EVALUATION OF AFRICARE FOOD SECURITY INITIATIVE IN NYABUMBA, UGANDA

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ABSTRACT

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This research was carried out at Nyabumba village in Kabale district, Uganda during August and September 2007 to explore the local people participation in Africare's development interventions in achieving sustainable food security for village farmers. Semi-structured interviews were held with members and non-members of the Africare Farmer field school. A key informant interview was carried out to obtain in-depth information. The data was analysed by a data matrix and a cause effect diagram. The study shows that the farmers in Nyabumba have got higher yield and income due to new crop varieties. The knowledge about nutrition has increased and many of the households are more food secure now after Africare's intervention. Some farmers are not members of the farmer field school due to time constraints because there is only one adult in the household, but even these non members have gained knowledge from the farmer field schools and they have adopted the new crop varieties.

Key words: Farmer field school, development, knowledge dissemination

INTRODUCTION

Africare was funded in 1971 by African and American leaders and development specialists to provide emergency assistance and long-term help in Africa. This non-profit organisation has become the largest African-American led organisation. Areas of assistance include agriculture, water, environment, health and emergency humanitarian aid, and as support in programs for private sector development and governance. In Uganda Africare has a project that targets an estimated 21,252 households (around 150,000 people) in 144 villages in the districts Kabale, Kisoro, Ntungamo, Kanungu and Rukungiri. Africare aims to develop food security in these districts by implementing a "four-pronged strategy" (Africare 2006):

1. Natural Resource Management: Protect the soils against erosion and establish the means of maintaining and increasing soil fertility.
2. Agriculture and Nutrition: Increase crop yields, reduce post-harvest losses of seeds and food in storage, and improve food utilization.
3. Rural Roads: Provide year round road access for commerce, production and marketing.
4. Local Capacity Building: To strengthen the organization and capacity of Kabale farmers, institutions, and associations, and the support they receive from the government of Uganda and local NGO's in organizing, implementing and monitoring food security initiatives.

Nyabumba, a village in Kabale district, participated in Africare's food security initiative and this evaluation assesses the impact of Africare's development initiatives on rural livelihoods and sustainable resource management in Nyabumba. It will seek to find out how Africare implemented their approach by including the people of Nyabumba's opinions in decisions made for food security. Farming in the Kabale highlands is a very complicated process due to its difficult environment and it demands high control and strong management. The farmers gain knowledge on how to maintain farming through practical experience and the farmers' methods are complex. Cropping of potatoes by using fertilizer and pesticides has been introduced by Africare and as this is a new way of cropping for the local farmers problems may occur if requirements for these new potatoes are hard to maintain in the local environment. According to Nustad (2005), local knowledge works precisely because it is imprecise and is adapted to the local conditions. It is therefore crucial for the project to have a broad participation to prevent valuable, local knowledge to be ignored or get lost in the process. If local knowledge get lost this may hamper the project to reach its long-term goals and sustainability. The evaluation will therefore look at why some farmers become members of Africare's program and others do not and on the local people's participation in achieving sustainable food security.

METHODOLOGY

Study area

The Africare Food Security Initiative has been running in The Highlands of South-western Uganda, District of Kabale since 1997 with the objective to "Enhance sustainable household food security in South-western

Uganda". In Kabale, rural poverty and malnutrition are severe and lack of protein in the diet makes diseases that are preventable fatal. Food insecurity is a challenge in the smallholder subsistence agriculture in rural areas and roads are few and in poor condition. The terrain is rough with steep hillsides and soil erosion from landslides has reduced arable land fast. In addition, population pressure has lead to land fragmentation and farmers face scarcity of land. Their scattered plots may lead to low agricultural production (Africare 2006).

Sampling and data collection

The Nyabumba village was purposively selected to investigate the impact of Africare intervention in Kabale District, Uganda. The study was conducted in September and August 2006. Focus group discussion was carried out and provided a broad background information on Africare's intervention in the village from the communities own perception. The focus was on agricultural production, participation in programme, marketing of products, road networks, assets, like land, and access to them. Fifteen households were randomly selected for the household interview. Eleven of these household were, or had been, members of the Africare intervention group while four were non-members.

Semi-structured interviews for each of the selected households were employed. The interview guide was revised after the first interviews to better capture relevant data. Different themes depending on he attributes of the concerned households were emphasized, like information regarding why the non-member households decided to stay outside the Farmer Field School. Probing was done when necessary. Triangulation was used to crosscheck the data and minimize the interview biases.

Qualitative data was collected to understand the level of poverty and food security with emphasize on changes occurred since 1998, after the inception of Africare in the area, and how the farmers were included in the decision making. Data was gathered on types of crops grown for cash and food, income and expenditure, new activities such as rearing livestock, farm inputs, road networks, access to the market, shocks experienced, and ways in which life perceived to have improved or worsened over the past one- two years. The survey captured the amount of livelihood assets owned/accessed by the individual household and there was a focus on land as a factor of production. It was also collected data on which livelihood strategies the farmers had adopted, like intensification or diversification of agricultural production to improve food security. A key informant interview was carried out to obtain in-depth information.

Data analysis

A data matrix and cause effect diagram was made. The matrix analysis separated out the questions most relevant to sustainability and made it easier to see patterns in the answers given by the respondents. The cause-effect diagram analysed possible causal links for why farmers in the study area choose to participate in the Africare initiated Farmer Field School (FFS).

RESULTS AND DISCUSSION

Natural capital

In Nyabumba, the households relied on agriculture and almost all the land was cultivated for crops, trees, like eucalyptus, or left for animals to graze. The crops grown in two seasons a year were Irish potato, beans, sweet potato, wheat, peas, grains, while millet and sorghum were grown one season a year. Additionally banana, tomato, eggplant, green pepper, cabbage, onion, cauliflowers, avocado, apples, passion fruit and groundnuts were cropped. All respondents grew a variety of different crops, which could be a strategy to secure food in times of draught and to increase the nutritional intake. Where a wide variety of crops and vegetables were grown the vegetables were mostly for household consumption while Irish potatoes, sorghum, wheat, bean and peas were for sale. The span within the community in respect of amount and variety of crops grown was large. One respondent only grew sorghum, maize, Irish potato and peas on small scale while another respondent harvested 250 bags of Irish potato, 6-10 bags of sweet potato, six bags of beans, 8-10 bags of wheat, 2-5 bags of maize, 2-4 bags of peas, 1500 kg tomatoes, 1500 heads of cabbage and 600-800 heads of cauliflower a year. All the respondents be it a member of an FFS or not grew Irish potatoes.

All the respondents owned some land for cultivation, but there was a wide discrepancy between the worse and the better off persons. It was common to have several plots instead of one larger, consolidated field. One respondent owned three plots and rent one additional plot for 20.000 shilling a season while another respondent owned 40 acre of land, and rent an additional acre each season. Many of the respondents wished to rent more land, but money was a limiting factor, meaning that land was a scarce resource in the area.

The community relied on rain for their crops because the water source was in the bottom of the hill, for most people about 1.5 km away. The people only used this water source for household needs. When the draught dried up this water source they had to walk four km to Lake Bunyinya to fetch water.

Another source of livelihood was livestock. In Nyabumba, goat, sheep and chicken were the most common animals, while some people had cows, pigs or rabbits in addition. All but one respondent had livestock and one respondent had bees. Some kept livestock to provide meat, milk and eggs for the household and others roar livestock for profit.

Physical capital

Cropping was done manually with hoes and most of the respondents had small plots. The area was very steep so use of machines would probably lead to further erosion of the soil on the hillsides. According to the respondents the soil in Nyabumba was poor. All the respondents, except two, used fertilizer to enrich the soil and all but three used manure as well. All the respondents but one, who did not have livestock, used manure from their own livestock, and nobody purchased manure. Africare introduced fertilizer to the most of respondents. Two out of three non-members learned how to use fertilizer from the chairman of the Africare project in Nyabumba and the last non-member found fertilizer too expensive to use. The members as well as non-members bought the fertilizers and pesticides from the chairman of Africare in the village, who bought it from Kabale Agro Input.

The new potato variety gave a higher yield than the old, but according to one respondent it was less resistant. The respondents faced problems of late blight and bacterial wilt and according to a respondent those diseases were not any problem with the old potato variety. Africare had therefore introduced the use of pesticides, which had been adopted by all respondents but two. The non-members had learned about pesticides from the local chairman of Africare and since the equipment for spraying pesticides provided by Africare was not enough the chairman bought more equipment that members and non-members could borrow for free. He also lend out for free protective masks.

Africare's way of improving the communities' accessibility to the markets was to make roads. There was a road from Kabale to Nyabumba, but it was not in good condition. The government did not have capacity or money to maintain the roads, so Africare's strategy was to give the communities a sense of ownership over their local roads so they could maintain them and not wait for the government to take action. In Nyabumba, all the persons who mentioned something about the road said that it was the government's responsibility to maintain and improve it. The closest they had heard anything about improvement of the roads were during the elections when the politicians were campaigning for votes. There was only one dispensary in Nyabumba, but no health centre so for more serious cases the people had to go to Kabale.

Human capital

The respondents were concerned about their children's education and spend money on school fees and construction and maintenance of the school. One problem for many respondents was that the primary school was too far away and some children did therefore not go to school. In Nyabumba, it was common to have between four and 10 children and some households also had grandchildren. The children and grandchildren helped working at the farms. Only five of the respondents hired labour for their farm, and they hired between five and nine workers. One respondent hired 30 workers. The workers payment was between 1500 and 2000 Ugandan shilling a day. Without much research on the area, it seemed that land was a more limiting factor than labour for the production. Africare's approach to this problem was to introduce a new higher yielding variety of potato. This new potato variety required more labour because it demanded use of pesticides, but the labour seemed to be available in the community. A challenge was absence of husbands because they were dead or seldom came home. Some households had responded to this situation by hiring labour while others did not have this possibility. The situation was worse where the children who had moved out were unable to help in their mothers' household because they lacked resources themselves. In Nyabumba, one respondent faced this situation.

Although the limited time prevented us to look closer at the health issue in the community it seemed that, the majority of the households did not face any particular challenges regarding health. One household had a sick husband and son and had extra expenses for medication, but they managed well.

Africare had increased the human capital in Nyabumba in the form of knowledge and education. The respondents claimed that they had learned about group dynamics, teamwork, methods to prevent erosion like planting elephant grass, farming methods such as use of fertilizer and pesticides, using new varieties of potato

and beans, planting in rows and about nutrition and cost analysis. The non-members had also learned about nutrition from the local chairman of Africare and only one respondent (male) had not learned anything about this. All the respondents that were members of Africare felt confident that if Africare phased out today it would not affect them considerably because they had already gained the knowledge and skills they needed to farm in ways that were more profitable.

Financial capital

The most common way of saving was in the informal merry go around and some persons saved money in more saving groups at a time. Some respondents saved money in the saving scheme initiated by Africare and only few persons saved money in the bank. As noted by Swift (1989), capital in form of savings is more liquid than other assets and can therefore more easily be converted to other forms of capital or consumption when needed. Nine of the respondents had taken up loans and eight of these were money loans ranging from 50.000 to 300.000 shilling. The most common was a loan of 100.000 shilling. The interest rate on those loans was 5 % per month, except the loan of 300.000. This loan had an interest rate of 2 % per month. On a loan of 100.000 with an interest of 5 % per month and eight months payback time the amount that is paid back will be 40.000 shilling, which is 40 % of the loan taken up. The largest loan of 300.000 Ugandan shilling had an interest rate of 2 % per month and four months payback time. From that loan, 240.000 shilling had to be paid back, which is equivalent to 71 % of the loan. On a meeting with Ali Mazrui at Makerere University, the chairman of the bank of Uganda said that the interest of micro credit loans had to be high because the bank had larger expenditures on manufacturing many smaller loans than fewer large. When the interests are high the question is whether the small scale producers would be able to take up micro credit loans.

Social capital

Swift (1998) sees social capital as networks, like volunteer organisations. In Nyabumba, the respondents were members of various organizations apart from the FFS initiated by Africare, which indicates that the community had considerable social capital. The organization for funeral arrangements was the most common after the Africare FFS, with an organization for widows and orphans as number three. Apart from these there was the potato entrepreneur organization and as earlier mentioned several saving schemes. One respondent was member in Uganda National Seed Potato Produce Organization (UNSPPO) and United Farmers. Only one of the non-member respondents were not member in any volunteer organization (only in one saving scheme). Only few of the respondents did not attempt to teach their gained knowledge from Africare to other persons in the community. There were various saving schemes in the community and it seemed that they were functioning well and trusted each other. Only one respondent experienced food shortage and she seldom got food from her neighbours.

Livelihood security and environmental sustainability

A robust livelihood system has high resilience and low sensitivity. Resilience refers to the environments ability to bounce back when stress occurs and sensitivity refers to the systems response to an external event, like price fall (Ellis, 2000). Off farm work was not very common among the respondents. The two husbands who worked away from home were far away throughout the year and thus could not help out in seasons with higher labour demands. The main problem of contributing money from off-farm work was the unstable income from that source as the money did not come regularly and the amount fluctuated. None of the respondents who experienced food shortage earlier faced this challenge after they became members of Africare. The reasons were that they learned to store food, got more marketable products (Irish potato) and learned cropping methods to get higher yields. This has increased their livelihood security.

The interviewees had responded to the disease problem in potatoes by using pesticides. If the training in using pesticides was not adequate, the community might face the risk of overuse and disease resistance, which could degrade the biodiversity in the area. This might affect the bees, which were a traditional source of income. The planting of elephant grass had made the environment more resilient.

Risk

Market opportunities were good for Irish potatoes, which were sold to the local chairman of Africare for 200 shilling per kg. The cost of packaging and transport was 100 shilling per kg so NANDOS, a fast food restaurant in Kampala, bought potatoes at 300 shilling per kg. If many farmers start to rely too much on Irish potatoes and the crop diversification will be reduced the community will be more vulnerable to risks and less resilient. If the price of Irish potato falls the income will be drastically reduced as many people had the largest share of their income from Irish potato. Promoting Irish potato has also other effects. Firstly, traditional livelihoods such as

bee keeping might get lost when farmers change to cash crops. Secondly, Irish potato requires pesticides so with more acres of Irish potato grown the use of pesticides may increase and it may reduce the biodiversity and affect the bees. Draught had been experienced in the area and there is a risk that the Irish potato harvest can fail because of draught or diseases. If a drought or disease outbreak occurs and reduce drought tolerant crops like sorghum and millet, the community will face risk as food shortage. On the other hand the income has risen due to Irish potato and more and more farmers save money formal and informal ways. In case of failure of Irish potato harvest the savings are insurance and may make the farmers more resilient to shocks as long as they can access food from external sources.

Matrix Analysis of Africare

Eighty-seven percent of the respondents had acquired more knowledge about farming. Sixty percent of the respondents had learned how to use fertilizer and pesticides, while 33 % had learned about new crop varieties. Other acquired skills were cost analysis, new growing technologies, team work, animal rearing, knowledge about nutrition, planting in lines, shelter construction, spacing, selecting good soil and seed. To out of four non-member respondents had acquired knowledge about farming through Africare.

Forty-six percent of the respondents had shared the skills acquired through Africare with neighbours, other community members, friends, visitors, children and widows. Forty percent of the respondents had learned about nutrition through Africare. This knowledge included balanced diet, quality of nutrition and eating three times a day. Sixty-seven percent of the respondents would like to improve different things in their community or in their household. For 20 % of the respondents this implied acquiring more land. Other things the respondents wished were more fertile soils, more fertilizers and pesticides, shelter for goats, rabbits, sending children to school, house in the town, growing fruits, learning about sheep rearing, improving the health, getting rid of thieves, better access to water, better road network and market for medium size potatoes.

Twenty percent of the respondents explained how they reached the decision to crop Irish potatoes and rear goats. Some were attracted by the high yields and success of other farmers and others realized that the goat and potato products were marketable and generated large income.

All the respondents who were members of Africare had acquired some farming skills. Three out of four non-member households had received some knowledge through Africare. This indicates that people with knowledge passed it on to others. The farmers had changed from being subsistence farmers to selling their products at the markets. This meant that Africare's objective to help to increase farmers' agricultural production was successful.

Among the knowledge that respondents acquired, the most mentioned was the use of fertilizer and pesticides. This helped the farmers to increase their yields, but the risk of overuse and misuse raises a discussion about sustainability of those technologies. The inappropriate use of pesticides might cause problems to human and the environment.

An initiative from Africare's was the goat rearing and use of goat manure. This is an environmentally sustainable initiative, but when farmers learned that the use of fertilizers will give higher yields, this might get a higher priority than manure. Although many households had goats, the number of goats was still too low in order to provide manure to all of the plots needed. Did Africare explain the meaning and advantages of environmentally sustainable farming to the farmers? On the other hand, were the farmers too attracted to the high yields provided by fertilizers, that they ignored the advice about sustainability? These questions should be further studied.

The farmers had learned about nutrition from Africare. When they ate better the health might improve and they might get more energy to work. The respondents found this information so important that they would pass it on to their children. Better nutrition was connected to the fact that farmers have higher yields and crop varieties. As a result, farmers were more food secure and their welfare had increased. The fact that respondents had ideas about the things to be improved may be a sign that they understood that the life was not static and could be improved. Evaluating the problems and being open to changes is a way to reach new solutions.

Only 20 % of the respondents explained how they reached the decision to crop Irish potatoes and rear goats may indicate that they were reflecting more upon the processes of new technologies. Did the remaining 80 % of the respondents just follow Africare's advice without any reflection? Maybe Africare could enhance participatory development by encouraging the participants more to come up with their own ideas and to help them developing those ideas.

Why Nyabumba farmers choose to join the Africare initiated Farmer Field School

To improve the understanding of why some farmers choose to become members of the FFS while some remained outside a cause effect diagram (Figure 1) was developed. The diagram describes factors leading the respondents to become members and also the factors strengthening their attachment to the FFS.

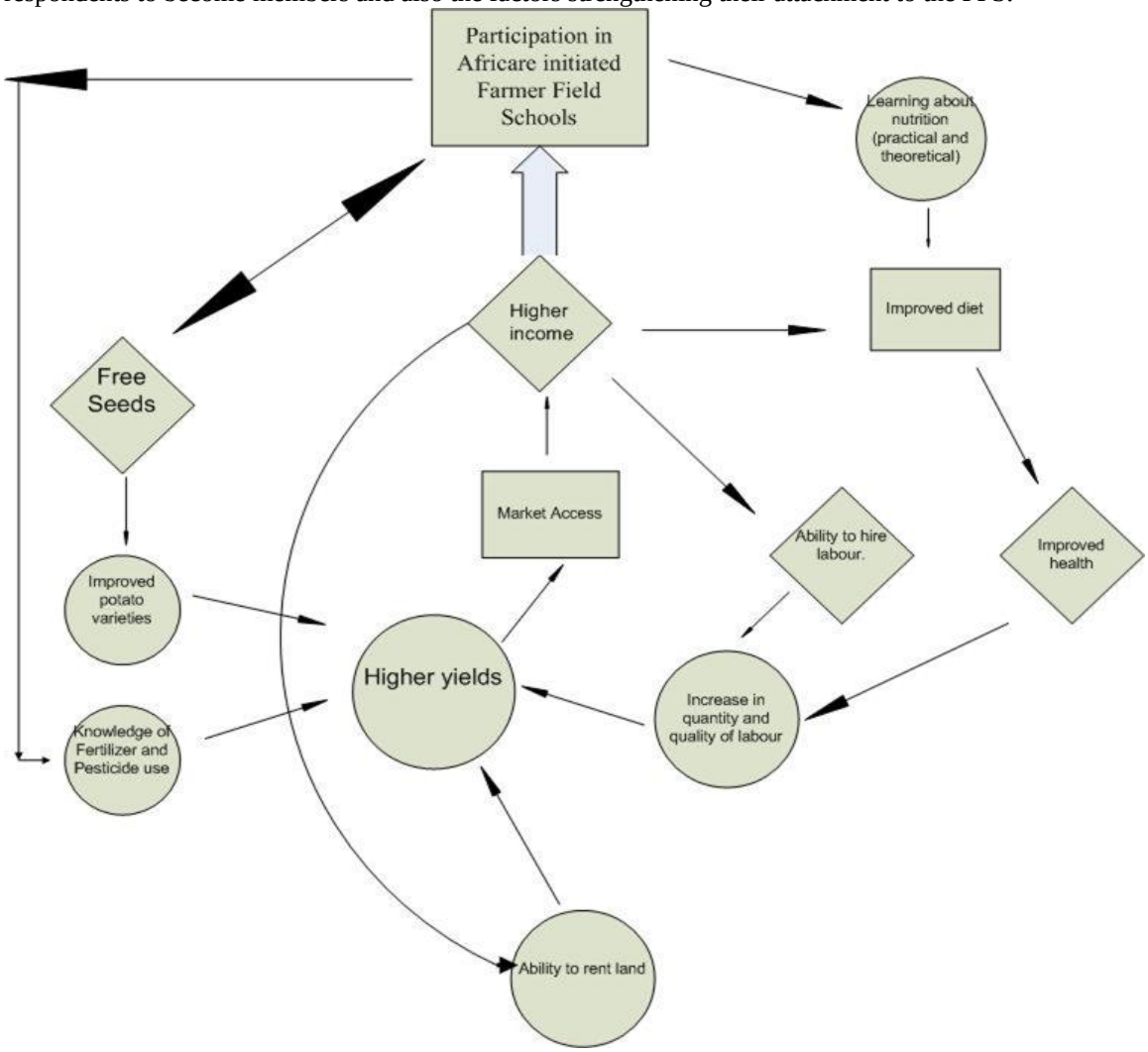

Figure 1: Cause and effect diagram associated with participation in the farmer field school

The reason given by nearly all of the respondents, directly or indirectly, for joining the FFS, was the outlook to improve their income generation through higher potato yields. Another reason, explained by the key informant, was the seeds given to members. According to the key informant, some community members went to the FFS meetings only to acquire seeds, which they later sold. This kind of behaviour where persons did not go to learn, but to misuse the project for short-term profit, could put the sustainability of the project in danger. The problem was solved by banishing members who misused the arrangement from the organization.

The FFS respondents seemed to be very serious about their participation. All of them had adopted Irish potatoes, started planting in rows, and were using fertilizer and pesticides on their crops. Their yields had increased and the incomes and food security had improved (indicated by fewer days of food shortage). The improved income allowed the farmers to increase their production by renting more land, applying more fertilizer and pesticides, hiring more labour, or a combination of these factors. The above strategies act as positive feedback loops, which further increase the output. The strategies for improved nutritional intake acquired by most of the respondents through practical learning of cooking skills and vegetable growing may improve the output even more.

The Potato Enterprise

Another advantage of being a member of the FFS, was the access to a new market. Nyabumba FFS had a deal with NANDOS, the fast food restaurant, to deliver Irish potato at a fixed price. According to the key informant the highest level of participation in the FFS was in the "Potato Enterprise", the group working with the sale of potatoes to NANDOS. To gain access to that group on had to pay an entrance fee of 5000 USh. All of the member respondents were part of the "Potato enterprise." Some sold all their potatoes to NANDOS, while some sold part of their potato produce to the market in Kabale, and the rest to NANDOS. Also non-members sold potatoes to NANDOS through the chairman of the FFS. This cooperation and informal sharing of knowledge is an indicator for sustainability of the Africare project. In the "Potato Enterprise" the farmers were given a fixed price, which may be lower than the market price, for their produce. The price from NANDOS was 20 000 USh a bag, while the market price varied between 10 000 USh and 30 000 USh. Taking into account the good storage capacity of Irish potato the Nyabumba might profit more by waiting for a good market price to sell their potatoes.

Why some people in Nyabumba decide not to join the FFS

Given the advantages of joining the FFS, in terms of higher yields and increased income, the question arises why some choose to remain outside the organization. The information provided here regarding this question is limited to the testimonies of the three non-members interviewed.

A 66 year old widow said that her bad health and lack of time, was the reason for not participating in the FFS. As she had to take care of her grandchildren, and run her household alone there was no time to attend the two weekly FFS sessions. She had changed her cropping practices due to information learned from FFS members, and delivers small amounts of potato to NANDO through the chairman. Several respondents said that they actively promoted practices from Africare to other villagers, and even to households in other parishes. This indicates that Africare initiated activities and information was shared with non-members. The two other non-member households had also taken up Africare practices. All the non-member households run the farm alone without the presence of a husband. This may be the main reason why it was difficult for them to attend FFS, as all their time was bound to taking care of their children and their farm. The fact that they had all taken up practices taught by Africare is an indicator of the project's continued sustainability after Africare's withdrawal.

CONCLUSIONS

People, who participated in Africare's project, managed to improve their livelihood and food security through learning new technologies, using new crop varieties, fertilizer and manure. The majority appreciated the new knowledge. There were large differences in income and yield between the households, especially between the most well off members and the worst off non-members. A question for further research is whether these economic differences became more pronounced through Africare's intervention. This present research suggests that the Africare project also benefited the less well off as they adopted improved farming methods via informal ways.

The respondents learned about goat rearing and potato growing from Africare. Goat rearing is a sustainable activity, providing manure, but the problem is that the low number of goats will not provide enough manure to all the plots. For that reason the use of fertilizers is widespread among the farmers. Because of Africare's program, many farmers had increased their agricultural production and acquired food security within their households.

Although the community members of Nyabumba had made progress in terms of agricultural output, they still faced major challenges in the shape of land fragmentation and poor roads. The land fragmentations lead to inefficiency in agriculture as longer time was spent on moving between the fields. This complex challenge will require time and major organisational efforts initiated by the villagers themselves to solve. The farmer field school may be a forum for discussion about the advantages and eventual disadvantages of consolidating the land.

It is the local government's responsibility to maintain the roads, but it has not been followed up. By initiating contact with farmer field schools in neighbour villages, it may be possible to put more pressure on local authorities through active campaigning.

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