

**Enabling Rural Innovation: Empowering Farmers to take advantage of Market Opportunities and improve livelihoods**

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## **Enabling Rural Innovation: Empowering Farmers to take advantage of Market Opportunities and improve livelihoods**

### **Abstract**

This paper presents lessons from applying an innovative approach for linking smallholder farmers to markets. This novel approach entitled, *Enabling Rural Innovation (ERI)*, aims to strengthen social organization and entrepreneurial capacity in rural communities, encouraging farmers to produce what they can market rather than market what they produce. The approach focuses on fostering community-based capacity for the inclusion of rural women and the poor in analyzing and accessing market opportunities (domestic, regional and international), using a territorial approach to agro-enterprise development. This approach is being tested and validated in action research with a range of research and development partners in selected learning sites in eastern and southern Africa.

An assessment was conducted to understand impacts of applying this approach on rural women and the poor in terms of income; intra-household decision-making; control and access over resources; empowerment, and investment in assets. Preliminary results show that: Households benefited significantly from linkages to markets using ERI approach, however, the results also showed significant income disparities between the women and men members. Households invested their income on household items, livestock, savings, sending children to school, improving their houses, and in some instances women purchased plots to plant potatoes. ERI approach is changing gender decision making patterns at household level towards more gender equity. The results showed that rural women have increased their skills in analyzing and understanding markets, in conducting experimentation and are taking on leadership positions in project activities. However, there were significant gender differences in changes in abilities.

These preliminary results demonstrate that ERI can be an effective approach for empowering communities to exploit market opportunities and improve livelihoods, equitable. However, the results also identified various areas where there is need to make adjustments to the ERI approach to ensure that the women can benefit equitable.

**Key words: Linking farmers to markets, social capital, human capital, gender**

## 1. BACKGROUND

Agricultural markets can play significant roles in reducing poverty in poor economies, especially in countries which have not already achieved significant agricultural growth. Dorward and Kydd (2005) highlight three broad mechanisms through which agricultural growth can drive poverty reduction: (1) Through the direct impacts of increased agricultural productivity and incomes; (2) Through the benefits of cheaper food for both the urban and rural poor; (3) Through agriculture's contribution to growth and the generation of economic opportunity in the non-farm sector. Table 1 shows how strategies to promote growth, empowerment, equality of opportunity, and security can be supported by markets. The table also shows how each of these market factors may work against the poor.

However, experience has shown that markets can fail the poor, especially poorest and marginalized groups, including women. In his review on how to make market systems work better for the poor, Johnson (2005) argues that in remote rural areas markets may fail because they may be too 'thin', or the risks and costs of participating especially for poor people may be too high, and or there may be social or economic barriers to participation.

Dorward and Poole 2003 identify three main types of market failures that may affect the poor:

1. **Public good failure:** This is where it is not possible to restrict usage of a certain good or service. In this case, there are no incentives for users to pay for these goods or services and anyone who provides them cannot gain any income from these activities through market exchanges.
2. **Transaction failures:** This refers to instances where institutions are weak or over-regulated leading to high transaction costs and risks from engaging in the market. Transaction costs can be so high that they inhibit participation in the market.
3. **Access failures:** In many instances markets fail because the poor cannot access them, or can only access them on terms that hamper their participation. Access failure occurs due to lack of resources (capital, labor, land), active discrimination, or lack of information or power. For example, social or economic barriers to entry may mean that specific groups of the poor are excluded from markets.

In addition, to the above, there are other factors that can influence the role of agricultural markets in reducing poverty in poor economies. Market oriented production may result in the capture of the benefits by the rich, to the detriment of the poor or create a privileged group of farmers with access to a new technology. Evidence shows that in some instances increased access to market opportunities can open up competition by other producers, driving local producers out of production (Dorward and Poole 2003 Poulton and Poole 2001), or allowing powerful elites to capture new economic opportunities that were previously undertaken by the poor (DFID 2000). Barrett et al. (2006) highlight how poorer households in rural Madagascar have been effectively excluded by credit, insurance and labor constraints from uptake of a promising production technology that wealthier farmers have been able to use to raise rice yields by 60–80 per cent.

Other evidence demonstrates that women face various constraints as they endeavor to engage with market systems. Empirical studies on intra-household gender dynamics in Africa have shown that when a crop enters the market economy, men are likely to take over from women, and that women therefore do not benefit from market-oriented production (see von Braun and Webb 1989; and von Braun et al. 1994, for some classical examples). Additionally, In some instances, women's social and cultural roles may assign productive and reproductive roles to men and women that can limit their access to markets (OECD 2004). For example, in many cultures women's role of household provisioning versus the men's role of providing cash requirements of the household, may affect women's ability to participate in markets. Kaaria and Ashby (2001) found that poor rural women are often excluded from accessing the markets. The review found that in various instances women did not benefit from markets linkages for the following reasons: Men would take over the enterprise or crop once it becomes profitable (Von Braun Webb, 1989) or women farmers did not make substantial income gains because the enterprises selected concentrated in lower-value, lower-return activities (Carr 1997).

Therefore, it is now widely accepted that projects must integrate specific strategies to encourage and promote participation by the poor. The International Center for Tropical Agriculture (CIAT) is testing and evaluating one such approach, Enabling Rural Innovation (ERI) with partners and communities in Uganda, Tanzania, Malawi, Zimbabwe, Kenya, Mozambique, Zambia, Rwanda, and DR Congo. This paper presents preliminary lessons from applying this innovative approach for linking smallholder farmers to markets.

## **2. ENABLING RURAL INNOVATION**

Enabling Rural Innovation (ERI) is a research for development initiative that uses participatory research approaches to strengthen capacity of research and development (R&D) partners and rural communities to access and generate technical and market information for improving farmers' decision-making. The aim is create an entrepreneurial culture in rural communities, where farmers "*produce what they can market rather than trying to market what they produce*", and encourages them to invest in their natural resources rather than depleting them for short-term market gain (Best 2003, Ferris et. al. 2006).

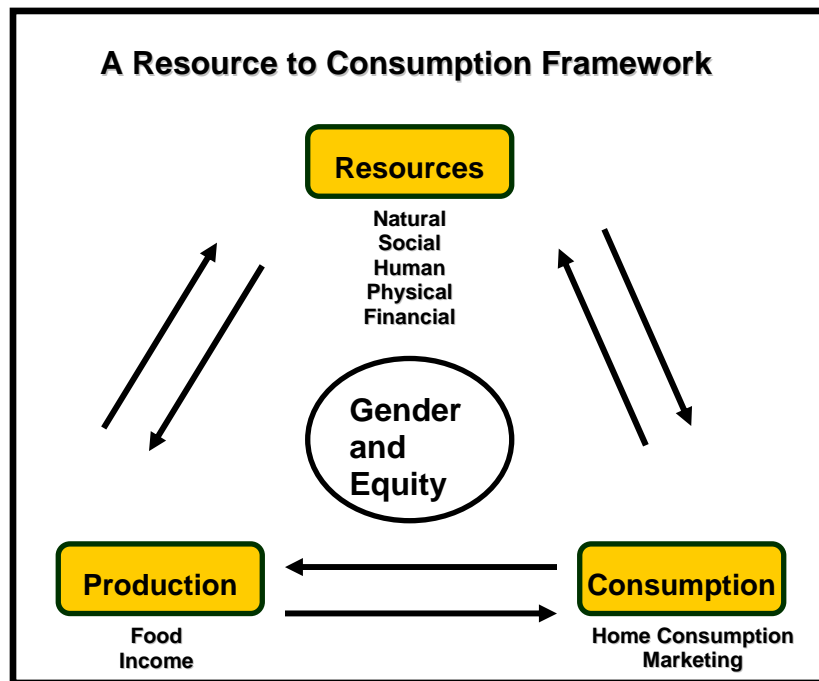
The International Center for Tropical Agriculture (CIAT) has been implementing this novel approach in partnership with rural communities, national agricultural research and extension services (NARES) and nongovernmental organizations (NGOs) for the past four years in Africa. The aim is to help rural communities in Eastern and Southern Africa exploit market opportunities to improve their livelihoods. This initiative has emerged from three main streams of CIAT's experiences: (i) Participatory research, (ii) Rural Agro-enterprise development and (iii) Natural resource management. The aim of this initiative is to use the most effective elements from these three approaches when working with rural communities to build more robust livelihood strategies.

## 2.1. Key Components of the Enabling Rural Innovation (ERI) Approach:

### 2.1.1. Applying a Resource to Consumption Conceptual Framework

ERI is based on a resource to consumption (R-to-C) conceptual framework that builds two-way linkages between community assets (natural, human, social, physical and financial) and production, with post-harvest handling, processing, market opportunities and household consumption (Kaaria and Ashby, 2001). The resource to consumption (R-to-C) conceptual framework is shown in Figure 1. This framework extends the commodity chain (for details see Hopkins and Wallerstein, 1986, 1994; Belcher 1997) to include investment in natural resource management, and specifically links integrated soil and nutrient management to market opportunities. The resource to consumption (R-to-C) framework is a means of organizing innovation in a market driven value chain, so that incentives to invest in natural resource management are inbuilt into process.

Figure 1: Conceptual Framework: The Resource to Consumption Framework



### 2.1.2. Balancing market risk and food security

Given that decisions need to be made on what productive activities to engage in and on how to allocate scarce household resources, the ERI approach aims to balance the dual needs of increasing household food security and income generation. This approach is expected to be especially beneficial for the poor including rural women, who need technologies that improve returns to their labor at several points in the chain of activities, from production to marketing and consumption, and feed back into how they can invest in and manage productive resources such as soils.

### 2.1.3. A market orientation

A critical challenge to combating rural poverty is the importance of placing greater emphasis on the market culture. To make this shift communities must be linked to profitable markets and develop an entrepreneurial culture that adopts new business concepts and organizational structures. ERI focuses on building community skills in identifying and analyzing market opportunities for new or existing products, matching market opportunities with their asset base and in strengthening community skills to develop identified community-based enterprises to build profitable agro-enterprises. A key element of the approach is developing collective action for marketing, and strengthening local networks of business support services, such as credit and information.

#### **2.1.4. Participatory methods for research and development**

The involvement of farmers as decision-makers in all stages of the innovation process is a hallmark of the ERI approach. Participatory research and learning approaches are fast gaining recognition as a strategy for investing in human and social capital for poor farming families to empower them to articulate their priorities and to participate as decision-makers in the R&D process (Ashby, 2000; Pretty and Hine, 2001). Participatory research approaches decentralize control over the research agenda and permit a much broader set of stakeholders to become involved in research, thereby addressing the differential needs for research and development by men and women for technical innovation. These approaches can provide an avenue for feeding back of farmers' demands and priorities to research providers, and therefore strengthen the capability of R&D systems to respond to the demands of rural communities.

#### **2.1.5. Developing Innovative Partnerships**

A major constraint for expanding market access and accelerating uptake of research results is associated with organizational inefficiencies, and particularly lack of innovative approaches for multi-stakeholder participation in research and development. In ERI, emphasis is on developing and testing innovative partnerships that bring together stakeholders along the resources-to-consumption and policy continuum, with complementary skills and expertise, on the principles of mutual learning and knowledge sharing that facilitate institutional change. Efforts are geared towards fostering effective public-private partnerships, horizontal and vertical links between networks of farmers' organizations and R&D service providers (for details see Sanginga et al., 2006).

### **2.2. Partnerships and Research Sites**

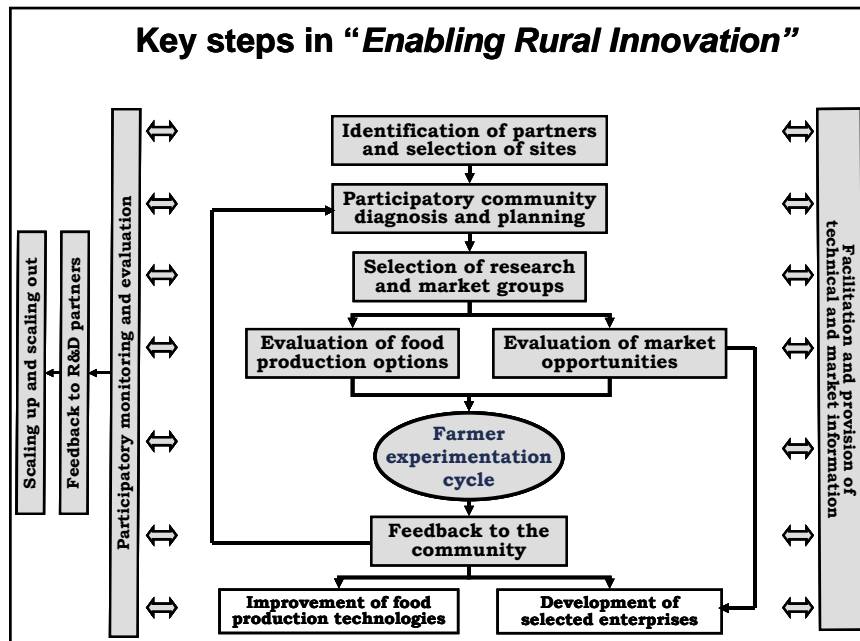
This approach is being tested and evaluated with a variety of research and development partners, and communities to assess the feasibility and outcomes of applying it within ongoing development processes or projects. Applied comparative research aims to determine how the application of ERI approach in different institutional settings and development contexts is correlated with certain key variables, such as social capital or gender equity, and how it influences specific outcomes. Table 2 shows the sites and partners where ERI is being tested.

ERI is being tested with partners in Uganda, Tanzania, Malawi, Zimbabwe, Kenya, Mozambique, Zambia, Rwanda, and DR Congo. In each country, ERI is being tested with various communities or farmer's groups.

### 2.3. The key steps in establishing ERI approach

Each of the groups goes through several steps to establish the ERI process. This process is facilitated by the partner organization, and is supported at critical moments by CIAT. Figure 2 shows the key steps in implementing the ERI process.

**Figure 2: Key steps to Enabling Rural Innovation**



- 2.3.1. Engagement of research and development partners and communities
- 2.3.2. Participatory diagnosis to assess community assets, finances, current income opportunities, potential options, access to services, skills base, degree of cooperation, access to new technologies, organizational structures
- 2.3.3. Formation of farmer research group and market research group, and building the group's capacity to participate actively in selecting, testing and evaluating marketing strategies and technology options
- 2.3.4. Participatory market analysis to identify market opportunities for competitive products that will increase farm income and employment.
- 2.3.5. Prioritization of opportunities and selection of agro-enterprise options based on social differences including gender and wealth
- 2.3.6. Planning and implementation of experiments by farmer research groups to support enterprise and food security options.

- 2.3.7. Feedback of results to the community and R&D organization, and identification of further research questions
- 2.3.8. Participatory monitoring and evaluation that is useful to both communities and to their service providers;
- 2.3.9. Scaling-up (expanding) of participatory research results and of the community enterprise development process

### **3. Methodology**

#### **3.1. Objectives of the study**

CIAT is conducting a series of case studies in the initial countries where ERI was first tested, Uganda and Malawi, to assess the benefits of the initiative at the household level. The analysis goes beyond the conventional assessment of economic benefits to include broad impacts in terms of non-economic and non-tangible benefits such as empowerment, capacity development, gender equity, and social and human capital build up. The specific objectives were to:

- 3.1.1. To assess the effectiveness of the ERI approach in promoting pro-poor market linkage
- 3.1.2. To analyze households investments decisions, (including investments in NRM) and priority uses for income from agro-enterprises.
- 3.1.3. To assess other tangible and non-tangible benefits (empowerment, capacity building, gender dynamics, social and human capital build up) of the ERI approach
- 3.1.4. To identify key gaps and areas that need strengthening, and potential opportunities

#### **3.2. Research Questions**

The study endeavors to respond to the following research questions which correspond to some of the expected outcomes of ERI:

- 3.2.1. How do different households invest income from enterprises: What are the priority uses for income from agro-enterprises? How do these priority uses compare across gender, age, education and other household categories?
- 3.2.2. How does ERI affect social and human capital and the capacity of farmer organizations to better organize their communities?
- 3.2.3. Does applying the ERI approach promote gender equity and women's empowerment in decision making and in control of income from agro-enterprises?
- 3.2.4. What are the factors that influence income disparities and how do they differ across household types (gender and well-being)?

#### **3.3. Sampling**

Groups and communities for the study were selected from the initial ERI countries (Uganda and Malawi). An important criterion was that the communities / group had



earned significant income from the community agro-enterprises. Currently there are 3 such groups (1 in Uganda, 2 in Malawi). Depending on the size of group, at least 50% of group members of these groups will be interviewed, in communities / groups that are very small all members were surveyed. Table 3 presents the groups / communities in the sample

### **Table 3**

#### **3.4. Formal Questionnaires:**

To assess the effectiveness of the ERI approach in promoting pro-poor market linkages, individual farmer surveys were conducted 3 communities (Uganda: Nyabyumba; Malawi: Katundulu, and Chinseu). The sample was stratified normal. In each household group members were interviewed.

## **4. Results and Discussion**

The results presented in this paper focus mainly on the results from the Nyabyumba, Uganda, study, with a few additions from the Katundulu and Chinseu results, because the data from these latter studies is still being analyzed.

### **4.1. Background of the Communities**

#### **4.1.1. Nyabyumba United Farmers' Organization**

The Nyabyumba farmers group of Kabale district, Uganda, was formed in 1998, with 40 members. The group, supported by an NGO Africare, focused on producing improved potatoes from clean seed provided by the National Agricultural Research Organization (NARO). In 2000, the Nyabyumba group formed a farmer field school (FFS) to improve their technical skills on potato production and increase yields. In 2003, equipped with the necessary skills for producing high quality and quantity of potatoes, the group decided to increase their commercial sales and requested support from Africare, NARO, PRAPACE (Regional Potato and Sweet Potato Improvement Network in Eastern and Central Africa), and CIAT.

Through this consortium of partners, Nyabyumba Farmers' Group received training in identifying and analyzing markets opportunities and developing a viable business plan for the potato enterprise. From the market study the group identified "*Nandos*", a fast food restaurant based in Kampala and the local wholesale markets in Kampala. The group has set up a series of committees to manage, plan and execute their production and marketing process. To maintain a constant supply the farmers have set up a staggered planting system to ensure that there are up to 50 tons of potatoes are available each month.

To increase the competitiveness of production the group has conducted research supported by NARO to determine the most suitable nutrient levels of NPK fertilizer and time of dehaulming potato plants that produces big tuber size, with higher organic content, firm skin and higher yields as required by buyer. The farmers group has

expanded to a membership of 120 members, 80 of whom are women. They have supplied 190 metric tonnes of potatoes to Nandos, bringing their income to US\$ 60,000,000 or approximately US\$ 33,000 (for further details see Ferris and Kaganzi, 2005).

#### **4.2. Characterizing the Households**

This section briefly summarizes the household characteristics for the Nyabyumba farmers group of Kabale district, Uganda. The average land size owned last year was 11 acres, of which farmers cultivated 7.6 acres. A majority of the group members were relatively young, with an average age of household head of 44 years. In terms of educational level: Thirty eight percent of the household heads have not formal education, 54% have attained primary education, 8% secondary education, and 1 percent had a diploma.

A majority of the households in this group have iron-sheet roofs (65%), whilst about twenty six percent have semi-permanent houses, and only a small number (8%) have grass thatched houses. These are both indicators that the households are not poor. This was highlighted during informal meetings with group members, when they indicated that there are now very few poor households in the group, due to the income from sale of potatoes.

Households own various livestock: An average of three local and improved cattle, about 5 local and improved poultry, 6 improved and local goats and sheep, and an average of 3 rabbits.

### **5. Results and Discussions**

The results are grouped by each of the research questions presented above:

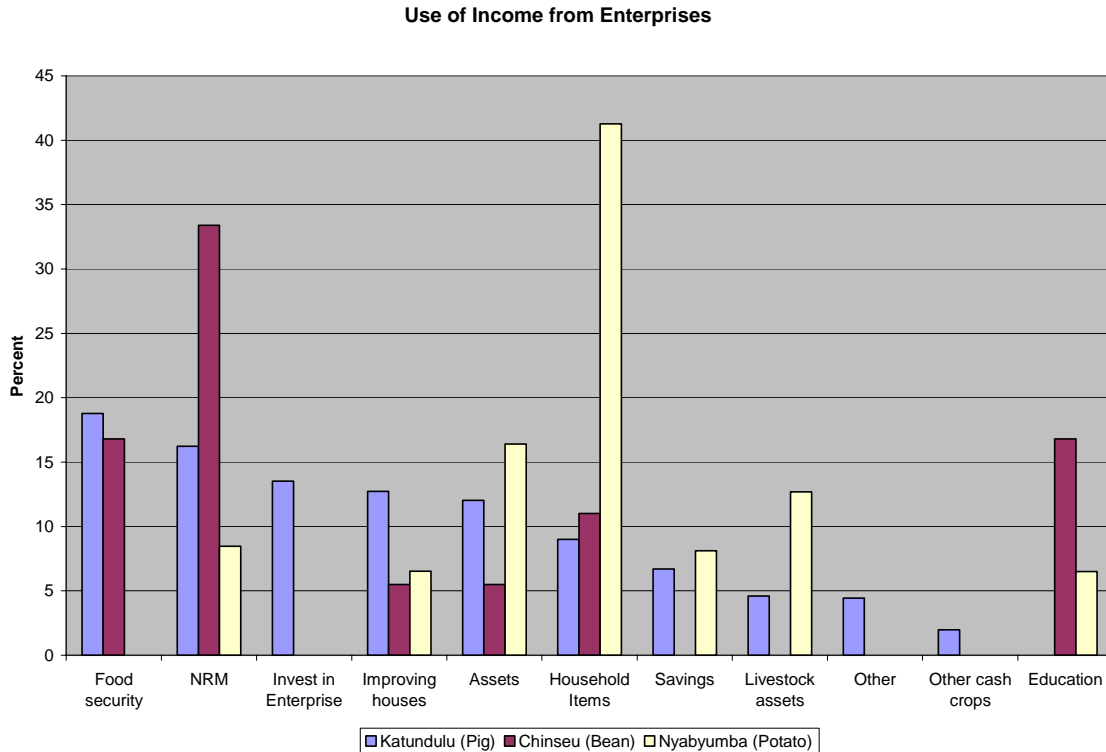
#### **5.1. How do different households invest income from enterprises? What are the priority uses for income from agro-enterprises? Are households re-investing in NRM?**

A comparison of how households invest their income from enterprises shows that households in Malawi (Katundulu and Chinseu) invest most of their income in food security and NRM, while households in Kabale (Nyabyumba) invested in household items. NRM investments in Malawi, mainly involved the purchase of fertilizer to apply on the Maize fields. Households in Malawi also invested significantly in improving their diets, by purchasing fish, meat, beans, chicken, fresh vegetables. Other investments were in education that included paying school fees, buying school uniform, and notebooks. In Uganda, the largest budget went to increasing household assets, including beds, beddings, mattresses, chairs, and clothing for husband, wife, and children.

The results also showed that increased income led to increased investments in farm inputs. In Kabale, Uganda, Twenty seven percent indicated they used including inorganic fertilizer, and a much higher percentage (94%) applied pesticides. Similarly, seventy four

percent of the households indicated that they hire labor during the main agricultural production periods, and most of the hired labor (74%) is for potato production.

**Figure 3: Comparison of Priority Uses of Income from Agro-enterprises**



However, for the majority of farmers in Kabale, re-investment in NRM was not a priority. Tests of significance difference between income generated from sale of potato and the use various NRM practices (crop rotation, incorporate crop residue, manures, agroforestry trees or shrubs, trenches trash lines, cover crops, and resting land), were not significant.

These results are supported by figure 3, which shows that in Uganda, re-investing in NRM was not among the first three priorities. On the other hand in Malawi, re-investment in NRM was a priority in the two communities surveyed. A key finding is that targeted intervention is necessary to influence farmers’ investment decisions.

**5.2. How does ERI approach affect social and human capital and the capacity of farmer organizations to better organize their communities?**

Proponents of participatory approaches argue that applying “empowering” types of participatory research approaches can build human and social capital in various ways: (1) Enhance the innovative capacity of farmers to experiment with new agricultural practices. (2) Strengthen farmers’ general analytical abilities, problem-solving skills, and ability to initiate and sustain innovation with external facilitation. These arguments are supported

by Johnson, Lilja, and Ashby (2003), who found that these types of human capital benefits occurred when empowering participation was used. They found that in various instances participating farmers' roles in the communities had changed. For example, these farmers were now able to advise their neighbors on Agricultural problems and help them negotiate with traders for better prices.

In this study social and human capital impacts were measured by assessing changes in group members' capabilities over the past 3 years. Results from Kabale, Uganda showed that in terms of ability to help other farmers solve agricultural problems currently, a majority of the farmers (49% and 40%) felt they were very good to good, on the other hand three years ago very few (5% and 24%) felt the same. Similarly, when asked about their abilities to conduct their own experiments to test new varieties, without external facilitation, a majority of the members (27% and 45%) felt they were very good to good, on the other hand three years ago a few (4% and 10%) felt the same. When asked about capabilities to bargain with traders, similar results were found: a majority of the members (59 and 28%) felt they were very good to good, on the other hand three years ago fewer (15% and 36%) felt the same.

Similar results were found for the Katundulu farmers in Malawi, when they were asked to do self-assessments of their capabilities. A majority felt their abilities in helping other farmers to solve their problems related to pig production, explain their group activities/plans to an outsider, becoming a leader in their group, and keep own farm records, were greatly enhanced.

However, in comparing between female and male members, results were mixed. Although women had improved their skills overall, the results showed that in various areas, men improved significantly more than the women members. Results showed that there were significant differences in abilities to: Bargain with traders to get better prices ( $p= 0.0557$ ); explain group activities to outsiders ( $p=0.0722$ ); become a leader in the group ( $p=0.0015$ ), become a leader in the community ( $p= 0.0012$ ), train other farmers in experimentation ( $p = 0.0077$ ), and keep own records ( $p = 0.0001$ ).

An additional analysis was conducted to compare differences between group members and committee members level of ability. The results show that there were significant differences between committee and group members, in terms of their ability to understand and apply production oriented activities ( $p=0.001$ ), marketing oriented activities ( $p=0.01$ ), and community oriented activities ( $0.001$ ). These results imply that there is a significant difference in skills gained (thereby human capital) between committee members and ordinary members.

These findings showing inequity in the distribution of benefits from social capital have been found in other empirical studies. For example, Gotschi et al. (2006) found that gender was a key variable in determining group member's ability to generate supportive relations and benefit from social capital. However, her study also found that that group position was important in increasing benefits to social capital, and that women leaders are

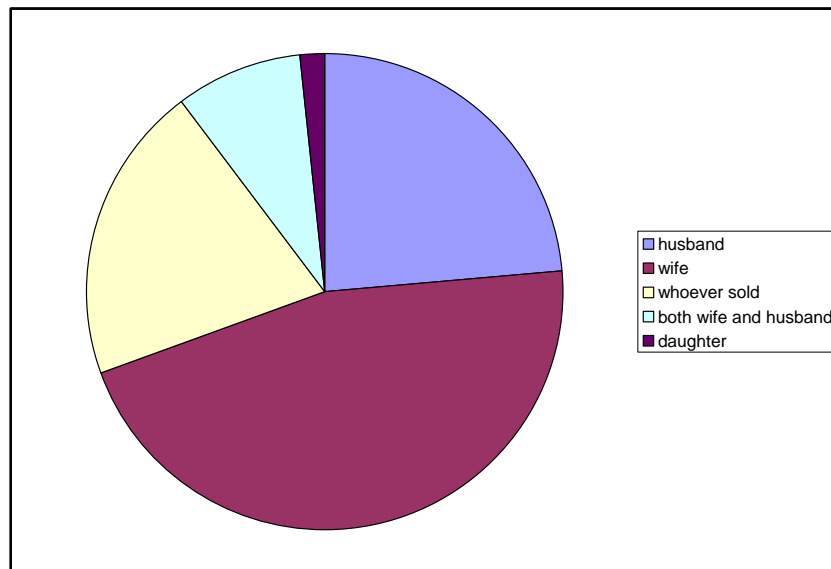
more likely to obtain help and access information when they are leaders than mere members of the group.

### 5.3. Does applying the ERI approach promote gender equity and women's empowerment in decision making and in control of income from agro-enterprises?

Gender equity and empowerment of women are of central to the ERI process, therefore one of the key research questions for the ERI process is whether market orientation is benefiting women and the poor. Gender aspects are integrated in various ways: (1) Ensuring that at least 30 - 50% of the members of any committees are women. (2) Selecting enterprise options based on the extent to which both men and women that can benefit and the enterprise will not adversely affect women and the poor. (3) Capacity building of communities in Group development, leadership, conflict management, group relations, social integration with emphasis on gender, and HIV/AIDs awareness.

In this study we assessed gender equity in two ways: By asking who keeps the income from the sale of the enterprise, and by assessing changes in decision-making patterns in the household.

Figure 4: Who Keeps Income from the Sale of Potato Enterprise

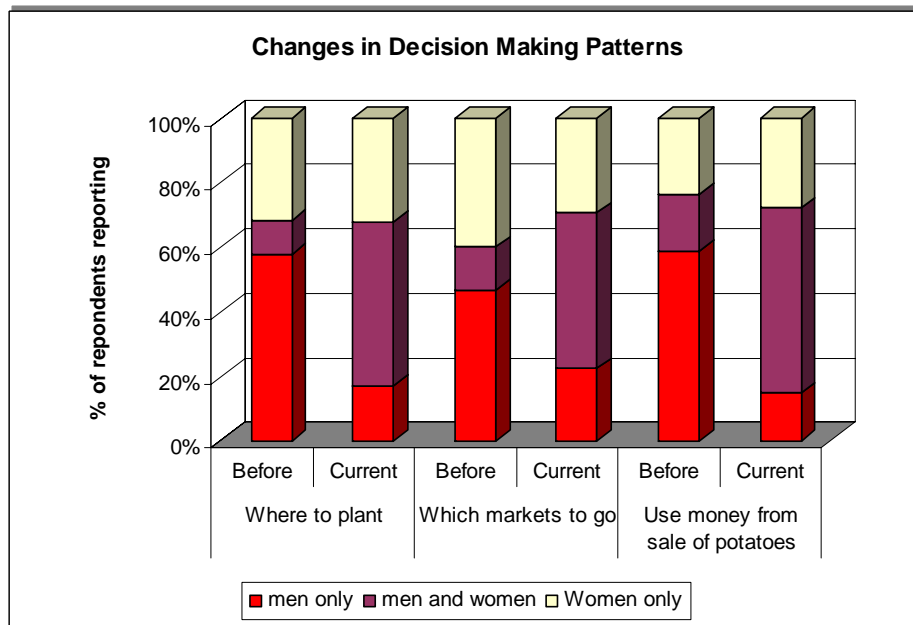


Our results found that with the Potato enterprise, 46% of the respondents indicated that income was kept by the wife. On the other hand with the pig enterprise; all the respondents (100%) indicated that income was kept by the husband or men. In informal discussions, women farmers in Katundulu, Malawi, indicated that they could access the benefits indirectly. Women accessed benefits through increased food security (from purchase of food) and through sale of surplus Maize produce (where fertilizer purchased had been applied).

In this study, we hypothesized that increasing income under the control of women would have significant implications on intra-household decision-making, and that household decision-making would become more shared. Changes in decision-making patterns in the household were assessed by asking who made decisions on where to plant, which markets to go to, and how income from the sale of enterprise was used. Figure 5 shows changes in intra-household decision-making in the case of the Kabale, Uganda. In all instances, there was a significant reduction decisions made by men alone, and a corresponding increase in decisions made by both men and women in partnership.

These results are supported by literature on intra-household dynamics in resource allocation and decision-making (Ulph 1988; Aldermann et al. 1995; Doss 1998) that argues that household decisions often reflect the bargaining power of its different members. Analogously, by putting income in the hands of women, one can increase their bargaining power.

**Figure 5: Changes in Intra-Household Decision-Making**



**5.4. What are the factors that influence income disparities and how do they differ across members' household (gender)?**

Multiple regression analysis was used to understand the variables that influence income from potatoes. Income from the sale of potato in 2005 was used as a proxy for income. Table 4 presents the results from the multiple regression analysis.

The results indicated that prices offered: Price offered by Nandos ( $p=0.020$ ), price offered if sold as seed ( $p=0.001$ ) and price offered by other buyers ( $p=0.079$ ), were all statistically significant. This was an expected result. However, the difference in the order of importance, was a surprising result. The results found that the price offered if potato is

sold as seed, was more significant than price offered by Nandos. This was contrary to results from informal discussions with farmers. During focus group discussions, farmers in Nyabyumba had prioritized their partnership with Nandos supermarket, in terms of income from sales. However, these results indicate that farmers get more income when they sold their potatoes as seed versus when they sold their potatoes to Nandos.

Other interesting results were the gender implications of the farmer to market linkages. The results showed that if sex of respondent is female ( $p=0.029$ ) and if seller of potato is wife ( $0.001$ ), were highly significant, and negative. These negative coefficients indicate that when the group member was a female and when the seller of potato was the wife, the income from potatoes was lower. Earlier results on human capital benefits that showed men's abilities increased significantly more than women's, in terms of ability to negotiate for good prices, validate this finding. These results are important because they indicate that although women are involved in the enterprise activities, for example the Nyabyumba group has 120 members, 80 of whom are women (Ferris and Kaganzi, 2005), they still received lower prices than their male counterparts when they sell potatoes.

Finally, other variables, such as land allocated to potato ( $p=0.577$ ), age of household head ( $p=0.260$ ), and size of household ( $p=0.109$ ), were not significant. Level of education was also not significant. The land allocated to potatoes was probably not significant because with commercialization, the farmers are intensifying production, and getting higher yields from the same pieces of land. On the other hand, the result showing that the level of education was not significant was remarkable. In many instances market opportunities are captured by the more educated and younger community members, however, this did not happen. The ERI approach invests in building skills and expertise of farmers to analyze and understand markets, and to identify market opportunities for competitive products, using simple tools and methods that work even in communities without any education.

## **5.5. Lessons Learned**

This study highlighted the benefits of applying the ERI approach in the case study of Nyabyumba farmers group of Kabale district, Uganda. However, the results also identified various areas where there is need to make adjustments to the ERI approach to ensure that the women can benefit equitably. Several lessons can be derived:

- 5.5.1. Although, the ERI approach takes specific measures to integrate gender considerations in the distribution of benefits, there are clear gaps. The results highlighted significant gender differences in distribution of social and human capital benefits, which translated in significant differences in income by men and women. Therefore, ERI needs to strengthen the gender component. A gender audit, which is currently being conducted within the ERI initiative, will go a long way identifying key gaps and opportunities for strengthening gender in ERI.
- 5.5.2. An important hypothesis being tested in ERI is that farmers that are linked to better market opportunities have higher incentives to investment in agricultural and NRM innovations. This study found that for Farmers in Kabale, Uganda, re-investment in NRM was not a priority. Most households invested increased on household assets, including beds, beddings,

mattresses, chairs, and clothing. This has implications on the sustainability of the enterprise. A majority of approaches for increasing market access by the poor have not focused on ensuring sustainability of the enterprise by encouraging investment back in NRM, so as not to over-exploit the resource base. In terms of implications for ERI, this means that in countries such as Uganda where the fertilizer because of policy implications, it is not enough to focus on the approaches alone, CIAT must engage with government policy-makers.

5.5.3. These preliminary results imply that if the objective of the approach is to promote pro-poor market linkages, with a gender equity objective, then the choice of enterprise matters. For example, in the Potato enterprise in Nyabyumba, 46% of the women keep the money and made decisions on their use. On the other, in the Pig Enterprise in Malawi, women did not have direct access to the money from sales. However, from the limited dataset it would be incorrect to make a valid conclusion, and more case studies will need to be conducted before any further conclusions can be drawn.

5.5.4. The study showed that using the ERI approach, groups can make significant increases in income, for example Nyabyumba Farmers Group with a membership of 120 members made USD 51,136 (Ushs. 90 Million in 2.5 years). The challenge is how to scale up these impacts to more groups, and more communities. This may involve working with farmers at a higher level, such as the second level associations of farmers. However, to do this will require significant adaptations to the approach.

## 6. Conclusion

This paper presents lessons from applying an innovative approach for linking smallholder farmers to markets. This novel approach entitled, *Enabling Rural Innovation (ERI)*, aims to strengthen social organization and entrepreneurial capacity in rural communities, encouraging farmers to produce what they can market rather than market what they produce.

This is the first of a series of case studies that CIAT is conducting to assess the benefits of applying ERI initiative at the household level. The results indicate that linking farmers to markets led to significant increases in income. The study found that when the enterprise was Potatoes (a food crop that is marketed), Women were able to keep the income and make key decisions on the enterprise. However, there were significant gender differences in the distribution of human capital benefits. Although, there were substantial changes in social and human capital by all members of the group, men's abilities improved significantly more than women's, leading to lower incomes gained.

Finally, this initial case study demonstrated that to draw valid conclusions that can have both policy and methodological implications, it will be critical to conduct more case studies that will enable the authors to make comparative analysis by contexts, enterprises, and countries.



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## TABLES

Table 1: Sites for Action-Research with Partners

Country	Partner Organization	Number of groups
Uganda	<ul style="list-style-type: none"> <li>• National Agriculture Research Organization (NARO)</li> <li>• Africare</li> <li>• Africa 2000 Network</li> <li>• Uganda Environmental Educational Fund</li> </ul>	12
Tanzania	<ul style="list-style-type: none"> <li>• Selian Agricultural Research Institute</li> <li>• Traditional Irrigation and Environmental Project (TIP)</li> <li>• World Vision</li> </ul>	7
Malawi	<ul style="list-style-type: none"> <li>• Department of Agricultural Research Services (DARS)</li> <li>• Lilongwe Agricultural Development Department (LADD)</li> <li>• Plan Malawi</li> </ul>	6
Zimbabwe	<ul style="list-style-type: none"> <li>• Agricultural Research and Extension (AREX)</li> <li>• One-up</li> </ul>	2
Kenya	<ul style="list-style-type: none"> <li>• Kenya Agricultural Research Institute (KARI)</li> </ul>	4
Mozambique	<ul style="list-style-type: none"> <li>• Caritas</li> </ul>	
Zambia	<ul style="list-style-type: none"> <li>• Zambia Agricultural Research Institute (ZARI)</li> <li>• Plan Zambia</li> </ul>	2
Rwanda	<ul style="list-style-type: none"> <li>• Institut des Sciences Agronomiques du Rwanda (ISAR)</li> <li>• Rwanda Rural Sector Support Project</li> </ul>	20

Table 2: Groups and Communities Surveyed

Country	Names of Group / Community	Size	Sample
Uganda	Nyabyumba Farmers' Group	120 members	72
Malawi	Katundulu Village	38 Households	24

Table 3: The Determinants of Income from Potato

Revenue from potato (2005) in (Ushs/kg)	Coef	Std. Err.	t	P> t
Price offered by Nandos (Ushs/kg)	0.440	0.184	2.39*	0.020
Price offered if sold as seed (Ushs/kg)	0.659	0.195	3.38*	0.001
Price offered by other buyers (Ushs/kg)	0.348	0.195	1.79*	0.079
Marital status of head (1=married, 0 = otherwise)	2.355	1.177	2.00*	0.050
Sex of respondent (1=female, 0=Male)	-2.611	1.165	-2.24*	0.029
seller of potato is wife (1=yes, 0= no)	-4.008	1.192	-3.36*	0.001
land allocated to potato (acres)	-0.808	1.439	-0.560	0.577
Age of household head	-1.537	1.352	-1.140	0.260
size of household	1.461	0.898	1.630	0.109
cons	4.910	4.354	1.13	0.264