



***Improving Household Food Security:
Institutions, Gender and Integrated Approaches***

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Introduction

Food security is the condition in which all have access to sufficient food to live healthy and productive lives (World Bank 1986). Food security is dependent on agricultural production, food imports and donations, employment opportunities and income earnings, intra-household decision making and resource allocation, health care utilization and caring practices. It is a multi-dimensional development issue that needs cross-sectoral integrated approaches. However, because there are concerns that such approaches can be too costly, too complicated or take too long to show results, institutions may not invest scarce resources in implementing such approaches.

This case study research was designed to challenge the belief that it is too difficult to apply integrated approaches. It did this by, first, assuming that using gender analysis and participatory processes will create the opportunity and provide the framework for developing integrated approaches to food security, and then by examining examples in four countries – Ethiopia, Kenya, Tanzania and Uganda -- that applied these approaches to improving household food security. It also went a step further by identifying factors that contributed to making these approaches work and comparing them to an accepted theoretical framework. This validation suggests that others can be reasonably assured that these factors can guide the replication of successful partnerships.

The study is part of a worldwide research program, Broadening Access and Strengthening Input Market Systems (BASIS). This program aims to improve access to and efficiency of land, water, labor, and financial markets as a means to promote economic growth and agricultural development. The current study contributes to the BASIS research agenda in suggesting how institutional collaboration can support individual and household food security, and, through that, improve the quality of the labor supply.

Background and Rationale

“Food security” has a long history as an “organizing principle” for social and economic development (Maxwell and Frankenberger 1992). Over time, this concept has been operationally defined in a number of ways. In most cases, the definitions include elements of availability (supplies of food), accessibility (both physical and economic), and utilization (physiological ability to absorb and utilize consumed nutrients) (USAID 1997). In general, “food security” refers to that situation in which there is “...access for all people at all times to enough food for an active, healthy life” (FCND 1999; FAO 1997; World Bank 1986). Food security is about equitable access to markets, distribution of resources – within households, among individuals, across communities – and viable options and opportunities to take action and make decisions.

Food security is about “nutrition” or its reverse, “malnutrition.” As defined by UNICEF, “malnutrition” is a direct result of inadequate dietary intake and disease, which, in turn, are the results of insufficient household *food security*, inadequate maternal and child care, insufficient health services, and an unhealthy environment (Gillespie, Mason, and Martorell 1996). This framework suggests the convergence between food security and nutrition, that is, without food security, good nutrition cannot be achieved; and without good nutrition, individuals have more difficulty being economically productive.

The complex web of factors that contribute to food security and nutrition suggests that while addressing one factor is necessary, it is not sufficient to achieve positive change. Indeed, the benefits of changing a single factor may be undercut because other contributing factors were not addressed (FCND 1999). This suggests the need to intervene in an integrated fashion at several points in the relationship.

This point is illustrated by what might appear to be a paradoxical situation but which actually reflects the interactive nature of multiple contributing factors. Recent data indicate that while there are sufficient amounts of food available

worldwide, malnutrition continues to be highly problematic and, in some regions, on the rise. Grain production was projected to increase between 1998 and 2000 by 19 percent (from 628.1 million tons to 747 million tons) and commercial imports will increase by 30 percent (from 56.2 million tons to 72.8 million tons) in 66 countries around the world (Shapouri and Rosen 1999). In Sub-Saharan Africa, grain production is expected to increase from 138.4 million tons in 1998 to a projected 173.2 million tons by 2008 -- an increase of 25 percent with imports increasing by 14 percent from 8.6 million tons to 9.8 million tons for the same time period. On the other hand, these improvements in agriculture production indicators are not wholly reflected in the health and nutrition indicators shown in Table 1.

Table 1. Relevant food security indicators for the four study countries

Indicator	Ethiopia	Kenya	Tanzania	Uganda
Infant mortality rate ¹ , 1997 (per 1000 live births)	107	74	85	99
Under 5 mortality rate ¹ , 1997 (per 1000 live births)	175	112	136	162
Maternal mortality ¹ , 1990-97 (per 100,000 live births)	1400	650	530	550
Under 5 underweight ¹ , 1992-97 (mod and severe)	48%	23%	31%	26%
Per capita energy supply ² (kcal/day), 1990-1992	1620	1970	2110	2220
Daily per capita calorie supply ² (% of requirement), 1988-90	73 %	89 %	95 %	93 %
Food production index ¹ , 1995-97 (1989-1991=100)	--	102.9	97.2	107.7
Food expenditure ² , 1980-85 (% h'hold consumption)	49 %	38 %	64 %	--
GNP per cap ¹ , 1998 (US\$)	100	330	210	320
Below international poverty ¹ line (<\$1/PPP/d*; 1985 \$)	46 %	50 %	--	69 %
Human Development Index ³ (HDI) rank, 1998	169	137	150	160

* PPP = Purchasing power parity, an estimate of the amount of money required to purchase comparable goods in different countries, usually expressed in US \$

Sources: ¹ World Development Report 1999/2000, ² Bread for the World Institute 1999; ³ Human Development Report 1998

These data suggest the variation across the four countries for each indicator. They also illustrate that, while a country may appear to have sufficient supplies of food to meet its population's daily per capita calorie requirement, the health status of that population suggests that they may not be able to biologically utilize the nutrients in the food they consume. Finally, it is important to note that these aggregate figures tell only one level of the story as they mask variations at the individual, household, community and sub-national levels. Indeed, while a household may be food secure, individual household members may suffer from food insecurity (FCND 1999). Household decision-making contributes significantly to individuals' abilities to access the food (and other resources) they need to grow and develop. The next section discusses gender issues, such as household decisionmaking, as they relate to food security.

Gender Dimensions of Food Security

Gender relates to the socially assigned roles and behaviors of men and women. It is the social meaning of biological sex differences. “It affects the distribution of resources, wealth, work, decision-making and political power, and the enjoyment of rights and entitlements within the family as well as public life” (DAW 1999). While food security is traditionally viewed as having two dimensions – spatial¹ and temporal², in fact, it has three, with gender being the third and most overlooked (FCND 1999). Identifying individuals’ differential access to resources and benefits is the fundamental feature of gender analysis, and ensuring equitable access and distribution will enhance food security.

Research and field experience have clearly illuminated the different roles and responsibilities that men and women have – in their individual lives, in their families and households, and in their communities. While both men and women are income earners and agricultural producers, women also process and prepare food, and use their income for their children’s benefit (Thomas in Haddad et al. 1997; Carr 1991). Women also provide the majority of care for their families, take their children to health services, and ensure a healthy environment – the very components of good nutrition (Levin et al. 1999).

Yet women make these critical contributions with limited access to necessary resources, to decisions on allocation and use of those resources, and to the derived benefits (Johnson-Welch 1999). Individual and household food security is mediated by individual actions and the choices they make in producing food, earning income or acquiring assets, feeding and caring for family members. Thus, it is critical to maximize these individuals’ contributions by ensuring their equitable access to and control over the resources needed to meet their roles and responsibilities.

Indeed, overcoming gender-based inequities in resource access and decisionmaking could very much enhance women’s contributions to food security and its nutritional benefits (UNFPA 1999). Furthermore, improving women’s health and nutrition, and their access to education and training opportunities, enhances their human capital as an input to ensuring individual and household food security (FCND 1999).

Participation as a Means and an End

Just as gender is a critical dimension of food security and gender analysis is a tool to identify factors that contribute to individual food security, *participation* is a means to generate appropriate and acceptable solutions to food insecurity, promote ownership of those solutions, and encourage long-term sustainability of their implementation. Participation means that all levels of social organization – from households to communities, local and national governments, and international institutions – are engaged in the process and contribute to the solutions based on their comparative advantages. Furthermore, the use of participatory processes and methods oftentimes contributes to building stakeholder capacity to work collectively and to use problem-solving processes that can be applied to other settings and issues. Indeed, Sen (1999) suggests that the aim of “development” is developing human capital. Active and full participation plays a critical role in achieving that outcome. Thus, “participation” is not just about viewing individuals as beneficiaries but as agents of change.

“Participation” has many faces and applications. It can mean providing information to others who then analyze, interpret, and use it for their own purposes, or it can be engaging whole communities in discussing problems, analyzing them, and initiating action. It can mean that individuals, groups or institutions share responsibilities and risks (Beaulieu and Manoukian 1994). “Participation” can guide planners’, policymakers’, and service providers’ actions

¹ “Spatial” suggests that food security can occur at different human organizational levels -- for individuals, households, communities, sub-national, national, and for the world’s regions.

² “Temporal” is the time dimension -- whether food insecurity is chronic or intermittent.

and decisions, and be the means through which individuals and institutions develop their capacities to problem solve – to learn to think critically and act strategically, to become the decision maker, thereby, contributing to the longer term potential of appropriate and effective development actions (Edwards 1999).

Indeed, the application of “participatory processes” has become an accepted principal by institutions as diverse as the World Bank, national governments, and community-based organizations (CBOs).

“We believe strongly that popular participation is, in essence, the empowerment of the people to effectively involve themselves in creating the structures and in designing policies and programs that serve the interests of all as well as to effectively contribute to the development process and share equitably in its benefits.” (Arusha 1990 in InterAction 1999)

A review of efforts by the World Bank to engage stakeholders throughout the project cycle identified key questions that clarified whether (or not) these efforts were successful (InterAction 1999):

- Were all stakeholder groups identified, by whom and how was this done?
- Were the parameters for participation of the stakeholders defined and were they inclusive of all stages of the project cycle?
- Was there an established mechanism through which stakeholders could influence the project and was it known by all stakeholders?
- Was input from stakeholders reflected in eventual selection of issues and other design, implementation and evaluation decisions?
- Were sufficient resources (financial, physical, and human) allocated to support stakeholders’ participation throughout the life of the project?

This same document suggested constraints that limited full participation of relevant stakeholders. These included fears of raising stakeholder expectations particularly if there was a time lag between design discussions and actual implementation; lack of follow up to initial stakeholder discussions particularly if eventual design is different than or contrary to stakeholder input; heavy time and opportunity costs of participation – for staff and community member. Other inhibiting factors included the lack of institutional support or structures that would ensure having adequate skills to use participatory processes and methods, or encourage cross-sectoral planning and implementation; and the lack of recipient countries’ governments’ ability or will to carry out participatory processes and their outcomes.

Given that food security is multi-dimensional and that individuals and household members most likely see their problems as inter-related (rather than isolated), the application of gender analysis and participatory processes and methods would lead to the recognition that resolving such problems demands an integrated multi-sectoral approach.

Integrated Approaches

If gender analysis and participatory processes are critical to effective problem solving, then integrated approaches are the means to address multi-dimensional problems. The call for using such approaches is not new (Kennedy and Bouis 1993; Ostergaard 1992; Longhurst 1986; Underwood 1983). Recently, there has been a flurry of institutional statements, research articles, workshops, and conferences that call for linking agricultural production, economic access, and nutritional wellbeing as a means to improve food security (Chavez 1999; Haddad 1999; UNFPA 1999; FAO 1998 and 1997; Breth 1997).

These calls may reflect the growing recognition that resolving food insecurity in an integrated fashion is a means for realizing individuals’ right to adequate food, to be free from hunger and to have equal access to productive resources (ACC/SCN 1999; Economic and Social Council 1999; Yambi 1996). The upcoming five-year review of the 1996

World Food Summit and the Fourth World Conference on Women provide additional impetus to consider how to operationalize integrated approaches to resolving food security (and other development problems). Indeed, given the multi-dimensional nature of food security and the range of factors that contribute to nutritional well being, it would be logical to use multi-sectoral integrated approaches (Beaudry 1999).

But how would institutions go about using integrated approaches when they, for the most part, tend to specialize in the type of work they do? They may conduct research, provide services, advocate for programs and policies, and monitor compliance. Still others set public policy and regulations (Gillespie et al. 1996; Attack 1999; Edwards 1999; Fyvie and Ager 1999). And, as noted above, communities are key to identifying the need for and providing the context and framework for making integrated approaches work. Thus, in order to apply interdisciplinary, integrated approaches, most institutions would need to partner with others to create the right mix of skills and expertise.

Take, for example, the strategic framework for the Food and Agriculture Organization (FAO) 2000-2015 (1999). This strategic vision is based, in part, on a belief that the organization must coordinate with others in order to “ensure excellence.” It states:

“At a time of decreasing resources for multilateral organizations and shrinking ODA flows, coupled with the presence of many institutions working in areas touching on FAO’s mandate, the Organization runs the risk of not being seen as the unique source of information, advice and assistance, and hence not always being perceived as the most authoritative...***Inter-disciplinary approaches are clear pre-requisites*** [authors’ emphasis] to successful and sustainable agricultural and rural development.”

The FAO has, therefore, committed itself to broadening partnerships and alliances with non-state institutions and others as the means to achieve this inter-disciplinary approach that will increase FAO’s effectiveness and improve its efficiency. This institutional response is not unique; others, including USAID, the World Bank, Rockefeller Foundation among others, are also making commitments to work in partnerships and with a range of stakeholders. This creates a supportive environment to build collaborations as a means to address multi-dimensional problems in an integrated fashion.

At an operational level, recent research conducted by the International Center for Research on Women (ICRW) and partners in five countries provides insight into how institutions can collaborate to improve micronutrient intake and status in an integrated manner (Johnson-Welch 1999). The approach used by the five research teams included three operating principles:

- Pooling technical resources to support households’ inter-related needs;
- Building on community and institutional wisdom gained through prior experiences, knowledge and relationships; and
- Engaging community members, particularly women, in a participatory problem solving process.

The ICRW call for proposals explicitly required that submitting institutions demonstrate how the research study would lead to action, that is, would contribute directly to improving children’s nutrition. This requirement led research institutions to partner with service provider organizations, public sector institutions to join with nongovernmental organizations that had direct links to communities, and agriculture institutions to work with health and nutrition institutions. In the end, all five studies were implemented by collaborations of institutions that maximized their comparative advantages and supported community-based trial interventions that reduced women’s resource constraints and strengthened their problem-solving skills.

While this example suggests the importance of working collaboratively with appropriate partners, the operational questions remain: “How do institutions build partnerships?” “What motivates that decision?” “What are the results of such partnerships?” “Do they really work?”

Operationalizing Institutional Collaboration

One approach to learning about institutional partnerships is to look for examples of “success stories.” Indeed, a review of the literature yields a number of success stories that resulted from institutional collaboration (Gillespie et al. 1996; INPF 1989; Underwood 1983). But they do not speak directly to “how” institutions operationalize their collaboration. Others document institutional efforts to address food security by using an integrated approach (Noble 1999; SHDI 1999; Callens and Phiri 1998; Silva-Barbeau et al. 1998). By analyzing these latter examples in terms of success factors, a framework begins to emerge as to what makes collaborative efforts work. From there, it may be possible to derive some operating principles.

In Malawi, staff from Self Help Development International (SHDI), an Irish nongovernmental organization, worked with community members and counterparts from the Ministries of Agriculture and Irrigation; Health and Population; Forestry, Fisheries and Environmental Affairs; Women, Youth and Community Service; and Education and Culture to develop community action plans (SHDI 1999). The partnership brought together expertise in different technical areas and different social structures (households, communities, and institutions) by using a highly participatory, gender-sensitive approach. Problems that were identified included low crop yields, inadequate access to financial capital for startup and recurrent costs, lack of fuel wood, inadequate and unsafe drinking water, high prevalence of HIV/AIDS, and large families. Once these problems were viewed in their entirety and their interactive relationships defined, it became clear that addressing one problem had implications for others and that planning an intervention strategy that addressed multiple factors in an integrated fashion made the most sense.

Although the process was time intensive and required much oversight in terms of keeping the collaborative process and partners together, it is likely that the solutions will be carried out and sustained because of the high degree of ownership. Indeed, because of the extensive degree of involvement of the relevant stakeholders in the process, no one felt any one problem or solution was “someone else’s” responsibility. The project also developed a manual that can be used by others as a means to replicate the process, procedures, and methods. This last feature is somewhat unique – while other organizations may successfully resolve problems, the lack of documentation of the process limits what others can learn and apply.

This collaborative process, however, had its own difficulties. During the problem-solving process, for instance, it became clear that community members often saw problems as isolated issues rather as inter-related clusters. Further, their preference was to deal with problems sequentially – from those that were most urgent or immediate to those that were more distant (either conceptually or temporally). For them, food availability (manifested by hunger) was an immediate problem that they wanted to address before all others. Population growth rates and HIV/AIDS, which contribute to agricultural productivity and, therefore, to food availability, were of less immediate concern to them. Conversely, the Ministry and NGO staff often saw things more holistically and wanted to address the fundamental issues because they realized that neglecting them would lead to only short-term resolutions of problems, rather than long-term improvements. Thus, there was a continual need to ensure that both the short-term needs and long-term constraints were addressed in the community action plans, and that the plans addressed multiple needs in as integrated a manner as possible.

This interdisciplinary, multi-sectoral partnership of social institutions worked most probably because:

- Partnerships were initiated at the earliest possible stages of project development;
- Institutions were invited into the process based on their comparative advantages in terms of technical expertise, skills, and relationships to the community;
- Immediate, short-term needs of the community were addressed and contributed to establishing the credibility of a process that aimed to build the problem-solving capacity of all stakeholders as a means for supporting long-term sustainable change; and

- Institutional commitments were made to use a time-intensive process in the initial phases to gain long term benefits in terms of ownership and overcoming entrenched practices, beliefs, and attitudes.

A “success” factor that was not articulated by the project team but which seems evident from a distance was the donor’s willingness to provide funds to a process-focused project. This flexibility gave the project team and community members *carte blanche* in identifying problems and solutions, rather than forcing them into a box that was pre-designed. This factor was also noted as critical to the success of four NGO interventions in South Asia (Edwards 1999).

While it is useful to derive factors from experience, it is also useful to learn from examples that began with a theoretical perspective. The value of having a theoretical basis for designing and implementing programs and policies is that this basis can serve as both a means for analyzing results and for applying the lessons learned. Unfortunately, the models that exist tend to be examples based in industrialized countries and it is not clear how applicable they may be to developing countries’ context (Rosenthal 1998, O’Neill et al. 1997).

The health literature provides a number of potentially useful models that define partnerships, what brings them together, and what makes them work. For example, a review of partnerships in international health found that the following factors contributed to their success:

- There is open and transparent **communication** between and among institutions;
- Institutions reach a common understanding to **cooperate** and agree on the terms and conditions of the partnership;
- The institutions **coordinate** their resources and find ways to strengthen their individual roles; and **collaboration** leads to new activities, programs or policies (Management Sciences for Health 1998/99).

A review of collaborations in the nutrition field is also relevant to the current study (Rosenthal 1998). Rosenthal categorizes collaborations into strategic partnerships, comprehensive and multi-sectoral, service integration, and problem solving. Theories related to interorganizational relations, social movements and psychology, political science, conflict resolution, and business and administration are reviewed and discussed in terms of analyzing collaborations. Five stages of collaboration are outlined: preformation, formation, implementation, maintenance (“doing the work”), and termination or transformation.

One theory that might have particular relevance to studying institutional collaborations and food security in developing countries is coalition theory. This theory was developed to explore collaborative partnerships in health and defines health as a multi-dimensional issue that demands input from multiple sectors (Beaudry 1999). This theory suggests that the success of coalitions is based on partners’ perceived rewards for joining the coalition; the political assets they bring to the coalition; partners’ non-utilitarian preferences (the inclination to join the coalition); the coalition’s decision making rules; and the organizational context within which the coalition operates (O’Neill et al. 1997).

Rationale for this study

Although the literature suggests that institutions use integrated approaches to address multi-dimensional development problems and that they do that by partnering with others based on their comparative advantages, there is little evidence that these efforts are based on sound theoretical concepts or guidelines. Rather, these collaborative partnerships appear to be the result of intuitive “best guesses” and “trial and error.” Coalitions or partnerships that aim to implement an integrated approach to resolving the multi-dimensional problems such as food security, must move beyond rhetoric and be driven by theoretically sound principles. Having a framework grounded in such principals would facilitate others’ learning from and replication of successful collaborations.

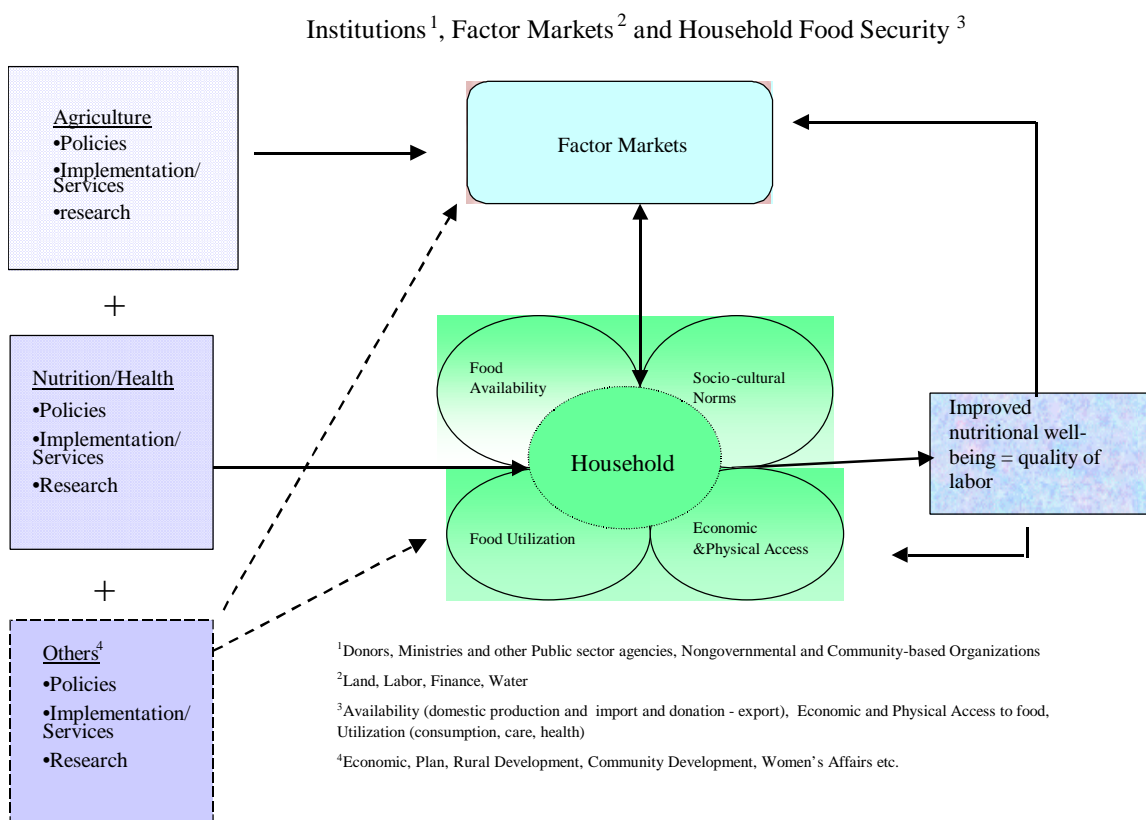
Conceptual Framework and Study Objective

This study defines “food security” as “access for all people at all times to enough food for an active, healthy life” and uses a conceptual framework that includes three components of “food security” – availability, accessibility and utilization of food – as a guide (figure 1). The cases in this study focus on individual and household food security as this is the level of social organization that most program interventions aim to reach. Finally, while noting that food “availability” is a result of domestic food production, imports, and donations, the cases in this research focus principally on domestic agricultural (including livestock) production³.

The conceptual framework developed by the research team for this study was based on a review of the literature, cases presented by the in-country team members at a design meeting, and group discussions. The framework articulates the relationships between institutions and household food security. Given that this study is part of the BASIS CRSP, a multi-country research program that is exploring the role of factor markets in economic growth, agricultural production and food security, the framework incorporates a link to labor as the factor of production most relevant to this case study research.

³ The exception is CARE/Ethiopia’s project that includes a “food-for-work” component.

Figure 1. Conceptual Framework: Linking Institutions and Household Food Security



Institutions that support household food security are sector-specific, e.g., agriculture, health or nutrition, and cross-sector institutions, e.g., community development, women's affairs or economic development and planning ministries. They may focus on development of policies and regulations, service provision or research, and may represent civil society, the public and private sectors, and the international community, including multi-laterals, foundations and other donors.

Some institutions affect household food security through factor markets⁴ and, through them, households. For instance, decisions made by the Planning Ministry will affect pricing policies of factors of production, and through these, households will have variable access to those factors that they convert into agricultural production, income or asset accumulation. Other institutions will affect household food security in a direct fashion, e.g., NGOs provide direct health services as a means to improve individuals' *utilization* of nutrients. Intra-household variables such as decision-making patterns and cultural beliefs and norms also influence allocation of resources and individual food security.

Based on this study's definition of food security, if an individual is food secure, she/he will be healthy and have good nutritional status. This translates into higher labor productivity and enriches the labor supply (von Braun 1997; Collins and Roberts 1998). Thus, the relationship between labor supply and food security is circular, and labor is both a factor of production (an input) and an outcome of food security.

⁴ Land, labor, financial, and water

Gender plays a critical role in this framework. It affects both access to factors of production and distribution of resources within the household, and each of these contributes significantly to individual food security. The literature is consistent in the finding that women use a larger proportion of their income for children's benefits than men do. However, women also have less access to factors of production than men do. This limits women's productivity and income earnings. This, in turn, reduces their contributions to food availability and influences their ability to ensure equitable food consumption and health care utilization.

Objective of the Study

The objective of this study was to strengthen household food security by documenting institutional efforts to address food security in an integrated and gender-sensitive manner and identifying factors that influenced those collaborative efforts. The hypothesis was that integrated approaches would better achieve the intended outcome but integrated approaches demand cross-sectoral collaboration -- within or across institutions.

Two assumptions were made at the outset of this research study. First, as noted in the background and articulated in the conceptual framework, *gender* is a critical dimension of food security. Addressing gender issues will contribute to developing fundamentally appropriate and acceptable solutions that will contribute to ensuring equitable benefits. Second, *participatory processes* are critical to solution development and building capacity for developing long-term sustainable changes. Stakeholder analysis is an important step in an inclusive process that can develop ownership and enhance the likelihood of long-term sustainable change. Furthermore, participatory processes would most likely lead to integrated approaches, because participants, particularly at the household or community level, would not compartmentalize their needs or problems, rather would see them as interactive. This would create the likelihood that programs and policies would address these inter-related needs through integrated, multi-sectoral approaches.

Study Design and Methods

This research is an analysis of case studies conducted in four countries -- Ethiopia, Kenya, Tanzania and Uganda. Examples of integrated projects that aimed to improve household food security were identified and selected based on criteria developed in the design workshop (see below). The analysis is based on 13 cases -- four each from Ethiopia, Tanzania, and Uganda; and one from Kenya. It focuses on identifying factors that make collaborations work. The decision to use this focus was taken for two reasons. First, while the literature speaks to the need for collaboration and the factors that may create an environment that promotes the spirit and need for collaboration, there is little discussion as to the factors that make collaborations work. Second, identification of these operational factors will enable development practitioners and policymakers to create the conditions and provide the support to create and sustain collaborative efforts.

The study was implemented by a team of researchers based in the focal countries and in the United States. The field-based members included nutritionists from Ethiopia and Kenya, an agricultural economist from Tanzania, and a gender specialist from Uganda. All team members had worked in the field of food security and had some experience and training in gender. The six team members communicated electronically throughout the study period to provide input to and feedback on each phase of the study, including design of data collection instruments, review of draft reports for each of the four countries, and compilation and review of this synthesis report.

Methods

The conceptual framework was developed and the study was designed in a team workshop held January 1999 in Nairobi, Kenya (see earlier discussion on the framework). Criteria for selecting the country-specific cases included:

- Presence of a gender component;

- Preference for agricultural focused interventions (to ensure food availability);
- Use of nutrition indicators to measure impact;
- Representative of different types of institutions;
- Availability of secondary data including project documents;
- Availability of staff who participated in the design, implementation and evaluation of the project; and
- Completion date of the project (recently completed was preferable).

Selection was not limited to cross-institutional collaborations. Indeed, it was anticipated that there would be cases of collaborative efforts within the same institution but across divisions or departments. Having examples of each would provide potentially interesting comparisons. Where a potential case study example did not meet all of the above criteria, the field researcher decided as to whether the missing criterion would undercut the purpose of the case study research. If not, the case could be included in the analysis.

Each case study was developed based on a review of secondary data and collection of primary data. Secondary data included project design, process, and evaluation reports. Primary data were collected through individual interviews with relevant policymakers, representatives of the institutions involved in the project, and community members. In some cases, focus groups were held with some of these informants. Site visits to the field permitted collection of observational data.

Each field-based researcher analyzed the data from the country cases using the conceptual framework as the analysis guide. The researchers looked at how each project addressed the three components of food security, the degree and type of participatory approaches used, the role of gender, the inputs provided, the activities undertaken, the outcome indicators used, and the results. Based on that analysis, a set of facilitating and constraining factors were identified that appeared to influence the project results. These factors were, in turn, compared and contrasted to determine if they were situation-specific or common to all cases. The findings were compiled into country-level case study reports and submitted to the Principal Investigator, who compared and contrasted across the four countries. Based on this analysis, cross cutting conclusions and recommendations were set forth.

All 13 cases that comprise the data set are rural-based projects. Although food insecurity is also an urban problem, its nature and support may be different, e.g., the contributions that household agricultural production makes to individuals' and households' food security. Thus, the conclusions drawn from these cases are relevant only to rural settings.

Findings

The following section presents the findings from the 13 individual projects or cases, four each from Ethiopia, Tanzania, and Uganda, and one from Kenya. The findings begin with a description of the individual cases, followed by an analysis of their efforts to address the three components of food security, their attention to gender and use of participatory approaches. It concludes with the identification of factors that contributed to the collaborations.

Description of the Thirteen Cases

This section gives a brief overview of the 13 cases that form the basis for this case study research (see Appendix for summaries). Based on the selection criteria, all of the cases aimed to improve household food security. Some measured their achievement of that goal using nutrition indicators; others used agricultural indicators; some used a combination of these as well as economic indicators. All of the cases were time-bound projects. Generally, they were technical “add-ons” to pre-existing programs that used a community development approach. This was most often the case in projects that were implemented by nongovernmental organizations such as CARE or Agri-Service. A few cases

were “one-off” projects that had a specific technical aim or purpose. For example, the solar dryer project in Tanzania was designed to see if adoption of an improved, enclosed solar dryer using indirect sunlight could reduce seasonal risk of vitamin A deficiency. It was not part of a larger community development strategy.

All the cases were examples of cross-institutional collaborations. While it was expected that some cases might be intra-institutional, that is, across different organizational units within the same institution, in fact, none were. It would have been interesting to compare these two types of collaborative efforts as it might be easier to collaborate within a single institution rather than across several, and the factors that drove and maintained that collaboration might have been different.

Table 2. Summary of country case studies

Country	Title	Institutions
Ethiopia	Reducing Vitamin A Deficiency in Ethiopia: Linkages with a Women-Focused Dairy Goat Project	FARM Africa (NGO) Alemaya University of Agriculture Ministries of Agriculture, Education, Health Nutrition consultants School staff Zonal Administrative council Community members including women’s groups
	Adama Area Development Project	World Vision (NGO) Ministries of Agriculture and Health Family Guidance Association Committees for traditional practices Community members
	Micronutrient and Health Initiative Project	CARE (NGO) World Vision (NGO) Ministries of Agriculture, Health and Education Community members
	Integrated Rural Development Project	Agri-Service (NGO) Ministries of Agriculture and Health Community members
Kenya	The Effects of Women Farmers’ Adoption of Orange-Fleshed Sweet Potatoes: Raising Vitamin A Intake in Kenya	Kenya Agriculture Research Institute International Potato Center CARE/Kenya Ministries of Agriculture, Health Community members, including women’s groups
Tanzania	Improved Solar Drying of Vitamin A-rich Foods	Tanzania Food and Nutrition Center Ministries of Agriculture and Health District Steering Committee Community members
	Integrated Food Security Project	Ministries of Agriculture, Health and Community Development/Women Affairs and Children Regional Development Officers GTZ Community members
	Agricultural Development Project	COOPIBO (NGO) Community Development Trust Fund of Tanzania (NGO) District Council Ministry of Agriculture Uyole Agricultural Center Community members

	Child Survival Protection and Development Project	Community members Ministries of Agriculture, Health, Education, Community Development/Women's Affairs and Children, Forestry Tanzania Food and Nutrition Center UNICEF
Uganda	Agricultural Training in Animal Husbandry for Dairy Production	Send a Cow/Uganda (NGO) Send a Cow/UK (NGO) Community councils Local churches and church-based groups, including Mothers' Union Heifer Project International (NGO) Ministry of Agriculture, Veterinary Dept. breeding center Community members, including female-headed households and AIDS orphans
	Production and Utilization of Improved Indigenous Vegetable Varieties	CARE (NGO) District Agriculture Office National Agriculture Research Organization Community members including farmers' groups Local governing councils Mwana Mugimu Clinic
	Improving Household Food Security through Increasing Bean Production	International Center for Tropical Agriculture National Agricultural Research Organization Eastern and Central Africa Bean Research Network Mission: Moving Mountains (CBO) Community members including farmers' groups Child Health and Development Centre (Makerere U.)
	On-Farm Productivity Enhancement Project	Winrock International Agricultural Cooperatives Development International (NGO) Association for Professional Women in Agriculture and Environment (professional membership organization) National Agricultural Research Organization Community members

In *Ethiopia*, all four cases were collaborations of NGOs, both local (i.e., Agri-Service) and international (FARM Africa, CARE and World Vision), public sector agencies (Agriculture, Health and Education Ministries), and communities. In one case, local nutrition consultants and the technical expertise and physical infrastructure available at the local agricultural university (Alemaya University of Agriculture) complemented the capacity of the NGO, FARM Africa.

The interventions aimed to improve agricultural production, including horticulture and livestock, economic access to resources (including financial and physical capital), and health and nutrition knowledge and practice. In some cases, health services were also part of the intervention package. The FARM Africa project built on a dairy goat project that aimed to improve women's access to productive assets and income by adding-on activities that focused on production and consumption of vitamin A-rich foods and community wide health and nutrition education sessions. School gardens and classroom education sessions provided another mechanism for improving vitamin A intake.

The World Vision and CARE projects also illustrated this community development approach. For instance, the World Vision project supported construction of water wells, provided family planning services, trained community members in agricultural production, and provided health and nutrition education. The CARE project expanded its community development activities (that initially focused on sustainable natural resource management) to include promotion of

home and school gardens, distribution of vitamin A capsules and iron supplements, and de-worming of young children. Agri-Service also provided an integrated intervention package including improvement in local seed production, forage development, bee keeping, and soil and water conservation.

Unlike the cases in Ethiopia that included NGOs, the *Tanzanian* cases were primarily collaborations among public sector agencies, including the Ministries of Agriculture and Health, and a national research institution, Tanzania Food and Nutrition Center, TFNC (under the administration of the Ministry of Health). Tanzania does not have a policy on NGOs. This limits the presence and operations of international NGOs in Tanzania. Indeed, only one of the cases involves an international NGO, in this case, COOPIBO (Belgian).

The Tanzanian cases are also somewhat different from the Ethiopian cases in that two of the four were narrowly focused while the other two addressed multiple problems in a more holistic manner. As noted earlier, the solar dryer project aimed to test the effect of adopting an improved dryer on dietary intake of vitamin A. It trained women in construction, maintenance and use of the dryers; food preparation and feeding practices; and business management for marketing surplus produce. Thus, it addressed all three elements of food security, even though it did not address other development issues or needs in the community.

The COOPIBO project also had a limited focus and that was to improve agricultural production by improving access to productive technologies and inputs, and training farmers in production, harvesting and storage. An interesting dimension to this time-bound project was that the farmers' organizations, that were brought together and strengthened through the project, were eventually incorporated into a local NGO. This element of sustainability was unique among the 13 cases. The other two case studies in Tanzania, the Integrated Food Security project supported by GTZ (in Rukwa District) and the Child Survival Protection and Development Project supported by UNICEF, were designed from the beginning to address a range of development needs in the target communities.

A common element in the Tanzanian cases was the role played by the Tanzania Food and Nutrition Centre (TFNC). While this research center may not have been actively involved in each of the four cases, data it had collected informed the development of all four cases' activities. In some cases, TFNC also evaluated the interventions' nutritional impact. In a somewhat unique situation, TFNC worked as an implementing partner alongside the Ministry of Agriculture's extension service in the solar dryer project.

The *Kenya* case is a marriage of institutions that came together for a specific purpose. The institutions included the Kenya Agriculture Research Institute (KARI), a national agricultural research organization (NARO); the International Potato Center (CIP), an international research institution and member of the CGIAR network; and CARE/Kenya, an international NGO. They collaborated with the Ministry of Agriculture to develop and implement a trial intervention that linked agricultural production and nutrition consumption as a means to reduce vitamin A deficiency. The intervention included activities that promoted women farmers' adoption and children's consumption of sweet potato varieties that were rich in vitamin A. Women were trained in business management practices to promote market sales of surplus yields. Staff from the three institutions, extension agents from the Ministry of Agriculture, and project-hired staff worked with women's groups and made household visits to promote the adoption of the new varieties and to address concerns in terms of production, feeding practices or other adoption-related problems.

Finally, the four cases in *Uganda* also represent both types of intervention models – three had a particular technical focus while the fourth was a broad based community development intervention. Three of the four projects focused on promoting adoption of particular food crops (vegetables, beans, and soybeans), and the institutional collaboration was informed by that need. For instance, CARE/Uganda approached researchers at the National Agriculture Research Organization (NARO) to identify appropriate vegetable varieties that CARE could promote within its community development activities. This add-on strengthened CARE projects' abilities to address different constraints to household food security, in this case, availability issues. In reverse fashion, researchers at the NARO and the

International Center for Tropical Agriculture (CIAT) approached a community-based organization to gain access to a community as a means to promote production of different bean varieties and improve household food security. The third of these crop production interventions was the collaborative effort by Winrock International, two NGOs (one international and one national), and the NARO. While aiming to reduce rural poverty and improve nutrition, this institutional collaboration promoted production and marketing of protein-rich indigenous bean varieties.

These highly focused interventions contrast with the Send A Cow/Uganda's (SACU) project that applied a broader community development approach. This project also illustrates how a small-scale intervention can grow into an integrated package of development activities over time. In this case, the initial inputs were cattle and technical support provided to households that received these livestock on credit. Over time, other activities were added onto this basic intervention, including training women in food processing and preparation and feeding practices; providing health and nutrition education, and organizing community self-help groups. Thus, other community development needs were addressed in an incremental fashion.

All of these 13 cases illustrate that collaborations are both fluid and constant – they may come together to respond to a particular opportunity or need, or they may build on their partnerships to expand the range of activities and services they provide. The following section looks specifically at how each of the cases addressed the three components of food security – availability, accessibility, and utilization.

Addressing the Three Components of Food Security

All but three of the 13 cases addressed, in some fashion, the three elements of food security. The exceptions were the COOPIBO project in Tanzania that focused principally on availability issues, the CARE project in Uganda that addressed availability and utilization issues, and the CIAT/NARO study in Uganda that did not include any specific activities related to utilization. Although the remaining ten addressed all three components, there was a tendency to focus more resources and activities on one or two of the components. For instance, improving agricultural production may have been emphasized more than access or utilization. Even within a single component, “utilization” for instance, the activities might address only some of its features, e.g., health and nutrition education but not health services per se. This is not illogical given the array of possible activities within each component – choices must be made and these choices are often based upon the comparative advantages or interests of the institutional partners.

Increased *availability* of food was typically addressed through increased access to productive inputs such as planting materials, seeds or fertilizer; through physical resources such as food processing equipment, and through skill training in production and processing techniques. Economic *access* tended to be addressed through formation or expansion of community credit and savings groups, asset accumulation, particularly livestock and small animals, and strengthening income generation through business management training.

Consumption and *utilization* of nutrients were addressed through health and nutrition education, skill training in food preparation and feeding practices, infrastructure development to promote a healthy environment (water and sanitation), and improved access to health services (including primary health care). The former two, education and skill training, tended to be used more often than the latter, particularly by institutions that had agricultural production as their principal focus, e.g., the sweet potato project in Kenya or the bean projects in Uganda. Health service delivery tended to be addressed more often by those cases that directly involved the Ministry of Health in the initial planning phase or as the principal partner in implementation, such as the CSPD project in Tanzania.

Among the 13 cases, the factor of production most often addressed was *financial capital*, although this tended to be limited to organization of or support to community credit and savings groups (5 of 13 cases), asset accumulation (3 of 13) or indirectly through business management training (2 of 13). In the cases that incorporated these services into their intervention package, women were explicitly targeted as the intended clients in all cases. *Land* was not addressed

in terms of ownership or tenure, rather it was addressed principally in terms of its productivity. Thus, activities might address increasing community members' access to fertilizer, or train them in erosion control techniques.

Finally, although improving the health and nutrition of those who provide the labor for agricultural production and income-earning activities enhances their productivity and consequently the potential growth of these economic activities, the case study examples addressed *labor* only in the sense of the future labor force. The primary beneficiaries were young children. Even in those cases in which women were secondary target audiences, the case studies viewed them more in terms of their maternal roles (in breastfeeding and other care-giving practices), less so their roles as economic actors or agricultural producers. This is remarkable given that women comprise a large and active proportion of the labor market, and investing in women's health and nutrition clearly enhances their productivity as well as their own wellbeing.

Measuring Results

All of the 13 cases included some assessment of need, collection of baseline data or review of existing data to identify problems, set priorities, and determine entry points for intervention activities. Some did this in a fairly systematic and rigorous fashion using sampling, design, and analysis methods that would permit post-intervention comparison between control and intervention groups (e.g., the CIP/KARI/CARE project in Kenya). Others compared changes over time using indicators related to agricultural productivity (e.g., yield data) but did not collect data that would have permitted them to determine the effects those changes might have had on nutritional wellbeing (e.g., COOPIBO in Tanzania). Still others relied solely on qualitative data that did not permit the partners to measure the effects of their interventions, make comparisons across groups or over time, or attribute changes to the interventions (e.g., SACU in Uganda or Agri-Service in Ethiopia).

Baseline and formative data tended to focus on three issues -- agricultural production (yields, water availability and soil fertility), nutrition (food intake, consumption patterns, anthropometry, and clinical eye signs), and poverty (income and expenditures). Secondary data appeared to be used more often for poverty assessment while primary data were collected for production and nutrition assessments.

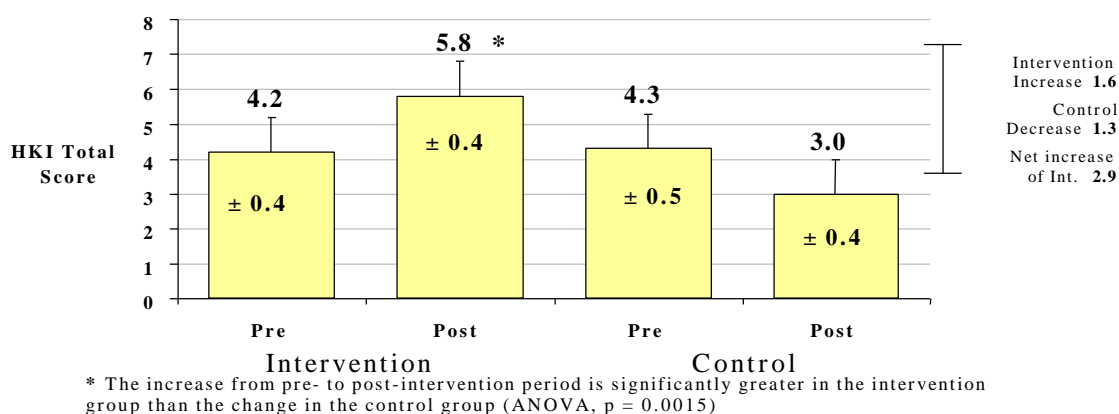
Two of the cases (FARM Africa in Ethiopia and the CIP/KARI project in Kenya) collected income and expenditure data to measure impacts on food security; nine collected agricultural/production data, and ten collected nutritional data (e.g., food intake, anthropometry and a few, clinical data – for MN-focused projects). A few also collected process and outcome data related to women's time (the CIAT project in Uganda, solar dryer project in Tanzania, FARM Africa in Ethiopia and the Kenya sweet potato study).

Interestingly, most cases used a nutrition-related outcome indicator to measure effects. Unfortunately, the projects did not necessarily include activities that specifically and directly addressed constraints to consumption and utilization of nutrients. This suggests at least recognition of the link between agricultural-focused activities and impact on nutrition. However, nutrition is not necessarily a direct outcome of agricultural-focused interventions, that is, increased production does not necessarily translate into food consumption or, even less likely, nutrient utilization. If inputs and activities aim only to improve availability or production but not physical consumption and utilization of nutrients, then using a nutrition indicator is inappropriate. Furthermore, the results may indicate that there were no improvements in nutrition but there were in production or yield. This might create the image of "failure" when, in fact, this was not the case; only that the wrong indicator was used to measure the effects.

The Kenya case study illustrates the importance of choosing the right indicator based on intervention inputs. In this case, two interventions were compared in terms of dietary intake (outcome indicator). The first intervention focused only on promoting agricultural production [but not consumption]. The second included activities that focused on both promoting production and consumption. The former, or control group, did not compare favorably with the intervention

group, suggesting that if dietary intake were used to measure an agricultural production activity, the conclusion might be that it had failed or, at least, not met expectations.

Figure 2. Frequency of consuming vitamin A-rich foods in Ndhiwa/Nyarongi (n=154 children, 0-5 years)



Accessing the necessary skills and expertise to design, collect, analyze and report data is critical to establishing credibility of institutions and their collaborators. The Tanzania Food and Nutrition Centre (TFNC) was involved in three out of the four cases in Tanzania by either collecting baseline and monitoring/evaluation data, or conducting research in resolving operational constraints to household food security. The CIAT/NARO/CBO activity in Uganda sought out the technical services of the Child Health and Development Center to measure children’s nutritional status as an outcome indicator.

A constraint that limited the ability of collaborating partners to measure the effects of their integrated approach was the conceptualization of the evaluation design, data collection process and methods, and analysis. FARM Africa activity in Ethiopia attempted to show change over time by tracking the same households measured at baseline and categorizing them as “participant” and “nonparticipant” households. However, during the analysis process it became clear, that while the households could be matched, data were not necessarily collected for the same children within those households. This limited the analysis and interpretation in terms of attempting to attribute changes in children’s nutritional status to the study intervention. Thus, key constraints to establishing the outcome of collaborative efforts to implement an integrated approach include selection of inappropriate indicators and data collection methods.

While outcome and impact indicators tended to be those that are used worldwide, OFPEP in Uganda used measurement tools that captured community-identified indicators for change. Pictures of children were taken at different points in time and were shown to community members who discussed them relative to their definitions of a “well nourished” child. These data complemented the data collected using standard measurement indicators; however, it is unclear how these qualitative assessments were used and whether they influenced any changes in the intervention.

Addressing Gender

This case study research presumed that food security would be enhanced through the use of gender-sensitive approaches and analysis of gender constraints. In fact, the cases suggest there were varying degrees of attention given to and integration of gender concerns. Slightly more than half (eight of 13) gave some explicit attention to gender. They did this by developing an institutional gender policy, hiring gender specialists, creating a gender community profile or developing gender indicators. Nearly all trained their staff in gender and gender analysis as a means to

institutionalize a gender approach to their development activities. OFPEP in Uganda and COOPIBO in Tanzania are examples of this. COOPIBO trained project staff in gender principles and gender analysis; training manuals were developed; and training plans were adopted for continued staff development. In the meantime, external gender expertise was accessed to jumpstart this effort to mainstream gender.

Motivated by findings from an external audit, CARE/Ethiopia undertook efforts to strengthen its gender mainstreaming activities. These included developing a strategic action plan to guide the mainstreaming effort; establishing a gender focal point in the organization; and training staff. Similarly, Agri-Service (Ethiopia) established a gender unit; developed a gender policy, and established gender process and impact indicators. All staff, including field officers, headquarters, and contractual staff, participated in gender training exercises.

The weak point in most of the cases was their monitoring and evaluation plans. Indeed, rarely were data collected and reported in such a way to pick up gender issues. For instance, production-level or nutrition data were not sex disaggregated in most cases nor were data analyzed in terms of gender access to and control over resources. One of the exceptions to this was the CIP/NARO study in Uganda in which men and women adopted the bean varieties that best suited their needs, and adoption and production rates were calculated for each variety and disaggregated by the sex of the producer. The payoff in reporting disaggregated data was that the researchers could attribute differences in impact to men and women’s choices of which variety they adopted.

The factors that appeared to contribute to whether or not and to what extent a case might explicitly address gender included donor demands and accountability; institutional experiences with and understanding of gender; staff availability and training opportunities; and availability and use of gender tools and methodologies including measurement indicators.

Table 3. Actions taken to incorporate gender into institutions and interventions

Country	Policy	Training	Staff hired	Gender profile	Gender indicators
Ethiopia	Agri-Service CARE	Agri-Service FARM Africa World Vision	Agri-Service World Vision	FARM Africa World Vision	Agri-Service FARM Africa World Vision
Kenya	CIP/KARI/ CARE	CIP/KARI/ CARE	CIP/KARI/ CARE	CIP/KARI/ CARE	CIP/KARI/ CARE
Tanzania	COOPIBO	COOPIBO	COOPIBO CSPD GTZ/Min Agri	COOPIBO	COOPIBO
Uganda		OFPEP SACU	OFPEP SACU CARE	OFPEP	OFPEP

Furthermore, the focus was more on reducing practical rather than strategic⁵ gender constraints, and actions tended to target women as disadvantaged or vulnerable groups, rather than addressing the underlying norms that create gender inequities. One of the ways that was commonly used in some of the cases to address practical constraints was through an analysis of women’s time and labor burdens. This data was useful in deciding on which technologies to introduce that would increase women’s efficiency and productivity. This led to the introduction of food processing technologies

⁵ “Practical” constraints include limited access to technologies, credit or other tangible resources that men and women need to perform tasks. “Strategic” constraints refer to systems, norms or institutions that limit choices, decision-making and relationships.

to women, such as the case with solar dryers, grain mills or efficient cooking stoves in Ethiopia or oilseed presses in Tanzania. Women's input was also solicited in the development of those technologies. For instance, in Tanzania, an indirect solar dryer developed by TFNC in collaboration with the Ministry of Agriculture was modified in response to women's preferences for smaller models and having a choice as to construction materials.

The project in Uganda that focused on promoting adoption of different varieties of beans by men and by women is another example of addressing women's practical constraints within a traditional perspective. The choice of crops that were promoted was driven, in large part, by women's (and men's) traditional roles and control over particular crops. In this case, the researchers offered several varieties to women and to men. Women tended to adopt the variety that had lower market value but could be used for household consumption; whereas, men chose the variety that had higher commercial value. While this may seem logical and was certainly responsive to women's self-identified interests, it perpetuated a stereotypical perception that lower market value crops are "women's crops." This same thinking is also illustrated by the decision to promote sweet potato production in Kenya, dairy goats in FARM Africa's project in Ethiopia, or pigs and goats in the IFSP in Tanzania – all of which are "women's crops."

While these decisions may safeguard women's control over assets or resources, it presupposes that there is some value in limiting women's access to all assets and resources. By limiting women's access to lower market value assets and resources including agricultural products or livestock, women's ability to develop and expand their entrepreneurial activities is constrained, minimizing the contributions they can make to household economies and food security.

In only a few cases were efforts made to address strategic constraints. These efforts tended to focus on encouraging women to participate in community meetings, training women in leadership skills and management practices, or encouraging men to become engaged in issues that might typically be seen as "women's", such as the care and feeding of children. While these do create some of the structures and opportunities to change gender norms, they would, most likely, fall short of achieving that objective. Changing such fundamental social structures and institutions would require on-going and concerted efforts that are driven by community members as they cannot be done for communities by outsiders. They can, however, be stimulated by development activities. Thus, while some of the cases had begun the process, it is unlikely that changes in strategic constraints would be evident within the timeframe of these cases. Donors and implementing agencies should plan on long-term investments to address the underlying factors that create and maintain gender differential access to and control of resources and benefits as well as meet the practical constraints that women and men face in ensuring household food security. This two-pronged strategy would be more likely to ensure that program investments have their expected outcomes.

Using Participatory Processes

This case study research also presumed that using participatory processes which engaged all stakeholders in the problem-solving process would enhance the likelihood of achieving food security through an integrated approach. The cases illustrate that while there was a commitment to using participatory processes and methods, the actual implementation of that commitment fell along a continuum from stakeholders providing information to others to their being fully engaged in the decision-making process. Where each case fell along this continuum depended on donor insistence, institutional policies or an informal commitment to use such processes and methods; availability of staff trained in participatory process and techniques; availability of participatory tools and methodologies; and historical experience that contributed to creating a level of comfort with such processes.

"Participation" tended to occur most often in the beginning of the problem-solving process and was characterized by individuals or groups providing information to program planners who extracted that information for analysis and interpretation. While the information was used for the benefit of the community members, they were not always aware of the link between eventual outcomes, e.g., project activities and the information they provided. Thus, participation in this sense is very narrowly defined. Indeed, institutional mandates or staff skills may have greater influence on

eventual project inputs than community-provided information. For instance, the institutional focus of SACU and FARM Africa are to provide particular assets to targeted community members, specifically, cattle in the case of SACU and dairy goats, in the case of FARM Africa. While there are efficiency reasons for having such a limited mandate, it is not unreasonable to assume that communities might articulate other needs that these institutions cannot meet. In such circumstances, there may be some reluctance to fully engage the community members in open dialogue for fear of disappointing them in terms of the eventual outcome.

Another common “participatory” mode evidenced in the cases was communities’ in-kind contributions. They might contribute time, labor, and materials to construct irrigation or water catchment systems; they might build a health post or provide a “volunteer” to staff that post; they may contribute locally available crops for food demonstrations; they may even contribute cash to pay for goods or services. However, they are not necessarily part of the active and on-going decision making body that discusses project implementation, monitoring or evaluation.

Three of the cases from Tanzania provide a picture of how full participation can be achieved. The IFSP in the Rukwa District was developed through a highly participatory process that engaged multi-levels of stakeholders in a diagnosis of problems and identification of resources to address problems prioritized by community members. The result was an intervention that had two tracks -- building stakeholders’ capacity to problem solving and introducing technologies and practices that would improve children’s nutrition, specifically improving food intake and promoting a cleaner environment.

This process was facilitated by the use of the “Objective Oriented Project Planning method.” The methodology led the stakeholders through a process of goal setting, articulating the purpose of the activity, identifying outputs and developing activities that were used to develop a Plan of Action. This Plan also included a timeline that sequenced activities and identified sources for necessary inputs and resources, including staff, materials, equipment, and funds. This same methodology was used by the COOPIBO project.

The UNICEF-supported CSPD Project used the “Triple A cycle” (Assessment, Analysis and Action) methodology for program development. The methodology guided a team of representatives from different sectors (human nutrition and food science; PHC; CHD; agriculture, livestock and nutrition education; economics/planning and rural sociology) and from the community in the development of an action plan. The eventual activities included a disparate but integrated package such as income-generation activities for women, health and nutrition services, agricultural production, and water and sanitation. An interesting characteristic of these three cases is that they were all fixed but variable length projects (IFSP, three years; CSPD, five years; COOPIBO, 10 years). While the shorter timeframes provide the opportunity to evaluate the immediate responses to the solutions, the longer timeframe is desirable in terms of assessing long-term sustainability – both in terms of food security but also in terms of building local capacity to use gender approaches and participatory methods and processes for solving problems.

Finally, donor flexibility enhances the likelihood that participatory processes are used and the outcomes are realized. For example, FARM Africa’s technical proposal suggested that while the trial intervention might focus on addressing constraints to improved consumption and feeding practices, the actual interventions would be designed based on baseline and formative data, and in discussions with community members and technical advisors. The donor had to be willing to live with this ambiguity and believe that this process would lead to appropriate and feasible interventions. Indeed, it did and nutrition-related results support the value of this approach.

Factors that Contribute to Institutional Collaborations

The data analysis aimed to identify factors that made collaborations work. This did not preclude recognizing that there were other factors that created a collaborative environment. Indeed, the research found that these two types of factors – the practical or “how to” factors and the strategic factors – co-existed. This section presents factors derived from the

research that fall into each of these sets. However, because the aim of the study was to shed light on the practical factors, the discussion section that follows will focus only on those.

Data analysis suggests that there are two sets of factors that contribute to institutions' collaborative efforts to address household food security through an integrated gender-sensitive approach. The first set relates to conditions that create an environment that prompts and promotes an interest in working collaboratively. The second are factors that are driven by practical needs and that make collaborations work. In both cases, institutions are motivated by the perceived benefits, be they tangible (materials and equipment, enhanced performance of staff or expanded service delivery) or intangible (increased visibility or credibility through their partners and the achieved outcomes).

Strategic Factors that Create a Supportive Environment. This set of factors is generally external to the eventual partner institutions and, while institutions' responses may seem opportunistic in nature, the collaborations that are formed tend to support the strategic interests of the partners. These factors include international policy statements; donor interests; national governments' decisions; and response to community input.

Factor One – International Policy Statements

International conventions and policy statements are highly influential in creating an environment for issues that are cross cutting in nature, such as food security, and fundamental in principal, such as human rights. Governments' commitment to those conventions and policies create an opportunity for institutions to commit their own resources to realizing those commitments and monitoring compliance.

The Tanzanian Food and Nutrition Centre's second Five-Year Program for Prevention and Control of Vitamin A Deficiency (1990/91-1994/5) reflects the commitment made at the 1992 International Congress of Nutrition to eliminate vitamin A deficiency worldwide and targets dry regions of Tanzania, including Singida District, for specific attention. The solar dryer project, one of the four case study examples in Tanzania, built on those policy initiatives to implement its intervention research study in that same district. Collaboration between the TFNC ("housed" within the Ministry of Health) and the Ministry of Agriculture served as a mechanism to move toward realizing the nutritional commitment made by the national government.

Similarly, national governments' participation in international conferences such as the World Food Conference (1974), the World Summit for Children (1990), the International Conference on Nutrition (1992), or the World Food Summit (1996) created powerful demands for institutional collaborations. Agreement with policy statements issuing from such conferences is assumed given participation in the conference. National governments are also motivated by the commitments they make as signatories of international conventions such as the Lomé III Convention (1984) or the Convention on the Rights of the Child (1989). These policy statements create an environment in which institutions are driven to collaborate to ensure compliance with these policies and conventions.

For instance, the Tanzanian Platform for Action as a follow-up to the 4th UN World Conference on Women, the Ugandan National Gender Policy, and the Ethiopian National Policy for Women set the terms for increasing women's access to productive resources. Another example is the shift in UNICEF's policy from focusing exclusively on women as mothers to including women as economic actors and agricultural producers, a direct result of UNICEF's adoption of the "Women's Equality and Empowerment Framework." This change had direct implications on the scope of activities included in the CSPD project in Tanzania.

In Tanzania, a "National Agriculture and Livestock Extension Policy" (1992) led to guidelines for extension staff at the district and regional levels to collaborate with other institutions working in agricultural development. The inclusion of nutrition in curriculum for students in agricultural and teachers training institutes in Tanzania also began the process of integration of skills and knowledge.

➤ ***Factor Two – Donor Interests***

Donor agencies have significant influence on countries' and institutions' interests and motivations to address development issues. Sometimes that influence supports attention to multi-dimensional development issues, such as food security; other times, it may aim to address a particular, narrowly focused issue. Even in the cases when these institutions recognize the importance of addressing the multi-dimensional issues, they tend to support only parts of those issues, thus, fragmentizing support and national institutions' ability to move forward in an integrated fashion.

FARM Africa leveraged support from the Opportunities for Micronutrient Intervention Research (OMNI) Project to develop a nutrition-focused component to a project that aimed to improve income and wellbeing by increasing women's access to dairy goats (productive asset). Similarly, the solar dryer project in Tanzania and the sweet potato project in Kenya also received funds from the OMNI Project to conduct intervention research studies to find ways to reduce micronutrient deficiencies through community-based actions. The CARE/World Vision activities in Ethiopia and CARE's horticulture project in Uganda also may have been responses to donor interest in resolving micronutrient deficiencies, more familiarly referred to as "hidden hunger."

➤ ***Factor Three – National Government Action***

In all four of the case study countries, national governments were in the process of decentralizing their operations. This created the opportunity to bring stakeholders together as it brought decisionmaking to the administrative level closest to local communities and the partners that work with them. It may encourage decisions that are responsive to community articulated input and needs, and promote integrated, multi-sectoral actions. Once accountability procedures are in place, they should encourage cross-institutional monitoring to see if the decisions and resources are being well used and having their intended effects.

In Ethiopia, FARM Africa worked closely with the Zonal Administrative Council to coordinate information and efforts with the various Ministries represented on that Council, and with NGOs, such as World Vision, that had access to the Council through its public sector partners. Much in the same way, the District Councils in Tanzania served as the coordinating body for information and technical assistance to communities in their administrative regions. However, these mechanisms do not always serve that purpose as there is still a gap in procedures that guide resource allocation decisions, coordination, and supervision, and a need to train different partners in how to operationalize their functions and meet their responsibilities.

➤ ***Factor Four – Responsiveness to Community Initiatives***

The current trend in development practice is to marry a bottom-up approach with institutional capacities to support communities' expressions of need. This is most often done by bringing partners from different social structures together to conduct a stakeholder analysis which includes identification of resources needed to address the agreed upon problems. Public sector agencies and nongovernmental organizations commit resources they control to match communities' commitment of resources.

The IFSP and the CSPD projects in Tanzania were based in large part on a bottom-up process whereby community members had direct input into the selection of particular intervention modes and means. In the case of the IFSP project, regional authorities solicited support from the Government of Germany's development agency, GTZ, to assist them in reducing childhood malnutrition. The three-year project drew upon the expertise and experience gained through bilateral activities that aimed to develop the agricultural sector through increased cash and food crop production. Similarly, the CSPD project built on successes in the Iringa region and responded to other regions' expression of interest in committing resources so they could benefit as well.

Practical Factors Related to Making Collaborations Work. These factors tend to be internally driven and respond to practical needs. Some drive the decision to collaborate, i.e., having someone see the need and assess the practical gains. Others relate to building the partnership and making it work, i.e., choosing partners, formalizing relationships, and committing resources.

➤ ***Factor One – A Visionary***

A key element that appears to influence institutions' decisions to join in partnerships is the presence of a visionary or charismatic leader who sees the opportunity or need and works to keep the partnerships functioning. This is the case in the Kenya sweet potato project. An agricultural economist working in the International Potato Center (CIP) in Kenya was committed to finding ways to reduce malnutrition – both micronutrient (vitamin A) and general malnutrition – by strengthening women's roles in agricultural production, processing, and marketing. She also recognized that increasing production or women's income alone would not be sufficient to achieve nutritional improvements. Thus, she brought together individuals from different institutions to create an appropriate mix of technical skills and sector areas. These included agronomists and agricultural extension agents from two agricultural research institutions and the Ministry of Agriculture; health and nutrition specialists from the Ministry of Health; food technologists from the agricultural research institutes and the Ministries of Agriculture and Health. An action-research study tested the comparative effects of an intervention that focused exclusively on agricultural inputs and production with one that included those elements as well as actions to improve consumption of food products using the beta carotene-rich sweet potato and utilization of nutrients by young children. The result was a significantly better intake of vitamin A by children whose mothers participated in the expanded technology package. This would have been difficult to achieve without the combined technical skills and expertise of the different sector specialists, guided by the vision of the CIP researcher.

➤ ***Factor Two – Practical Gains***

This factor is critically important as partners will rarely join with others if they do not perceive some net gain or benefit for themselves. Benefits may be practical in nature, that is, they provide institutions access to resources that enable them to be more effective, efficient, or build on their successes. They may yield tangible benefits such as new materials and equipment, or improved staff performance resulting from the transfer of knowledge or skills. It might also be expected that the assessment of intangible benefits such as increased visibility or credibility through association with a particular partner would motivate some institutions to collaborate with others.

A practical gain that motivated some collaborations was the desire to increase program effectiveness, that is, achieve the stated objectives or goal. The CARE/Uganda home vegetable garden project in Bushenyi and Ntungamo districts was developed when it was recognized that earlier project activities focusing on forestry development, soil and water conservation, pasture improvement--and to some extent nutrition--were not having the expected effects on nutritional indicators. In order to better achieve their intended outcome, CARE solicited technical support from a plant breeder at the national agricultural research organization to assist in identifying vegetable varieties that could survive the dry season. FARM Africa, working with the Ministry of Agriculture and Alemaya University of Agriculture in Ethiopia, recognized that while their interventions had increased women's asset accumulation (dairy goats) and household income had improved, children continued to suffer from hunger and micronutrient malnutrition. Thus, they accessed technical expertise in health and nutrition from local nutrition consultants to strengthen the link between production, consumption, and utilization.

Another of the practical gains that influenced partner collaboration was the desire to improve program or institutional efficiency. Pooling human, financial, and physical resources is a common way to increase efficiency. Recognition of the efficiency benefits of collaboration is illustrated by the partnership between CIAT, the national agricultural research organization, and a CBO in Uganda. In this case, not only was the eventual collaboration a result of the drive

to be efficient but also a matter of convenience. The CIAT and NARO researchers needed to find an appropriate site for community adoption trials of particular bean varieties. A member of the agricultural extension staff was a member of a CBO that happened to work in the target area. Partnering with this CBO gained CIAT and the NARO researchers' entry to the community.

An illustration of a partnership that was driven by the need to be both efficient and effective is the case of CARE/Kenya's involvement in the sweet potato project. The baseline survey by CIP and KARI illuminated the need to collect additional data that would contribute to developing the trial interventions. It was decided to use participatory rural appraisal methods for the sake of efficiency and effectiveness. However, neither of the two agricultural research institutions had the necessary technical expertise; whereas, CARE/Kenya did. Furthermore, CARE/Kenya had an office within the targeted intervention area. This made this collaboration among three partner institutions efficient and effective.

Other partnerships were driven by the desire to build on successful lessons by scaling up or replication. Partnerships that yield successes on a small scale, that is, within a limited number of communities, might want to expand the range of those successes by adding new communities. Successful achievement of expected objectives might motivate partners to add on new activities to address other constraints or issues. The follow-on nature of the Child Survival Protection and Development Project (CSPD) in Tanzania is an example of replicating a successful partnership. Collaboration between communities, national public sector institutions, and a multilateral donor agency (UNICEF) was developed based on experiences gained through the Joint Nutrition Support Project (JNSP) which began in the Iringa region of Tanzania in 1983. The institutions involved in that project were motivated through its success to apply the lessons learned in designing a new but complementary project (CSPD) and to expand into other regions. Communities, seeing the results of the JNSP, requested that the process used and services provided through the JNSP project and the new CSPD activities be extended to their areas. The add-on nature of the CARE and FARM Africa projects in Ethiopia is also representative of this desire to scale up.

Partnerships also were formed based on institutions' assessment of the tangible goods they may derive from the relationship. For example, an NGO may have access to financial resources that a public sector agency does not, and with those funds provide motorcycles to Ministry of Agriculture extension staff. CARE/Uganda and Ethiopia, while CBOs such as People Move Mountains (Uganda) provided the agricultural researchers an entry point into a community. Building institutions' human capacity through training and on-the-job exposure to the expertise of others is another tangible benefit. For instance, in Uganda, the CARE staff gained new skills and information working with the NARO researcher, which they could apply in other work, they undertook in the future. In the case of the CIP/KARI/CARE partnership in Kenya, the collaboration strengthened CIP and KARI staff skills in using participatory rapid appraisal methods, while CARE staff benefited from the experience of working in the on-farm trials.

Finally, institutions benefit from association with others, particularly if those partnerships strengthen an institution's credibility or raise its visibility. An illustration of this gain is the partnerships between NGOs and research institutions. The latter institutions' technical skills ensure that data are collected and analyzed following accepted research norms. This creates credibility for the results and the associated institutions. Staff gains satisfaction from the publication and dissemination of results that reflect their work and investments. Similarly, being associated with a highly credible institution such as the Child Health and Development Centre in Uganda or the International Potato Center in Kenya may raise their partners' visibility and possibly enhance their future funding opportunities.

➤ *Factor Three– Partner Selection*

The selection of partners is often driven by program cycle needs. Each phase in the program cycle has its own resource needs. So, for instance, research or evaluation specialists may be needed in the early phases to ensure that the

baseline and formative data is reliable and valid. These specialists also could contribute to developing the monitoring and evaluation plan, training the data collectors and working with the implementation team and community members to analyze and interpret the data. They could be brought in to perform discrete tasks or serve on the implementation team throughout the program cycle. The configuration of partners might change over time or remain the same throughout the program cycle depending on the focus and intent of the intervention, and available resources.

The CARE/Ethiopia project illustrates this fluctuation in partnerships. CARE was already implementing a community development program that focused principally on sustainable natural resource management. They recognized that these activities were not affecting child health and nutrition to the extent hoped. World Vision was asked to join in the partnership based on their staff's technical skills in health and nutrition. The new activities specifically addressed constraints related to child well being, such as knowledge of health and nutrition practices, and access to health services including vitamin A supplements. By bringing in a partner with the relevant technical expertise, the community-based activities were reconfigured to better address the intended outcome.

In other cases, collaborations are based on where a particular institution may be housed, e.g., the Tanzania Food and Nutrition Centre is part of the administrative structure of the Ministry of Health, or on its affiliations, such as CIP and CIAT's relationships with their national agricultural research organization counterpart. In those cases, these institutions collaborate with each other in all activities. Once the operating principles are established, no particular arrangements are needed when initiating a new activity.

Some institutions have historical relationships that they build upon as illustrated by FARM Africa, a nongovernmental organization; Alemaya University of Agriculture, a public university; and the Ministry of Agriculture in Ethiopia. These three partners had worked together since 1988 to improve household wellbeing by increasing women's access to productive resources (goats, credit and savings, and skill training). Another example of this is the ongoing collaboration among key institutions that participated in the JNSP and the CSPD in Tanzania, and the on-going relationship between the Tanzania Food and Nutrition Centre (TFNC) and the Ministry of Agriculture (Singida Solar Dryer).

Finally, some partnerships are formed because they are required – sometimes by a donor, as was the case with the ICRW supported studies in Ethiopia, Kenya and Tanzania, and sometimes by a national government. This is the case when national governments require that international NGOs work with in-country partners. This partnership gives national governments a degree of assurance that once the international organizations have left, the structures and capacity are in place to continue the work initiated under the earlier partnership. It also provides national governments with a mechanism for extending services to areas of their countries that are under-served. All of the international NGOs in the case studies – CARE, World Vision, and FARM Africa among others – had institutional partnerships with in-country institutions. In some cases, their partners were part of the government structures, e.g., Ministries of Health or Agriculture; in others, they partnered with research institutions such as FARM Africa and Alemaya University of Agriculture in Ethiopia, or indigenous NGOs or CBOs, such as SAC/UK and SAC/U in Uganda.

➤ ***Factor Four– Formalizing the Collaboration and Contributions***

The final practical factor concerns the mechanisms institutions use to operationalize their partnerships. These can be either formal or informal. Formal documents such as Memorandum of Understanding or bilateral agreements between governments specify the institution's contributions in terms of funding levels, human resources, and materials and equipment. Sometimes, arrangements are based on a degree of comfort with each institution's commitment to work together. This was the case with the On-Farm Productivity Enhancement Project (OFPEP) in Uganda. This project brought together a number of partners including local and international NGOs such as the Association for Professional Women in Agriculture and the Environment (APWAE), COOPIBO, World Vision, Agricultural Cooperative Development International (ACDI) and Winrock International.

Resources that institutions brought to the partnership fell in several categories – human, physical, financial, and institutional networks. In the first case, institutional staff brought with them relevant technical, managerial, and coordination skills and knowledge. Public sector institutions might assign or “detach” some of their staff to work on a project, e.g., TFNC and Ministry of Agriculture in Singida. However, staff mobility, changes in institutional priorities, or new demands for existing staff often undercut the longevity of this investment. Donor agencies, such as GTZ, or nongovernmental organizations, such as FARM Africa or CARE, will hire staff for specific activities. While this is efficient, it may harm the sustainability and continuity of activities should staff move onto other projects or countries. Gender expertise is often accessed on a contract basis, although institutional staff members may receive some gender training.

Physical contributions often take the form of logistical equipment such as vehicles and gas; agricultural inputs, such as planting materials; economic assets such as cattle or goats; or health and nutrition educational materials. NGOs and research institutions tend to be better endowed financially than public sector agencies, or are able to be more flexible in their resource allocations. Thus, they make important contributions in terms of physical resources. So, for instance, CARE in Uganda and FARM Africa in Ethiopia provided logistical support (in the form of motorcycles or four-wheeled vehicles and gas) for their public sector counterparts. This improved access to communities for these staff who are often unable to get out to rural or isolated communities. NGOs and research institutions were also critical in providing agricultural inputs and assets, such as sweet potato planting materials in Kenya, or cattle and goats in Uganda and in Ethiopia. Public sector institutions may contribute in-kind materials, such as training or educational information. This was the case with the Kenya sweet potato project that adapted materials already developed by the Ministries of Health and Agriculture.

Financial resources were provided either directly from institutional budgets or indirectly through proposals that were funded by external donors. These resources were accessed either through proposals submitted to international donors, to NGOs' central offices or through public sector budgets. The FARM Africa study in Ethiopia, the CIP/KARI/CARE project in Kenya and the solar dryer project in Tanzania were partially supported by funds provided by USAID/Washington through a competitive research grants program directed by the International Center for Research on Women (ICRW). Local communities also contributed through cost-sharing or in-kind contributions (labor and materials). Public sector institutions were less often used as a direct source of funding but as the mechanism through which external funds were channeled. Such was the case with UNICEF's funding of the Child Survival Protection and Development Project in Tanzania.

Finally, different institutions bring their relationships with other institutions to the partnership. So, for instance, the CBO, Mission Moving Mountains (Uganda) provided the entry point into the community that the CIAT and NARO researchers needed. FARM Africa and the agricultural extension service from the Ministry of Agriculture provided Alemaya University of Agriculture entry into communities they were working in.

Discussion

This section discusses the research findings in light of the objectives of this paper. Do these cases address the three components of food security? If so, can we assume that this is an implicit statement of the utility of an integrated approach? Do projects that address gender and participatory approaches also address the three components of food security? If so, what might that mean in terms of these concepts and practices in applying an integrated approach? Finally, is there any convergence between the factors derived from the cases and those suggested by coalition theory? If so, what does this mean for replication?

Addressing the Three Components of Food Security

The research found that ten of 13 cases made efforts to address all three components of food security. Indeed, institutions recognize that improvements in agricultural production, food availability or access to that food are not sufficient to ensure nutritional benefits. They believe in an integrated approach that cuts across sectors and act on that belief by partnering with others. These partnerships are built on the premise that institutions have their comparative advantages and that by agreeing to pool their resources, they are better able to realize their shared common objective. Nutrition-related data from the individual case study examples demonstrate that this collaborative partnership worked. This finding should encourage those who know that integrated approaches are relevant and necessary. However, it is also important to note that not all the cases used nutrition-related indicators as their dependent variables; rather, they often used agricultural production indicators (e.g., yields or acreage under cultivation). Production indicators are not good proxies for consumption data, and limiting the measurement to such indicators undercuts the ability of advocates, program planners, and policymakers to make the case for investing in integrated approaches (Svedberg 1999).

These results suggest that those who say it is too difficult to utilize an integrated approach are misinformed. While this research did not undertake a review of the universe of food security projects worldwide or in each of the four countries, it is not unreasonable to infer that if these cases demonstrate institutions' commitment to such approaches, there are others doing the same. In fact, these findings are corroborated by research conducted by others (Bonnard 1999, Johnson-Welch 1999).

There is a limitation to the inferences that can be drawn from these studies. Because of the lack of cost comparison data for the 13 cases, the findings cannot put to rest the criticism that integrated approaches are more costly than vertical single-focused interventions. While the cases suggest that institutions, including donor agencies, invest their resources in using integrated approaches, this case study research did not find any data regarding relative costs and benefits of integrated versus single-focused interventions. It might be worthwhile to conduct such an analysis with the caveat that the calculations should take into account the qualitative costs and benefits. Minimizing the contribution these elements might make to decision-making would certainly result in misleading conclusions. Finally, this case study research found some cases whose data suggest that highly participatory approaches are more likely to yield sustainable changes than top-down or less participatory approaches. However, these cases were not tracked over a sufficiently long period of time to dissuade those who say that participatory approaches are too costly, take too much time, and yield few results. It would be useful to conduct evaluative assessments of some of these cases to test that perception.

Gender, Participation, and Integrated Approaches

The case study research was a retrospective review using project documents, individual interviews, and focus group discussions. Further, because each case was wholly independent of the others, the opportunity to compare across cases in terms of their design features, levels and types of inputs, and implementation methods is extremely limited. Thus, the interpretation of whether and how gender or the use of participatory processes and methods may have contributed

to enhancing the outcome within each case is restricted. That said, there is some hint as to the functional role each played in relation to each other.

Of the 13 cases, only three had strong gender components (at the level of addressing gender issues through project implementation, staff training and institutional policy) and used participatory processes throughout the life of the activity. The remaining ten presented a mixed picture in terms of gender and participatory processes with most doing a better job in using participatory approaches than in mainstreaming gender. This suggests an interesting paradox. While there are calls for addressing gender issues as a means to ensure that development programs and policies yield equitable benefits, and to use participatory approaches as the means to engage all stakeholders in the problem solving process, this research found more evidence that institutions are doing the latter than the former. This may be because it seems “easier” to encourage participation than it is to address gender issues. While the findings are not adequate for exploring why this may be, it is worth suggesting some possible reasons for this result.

First, it may have to do with the quality and user-friendliness of tools and methodologies on participatory approaches that are available to field staff. This is not likely as there are a number of equally high quality, user friendly manuals for institutions to use in mainstreaming gender. However, availability of tools and actual use of them adds another dimension to this potential explanation. Second, it may have to do with related meanings and values attributed to each and that, for gender, it may have connotations and meanings that are more value-laden than participation. Staff may not feel comfortable directly confronting or addressing gender issues. While this is plausible, it, too, is unlikely as participation can have equally discomfoting meanings. Another explanation may have to do with the physical nature of “participation”, i.e., people can be seen participating and they can be counted; gender is not a visible or easily quantifiable concept. Thus, participation is more amenable for use in justifying the transparency of program development and can be used to measure performance.

Whatever the reason, the result appears to be that institutions are further along in the process of using participatory processes than they are with mainstreaming gender. There are good reasons to do both. Thus, the issue becomes how to support institutional efforts to do that – through donors setting conditions on funds provided to institutions, through institutions setting goals and objectives and holding themselves accountable for mainstreaming both elements, or through efforts by external persons and groups to hold institutions accountable.

Derived Factors as Compared to Theoretical Factors

Although the data analysis suggests the importance of factors that create a supportive environment for collaborations, the aim of this research was to look more closely at factors that make these collaborations work and to attempt to validate them through comparison with well-tested theoretical models. If validated, the factors derived from 13 developing country cases have important implications for policymakers and development practitioners. Therefore, this section discusses the derived factors that contributed to making collaborations work with factors in one theoretical model, “coalition theory.”

Coalition theory was selected as a comparative framework to view the factors derived from the case study analysis of how to operationalize integrated approaches. It was chosen because it has been used to study intersectoral health-related actions, an area that is multi-dimensional in concept and application, just as is food security (O’Neill et al. 1997). This theory posits that the following factors (or parameters) are important predictors of the process of intersectoral activities: (a) initial [contribution and] distribution of resources; (b) payoffs or rewards; (c) non-utilitarian preferences (an “inclination to join”), and (d) rules of the game.

Review of the case study examples identified four factors that contributed to making collaborations among partner institutions work – presence of a visionary, perception of practical gains, basis for partner selection, and formalizing collaborations and contributions. For the most part, there is a convergence or similarity between these and the factors

suggested by coalition theory. However, there is far more specificity in the derived factors and the domains of resources, non-utilitarian preferences and payoffs or rewards in coalition theory seem to be less distinct.

Table 3. A comparison of derived and theoretical factors

FACTORS		Notes
Derived practical factors	Coalition theory factors	
Presence of a Visionary	Resources	No visionary in coalition theory
Practical Gains (effectiveness, efficiency, build on successes, benefits)	Non-utilitarian preferences	Resources, non-utilitarian preferences, payoffs all overlap with “practical gains”
Partner selection	Payoffs or rewards	[see above]
Formalizing collaborations and contributions	“Rules of the game”	Same

Both the case study and coalition theory factors include elements of matching resources with needs, that is, drawing on partners based on their comparative advantages relative to health and food security (effectiveness) and pooling resources to achieve a critical mass (efficiency). Two dimensions of this factor that the current case studies identified but which were not explicitly addressed in coalition theory are the critical role that a single person can play, and the changeable nature of partnerships depending on where a project may be in its life. Other factors that were in common related to the perception of benefits (“payoffs” in the parlance of coalition theory) and defining the partnerships (“rules of the game”). Coalition theory suggests that this latter factor is actually a combination of setting the operational rules and functions (e.g., number of partners, means used to work together, etc.).

There were slight divergences between the two sets of factors. One of these was the case study factor termed “partner selection.” Although coalition theory did not include this as one of its four factors, it hints at it in both its “resources” and “non-utilitarian preferences” factors. Conversely, the factor that coalition theory includes but the case study research does not is this latter element, the “non-utilitarian preferences.” Coalition theory defines this as the inclination to join with others irrespective of control over resources. It is suggestive of the case study’s factor of the intangible benefits partners may derive such as being associated with a player who has credibility or a higher profile than the other partner. In this case, this is one of the elements of the “practical gains” factor identified by the case study research.

Overall, there was a large degree of convergence between the derived and theoretical factors although the terms used or the bundling of elements might be somewhat different. This suggests that there is a theoretical underpinning for the factors derived from the case study review. Those who might want to replicate the operational aspects of these partnerships should have some degree of confidence that if they consider these factors in choosing and working with partners, they may achieve similar results.

Conclusions and Recommendations

This case study research aimed to provide insight into how institutions design and implement approaches that address multi-dimensional development issues. Food security is an example of such an issue and aims to improve the

nutritional wellbeing of individuals. Research suggests that labor, production, and nutritional wellbeing have a somewhat complicated relationship. Nutritional wellbeing contributes to an individual's ability to work or produce just as production outputs contribute to nutritional wellbeing (van den Boom et al. 1996). In order for food security to contribute to both production and nutritional wellbeing, institutions must think and act in an integrated manner.

The research found that institutions believe in the need to collaborate and act on that belief by forming partnerships; that there are common factors that drive and define these partnerships; and that these factors can serve as guidelines to others interested in learning from and replicating others' efforts. These partnerships require careful planning in order to create the appropriate mix of skills and inputs, and gender and participatory approaches can contribute to the success of these institutional efforts.

Based on this research, the following recommendations are made to support integrated, cross-sectoral efforts to improve food security.

- ◆ ***Apply and replicate the lessons learned in these (and other) successful collaborations.*** Donor, implementing, and research institutions should continue to invest in using integrated approaches to improve household food security. In doing this, they should draw on the factors identified by this study including carefully selecting partners; developing clear terms of reference for each partner institution; and ensuring that all benefit in ways that are valued by each partner.
- ◆ ***Strengthen monitoring and evaluation (M&E) systems.*** Given that the intended impact of food security is nutritional wellbeing, it is strongly recommended that programs and policies that aim to improve household food security use nutrition indicators as their dependent variables. Furthermore, projects that aim to apply an integrated approach should develop a detailed conceptual framework that would guide the design, implementation and evaluation of such projects (or policies). These frameworks should explicitly show the links between inputs (independent variables), processes and activities, and outcomes and impacts (dependent variables). The framework should guide the selection of gender-sensitive indicators. The M&E plan should be designed and implemented to enable program planners, policymakers, and donors to attribute changes (within or across groups) to the interventions. Finally, the partnership should have members that have expertise in gender, nutrition, and research design, data collection and analysis.
- ◆ ***Create the conditions for improving gender mainstreaming.*** Collaborations would be well served by ensuring that all partner institutions have taken steps to mainstream gender in their policies, operations, and staffing pattern. Donors should provide incentives to support this mainstreaming effort, including providing access to financial and human resources, as needed. Institutions should conduct gender audits (Commission on the Advancement of Women 1999). Furthermore, gender-sensitive indicators should be developed for each project or policy and incorporated into a monitoring and evaluation plan. This will strengthen the outcome of collaborative efforts and avoid unintended, gender-blind consequences of projects and policies to improve household food security.
- ◆ ***Engage a wide variety of stakeholders throughout the process.*** Institutional partners should ensure that community members are fully engaged throughout the design, implementation, and evaluation process to enhance the likelihood of achieving long-term and sustainable improvements. They should see to it that the partner organizations have their own policies on use of participatory approaches and methods and guidelines for their use. When they do not have such policies and procedures, the other partners should encourage them to develop these. Each partner should also commit sufficient resources – financial, human and physical – to ensure compliance with these policies and procedures within the context of their integrated activities. Finally, donors should demand that recipient institutions use participatory processes and expect them to link their results to these processes.

- ◆ ***Conduct comparative research on integrated versus single-sector interventions and participatory versus top-down approaches.*** Among the cases, there was anecdotal evidence of the range of the costs and benefits of using integrated approaches. However, there was little data that appeared to have been collected in a rigorous, comprehensive, comparative manner that might provide decision-makers with valid options for allocating increasingly scarce resources. Furthermore, there appears to be a gap in the literature that looks at the long-term impact of bottom-up, highly participatory approaches as compared to top-down, less participatory approaches. Does the former really live up to the expectation that they are more likely to achieve sustainable change than the latter? And if so, what is it about that process and methods that make the difference? There is a compelling need to undertake comparative research to fill these two critical gaps. Donors and other institutions that influence policy or provide support to development programs should invest in such research.

Appendix: Summaries of Individual Country Case Studies

ETHIOPIA

1. **Project Title:** Reducing Vitamin A Deficiency in Ethiopia: Linkages with a Women-Focused Dairy Goat Farming Project

Project period: 1995 – 1998 (Component of on-going dairy goat development project that began in 1988)

Goal: Improve vitamin A nutrition of young children and other household members in Kombolcha and Gursum woredahs, Eastern Hararghe Zone (Oromia Region)

Objective: Improve dietary intake of vitamin A

Specific Objectives:

- Improve production of vitamin A-rich foods
- Improve knowledge of links between health and nutrition, and food consumption
- Improve skills in food processing and meal preparation
- Improve feeding and caring of young children
- Increase consumption of under-utilized locally-available vitamin A-rich (and enhancing) foods

Activities specific to the vitamin A component (community- and school-based):

- Conduct formative research to identify opportunities and constraints
- Develop gender profile of household members' activities, resource access and control
- Develop monitoring and evaluation (M&E) system including dietary intake as outcome indicator
- Engage community members, school teachers and students in all activities including training, education and resource access to promote production, processing and consumption of vitamin A-rich foods
- Engage women in developing recipes using locally available foods rich in nutrients including fats and oils
- Provide nutrition and health education aimed at increased knowledge of links between food and health; improved care and feeding practices including food preparation
- Train community members, particularly women, and primary school staff and students in agricultural production (of vitamin A-rich foods including sweet potatoes, vegetables and dairy goat milk) techniques
- Produce health and nutrition training and education materials including posters and recipes
- Organize sessions with local government leaders and NGO staff to raise awareness of project activities and outcomes

Activities related to on-going dairy goat development project:

- Train staff in gender
- Assist women to form saving and credit groups
- Train women in goat husbandry, improved forage development and as para-veterinarians; numeracy, literacy; leadership skills and book keeping
- Organize cross visits among women groups for experience sharing
- Provide startup capital for credit and savings groups and goat husbandry (in form of cash and goats)
- Support goat breeding station at Alemaya U. Agriculture
- Establish exotic buck stations (for cross-breeding)
- Train extension staff in dairy goat husbandry techniques, savings and credit organization and management skills, health and nutrition education principles, and community mobilization
- Conduct baseline, formative and evaluation studies to measure effects of project intervention.
- Promote the adoption of the study's results by relevant decision-makers

Institutions Involved

- FARM Africa (NGO with headquarters in UK)
- Community members – men and women with women as a particular target group
- Alemaya University of Agriculture
- Zonal Bureaus of Agriculture, Education, Health
- Zonal Administrative Council
- Nutrition consultants
- Locally active NGOs such as World Vision

Outcomes (of nutrition component)

- Higher (and statistically significant) vitamin A intake scores for children in “participant” than in “nonparticipant” households
- Higher (and statistically significant) milk, sweet potato (tuber) and pumpkin consumption by “participant” than “nonparticipant” children
- Participation in the trial intervention significantly contributed to higher food intake score, having a vegetable garden and higher milk consumption (regression analyses)

2. ***Project Title:*** Adama Area Development Project

Project period: 1995 to 1998

Goal: Improve food security at the community level in Eastern Oromia Region

Objectives:

- Improve agricultural productivity
- Enhance the nutritional status of [children in] beneficiary households

Specific Objectives:

- Address the priority needs of female and male farmers
- Increase the involvement and participation of the community in planning,
- Implementation, monitoring and evaluation of development programs
- Increase women's access to productive resource and enhance their role in decision making.
- Build human capacity at local and institutional level for sustainable development.

Activities

- Train project staff in gender and service delivery aspects of the project
- Train community members in problem solving methodologies
- Conduct participatory needs assessment and draw on previous evaluation to design Phase 2
- Develop gender profile and identify gender indicators for M&E
- Implement community surveillance system (using agricultural production, health and nutrition indicators) including bi-monthly community meetings and written reports
- Support small-scale irrigation development
- Train community members in agricultural production
- Improve access to agriculture extension services
- Drill water wells (bore holes)
- Provide nutrition and health education
- Increase access to reproductive health & family planning services
- Train community members in soil conservation and forest resource development.

- Promote fruit and vegetable production.
- Develop and support revolving credit system for women
- Train women in microenterprise management skills
- Introduce labor-saving technologies such as grinding mills, energy efficient stoves, spring development
- Collect monitoring and evaluation data using gender (and other) indicators

Institutions Involved

- World Vision (US-based NGO)
- Community members, particularly women
- Zonal Bureaus of Agriculture and Health
- Family Guidance Association
- Regional and zonal committees for traditional practices [affecting women and children]

Outcomes

- Increased community capacity to address development problems
- Increased land under irrigation (140 hectares, 117 households 16 of which were headed by women)
- Established credit and savings association (52 members one of whom was a man)
- Increased representation of women in community decision making groups
- Improved capacity of rural women's enterprises
- Reduced workload of women
- Improved access to reproductive health information and services
- Increased access to agricultural inputs and technology (e.g., yield increased from 5 quintal/hector to over a 100 quintals/hector on maize production)
- Increased number of meals consumed by target households per day (i.e. from 2 meals to 3 meals year-round)
- Increased consumption of vegetables and fruits
- Increased % children under 5 with adequate weight-for-height (from 91% to 94%)
- Reduced prevalence of eye infections
- Reduced clinical signs of vitamin A deficiency

3. ***Project Title:*** Micronutrient and Health Initiative Project (Add-on to food security project)

Project period: September 1996 to August 1999

Goal: Improve vitamin A and iron status of women and young children in Western Hararghe Zone (Oromia Region)

Objectives:

- Improve production and consumption of micronutrient rich foods
- Improve access to micronutrient capsules and supplements
- Strengthen local capacity for the prevention and control of micronutrient deficiency problems

Activities (school- and community-based)⁶

- Participate in external gender audit and use data to strengthen gender mainstreaming efforts (including identifying a gender focal point in CARE)

⁶ Project activities were linked with other CARE activities including improved agricultural production, soil conservation, livestock, forest and forage development, provision of micro credit

- Use early warning system (focus on agricultural indicators) as part of monitoring and evaluation plan
- Train project personnel, counterpart staff and community members in gender, food production, primary health care, nutrition and environment protection issues
- Promote establishment of school and home gardens
- Construct irrigation dams, wells and spring protection
- Promote construction and use of latrines
- Distribute vitamin A capsules and iron supplements to women and children
- Provide mass de-worming of children 2 to 14 years old
- Provide nutrition, health population and family planning information
- Establish food information surveillance system
- Collect process and outcome data for monitoring and evaluation purposes

Institutions involved

- CARE (International NGO)
- World Vision (International NGO)
- Zonal Bureaus of Agriculture, Health and Education
- Community members, including school parents

Outcomes

- Reduced prevalence of clinical signs of vitamin A deficiency
- Improved nutrition knowledge and practice
- Improved diversification of diet particularly in terms of fruits and vegetables
- Maintained yields of potato and other vegetables despite inadequate rainfall and shortfalls in cash

4. ***Project Title:*** Integrated Rural Development Project

Project period: 1993 - 1996

Goal: Improve economic and social advancement of rural communities through community participation and sustained development intervention in Bale Zone of Oromia Region and Eastern Gojam Zone of Amhara Region

Objectives

- Increase farm productivity and household income
- Improve the health and nutritional status of the community particularly women and children
- Reduce women's workload
- Develop problem-solving capacity of grassroots organizations and institutions

Activities

- Conduct on-going dialogue with communities – problem identification, solution development and M&E
- Develop M&E system using gender indicators including regular meetings and annual written reports
- Train staff in gender principles and practices
- Train female farmers on vegetable production, poultry keeping.
- Improve local seed production
- Develop forage
- Promote bee keeping
- Forestry development
- Promote soil and water conservation
- Develop rural water supplies
- Provide health and nutrition health education

- Train community health agents and traditional birth attendants to provide primary health care and reproductive health and family planning services
- Develop community infrastructure including health facilities and roads
- Support women's income generating activities
- Train women in leadership and resource management skills
- Provide credit, seeds, farm implements, fertilizer to female and male farmers
- Collect input and process information that is gender disaggregated

Institutions Involved

- Agri-Service
- Community members
- Zonal Bureaus of Agriculture and Health

Outcomes

- Institutional gender policy and gender-disaggregated information system
- Increased women's access to productive resources and leadership opportunities
- Increased women's participation in poultry and vegetable production; increased men's participation in bee-keeping
- Increased women's participation on community water committees (up to 20 %)

KENYA

Project Title: The Effects of Women Farmers' Adoption of Orange-Fleshed Sweet Potatoes: Raising Vitamin A Intake in Kenya

Project period: 1995-1997

Goal: Improve the vitamin A status of young children living in Rongo and Ndhiwa/Nyarongi Divisions (western Kenya)

Objective: Improve children's dietary intake of vitamin A

Specific objectives:

- Increase production of beta carotene-rich sweet potatoes
- Increase consumption of same
- Increase income from sales of food products based on vitamin A-rich varieties

Activities

- Conduct participatory needs assessment at key points in the study (e.g., at baseline; at point of designing the trial intervention)
- Develop and implement process and outcome M&E plan using dietary intake as outcome indicator
- Identify orange-fleshed sweet potato varieties with high yield and high acceptability of appearance and taste that were also appropriate for consumption by adults and young children.
- Train women farmers in production of these varieties.
- Develop health and nutrition education materials (e.g., posters)
- Educate women on the role of vitamin A in children and adult diets
- Develop and promote sweet potato-based infant weaning foods that retain significant amounts of beta carotene content of the sweet potato.

- Develop recipes and provide information about other sweet potato-based food products and evaluate the income generated from their sales.
- Conduct a comparison of the effects of agricultural extension services only with agricultural extension plus nutritional promotion on increased consumption of vitamin A-rich foods particularly among children less than five years of age
- Promote the adoption of the study's results by relevant decision-makers

Institutions involved

- International Potato Center (Kenya)
- Kenya Agriculture Research Institute, National Potato Research Center (Limuru)
- CARE-Kenya
- Ministry of Agriculture
- Ministry of Health
- Community members, particularly women farmers

Outcomes

- Statistically greater dietary intake of vitamin A-rich foods among children whose mothers received the expanded technology package (agriculture plus nutrition) as measured by HKI total weighted score
- Taste and appearance ratings of the different varieties
- Root color, dry matter, total carotenoid and beta carotene content of varieties
- Total carotenoid content of boiled sweet potatoes (4 cultivars)
- Total carotenoid and beta carotene content of 4 cultivars in 3 different farming environments
- Action plans for Ministry of Agriculture and Health staff to popularize the new sweet potato varieties

TANZANIA

1. ***Project Title:*** Improved Solar Drying of Vitamin A-rich Foods

Project period: 1995 – 1997 (built on previous work that began in 1992)

Goal: Reduce vitamin A deficiency among children 12 to 71 months of age in Ilongera Division, Singida Rural District

Objective: Increase children's dietary intake of vitamin A-rich and –enhancing foods

Specific objectives:

- Encourage adoption of improved enclosed solar dryers – either wooden or mudbrick
- Monitor the adoption rates of the improved solar drying technology
- Assess women's perceptions of the nutritional and economic benefits of using the improved solar dryers for processing vegetables
- Estimate the income generating potential of the improved solar dryers
- Assess the nutritional quality of the dried products
- Measure changes in dietary intake of vitamin A-rich foods, and
- Promote the adoption of the study's results by relevant decision-makers

Activities:

- Conduct participatory needs assessment and use women's input to design dryers
- Develop and implement process and outcome M&E plan using dietary intake as outcome indicator
- Sensitization of community as to vitamin A deficiency, its control, and importance of increasing quality of processed vitamin A-rich foods
- Develop health and nutrition educational materials
- Produce manual on construction and use of solar dryer models
- Train carpenters and artisans in construction and maintenance of improved enclosed solar dryers
- Provide women with additional health and nutrition education
- Train women in business management practices
- Train women in use of the improved dryers, preparation procedures, storage and utilization of dried food products for children's consumption
- Train agriculture personnel in construction, use and maintenance of dryers
- Inform relevant institutions' staff to project outcomes and results
- Problem solve to reduce constraints identified in the adoption process (e.g., bulk purchase of materials)

Institutions Involved:

- Tanzania Food and Nutrition Centre
- Eight communities in the Singida Rural District (five intervention, three control)
- Ministries of Agriculture and Health
- District Steering Committee

Outcomes:

- Slow but steady increase over 15 months in adoption of the dryers in the intervention community, more so for wooden than mudbrick model (8% rate of adoption overall; 77% among those women who participated in both the nutrition education and business management training)
- Greater increase in women drying fruits and vegetables in intervention (88% to 99%) and than in control (94% to 98%) communities
- Smaller increase in amount of fruits and vegetables dried in intervention (26 liters to 32 liters/year) as compared to the control (24 liters to 38 liters) communities but significantly larger amount of dried foods produced by adopter households (55 liters) than nonadopter households (33 liters)
- Higher retention of beta carotene content in foods dried with the improved dryers as compared to those dried in traditional method or not dried at all
- Significantly ($p < 0.001$) higher food frequency score (measurement of dietary intake of vitamin A-rich and -enhancing foods by young children) in intervention (5.7) than in control (4.1) communities
- Inclusion of training and promotion of improved enclosed solar dryers in annual work plan for Ministry of Agriculture Extension staff in study region

2. ***Project Title:*** Integrated Food Security

Project Period: 1994 - 1997

Goal: Improve nutritional status of population in the Rukwa region

Objective: Improve household food security

Specific objectives:

- Implement participatory planning process to identify nutritional problems and opportunities to address them

- Develop community capacity to analyze and solve problems
- Improve nutritional knowledge of community members
- Increase production of fruits, vegetables and oilseeds
- Provide support to community activities
- Develop appropriate project management systems

Activities:

- Use “objective oriented project planning” (OOPP) method to articulate goals, objectives, activities and outcomes
- Choose outcome indicator and engage community members in collecting and monitoring changes using that indicator
- Engage community in designing and selecting the intervention
- Train community members and staff in participatory methods for problem solving
- Develop information process and procedures
- Develop education messages
- Organize health and nutrition days
- Develop and strengthen regional and community [tree] nurseries
- Provide seeds and support to small-scale irrigation
- Train community members in production technologies and know-how
- Train staff, assess physical infrastructure needs, develop annual work plans and support other efforts to strengthen organizational structures

Institutions involved:

Ministries of Agriculture, Health and Community Development/Women Affairs and Children
 Regional Development Officers
 Community members
 GTZ (German International Development Agency)

Outcomes:

- Reduction in underweight (from 50% to 38%) but slight increase in stunting (from 48% to 52%) and wasting (from 4% to 5%)⁷
- Slightly higher proportions of underweight, stunting and wasting in nonparticipant communities than in participants
- Changes in calorie availability and dietary composition [diversity] – 20% increase in consumption of fruits and vegetables, and 20% increase in use of cooking oil among participants
- Production (yield) and income data
- Changes in nutrition and health knowledge of participants
- Number of participants in education sessions

3. ***Project Title:*** Agricultural Development Project

Project period: 1986 - 1997

Goal: Improve social and economic development of small-scale farmers in Mbozi District, Mbeya Region

Objective: Increase agricultural productivity

⁷ Comparing data from 1991 national nutrition survey with 1997 nutrition assessment in project sites

Specific objectives:

- Increase access to credit
- Strengthen leadership skills at the community level
- Assist farmers in group formation
- Strengthen production-focused skills of community members
- Improve soil fertility
- Reduce post-harvest losses
- Strengthen transportation system (physical access to markets)

Activities:

- Use “objective oriented project planning” (OOPP) method to engage stakeholders in articulating goals, objectives, activities and outcomes
- Develop M&E system using gender-disaggregated data
- Train farmers in use of “project planning matrix” for monitoring and evaluation purposes
- Provide sufficient quantities of high yielding seed varieties and fertilizer
- Provide start-up capital for credit program
- Train farmers in production technologies and skills
- Train community members in leadership skills

Institutions involved:

- COOPIBO, international NGO
- Community Development Trust Fund of Tanzania, local NGO
- Community members
- District Council
- Ministry of Agriculture
- Uyole Agricultural Center (research center)

Outcomes:

- Transformation of project-formed interest groups into a farmers association (MVIWAMBO), an independent and registered NGO
- Improved food availability and reduction in times with shortages (from 5 months to 1 month/year)
- Increased use of production technologies (30% cattle owners using manure as fertilizer; 50 % of farmers using inter-cropping; 25 % of farmers using agro-forestry techniques; 50 % using contour plowing)
- Increased labor efficiency (20% women farmers using ox-plough; 70% of land under cultivation by draft animal power; 35% increase in crop production per household)
- 35% of women participated in all elements of the project
- 50% of women’s workload reduced

4. **Project Title:** Child Survival Protection and Development Project (extension and follow on to Iringa Joint Nutrition Support Project)

Project period: 1984-1988 (Iringa JNSP Project)

Goal: To improve infant and child health status and decrease mortality in the Morogoro Region

Objectives: To reduce malnutrition rates and empower communities to act on own behalf

Specific objectives:

- Improve skills of community-based [health] care agents

- Increase community members' access to nutrition information and growth monitoring and promotion services
- Increase community members' knowledge and use of health and nutrition promotional practices (e.g., feeding practices)
- Improve access to safe water and environmental sanitation
- Increase constant and uniform access to medications
- Increase use of drought-resistant crop varieties, home and school gardens, and food processing and preservation technologies
- Increase women's access to credit, small stock

Activities:

- Use of triple-A cycle (Assessment, Analysis and Action) with communities for project planning, implementation and evaluation
- Organize proposal preparation team composed of different stakeholders
- Develop M&E plan that engaged community and project coordination team in use and interpretation
- Train community health agents (CHW, TBA, day care center attendants) in health and nutrition promotion
- Provide drug and treatment kits to CHAs
- Conduct growth monitoring and promotion sessions
- Train women in reading, interpreting and using information on children's growth monitoring cards
- Implement village health days
- Construct water points, rainwater harvesting and latrines
- Develop health and nutrition promotional materials (e.g., posters, leaflets)
- Provide drought-resistant seed varieties, solar dryers
- Support establishment or strengthen existing revolving credit schemes

Institutions involved:

- Community members
- Ministries of Agriculture, Health, Education, Community Development/Women's Affairs and Children, Forestry
- Tanzania Food and Nutrition Centre
- UNICEF

Outcomes⁸:

- Reduction in underweight (from 56% to 38%), severe underweight (from 6% to 2%) and infant mortality rate (from 152 to 107) between 1984 and 1988
- Community support (cash and in-kind) to community-based care providers

UGANDA

1. ***Project Title:*** Agricultural Training in Animal Husbandry for Dairy Production

Project period: 1992 – present (on-going)

Goal: Reduce poverty, improve nutrition of program participants and empower vulnerable populations in 16 districts⁹

⁸ Indicative results are available only for the previous, JNSP/Iringa Project.

⁹ Kampala, Mukono, Soroti, Mpigi, Mubende, Mityana, Masaka, Rakai, Iganga, Katakwi, Apac, Lira, Kumi, Tororo, Mubende, Luwero

Objective: Increase income of participants;

Specific objectives:

Increase access to productive inputs and assets

Activities:

- Conduct participatory needs assessment with community members including developing targeting criteria and gender division of household responsibilities and resource needs
- Import purebred cattle from UK
- Support cross breeding services (artificial insemination) at agriculture station
- Establish community-based breeding services (village bull fertilization)
- Provide women with cattle or small animals (e.g., goats, rabbits) through loan/repayment system
- Train community members in livestock husbandry, forage production and management; organic farming practices; manure usage; environmental protection practices
- Train women in food production, preservation, processing and preparation, and child feeding practices
- Provide health and nutrition education messages
- Organize or support existing self-help groups
- Train community members to serve as agricultural extension agents
- Develop and implement monitoring and evaluation plan

Institutions Involved:

- Send a Cow/Uganda
- Send a Cow/UK
- Community councils
- Local churches and church-based organizations, including Mothers Union
- Heifer Project International
- Ministry of Agriculture, Veterinary Department breeding center

Outcomes¹⁰:

- 690 families, including 630 women, received heifers (50% pure bred)
- 2.8 million liters of milk produced per year
- 78% of participant households consumed between 2 –6 liters of milk per day; children drank twice as much as adults/day
- Increased household income – cattle were main source of income for 77% of women beneficiaries; 52% of women used income for children's education; 48% of income use for health and nutrition-related goods and services, home repairs and other household needs
- 30% of beneficiaries employed day laborer (for land and animal care)
- 750 zero-grazing units managed by female-headed households, of which 25% were widows caring for AIDS orphans
- 98% of participants used cow dung as fertilizer
- 90% reported increased crop yields
- 25% of participants benefited from other development projects
- 50% of women reported improvements in marital relationships
- 40 artificial inseminators trained
- 23 motorbikes, testing kits and other equipment provided to extension agents

¹⁰ No comparative data collected

2. ***Project Title:*** Production and Utilization of Improved Indigenous Vegetable Varieties

Project Period: 1994 – 1998 (part of Bushenyi-Ntungamo Agricultural Innovations Project II)

Goal: Improve nutrition of children living in Bushenyi and Ntungamo Districts

Objective: Increase agricultural production

Specific objectives:

- Increase use of environmentally sound production practices
- Increase utilization of indigenous vegetables in household meals
- Improve dietary practices including food preparation and feeding

Activities:

- Stakeholders' participatory design workshop
- Gender-based needs assessment including roles and resource needs
- Identify nutritionally rich, agronomically appropriate vegetables
- Distribute seedlings to farmers and then farmer-to-farmer
- Develop processes for seed multiplication of indigenous vegetables
- Train farmers in production, processing and preservation of vegetables
- Conduct health and nutrition education sessions at community level
- Train women in use of vegetables for preparing children's meals, including weaning foods
- Support organization of parish development committees
- Access public sector extension workers and provide them with transportation and per diem

Institutions involved:

- CARE International
- District Agriculture Office
- National Agriculture Research Organization (NARO)
- Local farmers
- Local councils
- Mwana Mugimu Clinic

Outcomes:

- Young children could meet 90% of energy, 76% of protein, 63% of fat, and adequate amounts of vitamins A, B, C, iron and fiber daily needs from the promoted vegetables
- Strengthen capacity of field staff to provide technical support to farmers
- Vegetable promotion and production undertaken in 28 sub-counties

3. ***Project Title:*** Improving Household Food Security through Increasing Bean Production

Project period: 1997-1998

Goal: Improve household food security in Mbale District

Objective: Promote adoption of new bean varieties by low-income rural and urban households

Activities:

- Participatory rural appraisal (needs assessment)

- Design and implement research study to document adoption and effects
- Conduct on-farm trials
- Organize community meetings to introduce varieties and choice by men and women farmers
- Use public fora to advertise new varieties
- Develop community-based seed production and distribution systems, e.g., train farmers in production technologies and in marketing techniques [sell seeds]
- Train community members to track data to measure effects (e.g., number of kilos of seed sold, amount of acreage under cultivation with new varieties, acceptability of foods prepared with new varieties)

Institutions involved:

- International Center for Tropical Agriculture (CIAT)
- National Agricultural Research Organization (NARO)
- Eastern and Central Africa Bean Research Network (EACBREAN)
- Mission: Moving Mountains (local NGO)
- Local farmers and farmers' groups
- Child Health and Development Centre

Outcomes:

- More men adopted K132 variety (higher market value), and women, K131 variety (easier to produce and process)
- Women spent less time foraging for uncultivated vegetables during dry season
- Of households that earned income through market sales of K132, 69% used income to purchase food
- 4% increase in consumption of beans by adopters over 2 years (compared with baseline)

4. ***Project Title:*** On-Farm Productivity Enhancement Project (OFPEP)

Project period: 1992 - 1997

Goal: Reduce rural poverty and improve nutrition in Iganga, Bugiri, Tororo, Busia and Mukono Districts

Objective: Increase production of locally available crop rich in protein and income earnings

Specific objectives:

- Increase rural employment opportunities
- Promote use of environmentally safe agriculture production technologies including soil management
- Improve access to viable, improved seeds
- Reduce gender disparities in production and consumption practices

Activities:

- Conduct participatory needs assessment
- Identify appropriate protein-rich food crop (soya beans) for promotion
- Establish demonstration plots
- Provide seeds
- Train farmers in processing, marketing and meal preparation techniques
- Train farmers in production of organic fertilizer, soil management, seed multiplication
- Develop gender guidelines and indicators

Institutions involved:

- Winrock International

- Agricultural Cooperatives Development International (international NGO)
- Association for Professional Women in Agriculture and Environment (local NGO)
- National Agricultural Research Organization

Outcomes:

- 50,000 farmers trained over 5 years
- 780 demonstration plots (over life of project)
- 228,000 individuals had greater access to soya beans
- 54% of crop used for household consumption; 27% saved for seeds; 19% sold
- Increased use of soya beans in weaning foods
- Reduced expenditures for milk and sauce (soya substituted for these consumables)

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