18.2%	29.1%	41.8%
After attending the KIP training, my farm returns have improved and I am now in a position to pay school fees for my children.	.0%	1.8%	3.6%	38.2%	56.4%
Because of the KIP training, my earnings have improved and as a result, I have been able to install power in my house.	20.4%	24.1%	13.0%	14.8%	27.8%
Skills I acquired from KIP have improved my earnings to the extent of enabling me provide safe water for my family.	.0%	16.4%	10.9%	23.6%	49.1%
Because of the KIP training, my earnings have improved and as a result, I have been able to buy and own a motor transport.	27.3%	25.5%	7.3%	14.5%	25.5%
Skills I acquired from KIP have improved my earnings to the extent of enabling me provide three meals per day to my family.	.0%	.0%	3.6%	27.3%	69.1%
Because of the KIP training, my earnings have improved and as a result, I have been able to buy and install a television set in my house.	23.6%	32.7%	5.5%	14.5%	23.6%
After attending the KIP training, my earnings have improved to the extent of enabling my family to access better health care.	3.7%	.0%	1.9%	55.6%	38.9%
As a result of the KIP training, my income has increased to more than Ksh.10,000/- per month.	7.3%	14.5%	10.9%	40.0%	27.3%

The study sought to establish the influence of the KIP on the standards of living of the area residents. The respondents were asked to state their level of agreement with a number of positive statements regarding their living standards. The results are as shown in Table 2. It is evident from Table 2, that, majority of the respondents have experienced a rise in economic status as a result of KIP training. Specifically, majority of the respondents, 90.9% no longer depend on relief food as a result of increased earnings from their farms. Similarly, 70.9% of the respondents have been able to put up permanent houses as a result of improved farm productivity. Furthermore, a big number of the respondents, 94.5% confirmed that they have gained greater capacity to pay school fees for their children. Because of the training skills and consequent improved earnings, many farmers(72.7%) confirmed that they are now able to provide safe water for their families. Skills acquired from KIP have improved earnings to the extent of enabling majority of the farmers(96.4%) to be in a position to provide three meals in a day to their families. KIP training has influenced the lives of the farmers as 94.4% confirmed access to better health care. Also, 67.3% of the farmers confirmed that their income has increased by more than Ksh.10,000/- per month.

However, KIP did not have much impact on luxury possessions. This indicates that, though an increase in earnings had been experienced as a result of the KIP trainings, the gains were only sufficient to take care of moderate necessities. A number of the respondents (44.4%) stated that KIP training had little effect on their capacity to access electricity at home. At the same time, 100% of the farmers confirmed that they were not able to buy and own a car while 56.3% were not able to install a television set in their homes.

All the former KIP managers confirmed that the community's standards of living improved as a result of the KIP trainings as is evident from Table 3. Most of them stated that improved housing facilities and greater capacity to meet needs such as purchase of household goods and paying of school fees were some of the indicators of improved standards of living.

Table 3 : Former KIP managers' rating on the project

Question	Yes	No	Total
Question 1. Was there transfer of farming technologies from the project to the locals?	5	0	5
Question 2. Was the community able to derive socio-economic benefits from the project?	5	0	5
Question 3. Did the project improve the community's standards of living?	5	0	5
Question 4. Were there training multiplier-effects amongst the farmers?	5	0	5
Question 5. Did the project face challenges at the appraisal and implementation stages?	5	0	5
Question 6. Did the project bring long-term sustainable growth to the Kibwezi people?	3	2	5

Conclusion

Apart from electricity supply, KIP had a strong influence on many socio-economic benefits, namely influencing efficiency on utilization of water in the region, improving on literacy levels in the region and in creating employment opportunities in the region. Majority of the farmers have experienced a rise in economic status after attending the KIP Trainings while a significant number affirmed to no longer depending on relief food. Based on the research findings, it is evident that the Project has been able to introduce sustainable growth in the region thus proving wrong the critics of the Aid Industry that have argued that donor aids breeds dependency syndrome and consequently poverty and is therefore not conducive to long-term sustainable growth in African. Kibwezi project resulted in significant ancillary benefits beyond the transfer of dry land farming technologies. Majority of the farmers confirmed this in Table 4.6 whereby, most of them agreed that KIP brought with it indirect gains like increased employment opportunities; business growth and reduced crime rate in the region. The Kibwezi Irrigation Project, and in particular, the extension part of the project is today a shining example in that, it has been able to sustain its services after the withdrawal of the donor support. Today, the Kibwezi region competes with other parts of this country in as far as production of horticulture is concerned, thanks to the KIP intervention.

Recommendations

The findings indicate for the need to replicate the Kibwezi Irrigation Project in other dry land areas that have experienced drought and famine in this country. The findings presents a great opportunity for the Ministry of Agriculture and in particular, the Extension Department to request for more funding to be used in training Kenyans living in dry land areas for better utilization of such areas and subsequent improvement of their livelihood.

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