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Impact of social capital on food security in southeast Uganda

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Impact of social capital on food security in southeast Uganda

by

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DEDICATION

To my wife Sharifah and children Aisha, Lukia, Mubarak and Salma

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AKIS	–	Agricultural Knowledge and Information Systems
ANOVA	–	Analysis of Variance
ARKIS	–	Agricultural/Rural Knowledge and Information System
CHNW	–	Community Nutrition and Health Worker
CIAT	–	International Center for Tropical Agriculture
CSRL	–	Center for Sustainable Rural Livelihoods
DAEE	–	Department of Agricultural Extension/Education
DENIVA	–	Development Network of Voluntary Indigenous Associations
FAO	–	Food and Agriculture Organization (of the United Nations)
FSR-E	–	Farming Systems Research and Extension
GIS	–	Geographical Information Systems
GPSA	–	Graduate Program in Sustainable Agriculture
HFIS	–	Household Food Insecurity Scale
HFSSI	–	Household Food Security Scale Index
HIV/AIDS	–	Human Immuno-deficiency Virus/Acquired Immune Deficiency Syndrome
IFDI	–	Integrated Family Development Initiative
IK	–	Indigenous Knowledge
IRDI	–	Integrated Rural Development Initiative
ISU	–	Iowa State University
KCT	–	Kulika Charitable Trust
KDA	–	Kamuli District Administration
LC	–	Local Council
LU	–	Livestock Unit
MAAIF	–	Ministry of Agriculture, Animal Industry and Fisheries
MDG	–	Millennium Development Goals
MFPED	–	Ministry of Finance, Planning and Economic Development
MoLG	–	Ministry of Local Government
MTN	–	Mobile Telephone Network
MU	–	Makerere University

NAADS	–	(Uganda) National Agricultural Advisory Services
NEMA	–	(Uganda) National Environment Management Authority
NGO	–	Non-Governmental Organization
OPM	–	Oxford Policy Management
PCA	–	Principal Components Analysis
PEAP	–	Poverty Eradication Action Plan
PLWHA	–	People Living with HIV/AIDS
PMA	–	Plan for Modernization of Agriculture
PRA	–	Participatory Rural Appraisal
PRSPs	–	Poverty Reduction Strategy Papers
RDE	–	Rural Development Extensionist
RRA	–	Rapid Rural Appraisal
SHI	–	Self-Help International
SPSS	–	Statistical Package for the Social Sciences
SPW	–	Student Partnerships Worldwide
ToT	–	Transfer of Technologies
UBOS	–	Uganda Bureau of Statistics
UNDP	–	United Nations Development Program
USAID	–	United States Agency for International Development
USDA	–	United States Department of Agriculture
VEDCO	–	Volunteer Efforts for Development Concerns
WFP	–	(United Nations) World Food Program

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ABSTRACT

Assuring food security in Uganda is a fundamental challenge that the government and development agencies face. Recent analyses indicate that some successes have been achieved, but food insecurity gaps still exist, with implications for more concerted investments in a multiplicity of community assets to achieve better results. This study assessed whether social capital is a key asset for achievement of food security in Kamuli district, southeast Uganda. More specifically, it focused on the determinants and levels of participation in food security groups. The study also explored the status, challenges and gaps of information flows in rural communities. Potential relationships between social capital and food security were also examined.

Data were collected using a survey (378 randomly sampled households from six sub-counties), group discussions (21 groups) and community interviews (12 communities), and analyzed using SPSS and NVIVO. Results indicated that participation in food security groups is affected by socio-demographic, economic and spatial factors. These included age, education level of the household head, a household's possession of a non-agricultural income source, land acreage owned and distance to health facilities.

Participation in a food security group is motivated by perceived benefits such as access to material incentives and capacity building opportunities available to members as well as group leadership style and mutual trust among members. The level of partnerships -– other groups, organizations and institutions with which groups work in development interventions -- was low. For groups with partnerships, members wished that they continue working with them for an indefinite period, an indication of dependency. Information was accessed from a variety of sources including local community members and leaders, private

business entities and staff from government and non-governmental organizations. Reliability and applicability of some of the information, from the perspective of the community members, was low and community members had no capacity to demand accountability. Information linkages among different types of actors were low or non-existent.

Bridging and linking social capital characterized by household membership in groups, access to information from external institutions, and observance of norms in groups were positively associated with food security. In addition, cognitive social capital, characterized by observance of generalized norms in the village (trust and belief in helpfulness of residents) was positively associated with food security. Human capital (education levels) and physical capital (access to water sources) were also significantly associated with food security.

The key policy implications include promotion of both formal and non-formal education opportunities such that rural communities attain skills with potential for augmenting the capacity for better management of their resources and improving their livelihoods. Strengthening of linkages is necessary and these should include an exit/ sustainability strategy. Finally, farmers' associations and local institutions need a supportive legislative and regulatory framework in which they can thrive and assume greater responsibilities related to demanding accountability.

CHAPTER 1. GENERAL INTRODUCTION

Background

Food insecurity is a key challenge in most African countries. In Uganda, 88% of the population is rural based with over 80% dependent on agriculture for food and livelihood security (World Bank, 2005), and the bulk of the sector is smallholder subsistence (Uganda Bureau of Statistics [UBOS], 2002). About 45% of the population is potentially food insecure – 4% food insecure throughout the year, 26% highly vulnerable and 15% moderately vulnerable – with variations both geographically and amongst livelihood groups (World Food Program [WFP], 2006). Thus, even in areas where achievements have been made, pockets of food insecurity are extant. The prevailing food insecurity situation has led to alarming levels of malnutrition, especially among pregnant women and children under five years of age. According to UBOS and Macro International Inc. (2007), 38% of children less than 5 years of age in Uganda were stunted in 2006/2007, indicating that food insecurity is a key problem that requires close attention.

The problem of food insecurity in the country is largely associated with low agricultural productivity and poverty. Food aid and global food markets are not reliable because of fluctuations in world food production and markets, and rapidly increasing food prices due to the impact of high energy prices on international markets and domestic transport costs (World Bank, 2008). In addition, conflicts and wars may affect access to food as exhibited by recent conflicts in two of Uganda's neighboring countries. Food access has been made more difficult and prices greatly increased in the country partly because of high demand in post-conflict areas in Kenya and Sudan. Moreover, the global expansion in biofuels production has further strained world food supplies and markets as land used to

produce staple foods becomes diverted to crops for fuel (Rosamond et al. 2007, Food and Agriculture Organization [FAO], 2008). Thus, enhanced domestic production and local food systems are an important strategy to achieve food security in developing countries.

To enhance domestic food production in the country, numerous efforts have been launched over the years, with varying outcomes. According to Semana (2002), prior to Uganda's independence in 1962, most of the agricultural research and extension efforts were focused on cash crop production, with extension activities implemented by local chiefs in an authoritative manner. However, in the six years prior to 1962, with a critical mass of trained local agricultural professionals, extension efforts were implemented using a 'Transfer of Technology' (ToT) approach, with progressive farmers and publicly managed demonstration gardens as models (Opio-Odongo, 1992).

Although the ToT model established prior to independence was thought to be functioning well, its implementation was disrupted by political turmoil and economic decline that characterized the country for most of the 1970s and 1980s (Semana, 2002). When conditions improved, from 1992 to 1998, the Ugandan government, with support from the World Bank, embraced and implemented a participatory research and extension model based on the 'Training and Visit' model of extension, replacing the ToT and diffusion of innovations model (Anderson, Feder & Ganguly, 2006).

The recovery period was also associated with increased involvement of non-governmental organizations (NGOs) in agricultural service delivery to complement efforts of government staff that were perceived to have low coverage and impact on communities (Feder, Willet & Zijp, 1999). Another notable development during this period was the introduction of structural adjustment measures such as privatization of government

parastatals, liberalization of markets, and decentralization of government services including agricultural extension. During this period, the Ugandan government also developed its Poverty Eradication Action Plan (PEAP) and Plan for Modernization of Agriculture (PMA), both of which provided for a new way of integrating efforts by the various stakeholders involved in agricultural development (Bahiigwa, Rigby & Woodhouse, 2005).

Decentralization, PEAP, PMA and food security efforts in Uganda.

Implementation of PEAP and PMA in Uganda is done with decentralization as the institutional framework. Decentralized governance was launched in 1997, characterized by delegation of some decision making responsibilities to local governments (Steiner, 2007). The responsibilities included local planning, recruitment and supervision of technical staff, and resource mobilization. However, for resource mobilization, the central government complements local budgets through unconditional and conditional grants (Francis & James, 2003). Unconditional grants can be applied to any of the planned local development activities, whereas conditional grants are tied to specific activities such as construction of schools and maintenance of roads.

According to Ministry of Local Government [MoLG] (2004), the decentralization system is based on a five-tier arrangement of local councils (LC I -V), representing villages (LC I, approximately 60 households), parishes (LC II, 300 households), sub-counties (LC III, 1,500-3,000 households), counties (LC IV, 5,000-8,000 households) and district (LC V, 10,000-50,000 households). The actual number of households depends on the population density of a given area. Officials for LC I, III and V are elected through the ballot by all voters in the area of jurisdiction, whereas those for LC II and LC IV are selected by the elected LC I and LC III officials, respectively; all occupy office for five years. The functions

of each local council are presented in Table 1.1. Local people are expected to actively participate in the local development activities, either directly or through their representatives (Kullenberg & Porter, 1998). They directly participate in needs assessments, monitoring and evaluation of programs and demanding accountability.

Table 1.1 Major functions of local councils in Uganda's decentralized governance

Council level	Major functions(s)
LC V	1. Harmonization and development of plans based on needs assessments from local community members 2. Recruit, monitor and supervise technical staff and development activities 3. Resource mobilization 4. Account to the electorate and the national local government ministry 5. Liaise with other districts in implementation of development activities
LC IV	Coordination and linking the implementation of sub-county (LCIII) development activities.
LC III	1. Mobilization of resources mainly through collection of local taxes 2. Supervision of development activities implemented by technical staff deployed at sub-counties
LC II	Coordination and linking the implementation of village (LCI) development activities
LC I	Leadership and mobilization of community members for community development

Sources: Francis and James (2003); MoLG (2004)

The PEAP was also established in 1997 as 20-year strategy for reducing poverty. It was a product of the World Bank-led Poverty Reduction Strategy Process (PRSP) required for all poor developing countries that qualified for debt relief (Ministry of Finance, Planning and Economic Development [MFPED], 2001). The main pillars of PEAP include economic management, enhancing production and incomes, security and governance, and human development. The activities of PEAP focus on primary health care, rural feeder roads, education, water supply and modernization of agriculture (MFPED, 2004). PMA is a sub-component of PEAP; since the majority of Uganda's population is rural based, eradicating

poverty requires a clear focus on agriculture which is the major economic activity (Bahiigwa et al., 2005).

The mission of PMA is to eradicate poverty by transforming subsistence agriculture to commercially-oriented agriculture (Ministry of Agriculture, Animal Industry and Fisheries [MAAIF] and MFPED, 2000). The main objectives of PMA are to: (i) increase incomes and improve the quality of life of poor subsistence farmers through increased agricultural productivity and increased share of marketed production, (ii) improve household food security through the market rather than emphasizing self-sufficiency, (iii) provide gainful employment through the secondary benefits of PMA implementation such as agro-processing factories and services, and (iv) promote sustainable use and management of natural resources. To achieve these objectives, the key intervention areas are "research and technology development, agricultural advisory services, agricultural education, access to rural finance, agro-processing and marketing, natural resource management and investment in supportive infrastructure" (MAAIF and MFPED, 2000, p. 46).

Under PMA, the approach to implementation of services related to agriculture has been made more inclusive and "demand-driven." For instance, funding for activities is done through a variety of sources, including the government, donors and local farmers. Agricultural research has been designed in such a way that needs of poorer farmers are addressed by establishing zonal Agricultural Research Development Centers, with each center catering for an agro-ecological zone (MAAIF, 2004).

Agricultural extension services have been reorganized under the National Agricultural Advisory Services (NAADS) with an orientation towards public funding (with co-funding contribution by local farmers' groups) and private service provision (MAAIF,

2000). NAADS has also been mandated with the facilitation of farmer group formation at village level and farmer forums at sub-county, district, and national levels. Farmers' groups are expected to articulate their needs and access services from private service providers, paid for through the decentralized (sub-counties) government with co-funding (10% of the budget) from the groups. The ability of farmers to make effective demands for advisory services depends on their ability to organize themselves in groups (Bahiigwa et al., 2005).

Despite some achievements, implementation of the PMA and decentralized governance has not been very effective, necessitating more concerted efforts. For instance, one of the most recent evaluation reports of PMA indicates that "cross-cutting issues, including a clear focus on poverty, gender and environment issues, have not always been effectively integrated in the activities undertaken within the PMA components" (Oxford Policy Management [OPM] 2005: ii). Further, under NAADS, while farmers participate in local decision making processes through their groups and associations, and have accessed increased knowledge on farming and practice enterprise diversification, this has not necessarily translated into substantial increases in agricultural productivity and increased incomes (Muwonge, 2007). Francis and James (2003) indicate that service delivery under decentralization has not been as effective as expected, partly because of limited 'civic' engagement by people with local governments in ways that ensure downward accountability and equity. Thus, efforts to improve livelihood conditions need to go beyond investments in human, financial, natural and physical assets (Buckland, 1998).

Grootaert (1998) asserts that social capital is vital for effective implementation of development initiatives because it taps into the interaction and organization mechanisms of the actors. Social capital has the potential of improving resource management for collective

goal attainment (Coleman, 1988), as well as improved access to resources through linkages with government and non-governmental organizations and institutions (Uphoff & Wijayaratna, 2000). In Uganda, social capital for development interventions has been mainly developed through encouragement of groups of various forms depending on existing policy orientations and donor requirements (Mutimba & Luzobe, 2004; Sseguya, Mangheni, Semana & Oumo, 2004).

According to Mutimba and Luzobe (2004), farmers' groups in Uganda date back to 1913 when African farmers were mobilized by local elites to address the disadvantageous terms of trade that were imposed by the mercantile monopolies supported by the British colonialists. Although they were allowed to organize, their activities were closely controlled by the colonial administration to curtail political developments. The administration controlled the leadership and management of cooperatives that supervised the performance of these groups. Further, the groups were only supposed to engage in marketing-related activities. When the country attained political independence in 1962, state-control of cooperatives continued, thereby serving as major marketing monopolies for all cash crops and ultimately controlling foreign exchange inflows into the country.

By the 1980s, when Structural Adjustment Programs were introduced in the country, the cooperatives were not as competitive (Heidhues et al., 2004) and new arrangements for support of alternative group formations by international organizations and donors emerged. The new groups were not as strictly controlled by the state as the cooperative movement, although the cooperative movement later re-organized and became less state controlled (Najjingo & Sseguya, 2004). By early 2000, there were at least six broad categories of farmers' groups depending on apex body: those formed by non-governmental organizations

(NGOs), Uganda National Farmers' Federation (UNFFE), government departments, research institutes, special donor programs such as NAADS, the cooperative movement and self-help initiatives (Sseguya et al., 2004). The range of services provided for clients varied by specific group goals and location but included lobbying and advocacy for the members' interests, farmer training, information gathering and dissemination, marketing, input procurement and credit services, agricultural shows and trade fairs (Sseguya et al., 2004).

Numerous studies have shown associations between social capital and positive development outcomes such as health (Rose, 2000), natural resource management (Pretty & Ward, 2001), and economic development (Edwards & Foley, 1998), but none has examined potential relationships between social capital and food security. The current study focused on this relationship at household and community levels. Undertaking a study on the relationship between social capital and food security is important, because it can advance realization of the goal of the PMA and decentralized service delivery in Uganda, ultimately improving people's livelihoods. Generating 'best practices' for food and livelihood security by assessing the impact of social capital is particularly important, given the increasing role of participation by local institutions and groups in development interventions in Uganda. Thus, results of this study may be instrumental in enhancing the performance and sustainability of relevant policies and programs.

Further, since the conceptualization and theorization of social capital is relatively recent, and given that forms of social capital are society specific and change over time, research on social capital and its relationship to important development outcomes such as food security is necessary. This study contributes to identifying the conditions under which the many positive aspects of social capital occur, can be harnessed for positive food security

outcomes, and how the negative aspects can be mitigated. This study demonstrates methodological approaches for measuring the different dimensions of social capital. Thus, it contributes to generating best practices for enhancing social capital for food security and other development activities, as well as contributing to theorization and methodological advancement.

Background information about Kamuli district

Kamuli district is located in southeastern Uganda (Figure 1.1). Uganda is a land-locked east African country covering 240,000 sq. km, with a population of 27 million. Although the country has registered positive economic performance, with poverty levels falling from 38% in 2003 to 31% in 2007 (United Nations Development Program [UNDP], 2008), a significant proportion of the rural population is still poor. This is due to the decreasing performance of the agricultural sector, which is the main source of livelihoods for the rural population.

Kamuli district has a population of 700,000 and an area of 4,348 sq. km out of which 3,332 sq. km (77%) is land and 1,016 sq. km (23%) water (UBOS, 2002). Over 98% of the population is dependent on agriculture and related activities for their livelihoods. Agriculture in Kamuli is predominantly smallholder subsistence, with an average land holding of two hectares (Kamuli District Administration [KDA], 2004).

The area has, over the years, experienced reductions in agricultural yields as a result of land degradation due to cultivation of fragile lands (steep slopes and swamps), continuous cultivation with limited use of organic and inorganic fertilizers, and limited investment in soil conservation (National Environment Management Authority [NEMA], 2005). Crop/livestock pests and diseases, vagaries of weather where agriculture is almost entirely rain-fed, limited use of improved production and post-harvest technologies, and inadequate access to extension services have exacerbated the situation (Pender, Nkonya & Sserunkuuma, 2001).

As a result, 80% of the rural population in Kamuli lives in absolute poverty and more than 50% of the population is vulnerable to food insecurity as a result of low production levels (KDA, 2004; WFP, 2009). The government of Uganda has implemented numerous initiatives to address food insecurity in the district, but only recently – in the 1980s – have these efforts been complemented by non-governmental organizations (MAAIF and MFPED, 2000; KDA 2004). One of such initiatives is a tripartite partnership program launched between the Center for Sustainable Rural Livelihoods at Iowa State University and two institutions in Uganda -- Makerere University and an indigenous NGO called Volunteer Efforts for Development Concerns (VEDCO). The activities of this program frame the main focus of this study.

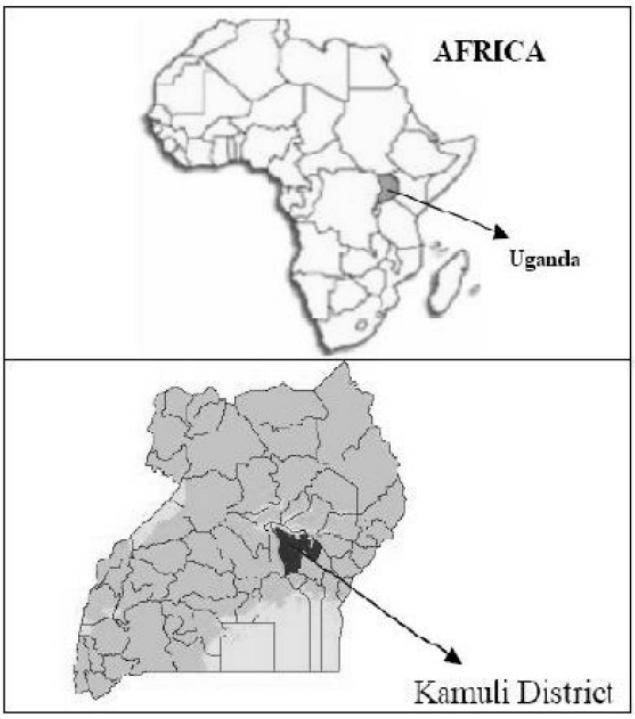

Figure 1.1 Location of Uganda and Kamuli district

Overview of the food security concept

The World Bank (1986, p.1) has defined food security as "access by all people at all times to sufficient food for an active, healthy life." Subsequent definitions of the concept have emphasized nutrition. According to (FAO, 2000), food security is achieved when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. A focus on nutrition adds care giving practices, health services and healthy environments to the definition of food security. Food security is affected by both physical and temporal factors. The physical factors relate to food flow in terms of availability, accessibility and utilization.

Availability of food is achieved through production, domestic food stocks, commercial food imports or food aid. Food accessibility is achieved through purchasing power, financial outlays or access to the necessary resources (Kennedy & Haddad, 1992). Food utilization is associated with the socio-economic dimension of household food security. For example, if sufficient and nutritious food is both available and accessible, the household can make decisions regarding what food is purchased, prepared and consumed and how it is allocated within the household. In households where distribution is unequal, even if the measured aggregate access is sufficient, some individuals may suffer from food deficiency (Keenan, Olson, Hersey & Parmer, 2001). At the individual level, food security also requires consideration of the biological utilization of food: the ability of the human body to convert food into energy which is either used or stored. Utilization requires not only an adequate diet, but also a healthy physical environment, including safe drinking water, adequate sanitary

facilities and an understanding of proper health care, food preparation, and storage processes (Holben, 2002).

The temporal aspect of food security involves stability – the time frame over which food security is being considered. Nyariki and Wiggins (1997) note that food and nutrition insecurity can be transitory (short-term) or chronic. Further, transitory food insecurity can either be cyclical (when there is a regular pattern of food insecurity, e.g., the 'lean season' or 'hungry season' that occurs in the period just before harvest) or temporary (which is a result of short-term, exogenous shocks such as droughts or floods). In this study, food security is defined as the ability of a household to have adequate access to quality food throughout the year, for all individuals.

Social capital

The emergence of social capital as an important concept in development practice and theory is relatively recent, although it has theoretical roots in early sociological works by Marx, Durkheim and Weber (Watson & Papamarcos, 2002). Marx's work on mobilization as a means of ensuring effective social systems and Durkheim's ideas on group life as a remedy for anomie underlie the focus on social capital (Portes, 1998). Weber, writing on the "spirit of capitalism" suggested that Protestant sects were influential in American economic growth as a result of social networks between admitted members, thereby facilitating economic exchanges, not only between them but also with other individuals not belonging to the sects. This was due to the social recognition accorded by external actors (Trigilia, 2001). However, Weber did not use the term 'social capital' in his conceptualization.

While Loury (1977) is attributed with introducing the term by most social capital scholars, it was more fully developed analytically by Bourdieu, Coleman and Putnam.

Loury's work on the determinants of income variation among members of different racial groups in America indicated that implementation of equal opportunity employment programs would not solve racial inequalities because inherited race-based social relations are passed on to children, and lack of connections and information among some racial groups would constrain their access to available employment opportunities. He termed these connections and relationships 'social capital,' but did not develop the concept in further detail (Portes, 1998).

Coleman (1988) borrowed from Loury's articulation of social capital to define the concept, indicating that "Social capital is not a single entity but a variety of entities, with two elements in common: they consist of some aspect of social structures, and they facilitate certain actions of actors - whether persons or corporate actors - within the structure (p. 98)." For Coleman, obligations, expectations, trustworthiness of structures, information, norms, and effective sanctions represent important forms of social capital; the social structures that facilitate it include the closure of networks and appropriate social organization. In Bourdieu's view, "social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition (1997, p. 51)." For both Coleman and Bourdieu, community ties are important because of the benefits they generate for individuals.

In another popular view of the concept, Putnam attributes social capital to the community, not individuals. Putnam (1993, p. 167) defines social capital as "features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating coordinated actions." For him, establishing civic engagement (and thus, social capital) is vital to economic development because it engenders trust and

reciprocity, facilitates coordination and communication, and provides successful models for future collaboration. Putnam's conceptualization had some appeal for addressing social and development problems, but subsequent analyses criticized it for disregarding some issues. DeFilippis (2001) has suggested that social capital based on civic organizations and networks accruing from them only make sense if the poor people involved have authority and influence on the flow and operations of the organizations, and have opportunity to access resources.

Portes and Landolt (1996) called attention to three constraints inherent in the social structures that provide access to social capital. First, while social capital benefits members of the group, it inevitably excludes others from participating because it is most likely to have a substantial role in the context of bounded communities in which people share a strong sense of common identity. Second, obligations to family and friends can restrict individual freedom and entrepreneurship. Third, in dense networks conformity to norms is imperative and the cost of individual initiative is great, leading to a high likelihood of 'downward leveling' whereby acquisition of benefits available outside the community is stifled by the required adherence to norms. Thus, attempts to build social capital need to take account of not only the social and economic structure of the community, but also the power structure within which the poor and other vulnerable sections of the community operate.

Despite the multiplicity of views, based on individual (Coleman and Bourdieu) or community (Putnam) perspectives, there is consensus that social capital encompasses the nature and strength of existing relationships between members, the ability of members to organize themselves for mutual beneficial collective action around areas of common need and manage the social structures required to implement such plans, and the skills and abilities that community members can contribute to the development process (Portes, 1998; Uphoff &

Wijayaratna, 2000; Flora, Flora & Fey, 2004). It is thus recognized as a multidimensional concept comprising networks of social relations characterized by norms of trust, values and reciprocity.

Uphoff and Wijayaratna (2000) classify these dimensions into two main forms: structural and cognitive social capital. Structural social capital refers to the networks, linkages and practices within and between communities. Cognitive social capital refers to the attitudes, values, beliefs, social norms and behaviors that exist within a community. Whereas cognitive social capital predisposes community members to act in certain ways guided by culturally prescribed principles, structural social capital represents instantiated social capital, which is observable and extrinsic, and arises from the outcome of the cognitive type (Uphoff, 2000). Institutions, associations, groups, networks are the manifestations of structural social capital.

Structural social capital is further differentiable into bonding, bridging and linking social capital (Flora et al., 2004). Bonding social capital describes the relationships between people of similar ethnicity, social status and location and refers to social cohesion within the group and community, based on trust and shared moral values and reinforced by working together. Bridging social capital refers to relationships and networks which cross social groupings, involving coordination or collaboration with other groups, external associations, mechanisms of social support or information sharing across communities and groups. Linking social capital describes the ability of groups or individuals to engage with external agencies and those in positions of influence, either to draw on useful resources or to influence policies (Narayan & Pritchett, 1999). A complete understanding of social capital for a given setting necessitates a combination of both structural and cognitive dimensions.

Establishing the link between food security and social capital

The central thesis of this study is that social capital increases the likelihood of increased food security at both household and community levels. Physical availability, access and utilization of food by households and communities can be enhanced by collectively sharing information and resources (such as improved seeds and livestock breeds). Further, during times of stress ('hungry' season) or shock (droughts and floods), social capital manifested by kinship ties, community solidarity and access to external networks potentially plays a role in facilitating access to food for the affected households and/or communities. Access to information and resources from informal and formal networks is mediated by norms of reciprocity and mutual trust and solidarity at both household and community levels. It is also important to examine the mechanisms under which various forms of social capital facilitate food security at both household and community levels. For instance, some individuals or households may be more vulnerable to food insecurity than other community members if denied access to information or resources (e.g., land, credit, technologies, etc.).

Formal groups and partnerships with governmental and non-governmental organizations potentially enhance the level of access to information and resources. However, it is important to examine the level of participation of various community members in these groups and partnerships because of the likelihood that some community members are excluded from participating in group activities due to their unique characteristics in terms of income level, gender or ethnicity; some may decide not to participate because of lack of time or perceptions that they will not benefit adequately from participation.

Alternatively, some households may choose not to participate in local groups and partnerships because they have adequate resources. Those who are excluded may be

vulnerable to food insecurity because they do not have access to resources, whereas those who refrain from joining a food security group may still achieve food security if they belong to other networks or have adequate resources that may enable them achieve food security. Thus, detailed examination of how participation in group activities relates to food security is necessary, taking into consideration the characteristics of individuals and their access to resources. It is also necessary to analyze the specific ways by which groups and communities responded to food security challenges in the past, whether their actions were successful, their perceptions of why success was – or was not – achieved and what might have be done differently to sustain the outcomes. In addition, groups face management challenges, calling for study of how members cope with those challenges and whether they are able to diagnose these problems and seek help when needed.

The nature and quality of partnerships with the groups and communities may also vary, requiring investigation of existing or past partnerships and relationships to identify those best for ensuring food security. For instance, whereas some partners provide one type of service (e.g., extension training) others provide many services (e.g., extension, capacity building for groups, resources, etc.). However, the quality of these services -- irrespective of how many are provided by a given partner -- may influence food security outcomes. In addition, in communities where some members are unable to join groups, it is important to explore whether and how different partners might help them to achieve food security. It is also important to investigate intervening factors in the relationship between social capital and food security. Access to water resources, fertile soils, proximity to input supply and food markets as well as transport infrastructure may lead to food security even in situations where social capital levels are low.

Objectives, hypotheses and conceptual framework

The main objective of the study is to establish how different dimensions of social capital affect achievement of food security outcomes. The specific objectives are to:

1. Identify the motivating factors for participation of community members in local groups involved in food security interventions
2. Determine the factors that affect performance of local groups involved in food security interventions
3. Assess how information on technologies, production, food processing, markets and credit is accessed and utilized in the communities under study
4. Examine possible relationships between the different dimensions of social capital and food security, and the effects of other community capitals on the relationship between social capital and food security.

Arising from the study's objectives are the following hypotheses:

1a. There are significant positive relationships between farmers' education levels, age, household population size and their participation in groups.

1b. The level of participation of medium wealth respondents is higher than that for richer and poorer members.

1c. There is a positive relationship between location of respondents in relation to major trading centers in the district and their participation. Further, there is a negative relationship between distance to basic infrastructure and participation in groups.

2a. Groups with a greater combination of capabilities for leadership, planning, conflict management, negotiation, monitoring and evaluation and resource mobilization are

more effective in achieving group goals than those with fewer or none of these capabilities.

2b. Members of groups with more partnerships and linkages have greater levels of food security than those with fewer or none of these partnerships.

3a. Communities with more linkages and partnerships have greater accessibility to information on agricultural production and technologies, markets, and credit than those with fewer linkages and partnerships.

3b. Groups with more partnerships and linkages are better managed than those with fewer of these partnerships and linkages

4a. Households in food security groups are more food secure than those which are not.

4b. Social capital (irrespective of membership in a group, which is one of the indicators of social capital) is positively associated with food security.

5. Low household human, physical and financial asset endowments (e.g., educational level, household composition, sex of household head, access to land, water, land, major trading centers, health facilities and markets) inhibit the positive relationship between social capital and food security.

Figure 1.2 presents a conceptual framework of the potential impacts of social capital on food security. Within the communities where the study was implemented, social capital is expected to play an important role in ensuring positive food security outcomes. Social capital in this study is defined as a household's membership in networks (e.g. groups, associations) together with norms and values that facilitate improvement of the food security status at household level. Community members' involvement in food security groups, one of the common networks forming a basis for this study, is affected by their individual

characteristics (age, ethnicity, gender, education, wealth), as well as their location (H1a-c). Groups with greater capabilities for management (leadership, planning, conflict management, negotiation, lobbying and resource mobilization) are also expected to be more effective than those with fewer or none (H2a). When community members on their own or through groups are able to establish linkages and partnerships, accessibility to resources and information on production, credit, technologies and markets is expected to improve, ultimately leading to food security gains (H2b, H3a). Management capacities for food security groups with more partnerships and linkages are also expected to be better than those with fewer of these partnerships and linkages (H3b).

Further, households with membership in food security groups are expected to have higher food security than non-member households (H4a) due to accessibility to resources that enhance food security. Note that households with higher social capital or other resources, irrespective of whether they belong to food security groups, are expected to be more food secure than those with lower social capital (H4b). Thus, it is necessary to establish whether a household's membership in a food security group makes any difference in terms of positive food security outcomes. Finally, communities (and groups within these communities) with greater access to a variety of resources arising from linkages, partnerships and other community endowments (e.g. good road infrastructure, water, land, markets) are expected to be more effective at achieving improved livelihoods than those with low resource access (H5). With higher access, community members will tend to achieve household, group and community goals better than those communities with lower access.

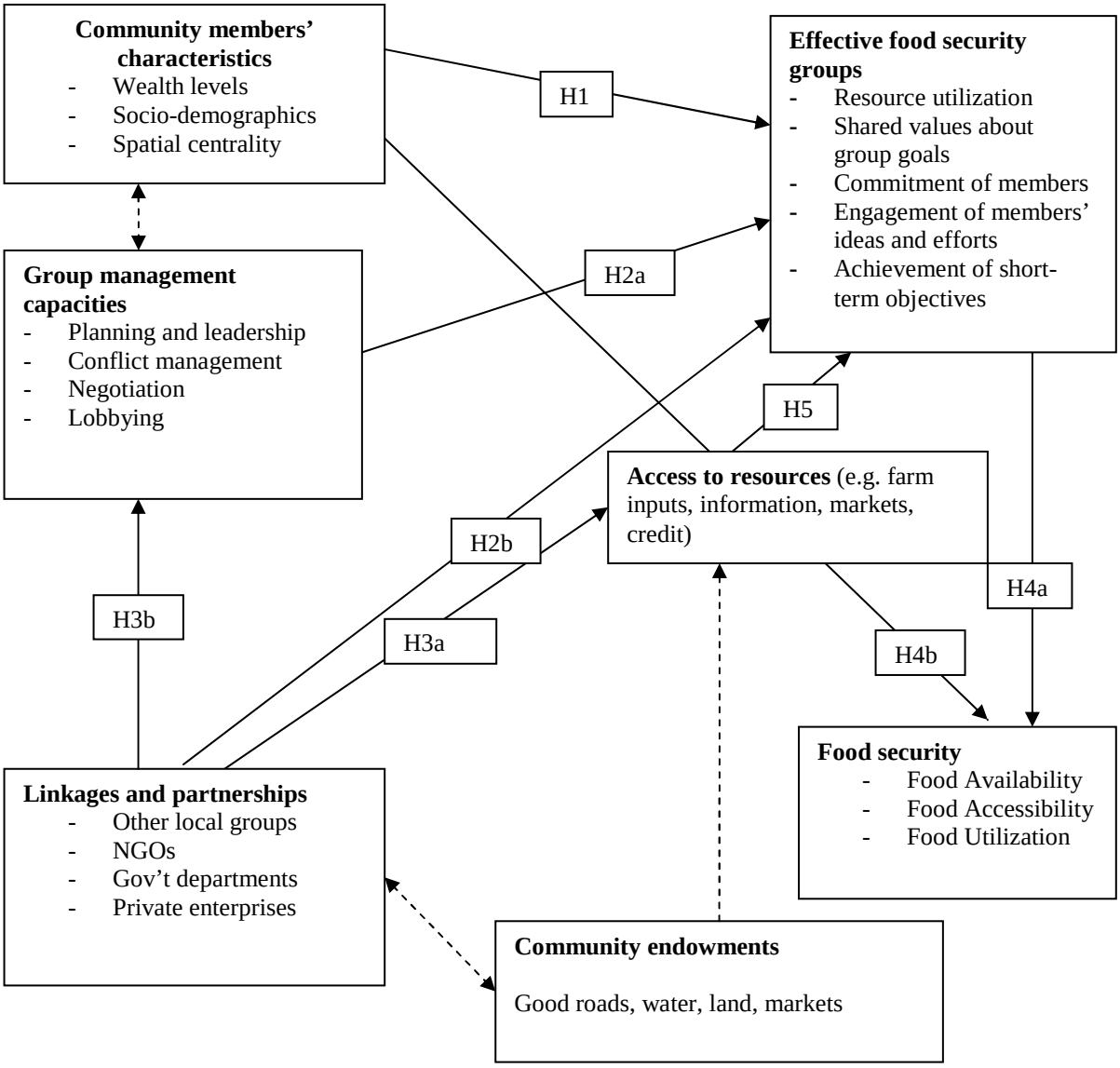

Figure 1.2 Conceptual framework of social capital impacts on food security

Dissertation organization

The remainder of the dissertation is organized as follows: Chapter 2 examines the individual-level socio-demographic, economic and spatial factors (e.g., gender, age, spatial centrality, wealth levels, resource endowments, location, etc.) that motivate people to join groups involved in food security programs in Kamuli district. Chapter 3 assesses the level of and factors that facilitate or impede participation of community members in activities of food security groups in Kamuli district. Chapter 4 investigates information flow mechanisms by focusing on the types of information linked to food security that are accessed by community members, including its reliability, veracity, availability, and use in practice. Major information gaps and difficulties in accessing useful information that can enhance food security outcomes are also explored.

The fifth chapter focuses on the relationship between social capital and food security, controlling for household socioeconomic factors. Since social capital is a multidimensional concept, the chapter also explores and appraises the dimensions of social capital that have the most significant impact on food security. Further, the effect of other community capitals (human, financial and physical) on the relationship between food security and social capital is examined. Finally, Chapter 6 summarizes the empirical findings and conclusions and recommends implications for policy and theory as well as areas for further research.

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CHAPTER 2: DETERMINANTS OF PARTICIPATION IN FOOD SECURITY GROUPS IN KAMULI DISTRICT, UGANDA

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Abstract

Smallholder farmer groups have become common in developing countries and many research and development organizations are opting to use groups for delivery of their services. The factors that influence participation in such groups are, however, not well understood. Understanding these factors is important in order to ensure that working with groups does not involve excluding certain categories of smallholder farm families from the services of these research and development organizations. This study, therefore, aims to establish the socio-demographic, economic and spatial determinants of participation in food security groups in Kamuli district, Uganda. Data were collected through in-depth interviews with 281 households and discussions with 22 farmers' groups using both qualitative and quantitative methods. Logistic regression was used to analyze three different levels of group participation: (i) whether household members join or do not join groups, (ii) whether they take up leadership roles, and (iii) whether they have membership in multiple groups. Factors found to influence participation in groups included age, education level of household head, income, land size, and distance from health facilities. Age was positively associated with participation levels ($p \leq 0.05$), with the odds increasing by over 4% for each year increase in age. The odds of participating and occupying a leadership role increased by over 38% with each additional increase in educational level ($p=0.038$). Both land size and having additional sources of income also affected participation levels ($p<0.1$) with implications for elite

capture. Increasing distance from health facilities negatively affected participation levels (p=0.008). For development organizations, the study recommends multiple strategies for working with smallholder farmers and policies that especially encourage young people to work together in groups. Caution on elite capture, even as more research and development organizations move towards forming and working with existing groups, should be exercised and strategies to reduce it implemented.

Introduction

Encouraging community participation in development interventions is of increasing significance as an approach for increasing food security in Uganda. Procedural shortcomings of the dominant socio-technical regime in provision of crucial public goods arising in good portion from political conflicts and structural adjustment programs in the 1970s to 1990s prompted the emergence of non-governmental organizations working mostly with local farmers' groups to complement government efforts (International Food Policy Research Institute [IFPRI], 2002).

Local farmers' groups have existed in the country since colonial days but their roles were different from those formed in the 1990s and later. Whereas the groups of the 1910s to 1970s were established as mechanisms for marketing of cash crops and were tightly state controlled (Hussi, et al., 1993), those formed since the 1980s were intended to encourage local participation in livelihood improvement (Mohan & Stokke, 2000). Since the 1990s, community participation mediated through groups has been given prominence by international institutions such as the World Bank and Food and Agriculture Organization of the United Nations which advocated for local farmers groups as an effective means of involvement of local people in development initiatives (FAO, 2003). Also, with changes in

policy orientation in Uganda in the 1990s, characterized by administrative decentralization and the modernization of agriculture, involvement of community groups as key actors was viewed by the state, practitioners and donors as a means to empowerment, ultimately resulting in more democratic and transparent local governance as well as improved quality of services to community members (Bahiigwa, et al., 2005).

The success of these groups depends on the ability of members to form cooperative relationships and channel their time, labor, economic and other resources for positive development outcomes (Narayan & Pritchett, 1997). Despite the increasing recognition of local groups in development interventions, there is a dearth of systematic and empirical studies focusing on participation in groups (Sanginga, et al., 2001; La Ferrara, 2002; Zanetell & Knuth, 2004). Relatively little is known about why people do or do not participate in groups, and the characteristics of participants compared to non-participants. This study complements existing literature by examining social, demographic, spatial and economic factors that motivate members to participate in local farmers' groups. The key questions addressed in this paper are: Who participates in local groups involved in food security initiatives in Kamuli district? What is the level of members' participation in these groups? What individual level factors (socio-demographic, economic and spatial) affect the participation of community members in groups?

Analytical framework

When confronted with an issue of mutual interest and concern, communities and households could address it in many ways, one of which being the use of social capital (Moser, 1998). Defined differently by various scholars, the definitions of the concept adopted here borrow from Fukuyama (1995) and Brown and Ashman (1996) who imply a meso-level

manifestation of the concept. Fukuyama (1995) defines social capital as “the ability of people to work together for common purposes in groups and organizations (p. 10).” Brown and Ashman define social capital as “relationships that are grounded in structures of voluntary associations, norms of reciprocity and co-operation and attitudes of social trust and respect (p.1470).” Empirical measurement of the level of social capital in a community is not easy, but one important indicator is the existence of local groups (Weinberger & Jütting, 2001).

The formation of local groups is a process that may be induced from within the community or by outside agents (Perkins, et al. 1996). Florin and Wandersman (1990) identified a number of steps in the process: needs and problem identification; prioritization; development of an action strategy that involves a sufficient number of people; formation of the group; implementation of activities in pursuit of the goal; and building on reactions to the strategy to maintain or increase participation and momentum of the organization or group. Behera and Engel (2006) state that people’s participation in the process depends on the expected net present value of the task. This in turn depends on two factors: the costs of participation and the expected returns of participating in the group activities. Costs would occur either when the group is founded or when activities are being implemented, whereas benefits would normally emerge after a certain period of time. Thus, potential members will have to discount benefits that are expected to bear fruit in the future, in order to estimate present worth and compare it to present costs. In addition, both costs and benefits may be either direct (linked to the goal aimed at) or indirect (unintentional and secondary), such as negative external effects (Moser, 1998).

Weinberger (2000) attributes people’s motivation to participate to both external and internal factors. Examples of external factors include time, budget and institutional factors,

whereas internal factors include interest in the group goal and information searching behavior, attitudes towards political and social behavior and perceptions of power relations. A person's decision to join a group would imply dedicating time, money (in some instances) and other resources, in addition to having a conviction and interest in the potential of the local group to lead to higher benefits and returns than other alternatives. An enabling institutional framework for local group performance through regulations, infrastructure, logistical support and positive perceptions of power relations within the community and households as well as development partners, if they exist, are also vital for people's motivation to participate (Varughese & Ostrom, 2001). For instance, in some countries, women are barred from playing certain roles in groups or even participating due to cultural barriers (Beard, 2005) whereas in others, for political reasons, local groups may be discouraged altogether (Behera & Engel, 2006).

Corroborating theoretical discourse on the predictors of participation was given by Perkins, et al. (1996) who also note that participation in local groups is dependent on social, economic and physical environmental factors. Examples of these dimensions include community heterogeneity, income and educational level. They further state that there is a function of relative stability or transience within each of the factors. Relatively stable factors such as the built environment and community economic and demographic characteristics are seen as important shapers of the more transient features of the physical environment, of members' behaviors, perceptions and attitudes and of the social climate that these attributes create in the community. These social and community psychological characteristics are in turn key predictors of the development of local groups (or lack thereof). Although some of

the theoretical descriptors of the determinants of participation as discussed above are in agreement, others are not. A discussion of these determinants at the empirical level follows.

Alesina and La Ferrara (2000) and La Ferrara (2002) established that individuals are less likely to join groups in unequal and heterogeneous communities. These studies were conducted in developed and developing country contexts (United States of America and Tanzania, respectively). In a heterogeneous community, the preferences of people with respect to group activities and perceived benefits will vary according to their basic socio-economic and cultural needs, strategic interests, resource opportunities and constraints. Thus, there may be disagreement and varied commitment and enthusiasm to the activities, depending on the status of each individual who is associated or potentially associated with the group. The differences in socio-economic background can be analyzed based on ethnic background, political affiliation, education level and wealth. Varughese and Ostrom (2001) argue that the presumption that groups whose membership is drawn from heterogeneous communities have a more difficult time self-organizing emanates from the assumed problems of potential distrust and lack of mutual understanding. The process of trying to reach a set of rules that everyone may agree upon can involve high levels of conflict.

La Ferrara (2002) also established that wealthier people are less likely to participate in groups. Weinberger and Jütting (2001) and Beard (2005) found a 'middle class effect' whereby members in the middle wealth category were more likely to participate in groups; Sanginga et al. (2001) found no significant difference in wealth categories among group and non-group members. In all the studies, wealth categories were generally derived by considering local wealth indicators and using these to categorize community members into three: wealthier than most others, like most others and poorer than most others. Analysis of

the wealth and participation differences shows that other factors instead play a key role, mainly the nature of the group (open or closed access) and the nature of expectations from the group. Behera and Engel (2006) state that in some instances poor households have a high opportunity cost of participation, as the time spent on participation could be used as labor for cash income. There are exceptions, as in the case discussed by Sanginga et al. (2001) where the focus of the group activity (participation in collaborative research with agricultural researchers) had potential benefits for the poor and wealthy alike. In the case of Weinberger and Jütting (2001) and Beard (2005), the middle class effect was due to the high costs of joining the group for both the poor and rich. The poor could not afford the transaction and membership costs whereas the wealthy did not have enough time to dedicate to the group activities as they presumably had better opportunities.

Regarding gender, Sanginga et al. (2001) found women more likely to participate in groups than men, whereas Beard (2005) found that men were more likely to participate in groups. In both cases, social-cultural factors had impact on the observed trends. In the case of Sanginga et al. (2001), women in East Africa (Kabale in Uganda, Emuhaya in Western Kenya and Lushoto in northern Tanzania) had dominant roles and responsibilities in the communities in relation to activities implemented by the groups studied whereas, in the case of Beard (2005), women in Indonesian communities had limited participation due to cultural limitations on their level of public engagement.

Most studies stress that membership in other social networks is a key positive determinant of participation in groups (Perkins, et al. 1996; Weinberger & Jütting, 2001; Sanginga et al. 2001; Beard, 2005). Weinberger and Jütting (2001) explain that “[T]he expectation of beneficial effects of networks seems to be higher when experience with group

membership exists … the existing stock of social capital has an important influence on participation in local organizations" (p. 1402).

From the preceding discussion, despite the theoretical convergences on the general determinants of participation, empirical studies on the subject yield mixed results. The implication is that some underlying factors which are contextual may further influence the determinants. Knowing why people participate and why they support, adjust or resist development interventions are key issues given the important role of local groups in Uganda. As Drijver (1991:131) notes, "Only if this is known, can one come to a better understanding of how and under what conditions their participation might be intensified upon." Since existing empirical research does not give completely plausible and uniform results regarding the determinants, descriptive research was conducted to contextualize the situation with regard to local group participation in Uganda, building on the dimensions of theoretical determinants of the concept.

The study hypotheses are: (i) There are significant positive relationships between farmers' education levels, age, household population size and participation in groups; (ii) middle-wealth community members have a higher level of participation in groups than richer or poorer members; (iiia) there is a positive relationship between location of a respondent in relation to major trading centers in the district and participation; and (iiib) there is a negative relationship between distance to basic infrastructure and participation in groups.

Data and methods

Study area

Data were collected in Kamuli district in an area where a tripartite livelihood improvement program involving Iowa State University, Makerere University and VEDCO is being implemented beginning in 2004. The main objectives of the program are to: (1) promote farmer-to-farmer extension services and provide technical assistance in Kamuli district through training Rural Development Extensionists (RDEs), Community Nutrition and Health Workers (CNHWs), and members of farmers' groups for food security, nutrition, and enterprise development; (2) promote viable agro-based enterprises among farmers' organizations to enhance commercial competitiveness of their produce, with special emphasis on women's participation for increased incomes; (3) introduce value addition technologies among farmers, their groups, and marketing associations on a leasing or cost sharing basis to produce for the larger market; (4) empower disadvantaged persons through specially designed programs to enable them to improve their livelihoods; and (5) improve household nutrition and well being in Kamuli district through integration of nutrition and health into food security management activities (Sseguya, 2007).

According to Mazur et al. (2006), the livelihood improvement program works with communities through community-based farmers' groups. Historically, all the groups came in existence largely as a result of interventions by government and non-governmental organizations, especially beginning in the 1980s. It was not possible to establish the historical profile for each of the groups involved in the program from extant secondary data at VEDCO. However, the general impression from groups involved in this study was that at least half (n=11) were in existence before VEDCO started operating in Kamuli district,

whereas the rest were initiated as a result of VEDCO's work in the area. All groups working with VEDCO are encouraged by the program to operate with an appropriate level of formal organization (constitution, elected leadership, etc.) and officially register with the local administration. Membership in these groups is generally voluntary with no restrictions. In addition to providing support in technical areas, the program enhances the capability of these farmer groups in terms of internal management techniques and competencies.

The key element in the group approach is training of volunteers from each group to supplement the extension efforts of program staff. They include Rural Development Extensionists (RDEs) who train members of the farmer groups in agricultural production, animal husbandry and marketing, and Community Nutrition and Health Workers (CNHWs) who train members in aspects of diet, nutrition and health. The program also provides improved planting materials and livestock to participating farmers groups. The participating groups were selected for study by local leaders in the geographic areas of operation. By the time of implementing this study, the program was working with 62 farmers' groups (800 households) in three sub-counties – Namasagali, Butansi and Bugulumbya covering two parishes in each sub-county - Bwiiza and Namasagali; Naluwoli and Butansi and Kasambira and Nawanende, respectively (Figure 2.1). The average group size was 16 members, with a female-male membership ratio of 3:1.

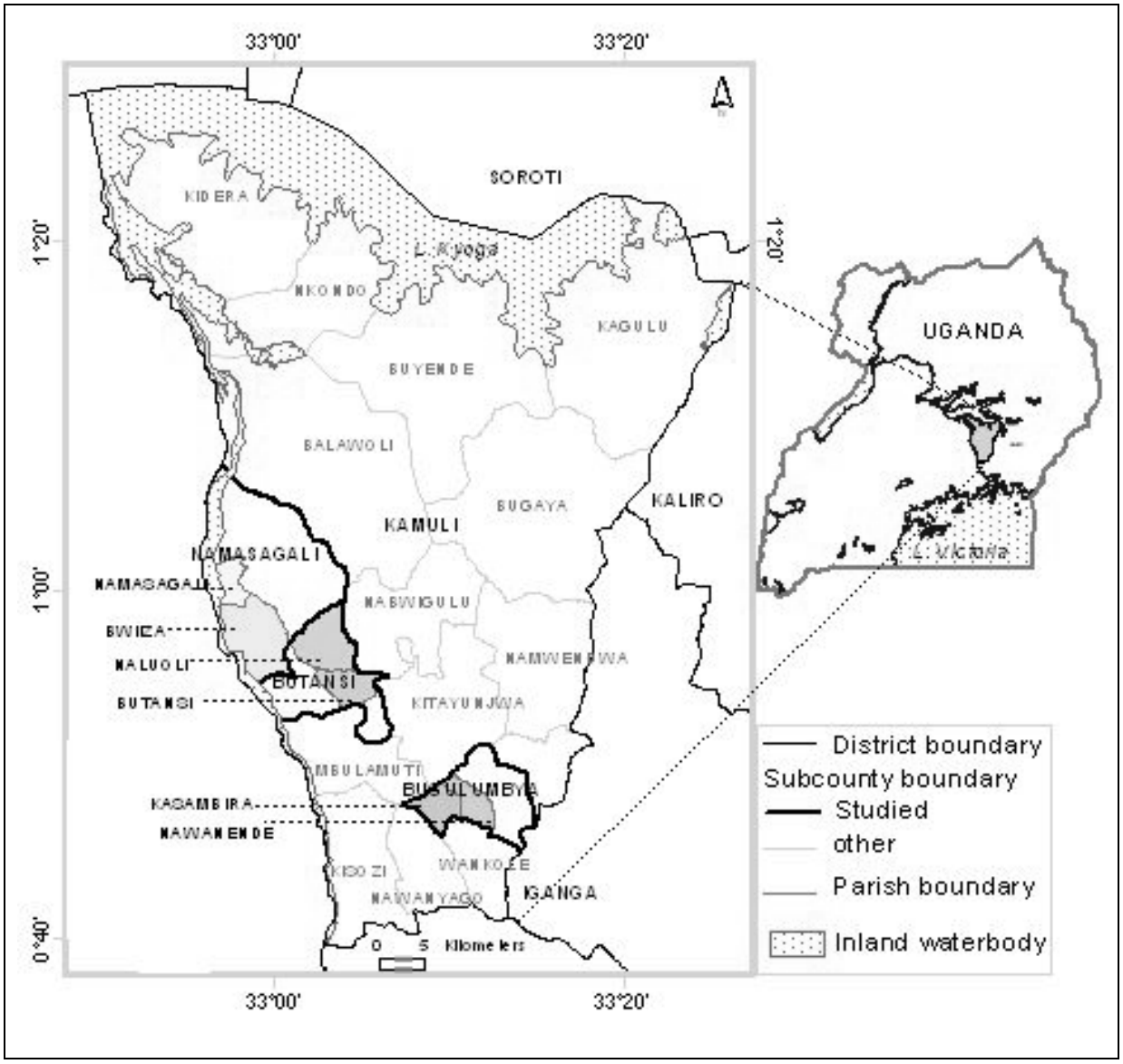

Figure 2.1 Map of Kamuli showing the study area

Population and data

Multi-stage sampling was used (Table 2.1). All the parishes participating in the program were included. A simple random sampling strategy was then used to select 193 households from the 800 participating in the program. In addition, 90 households were selected within

the communities where the program is being implemented that do not participate in any food security group, whether it is involved in the CSRL/VEDCO/MU tripartite program or not. Thus, the total sample size was 283 households. Four respondents were dropped because they had incomplete data.

Table 2.1 Selection procedures for the study sample in Kamuli district

Sample	Selection method
Parishes	Census (all those participating in the CSRL/MU/VEDCO Program)
Households participating in groups	Random sampling of households
Households not participating in groups	Random sampling of households
Groups	Purposive sampling (from all those participating in the program)

Up-to-date lists of group members were obtained from the VEDCO field office in Kamuli, and simple random sampling was used to select a representative proportion for each group. For instance, if group *y* had 20 members, the number of members for the group would be $\frac{20\times193}{800}=4.83\equiv5$ respondents. For non-group members, local lists of all village residents were obtained from village local leaders (Local Council I). In consultation with both the community and group leaders, names of members who belong to any food security group were removed. The remaining names then provided a sampling frame for non-group members, from which respondents were randomly selected. The plan was to include a non-group member for any two group members already sampled. Twenty-one of the 62 groups participating in the livelihood improvement program were also purposively selected, based on their composition (mixed gender or not, age differences, spatial location, health status of members, etc.), and members of these groups were involved in group discussions about the activities of their respective groups. The group discussions took place before the survey, to

provide further opportunities for the research team to modify the questionnaire after the pre-test.

The household-level questionnaire and semi-structured interview guide captured quantitative and qualitative data respectively. A team of four researchers were involved in collection of the data between August and December 2008. The research team first completed an on-line human subjects training certification before starting the data collection activities. They then participated in preliminary activities aimed at clarifying the study aims. The activities included joint translation of the data collection instrument (survey questionnaire and semi-structured interview guide) into local dialects (Lusoga and Luganda) and clarification of unclear questions. The instruments were then pre-tested over a week in Nabwigulu sub-county in Kamuli district with 30 respondents. Issues addressed included ambiguous questions and English words that were confusing to the respondents. In addition, some questions that would elicit more useful information for the study were added.

Household level information was collected on socio-demographic, economic and spatial characteristics, including age, education level, marital status, land and livestock ownership, years of residence in the village, household size (with a breakdown by age category) and level of member participation in the groups. Additional information was collected on major sources of income, access to physical infrastructure (paved road, water, education, health, market church or mosque and electricity) as well as location by parish. At group level, information was collected on history of the groups and the process of implementing the main group activities. Choice of the study variables was guided by earlier research on participation and improved welfare of community members (e.g., Grootaert, 2001; Weinberger & Jütting, 2001; Agrawal & Gupta, 2005; and Beard, 2005).

Variables

Table 2.2 presents a summary of the dependent and independent variables used in the study. Three dependent variables related to participation were selected for this study. The first variable was general household level participation in the food security groups (whether any household member belongs to a food security group). It was coded as a dichotomous variable for logistic regression analysis.

Table 2.2. Summary of variables used in the study

Variable	Type	Item(s) and codes*
Participation	Dependent	1. Participation status (GRPPART) 2. Role of members in groups (GRPROLE) 3. Participation intensity/level for all respondents (PARTLEVL)
Socio-demographic	Independent	1. Age of respondent (respage) 2. Marital Status of household (HHMSTAT) 3. Educational level of household head (HHHEDUC) 4. Household size (HHNUMBER) 5. Ethnic group (HHTRIBE) 6. Religion (HHRELGN) 7. Number of years of residence (HHRESID).
Economic	Independent	1. Land acreage owned (TOTLAND) 2. Livestock owned (LUOWN)
Spatial	Independent	1. Parish of respondent (PARISH) 2. Distance to major trading center (DMAJCENT) 3. Distance to local trading center(DLOCENT) 4. Distance to paved road (DROAD) 5. Distance to nearest water source (DWATER) 6. Distance to nearest education facility (DSCHOL) 7. Distance to nearest health facility (DHELTH) 8. Distance to market (DMAKT) 9. Distance to electricity (DELEC).

**Items in parentheses indicate the names of variable used in the analysis*

The second dependent variable applied only to those households that belong to groups and refers to the role of members in the group. This was also coded as a dichotomous response with 1 indicating any role in the group (e.g. committee member, RDE, CNHW or demonstration garden host) and 0 as ordinary membership. The third dependent variable, which applied to the entire sample, focused on the intensity of participation. The variable was

coded by assigning 0 for non-participation, 1 for ordinary membership in a group, 2 for either being a committee member in a group or having membership in more than two food security groups, and 3 for having committee membership roles in more than one group or being a member in more than two groups.

Three categories of independent variables were included: socio-demographic, economic and spatial. **Socio-demographic variables** included age of respondent, marital status (coded as a dummy variable with 1 as married and 0 otherwise), education level of household head, and household size. Others included tribe, religion, and number of years of residence in the village. **The economic category** was characterized by amount of land owned (in acres), total livestock owned and sources of income. Livestock were converted to tropical livestock units (LU) as suggested by Otte and Chilonda (2002): cattle=0.70, sheep and goats= 0.10, pigs=0.20 and chickens=0.01. The conversion figures do not take weight and age differences within species into consideration; only the variations among species are considered. Income sources were also dummy coded; alternative sources were coded as 1 and only agriculture as 0. The **spatial variables** included parish of respondent and distance to basic infrastructure (major trading center, local trading center, paved road, water, education, health, market and electricity).

Analysis

Descriptive statistics (frequencies) were used to summarize general socio-economic and demographic characteristics of the community as well as the characteristics of groups to which members belong. One way ANOVA (Analysis of Variance) for scale variables and chi-square tests for categorical variables were used to establish whether differences existed

between group members and non-members. Three logistic regression models were developed to establish relationships between the dependent and independent variables. Logistic regression is appropriate for these analyses because the first two dependent variables are dichotomous whereas the third one is categorical.

In logistic regression, the probability of an event occurring (in this case participation in food security groups) is directly estimated. The model can be written as Prob (event) = Prob (participation in groups) =

$$\frac{e^{B_0 + B_1 X_1 + B_2 X_2 + ... + B_n X_n}}{1 + e^{B_0 + B_1 X_1 + B_2 X_2 + ... B_n X_n}} \cdots \quad \textit{Equation 2.1}$$

Where B_0, is a constant and B_1, B_2 … B_n are coefficients estimated from the data. X_1, X_2 … X_n are the independent variables (socio-demographic, economic and spatial) and e is the base of the natural logarithm, approximately 2.718. The probability of not participating is the difference between Prob (participation) and 1, that is, Prob (non-participation) = 1 - Prob (participation). The model was estimated by the maximum likelihood method (Gujarati, 1988), that is, the co-efficient that makes our observed results most 'likely' were selected. The coefficients in the logit model were represented by the change in the log odds associated with one unit change in the independent variable.

The odds of an event occurring are defined as the ratio of the probability that it will occur to the probability that it will not. The log of the odds (logit) is obtained as follows:

$$\log \left(\frac{\Pr ob\ (event)}{\Pr ob\ \ (no\ event)}\right) = B_0 + B_1 X_1 + B_2 X_2 + ... B_n X_n \quad ... \textit{ Equation } 2.2$$

From equation 2.2, it can be seen that the log co-efficient can be interpreted as the change in the log odds associated with a one unit change in the independent variable. Equation 2.2 can

be re-written in terms of odds other than log odds, since it is easier to think of odds rather than log odds giving

$$\frac{\Pr ob\ (event)}{\Pr ob\ (no\ event)} = e^{B_0 + B_1 X_1 + B_2 X_2 + \ldots B_n X_n} = e^{B_0} e^{B_1 X_1} e^{B_2 X_2} \ldots e^{B_n X_n} \ldots \textit{Equation}\ \ 2.3$$

Thus e to the power B_nX_n is the factor by which the odds change when the n^{th} independent variable increases by one unit and is represented by Exp (B) in the SPSS output (Gujarati, 1988). If B is positive, this factor will be greater than one, which means that the odds are increased. If B is 0, the implication is that the odds remain unchanged and if B is negative, it means that the odds decrease with increases in B. Multinomial logistic regression uses the same logic except that it compares the reference category in the dependent variable (in this case non-participation) with other categories (various levels of group participation).

Results and discussion

Sample characteristics

Tables 2.3a and 2.3b show socio-economic characteristics of the study sample. The majority of the respondents (79.4%) are engaged in agriculture (crop farming) as a major source of income, with the rest (20.6%) accessing alternative sources such as livestock sales, agricultural processing, fishing and managing shops. The main crops grown include maize (91%), sweet potatoes (69%), beans (63%), cassava (60%), bananas (42%), groundnuts (20%), soybean (9%) and coffee (7%). Major livestock rearing activities included chicken (71%), goats (62%), cattle (54%), pigs (34%) and sheep (1%). The modal land size was 2 acres, with 50% of the respondents owning 2.5 acres or less. There was a significant difference between group members and non-members regarding the total land acreage and

livestock units owned. In both cases, group members owned more land and livestock, compared to non-group members.

Table 2.3a. Characteristics of respondents: categorical variables (n = 279)

Variable	Percent			p-value for chi-square (χ^2)
	Non-members	*Members*	*Overall*	
Major source of income				
• Farming	76.3	80.5	79.4	.229
• Other sources	23.7	19.5	20.6	
Age categories				
• 30 years and below	43.4	19.0	25.6	.000
• 31-45 years	39.5	46.3	43.4	.303
• 46-60 years	10.5	25.9	21.4	.006
• 61 years and above	6.6	10.7	9.6	.294
Head of household				
• Male	84.2	83.9	84.0	.950
• Female	15.8	16.1	16.0	
Religion				
• Anglican	43.2	42.6	42.8	
• Catholic	14.9	25.5	22.7	
• Muslim	18.9	16.7	17.3	.217
• Seventh Day Adventists	13.5	8.8	10.1	
• Others	9.5	6.4	7.2	
Marital status				
• Married	78.8	82.9	81.9	.370
• Not married	21.1	17.1	18.1	
Education level				
• None	14.5	13.2	13.5	.777
• Lower primary	7.9	9.8	9.2	.890
• Upper primary	44.7	38.5	40.2	.346
• Lower secondary	28.9	33.7	32.5	.453
• Upper secondary and above	4.0	4.9	4.6	.666

Table 2.3b. Characteristics of respondents: scale variables (n = 279)

Variable	Means			p-value for ANOVA
	Non-members	*Members*	*Overall mean*	
Age	36.0	43.0	41.2	.000
Total number of household members	7.7	9.2	9.0	.011
Residence in the village (years)	23.0	29.0	27.2	.003
Livestock units owned	1.2	2.2	1.91	.002
Total land size (in acres)	2.4	4.7	3.98*	.001

**Modal acreage=2 acres; median acreage=2.5 acres.*

The mean age of the respondents was 41.2 years, with most respondents in the 31-45 year age category. There was an overall significant difference between the age groups regarding participation levels (p=0.000). When the age groups were further disaggregated, it was established that the only significant differences were of community members in the age categories of '30 years and below' and '46-60 years.' The implication is that members from these two categories do not join groups in large numbers for some reasons. Discussions with group members revealed that members under 30 years of age are usually interested in quick returns from group activities that may not be readily forthcoming through participation in groups. They instead choose to start up small businesses or migrate to the nearest trading centers for off-farm jobs. In other words, they are less likely to be farmers.

For the age category of 46-60, the probable explanation for their low participation relates to the required commitments of time, labor and other resources. In one of the groups, members asserted that elderly members ceased participating in the group because of high labor demands for managing the group demonstration gardens. For the age categories that tend to join groups, those in the 31-45 range are more energetic and committed to benefitting from farming through joining groups since it is the main economic activity in the area (Sseguya & Masinde, 2005). They also tend to have more roles and responsibilities than those in other age categories, which necessitates membership in groups such that they attain maximum benefits from farming activities. Members 61 years of age and over are most likely committed to spending most of their time in the community and are most likely out of formal employment. This leaves them with joining groups such that they continue to benefit more from farming as a major option.

Most of the households (84%) were male-headed and an almost similar proportion of heads (82%) were married. The predominant tribe is the ethnic Basoga (85%) and the predominant religion is Anglican (43%). Other religious denominations included Catholics (23%), Muslims (17%) and Seventh Day Adventists (10%). The majority of group members had attained upper primary and lower secondary education levels, with non-significant differences existing between group and non-group members.

Regarding group membership, 60% of group members belonged to one group, 27% to two groups, and the rest (13%) belonged to three or more groups. The categories of other groups to which members belong included burial and festivals groups (28%), other farmers' groups (14%), savings and credit groups (9%), religious groups (4%), and marketing groups/associations (1%). Most members (64%) indicated that residents in their respective villages participate in groups to a large extent and 43% indicated that they actively participated in fewer groups compared to the past five years. Further, 31% and 26% of the group members indicated that they participate in the same number of groups and more groups, respectively. Most groups in the study area (61%) were formed by community members, but a sizeable number (31%) were formed by NGOs. Voluntary choice and invitation were the main means of becoming a member, representing 61% and 39% of the membership respectively. Whereas most members (51%) contributed joining fees, many (36%) did not contribute anything. Most groups meet once (45%) or twice (39%) per month, and most respondents asserted that they participate in the group activities (75%) or decision making activities (67%) of the groups to a great extent.

Predictors of participation in food security groups

Logistic regression was used to establish the range of socio-demographic, economic and spatial variables that significantly predict participation in food security groups. Prior to the regression analysis, multicollinearity between the independent variables was tested to avoid misleading or incorrect results. Since logistic regression does not have a provision for testing multicollinearity (possibility of high correlations among the independent variables), Leech, et al. (2005) suggest that a linear regression between the categorical dependent variable and the independent variables should be run to test for it. All independent variables with a tolerance value of less than the difference between 1 and the adjusted R (i.e., $1\text{-}R^2$) should not be included in the model. Nine independent variables had tolerance values greater than $1 - R^2$ (1 - 0.096 = 0.904), and were included in the logit model (Appendix 4). The resulting logit model (Table 2.4) significantly predicts whether or not a community member would participate in a food security group (χ^2 =23.22, df=9, p=0.006).

Table 2.4. Logistic regression of participation in groups with socio-demographic, economic and spatial factors in Kamuli district

Variable	β	SE	Odds Ratio	p
Socio-demographic factors [a]				
Age of respondent	.042	.013	1.043	.001*
Ethnic group of household(1)	-.206	.384	0.814	.591
Religion of household(1)	.038	.299	1.039	.898
Educational level of household head	-.241	.301	0.786	.423
Total number of household members	.092	.041	1.096	.026**
Economic factors				
Major source of income(1)	.032	.361	1.033	.929
Number of livestock units owned	-.014	.018	0.986	.455
Spatial factors				
Distance to major trading center	.000	.022	0.999	.979
Distance to nearest water source	-.105	.214	0.900	.622
Constant	-1.384	.752	0.251	.066

[a] The reference categories are indicated in parentheses
*Significant at α = 0.01
**Significant at α = 0.05

Among the socio-demographic factors, age of respondent significantly predicts the likelihood of participation in food security groups. Older people are more likely to be members of groups than younger people. For each unit increase in age, the odds of participating in groups increases by 4.3%. The significance of age as a predictor of household participation confirms earlier observations of differences between non-group members and group members of the 31-45 age category but no difference between those below 30 years. However, since there were no differences between those in the 46-60 age category, this suggests that the relationship is not linear but N-shaped – low for those below 30 years, high for 31-45 years, low for 46-60 years and then high for 60 years and above. Beard (2005) also found a significant relationship between age and participation in community development groups in Indonesia, with members between 15-30 years and over 60 years participating less.

Another significant factor is the total number of household members. With each unit increase in household members, the odds of participating in groups increases by 9.6%. The probable explanation for household composition as a significant predictor of group participation is that as household composition increases, more members are able to dedicate some time to group activities. Also, with an increase in household composition, the perceived benefits from groups are numerous. Weinberger and Jütting (2001) also found positive relationships between household composition and group participation in women's groups in Kashmir and Chad. None of the economic and spatial factors significantly predicted the likelihood of participation in food security groups.

Although other variables such as ethnic group of the household and distance to major trading center did not significantly predict participation in the groups in the final model, they

individually significantly predict participation, implying that they are important up to a certain level for predicting participation. Religion and education level of household head was not a significant predictor because the various denominations and education levels of group participants and non-participants were roughly equal. This was a result of the largely non-discriminative nature of the groups based on these social characteristics. Beard (2005) found a positive relationship between participation in groups and religion and education levels in Indonesia. Weinberger and Jütting (2001) also found a positive relationship between participation and education level in India and Chad.

Determinants of group leadership

Another logit model (Table 2.5) was developed, only considering group members. Multicollinearity for the independent variables was also tested, with nine factors qualifying for inclusion in the model (having tolerance values less than $1 - R^2 = 1 - 0.103 = 0.897$ (Appendix 5). Group leadership was coded as 1 for members with a role beyond ordinary membership and 0 for ordinary members with no additional role. Educational level was treated as an ordinal variable with 0 indicating 'no education' and 6 indicating the highest level attainable (beyond vocational school). Other categorical variables were coded as follows: major sources of income (1 for non-farming source, 0 otherwise), ethnic group (1 for Musoga, 0 otherwise) and religion (1 for Anglican, 0 otherwise). The resulting model (Table 2.5) significantly predicts members' group leadership roles ($\chi^2 = 17.504$, df = 9, p = 0.041).

Table 2.5 Logistic regression of group leadership with socio-demographic, economic and spatial factors in Kamuli district

Variables [a]	β	S.E.	Odds ratio	p
Socio-demographic factors				
Respondent's age	.011	.014	1.011	.445
Educational level of household head	.329	.159	1.389	.038**
Number of household members	.006	.040	1.006	.887
Ethnic group of household (1)	-.087	.475	0.917	.855
Religion of household (1)	.171	.354	1.186	.629
	.011	.014	1.011	.445
Economic factors				
Major source of income (1)	-1.262	.488	0.283	.010*
Total land owned by the household (acres)	.016	.030	1.016	.599
Spatial factors				
Distance of household to major trading center (km)	-.031	.027	0.969	.252
Distance of household to nearest market (km)	-.099	.095	0.906	.297
Constant	.762	.989	2.142	.441

[a] Figures in parentheses indicate the reference category for the dummy
*Significant at $\alpha = 0.01$
**Significant at $\alpha = 0.05$

Two factors were significant predictors of members' leadership in food security groups. The only socio-demographic factor that significantly predicts group leadership was education, with the odds increasing by 38.9% for each year increase in education level. This result suggests the importance of education in enabling community members to take up needed roles such as documenting on behalf of the group (e.g., serving as secretary for the group or representing a group at a training workshop where feedback to members is required, both of which require a minimum level of functional literacy). This result is corroborated by Beard (2005) and Behera and Engel (2006), but negates Agrawal and Gupta (2005), although in the latter case the focus of the study was on participation in groups in general, not role occupation.

The second predictor, among economic factors, is income. The odds of group leadership beyond ordinary group membership decreases 71.7% for a member who has an alternative source(s) of income compared to a member whose major income source is

farming. This result suggests that members with alternative sources of income may not have the time to serve roles beyond ordinary membership, since the major focus of the groups studied is primarily improving livelihoods through farming. Household members with alternative sources of income may have other connections beyond the community which affect their dedication to groups in their communities – a phenomenon that Coleman (1990) refers to as 'network closure.' Members with connections outside the community may not dedicate much time to networks in the community because they feel they can access additional services from the outside networks. No spatial factor significantly predicted differences in group leadership roles. Since preliminary analysis established that community members participate differently in groups, with some members participating in one group, others in more than one and others still having leadership roles in these groups, factors that motivate members to participate to different levels in the groups were also considered.

Predictors of level of participation in the food security groups

A multinomial logistic regression was conducted to establish the levels of participation in food security groups. Multicollinearity for the independent variables was also tested, with seven factors qualifying for inclusion in the model (having tolerance values more than $1 - R^2 = 1 - 0.127 = 0.873$ (Appendix 6). Multinomial logistic regression provides for prediction of factors between the reference category and other categories within the dependent variable. In this analysis, non-participation was treated as the reference category and was compared in turn with participation at the other levels: (1) ordinary membership in a group, (2) either being a committee member in a group or having membership in more than two food security groups, and (3) having committee membership roles in more than one

group. The independent categorical variables were coded as dummies: education (1 for education above 5 years, 0 otherwise); major source of income (1 for non-farming sources, 0 otherwise) and sex of household head (1 for male-headed, 0 otherwise). The resulting model (Table 2.6) significantly fits the data ($\chi^2 = 63.98$, df = 21, p = .000).

Table 2.6. Logistic regression of participation levels with socio-demographic, economic and spatial factors in Kamuli district

Level of participation	Independent variable	B	SE	Odds Ratio	p
Ordinary member (1)	Intercept	-2.817	1.370		0.040
	Age of respondent	0.056	0.024	1.058	0.020*
	Total land owned by household (acres)	0.157	0.099	1.170	0.113
	Distance to major trading center (km)	-0.049	0.035	0.952	0.164
	Distance to nearest health facility (km)	0.123	0.107	1.131	0.249
	Male-headed household(0)	0.452	0.783	1.572	0.564
	[hhsex1=1.00]	0[b]	.	.	.
	Education level below five years(0)	-0.167	0.691	0.846	0.809
	[educ1=1.00]	0[b]	.	.	.
	Farming as major income source (0)	0.312	0.652	1.366	0.633
	[Incomenow=1.00]	0[b]	.	.	.
Executive or member in more than one group (2)	Intercept	-2.586	1.211		0.033
	Age of respondent	0.049	0.022	1.051	0.022*
	Total land owned by household (acres)	0.183	0.095	1.201	0.055*
	Distance to major trading center (km)	-0.041	0.027	0.960	0.133
	Distance to nearest health facility (km)	0.032	0.097	1.032	0.743
	Male-headed household(0)	0.186	0.702	1.205	0.791
	[hhsex1=1.00]	0[b]	.	.	.
	Education level below five years(0)	0.319	0.633	1.376	0.614
	[educ1=1.00]	0[b]	.	.	.
	Farming as major income source (0)	0.840	0.587	2.317	0.153
	[Incomenow=1.00]	0[b]	.	.	.
Executive in more than one group or member in more than two groups (3)	Intercept	-1.753	1.496		0.241
	Age of respondent	0.062	0.026	1.063	0.017**
	Total land owned by household (acres)	0.167	0.097	1.181	0.087***
	Distance to major trading center (km)	-0.040	0.034	0.961	0.242
	Distance to nearest health facility (km)	-0.503	0.188	0.605	0.008*
	Male-headed household(0)	0.173	0.799	1.189	0.829
	[hhsex1=1.00]	0[b]	.	.	.
	Education level below five years(0)	0.987	0.935	2.683	0.291
	[educ1=1.00]	0[b]	.	.	.
	Farming as major income source (0)	-1.164	0.587	0.312	0.047**
	[Incomenow=1.00]	0[b]	.	.	.

a. The reference category for the dependent variable is: 0 (Non-participation in food security groups).
b. This parameter is set to zero because it is redundant.
*Significant at $\alpha = 0.01$
** Significant at $\alpha = 0.05$
*** Significant at $\alpha = 0.1$

The model shows that a range of socio-demographic, economic and spatial factors are significant in distinguishing non-participation from other levels of participation. Older respondents were more likely to participate at all levels (Dependent Variable (DV) 1-3) than being non-members. The odds of being a group member at the three group participation levels (1, 2 and 3) increased by 5.8%, 5.1% and 6.3%, respectively, for each unit increase in age of household head. Two economic factors significantly predict the level of participation in food security groups: major source of income and total land size owned. Respondents with farming as a major source of income were less likely to be members in more than two groups (DV category 3) than being non-participants. The odds of being a member in this category rather than a non-member decreased by 68.8%. The implication of this result is that since membership and leadership roles in farmers' groups require a great deal of sacrifice in terms of money and time, members with only farming as a source of income may not be able to afford the demands associated with membership in multiple groups as well as the funds that may be required. Agrawal and Gupta (2005) also found a positive relationship between a household having additional sources of income besides agriculture and participation in local groups. Community members with more land were more likely to be members at the two categories (DV = 2 and 3), than non-members, with the odds increasing by 20.1% and 18.1%, respectively. The probable explanation is that as land size increases, a household may want to use it in a maximum manner, which necessitates joining a group to augment access to resources.

However, this relationship - together with that of having an income source in addition to farming - reflects the potential negative implication of elite capture of groups by the more endowed community members, which in turn limits the influence of the disadvantaged.

Gugerty and Kremer (2000) also found the negative effect of elite capture while investigating the impact of development assistance on organizational capacity and social capital in Kenya. They established that outside support for local groups made membership and leadership positions more attractive, leading to program capture by wealthier, more educated and connected outsiders not initially involved in the groups, to the disadvantage of poorer, less educated, and less connected members. However, elite capture may not always imply negative outcomes for the non-elite as established by Dasgupta and Beard (2007) and Fritzen (2007). In their studies conducted in Indonesia, it was established that in some instances, elites may participate in groups in such ways that benefit the poor. The elites may control the resources or the groups, but ensure that all group members access benefits. What is required in such a situation, as suggested by Prokopy (2009), is establishment and taking into consideration by program stakeholders of context specific issues (policy, community history and characteristics), such that some participants (the non-elite) are not exploited by others (the elites).

Among the spatial factors, community members remotely located from health facilities are less likely to be executive committee members or to be members in more than two groups, with the odds decreasing by 39.5% for each unit increase in distance (in kilometers). The probable explanation may be linked to a related dearth of groups in remote locations, since health facilities are most likely located in major trading centers. Thus, proximity to health facilities for a household is an indicator of physical spatial centrality. Major trading centers are usually the operation offices of NGOs and government staff working with groups. However, the staff face challenges of regularly working with those members due to the extra efforts required to reach them. As Chambers (1983) suggests, this

rural development bias leads to scenarios where the issues of remote household members are not given much attention, leading to their demotivation to actively participate in development programs.

Conclusion

A major aim of this paper was to identify factors that predict participation in food security groups in Kamuli district. A range of socio-demographic, economic and spatial factors significantly predict participation. The main socio-demographic factors that significantly predict general participation as well as leadership in groups were age and education level. The participation of community members below thirty years of age was low. Since there is a dearth of off-farm income opportunities in the study area, there is need to encourage and facilitate people in this age category to join groups. One of the analyses indicated that even when they try to join, they are largely left out of leadership roles. Their interests and priority enterprises may also be different from those of other community members, implying a need to plan programs tailored to their needs. Thus, programs need to promote ‘youth’ groups with their membership, where possible, in an exclusive manner such that their distinct needs and priority enterprises are addressed. Another alternative would be to promote rural-based off-farm employment opportunities such that youth spend most of the time in the rural setting which would boost their potential to form new groups or join existing ones in their communities.

Education is undoubtedly a key factor in ensuring higher participation in the groups. In this study, the main shortcoming of respondents with no or low education was that they cannot take up roles beyond ordinary membership, probably due to feelings of inadequacy. The challenge of education levels might be overcome through adult education programs and

ensuring that children benefit from the current policy of Universal Primary Education in Uganda (Sseguya & Masinde, 2005).

On economic factors, farming as a major source of income dampens multi-group levels of participation. This implies that food security programs should strongly consider promoting value addition technologies and off-farm income opportunities such as agro-processing, carpentry and small-scale manufacturing (e.g. making fuel-efficient stoves), especially if the community members achieve better food security, with more food available for market. This will contribute to augmentation of income levels for community members. Land size (in acres) also increases participation levels. The positive significance of participation levels indicates a potential risk of elite capture which programs may need to consider by establishing mechanisms such that the non-elite do not lose benefits that are due to them.

Most of the previous studies on participation in groups have not addressed the spatial aspect of households. In this study, it was established that physical spatial centrality of a household, indicated by remoteness from health facilities negatively affects participation in groups. Health facilities are mostly located in major trading centers which are also the sources of services and partners' offices with whom the groups may need to implement development programs. As a result of access constraints to remote communities, some programs may not work with groups located there as regularly as they would, compared to closer ones. Programs working on food security interventions therefore need to dedicate extra efforts to reaching remote households in their areas of jurisdiction such that, holding other factors constant, equitable development irrespective of location is achieved. Further, there is need for groups in remote communities to nurture and support dedicated members who can

represent them at the trading centers and furnish them with appropriate information and opportunities accessible from there.

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CHAPTER 3: ASSESSMENT OF PARTICIPATION IN FOOD SECURITY GROUPS IN KAMULI DISTRICT, SOUTHEAST UGANDA.

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Abstract

Participation of community members in groups is of increasing significance, especially as the Ugandan government promotes policies that encourage involvement of diverse stakeholders in development programs. In this study, participation levels of 21 community groups in a food security program in Kamuli district are assessed. Qualitative data on level and process of members' participation in group activities, group management, partnerships and levels of success were collected between August and December 2008. Results indicate that members' participation is a function of perceived benefits such as access to material incentives and capacity building opportunities, in addition to group leadership style and mutual trust. Further, groups with partners with whom they implement development programs highly rate those partnerships and most prefer that the partner organizations continue working with them for an indefinite period, an indication of dependence. However, cases of conflicts in groups are rarely reported or discussed with partners. Group members' status in terms of human, financial and physical asset endowments also affected the overall performance of groups. The paper concludes with suggestions on mechanisms for increased involvement of community members in group activities and enhancement of partnerships.

Introduction

Many development interventions in the Global South are increasingly supportive of active participation of community members in development programs. According to Kelly

and Van Vlaenderen (1995), definitions of participation refer to a vast range of different processes, including the capacity to influence decision-making processes at all levels of societal organization; direct sharing in decision making; the capacity to take initiative in development activities; and being in a position to benefit from a project or program. It is thus not surprising that there is a considerable divergence amongst policy makers, researchers, development workers and local people involved in development as to what participation is (Kollavali & Kerr, 2002).

Proponents of participation assert that it is important to involve local people in development programs and to regard people as stakeholders (rather than objects) who are capable of contributing to analysis of their own situations and designing solutions (Cornwall and Jewkes, 1995). In this regard, local people at group or community levels could be involved in needs assessment, action planning, program implementation, resource mobilization or monitoring and evaluation of the program activities (Boyle, 1981). Programs benefit from local knowledge that best reflects local needs and demands, promotes a sense of project ownership and ultimately, enhances chances of success in meeting community needs (Salmen, 1989).

Participation also enhances empowerment by increasing people's feelings of self-worth, improving their skills, giving them a greater sense of their rights, as well as improving their knowledge and competencies (Boyle, 1981). Involving local people in development programs can shift the power dynamics. Initially, power may be in the hands of the development agencies as they determine whether or not to involve local people, but power relationships can change as local people decide whether and how to work with other stakeholders.

Participation in development programs varies by degree, with local stakeholders always participating at some level along a continuum, ranging from tokenism to real empowerment. Bass, Dalal-Clayton and Pretty (1995) suggest four levels of participation, ranging from contractual, to consultative, to collaborative, to collegiate. With increasingly deep participation (as in collegiate), there is greater relinquishing of control and devolution of ownership of program processes (planning, implementation, evaluation, resource mobilization, etc.) to all stakeholders. Cornwall and Jewkes (1995) note that the most common form of participatory development is consultative, where (some) stakeholders are asked for their opinions before interventions begin. Rarely, however, do development agencies engage in collaborative projects where program implementers and local people work together on project design and management; even less frequently do they have collegiate relationships where local people actually have control over the process. The reason for limited approaches to participation is associated with the perceived complexity of actively involving all stakeholders, especially local people, and the relatively greater amount of resources, time and coordination needed (Weinberger & Jütting, 2001).

Rifkin (1986) suggests that assessment of participation in development interventions is vital and should focus on at least one of three questions: (1) Why was stakeholders' participation prioritized by the development agency or promoted by the existing policy framework? This relates to objectives which the development agencies' government structures set out to achieve by pursuing a community participation approach. (2) Who participates? This relates to description of individuals and groups which participate, recognizing that communities are not homogenous, and that the process may be hijacked by elite groups in communities, depending on the perceived benefits of the program. (3) How do

people participate? This relates to the types of participation involved in a program, e.g., whether people participate by benefiting from the program, by participating in the activities of the program, by implementing program activities, by monitoring and evaluation or by planning programs.

The objectives of this study are twofold: (1) to examine how community members participate in food security groups in Kamuli, Uganda and (2) identify the factors (organizational and community context) that facilitate or impede their participation. It is hypothesized that groups with a greater combination of capabilities for leadership, planning, conflict management, negotiation, monitoring and evaluation and resource mobilization are more effective in enabling members' achievement of group goals than those with fewer or no capabilities. In addition, it is hypothesized that since higher household-level food security achievement is the main goal of these groups, members of groups with more partnerships and linkages have greater levels of food security than those with fewer or none of these partnerships.

Analytical framework

Uphoff (2000) suggests that group functioning revolves around four major activities namely: (1) decision-making, (2) resource mobilization and management, (3) communication, and (4) conflict resolution. His argument is premised on Parson's theory of action (1961) which posits that all action is organized by three systems: personality, social and cultural. The personality system is characterized by the orientation and motivation of action at individual level and is organized by need-dispositions. Need dispositions are "tendencies to act with respect to the objects in certain manners, depending on expected

consequences from these actions, otherwise referred to as roles" (Parsons and Shils, 2001, pp. 114-115).

The social system involves interaction between an actor (ego) and other actors (alters) oriented towards means or goals in an interdependent mode. This interdependent interaction is moderated by a consensus on normative and cognitive expectations (Parsons 1961). These expectations are in turn a result of established roles between the different members and persons with whom these role incumbents interact (Uphoff, 2000). The cultural system is an organization of values, norms and symbols that guide the choices made by actors and which limit the types of interaction that may occur among them. Parsons also noted that the three systems of organization of action interpenetrate through socialization (the social system regards specific norms and values as binding), internalization (the individual incorporates specific cultural meanings into his or her need-dispositions), and institutionalization (integration of the expectations of actors in an interactive system of roles with a shared normative pattern of values). Thus, when people join in groups, they have needs and goals which they feel can be addressed through this medium. To achieve these goals and needs, roles and rules for decision-making and resource mobilization are established, in addition to establishing means of facilitating communication and managing conflicts that may arise between members in the groups.

Since members have different experiences and attitudes, the functioning of a group is affected by their past experiences as well as expectations from the group. Norms, which guide recurring exchanges whereby individuals "partially give up the right to control their own actions while in turn receiving the authority to partially control the actions of others" (Coleman, 1990, p. 243), may be violated or upheld and thus affect goal achievement. Thus,

individuals who are members of groups need to make some investments (time, labor, money information) for the good of the group, although the contribution for each member may differ depending on roles in the group. Mutual trust between members and other partners in the social system (e.g., other groups, government departments, non-governmental organizations) who interact with them also need to be maintained in such a way that the goals of all participating parties are achieved. Therefore, the analytical focus of this paper takes individuals as group members striving to achieve goals, mediated by roles, rules, membership trust, and trust in other social system players, norms, sanctions and members' attitudes. These organizational factors prevail upon the way activities of the group are implemented, with benefits, both real and perceived arising.

Previous Studies

Smith (1994) states that at the organizational level, clear goals and a proactive orientation towards change increase participation. Organizational structure also affects who becomes a member and how many become active in the group, with an important distinction between community self-help groups which initiate numerous projects with or without outside support and relatively bureaucratic ones which focus attention on 'capacity building' through planning or other efforts. In addition, involvement varies by the time commitment, physical labor, and opportunities for networking (Martinez & McMullin, 2004). These factors may also affect burnout rates, in addition to a lack of accomplishment, clear objectives or plans, and the incorporation of monitoring and feedback in planning and implementation of activities (Byron & Curtis, 2002). The exact nature of participation, especially the level of authority or decision-making power, may also affect the attitudes of

those involved (Propst, Jackson & McDonough, 2004). Along with organizational characteristics, geographic and situational factors such as remoteness and the implied alternative minimal opportunities influence the participation process as Behera and Engel (2006) found in a study of joint community forest management in India.

In his analysis of participation of community groups in a program implemented by an international NGO (CONCERN) in Bangladesh, Datta (2007) established that successful groups had strong leadership and were transparent in information-sharing and decision-making. The membership, through a process of election, had selected trustworthy and competent leaders for the working committees and had set a specific quota for women's membership of the committee. At individual level, mutual trust and respect among the members was also an important factor for effective participation.

Other factors relate to group size and heterogeneity. Group size and homogeneity are widely expected to affect prospects for trust and the degree of divergence in interests, and ultimately to influence prospects for effective participation. Smaller and more homogenous groups are associated with more trust among members and less diverse needs and interests. However, Poteete and Ostrom (2004), based on their study on community forest resources use in Nepal, India and Ecuador, found no uniform trend on the influence of group size and community heterogeneity on the participation process. They concluded that the influence of these factors depends on the type of program and other factors such as mutual trust and the nature of leadership and leadership styles in the group(s).

Data and Methods

Study area and sample selection

The study was conducted in Kamuli district, located in southeast Uganda, where a livelihood improvement program between Iowa State University, Makerere University and VEDCO (Volunteer Efforts for Development Concerns) started in 2004. In 2009, the program worked with 62 farmers' groups in three sub-counties: Bugulumbya, Butansi and Namasagali, with an average membership of 16 members. Twenty-one groups representing one-third of the group population, were selected for this study (Table 3.1). The final number selected for each sub-county was based on the share of the 62 groups in each of the sub-counties. For instance, if sub-county x had 30% of the 62 groups, the corresponding sample of groups selected for the study would also be 30%. These groups were purposively selected, taking into consideration factors documented during annual assessments such as gender composition, ethnicity, religion, resource endowments, location and food security status of members (Sseguya, 2007). Invitations were extended to members through their leaders for a meeting at their usual meeting places or a convenient alternative. All members were free to attend the meetings, since the total group membership was deemed appropriate for focused group interviews (Krueger, 1994). The average attendance was 12, with a range of seven to 15.

Table 3.1. Groups involved in the group discussions in Kamuli district

Group Name	Parish
1. Akuwa Amagezi Women's Group	Kasambira
2. St. Bruno Farmers' Group	Kasambira
3. Muno Mukabi Farmers' Group	Kasambira
4. Mwino Ni Mwino	Nawanende
5. Ndigakweya Bakaire Farmers' Group	Nawanende
6. Nawanende Farmers' Network	Nawanende
7. Tukolere Walala Women's Group	Butansi
8. Busuyi Kiribedda Women's Group	Butansi
9. Butansi HIV/AIDS Alert	Butansi
10. Bulondo Youth Group	Butansi
11. Twesituleku Farmers' Group	Butansi
12. Twisakilala Widows and Orphans	Naluwoli
13. Akuwa Olukaba Youth Group	Naluwoli
14. Bafuba Kukola Farmers' Group	Naluwoli
15. Kasombereza Women's Group	Namasagali
16. Babigumira Farmers' Group	Namasagali
17. Namasagali HIV/AIDS Group	Namasagali & Bwiiza
18. Tweweyo Farmers' Group	Bwiiza
19. Omwavu Takoowa Farmers' Group	Bwiiza
20. Tagabira Atyaime Farmers' Group	Bwiiza
21. Twegaite Elderly Farmers' Group	Bwiiza

Data Collection

Focus group interviews were used to assess members' participation experiences in the program and the factors that facilitate or impede group performance. Group interviews elicit the best information in circumstances in which a power differential potentially exists between the respondents and interviewers because the different attitudes, feelings, views and beliefs are more easily revealed via the social gathering and the interaction inherent in the focus group (Krueger, 1994). A semi-structured open-ended interview approach allowed for maximum input from the respondents, a breadth of responses from the group, and the emergence of a wide variety of viewpoints. The issues discussed included history of the group; level and process of members' participation in the different group activities (e.g., attendance of meetings, training, sharing planting materials and perceived quality of training offered by Rural Development Extensionists (RDEs) and Community Nutrition and Health

Workers (CNHWs) : group management; partnerships with other players in development (government, non-government organizations, local institutions, markets, research, etc.); changes in household food security; and members' self-assessment of group success.

The interviews were conducted with the help of an assistant who first completed on-line human subjects training. All the interviews were conducted between August and December 2008 in the local Lusoga language and audio-taped. They were then translated and transcribed in English. The interviewers also took field notes on personal experiences and feelings before and after the interviews, including informal interactions with VEDCO field staff and review of program documents.

Data analysis

I used a multi-stage coding process to understand important common and variant issues (Charmaz, 2006) related to participation of the group members in the program. I manually coded data at successive stages out of which themes relating to the study objectives(s) emerged. We began by openly coding data from each group using word-by-word, line-by-line and paragraph-by-paragraph coding. We next used focused coding to generate common categories relevant to the study objectives across the groups, generating a total of 80 focused codes. The third stage was axial coding aimed at developing categories and linking them to each other; we identified 27 axial codes: community-mindedness, member characteristics, membership turnover, common problem(s), local networks, group initiation source, incentives, sanctions, flexibility, group leadership styles, interpersonal relations, material benefits, problem solving, group sustainability, diverse skills, quality services, information concealment, group minimal standards, resource contribution,

consultation, decision making, capacity building, equity, household individual resource endowments, training quality, local stakeholders and group size.

We perused the transcripts once more, highlighting and coding explanatory quotations using the 27 axial categories. Some of these quotations will be used in the results and discussion section. We again contemplated the emergent themes and found 27 categories to be connected with one another; these were further condensed, culminating in five major themes: (1) group features, (2) group success factors, (3) group roles in the program, (4) individual participation motivators, and (5) value attachment to other partners. We then linked these themes to the two objectives of the study: how members participate and the factors that facilitate or impede their participation (Figure 3.1). Note that a particular category could apply to more than one major theme. For instance, the category of interpersonal relations applies to the themes of ‘success factors,’ ‘group features,’ and ‘participation motivators’. To counter the potential biases in the study, we discussed preliminary findings with VEDCO staff. The validity of findings was assured by identifying representative and appropriate quotations for the issues under discussion, and crosschecking with members of the research team, secondary literature and VEDCO’s field staff (Patton, 2002).

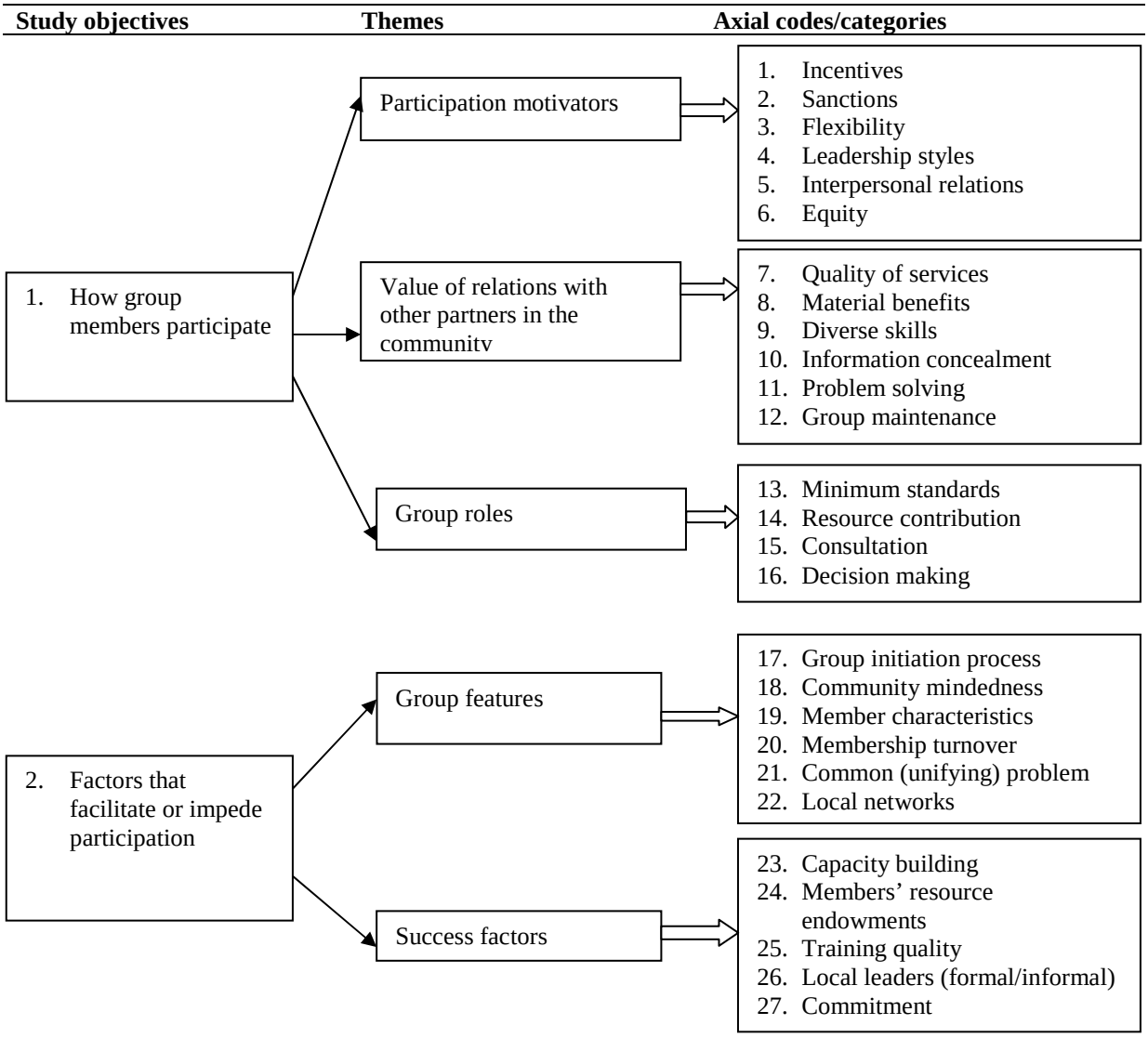

Figure 3.1 Objectives, themes and axial categories of the study

Results and discussion

The objectives of this study were to establish the level of members' participation in group activities and the factors that facilitate or impede the performance of their respective groups. Results for each of these objectives are presented and discussed in turn.

Participation levels in the groups

Three of the five themes arising from the data relate to levels of participation in program activities, that is, motivators of participation, group roles and value of relations with other partners.

Motivators of participation

In all the groups, it was noted that participation of members in activities in which there is a need to commit time or resources is reinforced by incentives or sanctions to avoid 'free riding.' These included fines for non-attendance of meetings or maintenance of group gardens and reprimand for non-attendance of meetings or group garden management for three consecutive sessions. The benefits accruing from regular attendance included priority consideration in sharing of benefits from group efforts such as sharing of planting materials. However, there was flexibility in implementation of the sanctions in such a way that if one had a plausible reason, that individual would be excused. Indeed, fines were reportedly rare in all the groups.

During meetings, all groups reported varied contributions of members in terms of deliberations but generally, in mixed meetings where the membership was also mixed, men reportedly tended to dominate, due to cultural reasons in this part of Uganda; women generally tended to approve of their male counterparts' points of view without much overt questioning. The exception was in three mixed groups, where every member was encouraged to take up responsibilities such as representing the group at external meetings. In these exceptional groups, it was evident during the focus groups that everyone, irrespective of gender or age, actively participated in the deliberations.

Members in the three groups in which participation was relatively uniform irrespective of gender noted that:

> "… When the group started, most women in the group feared to speak up and even take up responsibilities. But now, the vice chairperson is a woman… (Male group member, September 22, 2008)
>
> The … program trained us in how to conduct meetings and a number of other topics which has helped us to improve the way most of us participate …. (Female group member, August 31, 2008)
>
> There is delegation of responsibilities to all members, whether they are on the executive or not." (Male group member, October 13, 2008)

In one of the three groups in which participation was more balanced, some female members were more articulate than males, different from the common scenario in which males dominate. These female members have had significant exposure outside their community through training and tours for peer trainers. As a result, they had gained considerable confidence. This shows that competence enhancement for both male and female group members as well as delegation of responsibilities to all members potentially improve the contribution and participation of all members irrespective of gender. This argument is corroborated by Najjingo and Sseguya (2004) on their study of gender dimensions of rural producers' organizations in central Uganda. They found out that groups whose members had access to capacity enhancement opportunities had better performance than those where such opportunities were missing, especially for female members.

Value of relations with other partners in the community

In most groups (15 groups), the only active partner was VEDCO (the partner NGO in the tripartite program that implements field activities). Focus group members gave three major reasons for having only one partner. The first reason was feelings by the majority of members that other new partners were offering services that had already been accessed from

the existing partner program. One focus group member noted that working with new partners on problems that have already been addressed is like “a student going back to kindergarten when they qualify for elementary school” (group member, Naluwoli parish, personal communication, November 6, 2008). Another reason relates to demands by some programs such as the National Agricultural Advisory Services (NAADS), a government program that is publicly funded but privately implemented, that community members contribute a proportion of funds (co-funding) before they can access services (Muwonge, 2007). This arrangement is markedly different from past experiences where no such contribution was been requested. In some communities, external partners that had demanded some contribution had fleeced them of their funds without any service. Although NAADS is a government-led program, many members were not comfortable with the co-funding contribution.

The third reason was dissatisfaction with the quality of services by some partners such, as in the case of NAADS, in four groups where the model farmers were selected without consulting group members. Most of these reasons resonate with findings of Opondo (2005) cited by Friis-Hansen (2005) on the implementation of NAADS activities in Kabale district, where farmers’ forums responsible for guiding implementation of the activities became illegitimate in the view of farmers because of preoccupation with demanding high ‘sitting allowances,’ locating the technology trials on their own fields, and demanding ‘kick-backs’ for allocating contracts to private service providers. The Ugandan Development Network of Indigenous Voluntary Associations (DENIVA) also conducted an independent study on the effectiveness of farmer groups as institutions for farmer empowerment and poverty eradication under the NAADS program in Kabale, Tororo and Arua districts

(DENIVA, 2005). Their assessment indicated that, among others, service provision was constrained by poor skills of the contracted service providers.

In addition, most groups (17) did not have partnerships with other food security groups in the community, with the feeling that they did not perceive such links as being vital since all of the groups were participating in the same CSRL/MU/VEDCO program. Absence of linkages with non-VEDCO groups was also explained in terms of low or no perceived benefits from such linkages. The only partnership existing between the groups was in the form of RDE and CNHW exchanges, and this was a joint initiative of the VEDCO program staff and groups, not groups alone. The weak bridging links among the groups has implications at the program level. For instance, some groups, especially in Bugulumbya sub-county, did not have adequate access to partners outside the community; their efforts in this regard had been frustrated by non-response from the few potential partners that they tried to contact.

However, most groups highly rank the need to maintain good relations with the partners with whom they currently work. As Datta (2007, p. 52) notes in the case of Bangladesh, "groups emphasized the importance of CONCERN's presence in the area for an indefinite period of time, even in a limited form." In the case of VEDCO, all groups were interested in having the NGO stay for an indefinite period. All the groups are averse at losing linkages with the program, as implied by the following statements:

> "They [VEDCO] have been helpful in improving our lives and reviving our group. We request that they continue working with us for some time. We will strive to improve our shortcomings. They should not dismiss us or stop working with us when we commit mistakes for the first time… I heard there is one group that was stopped from working with the program because they left their plant multiplication garden untended… You never know, something like this may happen with us..." (Female group member, October 8, 2008)

> "We request that the program continues working with us for many years to come. We appreciate their service (closing remarks by a female executive member of one of the groups, October 10, 2008)."

The statements reflect dependency of the groups on external linkages, which has the potential to affect sustainability of the groups in the program area. The situation is further complicated by lack of a clear indication of exit plans by VEDCO in the area that would provide opportunities for preparing the groups and communities "to carry on in the absence of external partners" (CSRL 2009, p.vii). As a further indication of fear of losing partnership relations with the program, poorly performing RDEs and CNHWs are rarely reported to VEDCO, an indicator of information concealment. In one of the groups, during the period when members did not have RDE services for some time, help was requested from RDEs from neighboring groups but was reported as unsatisfactory:

> "Mr. X. and Y from groups W and Z came last planting season to help teach us but their service was not good. … When they would come to my home, they would just look around without giving advice. After that they would ask for the visitors' book to sign, as evidence that they were at my home if VEDCO personnel come to monitor progress… after that they would go away… Is that genuine service?" (Female group member, September 30, 2008).

When asked whether such cases are reported to VEDCO, members replied that they do not want to create 'bad relations' in the community by promoting individual conflicts, in addition to fear of losing good working relations with the program.

Another issue relating to maintenance of good relations is linked to the kind of benefits accessed from the program. One of the important factors for viability of people's participation in groups is the type of benefits achieved by members. In the case of local people, as Boyle (1981) notes, participation increases empowerment by increasing people's

feelings of self-worth, improving their skills, giving them a greater sense of entitlement, as well as improving their knowledge and building capacity. In addition, accessing material benefits is also vital as noted in the case of Bangladesh where some members demanded incentive payments, feeling that they were not receiving sufficient benefits compared to the amount of time invested to ensure that the groups ran smoothly (Datta, 2007).

In the case of these study groups, the types of benefits accessed included knowledge, skills and positive attitudes for individual members. As a result, from their perspective, they became more confident at meetings, better at managing their organizations, and realized improved yields through application of knowledge acquired. In all groups, the program's focus of helping members to know how to manage their groups was a good complement to training in agricultural production and nutrition knowledge. The competencies acquired had helped them to solve problems, either on their own or with other stakeholders and were believed to lead to more stable groups.

One of the key components of the farmers' training in production and nutrition are the RDEs and CNHWs. The RDEs and CNHWs use a variety of training methods, including lectures, demonstrations and home visits. In all the groups, the training program is flexible, based on the seasonally related demands of the farmers. For instance, during the planting season fewer training sessions may be held as compared to the pre-planting season when the demand for production knowledge and skills is higher and labor requirements in the fields less intensive. There were variations on the quality of RDEs' and CNHWs' services, with 14 groups expressing satisfaction with the level of training and seven groups reporting low quality. However, members suggested a need to complement RDEs' and CNHWs' work with visits and training by VEDCO staff since,

> "[RDEs and CNHWs] are not as knowledgeable as program staff and since they are our peers, some members under look them. Some members do not consider their training as very important" (male group member, October 14, 2008).

For the groups expressing problems with quality, increased family responsibilities and reduced interest in group activities for the RDEs were cited as the main reasons. This shows that opportunity costs in group activities are a key factor worthy of consideration due to their voluntary nature (Behera & Engel, 2006). Members also accessed material benefits from the program in the form of quality planting materials. Achievement of benefits from participation is a key driver of participation as a reward for the participants' efforts (Uphoff & Wijayaratna, 2000). In this program, members in all the groups noted that access to these materials helped them increase production. Members have even shared some of the materials with other community members not belonging to their groups as a way of ensuring that the general community food security status improves. The sharing process was based on regularity of attendance in managing the gardens. In case all members are regular in contributing to maintenance of the gardens, other criteria such as level of household food insecurity and family size were used by group members to select the beneficiaries. For instance, the more food insecure and the bigger the family size of a group member, the better the chances of accessing the materials first. The different criteria may have been used differently but eventually nearly all members accessed planting materials.

Group roles

Generally, the level of participation of local stakeholders in programs was diverse depending on the activities in which they were involved: needs assessment, action planning, implementation, resource mobilization, monitoring and evaluation (Boyle, 1981). In this program, some of the issues noted, based on the interviews in addition to interactions with VEDCO field staff and review of documents, was that community members provided information on the local situation and needs at the time of entry. However, after this activity their involvement in program planning and needs assessment was minimal. For instance, there was no indication of prioritization of groups' felt training needs in the program documents. An annual program on training items is developed at VEDCO headquarters and then shared with the farmers' representatives at an annual meeting.

On program implementation and resource mobilization, groups were involved up to a certain level, but not in all program activities. For instance, in all the groups, volunteer trainees (RDEs and CNHWs) were selected and recommended by the respective group members with no influence from the program staff. The program's role in selection of the members was to facilitate the setting of general criteria for a member who would best serve as an RDE or CNHW, which the groups followed in the selection.

In addition, improved planting materials were provided by the program, which were then multiplied and distributed to members. Each group contributed land on which the multiplication gardens were established, and all members contributed labor. Each group was also expected to ensure minimum standards (having a constitution and registration with local administration offices) before they could start working with the program. However, monitoring and evaluation of activities of RDEs and CNHWs seemed to inadequately involve the groups. So, because of the absence of a risk-free forum for reporting RDEs and CNHWs

who may not implement their activities adequately in this regard, effective participation of groups in monitoring and evaluation of the activities regularly suffered. Field monitoring reports indicated that group monitors were selected to help complement the efforts of program staff, but the roles of these members were not yet clear to groups and the selected members.

Factors that facilitate or impede participation

The two major themes that relate to facilitating or impeding factors to participation of group members were group features and success factors. Most of the categories for these two themes were mutually inclusive.

Group features

All the groups were initiated with a common livelihood improvement goal in mind that was of concern to the members. The most common goals for initiation of these groups included poverty reduction, increased food production and mutual help (e.g., HIV/AIDS and disabled peoples' groups who perceived themselves as vulnerable people likely to be stigmatized in other groups). The activities undertaken to achieve the group goals were different. For instance, some groups with the goal of poverty reduction started with collective savings, whereas others implemented commercial livestock rearing enterprises, or focused on production of a marketable agricultural product such as maize or cassava. This suggests that formation of a group with potential for survival is usually preceded by identification of a mutual problem of interest for all potential members. It also demonstrates the community-minded nature of the members, who instead of facing the problem individually, work together in a group. It is also noteworthy that groups make some changes in their activities

when opportunities for working with external partners arise, as the case of groups working with VEDCO illustrates.

The initiation of these groups was either internally or externally motivated as noted in the following statements:

> "We got the idea of starting a group after our church organized a training session at our county offices and encouraged us to form groups as a means of fighting poverty. When we came back, our current chairperson, with other members (names cited) mobilized the community members in the village, irrespective of religious belief, and we formed the group" (Male group member, September 22, 2008).

> "… when they (people living with HIV/AIDS) are alone, they are too vulnerable. So, we thought we need to form a group that can ensure mutual help as affected people" (Female group member, November 13, 2008).

> "We realized that if we get together and start up a credit revolving scheme, we could help each other out of poverty. So we formed this group on our own" (Female group member, November 10, 2008).

After starting the group, its progress and achievement of goals benefit greatly from external contacts or "bridging capital" (Uphoff & Wijayaratna, 2000). Thus, especially in situations where a group was initiated by members without external assistance, which was the case ten groups, maintaining local networks is very important for progress and success. Further, for all the groups in this study, contacts with the food security program were not initially made directly with the groups, but through local leaders and extension agents. This implies that once a group does not maintain good local networks and contacts with government departments, it may miss out on development programs as the case of group contacts with this food security program demonstrates.

The rates of membership turnover varied among the groups; 13 had low turnover rates, but eight lost a considerable proportion (30-50%) since inception, with some members

becoming inactive. In five groups, members left after feeling that the group was no longer offering anything new to them. In three others, some members had different expectations from what the program had on offer:

> "Some members thought that they would get assets and money from VEDCO as was the case with earlier programs in the community that provided such items… they left after failing to see any of such expected benefits" (Male group member, October 7, 2008).

Datta (2007) notes in the case of groups working with CONCERN in Bangladesh that a perceived lack of accomplishment affects membership turnover and ultimately success of the groups. The case of one of the groups whose membership turnover was high corroborates this argument, as revealed by this statement:

> "… Some members left, saying that "we are tired of groups, because we do not see any benefit. It is as if we are begging…" (Female group member, November 10 2008).

A close examination of the probable reasons for membership turnover which ultimately affects participation levels and success of the groups links to members' characteristics such as heterogeneity (ethnicity, religion and resource endowments) and interpersonal relations such as mutual trust, respect and leadership styles. These are discussed in detail in the next section.

Levels of group success

The groups involved in this study achieved different levels of success with the program activities due to a number of factors. Since the key goal of the groups was to improve livelihoods through better food security outcomes, all existing group members were ranked in terms of their food security status at baseline and the current status. Locally generated food security indicators (Sseguya and Masinde, 2005) were used. In general, 11%

were food secure at baseline, with current levels showing an improvement to 73%. All groups whose members had achieved over 50% food security levels were considered to be successful. Members were also asked if they felt that the group had helped them to achieve their goal(s), and all those groups which had an achievement level for at least 50% of the members were rated as 'successful.' These two measures were used to rate the level of success at group level, with 16 groups fulfilling the criteria for successful groups based on the two criteria.

Beyond program activities to which the groups attributed their food security achievements, a range of other factors are found in the literature that could affect group success. These include individual factors such as mutual trust and respect, leadership styles in the group (Weinberger & Jutting, 2001); community factors such as heterogeneity, status of group members and resource endowments (La Ferrara, 2002) and geography in addition to group size (Poteete & Ostrom , 2004). These are discussed in turn, in relation to success of the groups.

Most groups (12 out of 16) ranked as successful had members of both sexes, with most of them being of the same ethnicity but different religions. The average group size was 19 members. The other successful groups were of same sex membership (all female) with negligible membership turnover and with mixed ethnicity and religions. Most of the successful groups had a democratic leadership style, with all members irrespective of age or gender taking up leadership roles. In other words, the contribution of every member was actively promoted, instead of a few members dominating the scene.

Of the five unsuccessful groups, one was exclusively female, with 10 members of very diverse ethnicities and resource endowments (the majority were poor by village

standards); the majority of the members were largely inactive, with most of the group activities implemented by two members (the CNHW and RDE). The second unsuccessful group had mixed sex membership, with most members of the same ethnicity but with low resource endowments by village standards. Most members were not willing to take up responsibilities in the group; they argued that they are not educated and therefore cannot take up some roles that may require a minimal level of literacy. The other three groups had an average of 11 members (nine, 11 and 13) of mixed gender, but had problems of domination by their leaders. Leaders rarely consulted with the membership, and disagreements between members on how to share proceeds from the group gardens further affected the working relationships between the leadership ultimately affecting trust levels in the groups.

Reflecting on the potential factors for success among the groups, the levels of mutual trust and collective sense of purpose in successful groups were higher than in unsuccessful groups that exhibited high membership turnover or inactivity as a result of perceptions that some members were not benefiting. The leadership style in unsuccessful groups also tended to be undemocratic as opposed to more democratic/participatory leadership in successful groups. In successful groups, delegation of responsibilities to all members regarding the different group activities was common, as opposed to unsuccessful ones where the contrary was common. As an illustration, during one of the meetings, a participant indicated that members were not usually informed about some training sessions or meetings. The executive members present countered that sometimes such training sessions about which other members may not be informed may be exclusively for executive members, RDEs and CHNWs. This still reflects a problem of poor information flow and less democratic leadership in unsuccessful groups compared to successful ones. Some members in successful

groups also had access to leadership capacity building opportunities which may have boosted the potential for better participation of all members, whereas in most of the unsuccessful groups, no such opportunities existed.

Regarding community factors, Poteete and Ostrom (2004) indicate that the dimensions of heterogeneity such as ethnicity, religion, wealth and occupation, in addition to group size, affect participation levels in group activities but their effects are non-linear and depend on the status of other factors such as group goal(s), leadership style(s) and mutual trust. Although all the groups in the present study had some level of heterogeneity among members, their levels of success were diverse. In relation to group size, one of the least successful groups had the smallest membership, meaning that a critical mass (number of group members, at least ten) is a key factor in assuring success of participation in groups. Heterogeneity was a characteristic of both successful and unsuccessful groups. Since it was not possible to statistically test the strength of the different types of heterogeneity among members and group size on participation level, it is probable, as suggested by previous studies (e.g., Agrawal, 2000; Velded, 2000; Poteete & Ostrom , 2004), that other factors may have had a larger impact on the success of participation of members in groups.

A participatory leadership style and mutual trust and respect may have had a positive impact on successful participation levels and processes, whereas in some groups such as the HIV/AIDS groups, the program goal of bringing People Living with HIV/AIDS (PLWHA) together (membership homogeneity) may have had a larger impact than other levels of heterogeneity. In some of the unsuccessful groups, it is possible that the poorer members may have felt exploited by the better off members (resource heterogeneity), coupled with a largely

autocratic leadership style, affecting the participation levels and processes of members, ultimately affecting group success.

Conclusion

Understanding how members participate in local groups is of paramount importance since successful implementation of development interventions in developing countries is increasingly hinged on community groups as key partners. However, processes of local people's participation are varied with a number of factors at play. In this study, based on an assessment of groups participating in a food security program in Uganda, the main themes pertaining to members' participation included motivators of individual participation, value of relations with partners, group roles, group features and success factors related to participation in the program activities.

It was hypothesized that groups with a greater combination of capabilities for leadership, planning, conflict management, negotiation, monitoring and evaluation and resource mobilization are more effective than those with fewer or none of these capabilities. It was also hypothesized that since higher food security achievements is the main goal of food security groups, members of groups with more partnerships and linkages have higher levels of food security than those with fewer or none of these partnerships.

Since all the groups had a few partners (in most cases one partner), we could neither confirm nor reject the hypothesis that members of groups with more partners were more food secure than those without such partnerships. We could only confirm part of the first hypothesis with the argument that groups whose leadership was democratic were better than those which had autocratic tendencies. It was noted that democratic leadership boosts

individual level factors such as members' confidence in conducting group activities (e.g., contributions during meetings and mutual trust), in turn boosting participation.

It was also noted that some of the groups in which members' participation was better had members who were exposed to capacity enhancement in group management. Capacity enhancement for group members coupled with mutual trust among members has the potential for ensuring a critical mass of social capital that is necessary for groups to survive. This leads to a suggestion that programs should incorporate inclusive capacity enhancement in leadership and other group management components, and participatory identification of training needs for all members of the participating groups. Since one of the goals of participation in development is inclusion of the experiences of diverse stakeholders in programs, it is vital to incorporate the farmers training needs in the program, instead of entirely relying on information on needs from program staff. Participatory identification of needs should also be complemented with joint planning of program activities, selection of model farmers and other forms of implementation and monitoring that are discussed below.

All groups in this study reiterated the importance of partnerships in development. Since most NGO-driven interventions are projects or programs which would inevitably end after some time, it is always important that groups are encouraged to establish partnerships, both local and external, especially through local government establishments which are supposedly more people-centered under decentralized governance in Uganda. Local groups should also be encouraged to partner with each other through farm tours and joint training since the value of such partnerships seem to be underrated yet a particular group could have an advantage over another in activities promoted by the program.

I found that conflicts between group members and their leaders or trainers may not be reported to program staff for fear of 'undesirable' consequences at individual, group and community levels. To this end, local monitoring committees had been established by the program but their roles were not clear. These committees would be instrumental in assessing the quality of services offered by RDEs and CNHWs, providing suggestions and addressing potential conflicts within the groups in a manner that would not lead to straining of working relations with development programs which was one of the fears of participating groups, preventing them from reporting poor performance. Roles of these committees should be clarified to both members and local leaders, and updated periodically, preferably on an annual basis.

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CHAPTER 4: STATUS AND CHALLENGES OF INFORMATION ACCESSIBILITY IN RURAL COMMUNITIES OF KAMULI DISTRICT

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Abstract

Access to information is one of the benefits of social capital. In Uganda, structural adjustment programs and decentralization have been accompanied by changes in mechanisms of information delivery for local development. The transformation of information models began with transfer of technology (ToT) in the 1960s to 1980s, evolved to farming systems research and extension (FSR-E) in the 1990s, and now involves agricultural knowledge and information systems (AKIS). In this paper, the status, challenges and gaps in information accessibility for farm households in 12 parishes of Kamuli district are assessed using a modified AKIS framework that considers information beyond agricultural-related issues. Data were collected between August 2008 and February 2009, using community discussions and household interviews, and analyzed using SPSS and NVIVO software. The results showed that community members access information from a variety of sources including local community members and leaders, private business entities and staff from government and non-governmental organizations. The principal types of information concerned agricultural technologies and productions, health, education, natural resource management, markets and credit. Reliability and applicability of the information from the perspective of community members varied, with information from government departments and private businesses being the least reliable. Community members had no capacity to hold accountable those who provide low quality information services. Information linkages among the actors

were low or non-existent in all the communities, and feedback to other actors from community members was rarely ensured. Recommendations for actors in the AKIS include feedback loops from community members, establishing genuine partnerships between actors including local leaders, and addressing specific information gaps, depending on the prevailing local policy environment and enterprises in which community members are engaged.

Introduction

Access to information that can potentially boost the livelihoods of rural communities can contribute significantly to development in sub-Saharan Africa (Bertolini, 2004). In Uganda, the importance of information access is further reinforced by recent policy reforms in the country, such as implementation of structural adjustment programs (SAPs) in the 1980s and decentralization in the 1990s. These reforms induced changes in roles of key stakeholders who provided information on the various goods and services, such as farm inputs, markets, extension and related rural services (Ramirez & Quarry, 2004).

For instance, the emphasis in SAPs on elimination of subsidies and price controls, liberalization of trade and exchange transactions, elimination of parastatal activities, and privatization (Heidhues et al. 2004) implied that new actors, such as private business entities, had to take on new information roles in rural livelihoods enhancement. Decentralization of extension and other service delivery mandates also constrained an already inefficient system that provided inadequate information to rural communities (Francis & James, 2003), although the emergence of non-governmental organizations (NGOs) in the 1980s partly bridged the gap (Feder, Willet & Zijp, 1999). The government's Poverty Eradication Action Plan (PEAP) launched in 1997 provided opportunities for local communities to actively

participate in development interventions as key stakeholders (Bahiigwa, Rigby & Woodhouse, 2005). One of the resources for local communities that could be harnessed to ensure better access to information ultimately improving development prospects is their social capital.

Definitions of social capital are still evolving, with some scholars embracing the individual-level views of the concept based on Coleman (1988) and Bourdieu (1997) or the communitarian view by Putman (1993). Despite disagreements on definitions, there is consensus that the concept encompasses the nature and strength of existing relationships between individuals, their ability to organize for mutual beneficial collective action around areas of common need and managing the social structures required to implement such plans, and the skills and abilities that community members can contribute to the development process (Portes, 1998).

Further, social capital inheres in the nature of social relations that exist between individuals, unlike human and physical capital, which are lodged in individual actors and physical implements of production, respectively (Tiepoh & Reimar, 2004). In this regard, as they organize for mutually beneficial action, individuals or communities are guided by norms, sanctions, roles, rules, trust and expectations which in turn reduce transaction costs. The range of benefits from social capital include better access to broader sources of information, collective action and decision making, and enhanced solidarity among members of the social system (Collier, 1998). In this study, the status and challenges of information accessibility and utilization among rural communities in Kamuli district are assessed. The rest of the paper presents the analytical framework, methods and data, a discussion of results and conclusion.

Analytical framework

Changes in information access for rural communities in Uganda can be explored alongside extant policies and communication models prior to independence. From the time before independence in 1962 through the 1980s, the prevailing communication model was that of 'transfer of technologies [ToT] (Kidd, 2001), based on innovation diffusion theory summarized by Everett Rogers in the 1960s (Rogers, 2003). The innovation diffusion approach emphasized adoption of new technology as a way of enabling farmers to become more productive. Government organizations that worked with rural communities in the broader agricultural sector were structured along this model. The focus of communication efforts was for the extension agents to package information from research to farmers, with no opportunities for feedback from them. However, the diffusion of innovations model has an emphasis on interpersonal communication networks, which the extension organizations did not keenly incorporate in the activities (Kidd, 2001). Further, the model provided a categorization of farmers based on the speed with which the innovations are accepted and utilized: innovators, early adopters, early majority, late majority and laggards (Van den Ban & Hawkins, 1996), with any shortcoming in the adoption process blamed on the individual farmers, not the research-extension system.

International organizations such as the World Bank further supported this model by promoting extension approaches such as the 'training and visit' (T&V) system, which sought to spread agricultural innovation through contact farmers as a way of improving production and rural incomes (Kidd, 2001). The T&V system was more focused on delivery of information and technologies to farmers' groups as a way of improving efficiency in the extension system. However, rural communities were not involved in identifying reasons for

their potential non-adoption (Ramirez, 1997). Alongside this communication model was provision of farm inputs and markets through government marketing boards (Hussi et al., 1993).

Realizing the limitation of the ToT model, a new communication model, the farming systems research and extension model (FSR-E) that sought to involve the farmer in technology development was introduced in the 1980s, as a complement to the then dominant ToT model. According to Merrill-Sands (1985), the key concepts of the FSR-E model included (1) targeting small-scale farmers as clients for agricultural research and technology development, with the fundamental objective of making technology generation more relevant to their goals, needs and priorities; (2) viewing the farm in a holistic manner and focusing on interactions between components; (3) complementing ToT, not replacing it (it was conceived as drawing on the body of knowledge of technologies and management strategies generated by discipline and commodity research and adapting them to the specific environments and socio-economic circumstances of a targeted group of relatively homogenous farmers); and (4) channeling feedback on farmers' goals, needs, priorities and criteria for evaluating technologies to station-based agricultural researchers and to national and regional policy makers.

During the same period, there was increased acknowledgement of the validity of indigenous knowledge (IK) as a key source of potential solutions for farming systems problems (Richards, 1985). Rajasekaran (1993) indicates that the attitudinal top-down orientation of communication systems in the 1990s greatly affected integration of IK in communication systems in addition to inherent weaknesses of IK such as its oral nature, non-documentation and farmers' failure to recall quantitative data pertaining to the indigenous

systems. However, as the FSR and IK systems were still evolving, policy and funding orientations changed in ways such that the feasibility of these approaches became suspect. For instance, introduction of SAPs in the 1980s affected the productivity and profitability of some farm enterprises promoted by FSR in some countries, and donor focus became more oriented to new approaches such as participatory approaches to development interventions (Collinson, 2000).

Beginning in the 1990s, participatory approaches that advocated for shifting of control of the communication process solely from agricultural research and extension experts to both farmers and experts were more widely introduced in the developing countries' extension systems, although the impact of local people on the process has been widely contested (Leewuis, 2004). During the same time, policies that encouraged participation of local people and other actors in development such as the private sector were introduced. Around this time, a new communication model, agricultural knowledge and information systems (AKIS), evolved and provided a means of discerning the organizational forms that enable or constrain processes such as generation, transformation and use of knowledge and information (Engel, 1997). However, the model incorporated insights from earlier models such as the importance of interpersonal communication networks, the benefits of delivering information in groups and engagement of community members (farmers) in information processing. The focus also further shifted from agricultural systems to livelihoods systems (Ellis & Biggs, 2001), implying a need for a change from simple to more complex systems and system interactions for better development outcomes. Ellis (2000, p. 10) defines a livelihood as: "[T]he assets (natural, physical, human, financial and social capital), the

activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household."

According to Leewuis and van den Ban (2004), AKIS describe the interactions among institutions or individuals - researchers, public sector workers, private traders, non-governmental organizations and farmers - that are part of the system within which agricultural information is exchanged. This provides opportunities for understanding links and sources of agricultural information and knowledge such that improvements in farmers' agricultural knowledge are enabled. Thus, the focus of AKIS is on strengthening linkages and communication that should take place among the system actors instead of strengthening research, education or extension institutions as is the case espoused by the dominant ToT model (Assefa, Waters-Bayer, Fincham & Mudahara, 2009).

In this paper, an adapted version of AKIS is used to explore the linkages among actors regarding rural information for livelihood improvement, including information beyond agriculture. Rural community members require a range of information such as agricultural technologies, markets, health, credit and education to achieve better and more sustainable development outcomes. The focus, therefore, is on analysis of agricultural/rural knowledge and information systems (ARKIS) beyond a strictly agricultural focus to consider all development-related information necessary for improved livelihoods.

Previous studies on information accessibility indicate variability due to underlying factors of structures and individuals. In his study in the Philippines, Ramirez (1997) established that the agricultural information that reached users was limited and inadequate. Farmers' primary source of information was other farmers. In general, the extension workers were not meeting the farmers' needs. The informational programs handed down from

researchers to the extension agents were also inadequate due to failure to incorporate local needs since design of solutions did not involve community members or their representatives.

Garforth (2001) found distinct differences in information accessibility and needs between the two villages studied in Eritrea. In Glass village, which was closer to the major trading center of Hagaz and the administrative center at Keren, the majority of households were involved in agriculture as a major source of income, with a mix of crop and livestock enterprises: cereals, livestock and horticulture. By contrast, in Ashera village, which was farther located from the major trading center of Hagaz, the majority of households were not reliant on agriculture as a major source of income since access to land was limited, coupled with declining agricultural productivity due to vagaries of weather and soil depletion.

Because of these characteristics, farmers in Glass village had access to more sources of reliable information than Ashera. In Glass, the major sources included markets (local, regional and national), fellow farmers, church-based institutions and individuals, Ministry of Agriculture extension staff, an agro-technical school in Hagaz and two cooperatives. In Ashera, the main sources were Ministry of Agriculture extension staff and fellow farmers. Ministry of Agriculture staff were regarded as credible but not easily accessible due to difficulties associated with accessibility to Ashera by road. Thus, the main determinants of differences in information accessibility between Glass and Ashera villages were associated with information sources and markets, and differences in farming systems and livelihoods.

Data and Methods

Population and sample selection

A multi-stage sampling strategy was used to select the sample from six sub-counties in Kamuli district, southeastern Uganda (Figure 4.1). Three sub-counties participating in a

sustainable rural livelihoods program jointly implemented by Iowa State University (USA), Makerere University (Uganda) and Volunteer Efforts for Development Concerns -VEDCO (Uganda) were selected. These are Butansi, Namasagali and Bugulumbya.

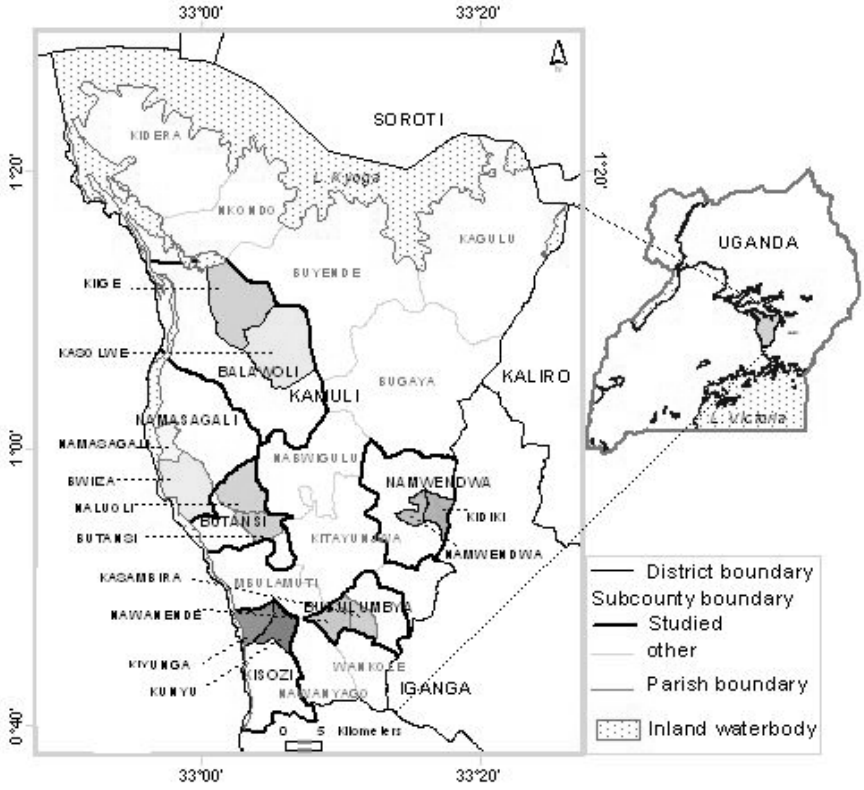

Figure 4.1 Map of Kamuli district showing the study area

Further, three sub-counties not participating in the program, but with predominantly agricultural (crop production) communities as opposed to pastoral/cattle grazing or fishing activities were also selected. These are Balawoli, Namwendwa and Kisozi. Within each of the selected six sub-counties, two parishes were selected through consultation with local leaders and VEDCO field staff. The units of analysis were the communities in each of the parishes. These included Butansi and Naluwoli in Butansi; Namasagali and Bwiiza in Namasagali; Kasambira and Nawanende in Bugulumbya; Kiige and Kasolwe in Balawoli;

Namwendwa and Kidiki in Namwendwa and Kakunhu and Kiyunga in Kisozi. Non-contiguity was ensured between parishes participating in the program and non-participants to facilitate comparisons. It was assumed that communities in non-contiguous parishes would have minimum contact with communities participating in the livelihood improvement program by VEDCO, thereby enabling the comparisons. In cases where the participating sub-county bordered with a non-participating one, non-contiguity was maintained by selecting parishes not bordering with the participating sub-counties.

For each parish, community representatives consisting of local leaders (local council committee members, teachers, religious leaders) and community members (farmers, shopkeepers, etc.) were selected for community meetings. In each parish, 10-20 representatives were invited. The principal criteria used in the selection of participants in the discussion included gender and number of years of residence in the community (at least four years). Further, from each of the sub-counties, at least 30 respondents were randomly selected as part of a larger study on the relationship between food security and social capital. The total sample size was 378.

Data Collection

Quantitative and qualitative data were collected using household interviews and community discussions respectively. A team of seven researchers was involved in collection of the data between August 2008 and February 2009. The research team first completed on-line human subjects training sessions before starting the data collection activities. They then participated in preliminary activities aimed at clarifying the study goals. The activities included joint translation of the interview schedule into local dialects (Lusoga and Luganda)

and elucidation of unclear items. Additional questions that would elicit more useful information for the study were also suggested, discussed and considered. The questionnaire was then pre-tested in Nabwigulu sub-county in Kamuli district over a week, after which more clarifications were made.

Information was collected on sources and types of information for community members, frequency of contact with each source, reliability, veracity, availability and applicability of the information, information linkages between the farmers and each source, and between the sources, and existing information gaps. Additional information on social, human, political, economic, cultural and physical assets was also collected, to provide a context within which the information is accessed.

Community discussions were audio-taped after obtaining community members' permission to do so. Field notes on the nature and progress of interactions during the interview were also taken. Community discussions also involved development of information flow diagrams on flip charts which were then transferred to notebooks and also photographed. The audio-taped information in Lusoga or Luganda was transcribed into English for analysis. Field notes were also taken on personal experiences and feelings before and after the community meetings.

Data analysis

Quantitative data were analyzed using the SPSS software program, mainly generating frequencies and cross-tabulations. Qualitative data were analyzed manually and using NVIVO software. Five categories (nodes) were developed ex-ante on the basis of information required to support the study objectives, namely: (i) community context, (ii) information sources and changes, (iii) information reliability and applicability, (iv)

information linkages, and (v) information gaps. Sections of each discussion transcript were coded under an appropriate code and citations to support the categories were also extracted for use when discussing the results. Analytical memos were also developed during and after the coding to further assist in focusing the analysis. Initial data analysis focused on each transcript separately, followed by a combined analysis across communities. After initial coding using NVIVO, a coding summary report was generated, and further analysis was done to discern patterns from the categories. From these patterns, the major axial codes were identified (Table 4.1).

Table 4.1 Thematic and axial categories of the study data

Thematic Categories	Axial codes
Context	1. Diversity
	2. Community members' orientation
	3. Accessibility
	4. Governance features
Information sources and changes	1. Multiplicity
	2. Actor roles
	3. Adaptation
Information reliability and applicability	1. Quality
	2. Timeliness
	3. Trust
	4. Follow-up
	5. Contact
	6. Clarity
Linkages among information providers	1. Neglect
	2. Jurisdiction
	3. Resources
Information gaps	1. Accountability
	2. Consultation
	3. Regulation
	4. Specific competencies

Results and discussion

Context of the communities

Most of the communities were characterized by a diversity of ethnic and religious groups. The highest number of ethnic groups, 18, was in Namasagali parish, whereas in

Kidiki parish there was only one ethnic group, the indigenous Basoga (Table 4.2). In all the parishes, six major religious denominations existed: Catholics, Protestants, Seventh Day Adventists, Muslims and African traditionalists. African traditionalists were a minority in all the parishes. Although the parishes generally had diverse ethnic and religious groups, it was indicated that this did not adversely affect access to information for development among communities. That is, it was unusual for a member of a different ethnic or religious group to withhold information from a community member from a different group, or stop them from joining community groups.

Table 4.2. Ethnic groups in the study parishes

Parish	Ethnic groups
Namasagali	Basoga, Banyoro, Baganda, Acholi, Langi, Itesot, Bagishu, Banyole, Samia, Banyankole, Banyarwanda, Masaai, Sebei/Sabot, Banyala/Baluli, Madi, Barundi, Bagwere, Bakenyi
Kiige	Basoga, Baganda, Banyoro, Bateso, Bagweere, Basamya, Balaalo, Banyole, Bagishu, Badaama
Kasolwe	Basoga, Baganda, Banyoro, Bateso, Bagweere, Basamya, Balaalo, Banyole, Bagishu, Badaama
Naluwoli	Basoga, Itesot, Bagishu, Banyole, Badama, Baganda, Alur, Banyankole, Bakiga, Bagwere
Bwiiza	Basoga, Bakiga, Banyoro, Baganda, Langi, Itesot, Samia, Banyarwanda,Luo
Kasambira	Basoga, Badaama, Bateso, Baganda, Bagishu, Banyankole
Nawanende	Basoga, Badaama, Bateso, Baganda, Bagishu, Banyankole
Butansi	Banyarwanda, Basoga, Baganda, Bagisu, Banyole
Namwendwa	Basoga, Banyoro, Bateso, Baganda, Bagishu,
Kidiki	Basoga

However, in all the communities, the spirit of mutually beneficial collective action, especially for activities that are not characterized by adversity, such as loss of a loved one, had slightly decreased compared to twenty years ago. This was attributed to reduction in the influence of local parish chiefs and traditional leaders who previously used force to mobilize community members to participate in collective activities such as maintenance of roads and water sources. The reduction of parish chiefs' influence was as a result of establishment of

decentralized governance which assigned the responsibility of mobilizing community members for local community activities to elected local councils. Because the local councils are elected, it is hard for them to use force to mobilize community members for local development activities. It was indicated that,

> "Locally elected leaders fear losing their positions if they at all used force to ensure compliance of community members. Parish chiefs who are technical staff of the sub-county used to do this forcefully …. They no longer care. They just sit in their offices, arguing that it is no longer their responsibility and they lack funds to do it…" (Community member, Balawoli sub-county, November 7, 2008).

> "Parish chiefs do not do their job. They blame their poor performance on lack of facilitation. Nobody supervises them … they are answerable to the sub-county chief and elected local leaders who may not want to be associated with enforcement-led activities" (Community member, Butansi sub-county, January 9, 2009).

All the communities were easily accessible by roads that were passable (in good condition) for at least half of the year, mostly during the dry season. It was indicated that local leaders at the sub-county (LC III) usually dedicate a considerable amount of resources to road maintenance, although the community members' negative attitudes towards collective maintenance of these roads have rendered the task of ensuring the road network in good condition throughout the year to be daunting. In addition, 39% of the community members owned mobile phones (Table 4.3), a measure that would facilitate information access if systems that use mobile telephony were adopted. All the communities had access to at least two of the following national mobile telephone providers: Zain Uganda, Uganda Telecom, Mobile Telephone Network (MTN), and Warid Telecom.

Table 4.3. Ownership of at least one mobile phone at household level in Kamuli district (n = 378)

Sub-county	n	Frequency (%) [at least one phone]*
Butansi	113	30
Bugulumbya	100	33
Namwendwa	32	44
Balawoli	33	49
Namasagali	68	50
Kisozi	32	50

*Overall frequency = 39%

One of the major features that characterize rural communities in Uganda is the new governance structure of decentralization. Community members are expected to actively participate in management of community affairs under decentralization by selecting local leaders as well as participating in development and monitoring of programs. However, in all communities, members were largely dissatisfied with the impact of decentralization on their welfare. It was noted that in the beginning, decentralized governance led to improved quality of services. In the past years, however, local leaders have tended to collaborate with technical staff to provide poor quality services, yet the community members do not have the capacity to demand accountability from them.

Under the local government development program, which is a product of decentralized governance, local community members participate in development of the programs and monitoring the activities through a parish development committee. On these issues, community members noted that,

> "Local leaders and sub-county technical staff never consult communities on their needs to be included in the annual development programs... Even when the needs are assessed, priority ones may not be considered. It is the perceived benefit of a political nature that prevails... For instance road maintenance may be chosen when the community members' priority is school furniture if local

> leaders note that roads would lead to better opportunities for winning the next election" (community member, Namasagali sub-county, December 16, 2008).
>
> "Decentralization has led to construction of better roads…. However, it's hard to demand accountability from local leaders and technical staff at the sub-county. Parish development committee members who are supposed to monitor the activities are weak" (community member, Kisozi sub-county, November 12, 2008).
>
> "There are parish development committees that are supposed to monitor the local development activities but they are weak, with inadequate orientation, support and influence over sub-county technical staff and local leaders" (community member, Bugulumbya sub-county, December 10, 2008).
>
> "There is a team of monitors from Uganda Debt Network (a local NGO) who collect information on the quality of services from government in the two parishes. Some [of these] monitors present weekly programs on a local FM radio, but most of the political and technical people know that this is not enough and nothing serious can be done to stop [their – the local leaders'] bad practices" (community member, Butansi sub-county, January 9, 2009).

This indicates that that decentralized governance, which was conceived as a means of improving quality of services for local development, has not lived up to its promise in the communities. The causes are multiple, related to poor facilitation, supervision and monitoring on the part of the technical staff in addition to selfish tendencies on the part of local leaders. The analysis of decentralization and citizen participation in local development interventions in Uganda by Francis and James (2003) note three major factors that have led to disappointing results: inadequate capacity, insufficient fiscal decentralization, and a lack of accountability to citizens, the latter being the most challenging. This study corroborates that finding, although it would have benefitted from obtaining the perspective of local leaders and technical staff who were not systematically consulted in this study. Based on the context, issues related to information accessibility are discussed in the following sections.

Information sources and changes

Information on a range of development issues is accessed from an array of sources (Table 4.4). The main types of information accessed in all the communities included agricultural production and technologies, credit, produce markets, natural resource management, formal education, and health.

Table 4.4 Major sources of information in the study communities in Kamuli district*

Sub-county	**Nature of information**					
	Agricultural technologies and production information	*Produce Markets*	*Credit*	*Education*	*Health*	*Natural resources management*
Bugulumbya	VEDCO, NAADS, radio, local leaders, sub-county extension staff, friends, private input suppliers	Local business people, radio, friends	Friends, groups	Local leaders, schools	Local leaders, health centers, VEDCO	VEDCO, NAADS, radio
Butansi	VEDCO, radio, local leaders, sub-county extension staff, friends, private input suppliers	Local business people, radio, friends	Friends, village banks, radio	Local leaders, schools, Plan-Uganda	Local leaders, VEDCO, health centers	VEDCO, NAADS, radio
Namasagali	VEDCO, NAADS, IRDI, IFDI, SPW, radio, local leaders, sub-county extension staff, friends, private input suppliers	Local business people, radio, friends	Friends, groups, radio	Local leaders, schools	Local leaders, VEDCO, health centers	VEDCO, NAADS, IRDI, IFDI, radio
Balawoli	SHI, NAADS, radio, local leaders, sub-county extension staff, friends, private input suppliers	SHI, local business people, radio, friends	Banks, friends, village banks	Local leaders, schools	Local leaders, SHI, health centers	SHI, NAADS, radio
Kisozi	KCT, radio, local leaders, sub-county extension staff, friends, private input suppliers	Local business people, radio, friends	Friends, groups, radio	Local leaders, schools	Local leaders, health centers	KCT, NAADS, IRDI, IFDI, radio

Table 4.4 (Continued)

Sub-county	Nature of information					
	Agricultural technologies and production information	*Produce Markets*	*Credit*	*Education*	*Health*	*Natural resources management*
Namwendwa	SHI, NAADS, radio, local leaders, sub-county extension staff, friends, private input suppliers	Local business people, SHI, radio, friends	SHI, friends, groups, radio	Local leaders, schools	Local leaders, SHI, health centers	SHI, NAADS, radio

*NGO – acronyms: (1) VEDCO: Volunteer Efforts for Development Concerns, (2) SHI: Self-Help International, (3) IFDI: Integrated Family Development Initiative, (4) IRDI: Integrated Rural Development Initiative, (4) KCT: Kulika Charitable Trust, (5) SPW: Student Partnerships Worldwide.

Government Program acronym – NAADS: National Agricultural Advisory Services

The main actors in information access included fellow community members, government staff (departments of agriculture, animal health/veterinary services, education, health and community development), local business people; NGOs, local leaders and radio (also see Figure 4.2). At least one NGO operated in each sub-county. Information on agricultural technologies and production information and skills was accessed from all the actors: fellow community members, local leaders, radio, local business people and staff from NGOs and government departments. Changes have occurred in the sources, with past efforts relying more on fellow community members, local business people who sell farm inputs and government staff. With increasing involvement of NGOs in local development efforts, most communities reported more reliance on NGOs and fellow community members as major sources of agricultural technologies. Other changes relate to information from community members to other actors. In the three sub-counties participating in the livelihood improvement program (i.e., Namasagali, Butansi and Bugulumbya), community members

were regularly consulted regarding the performance of the technologies and adaptations incorporated in the program activities.

For instance, in Bwiiza Parish, VEDCO program staff suggested use of a certain type of grass for mulching bananas. Farmers realized that this type of mulch was susceptible to termites that would also threaten other crop enterprises such as maize. When they informed the field staff about this challenge, the message was integrated in the training curriculum for the rest of the program's area of operation. (Grace Babirye (VEDCO Team leader), personal communication, August 13 2008).

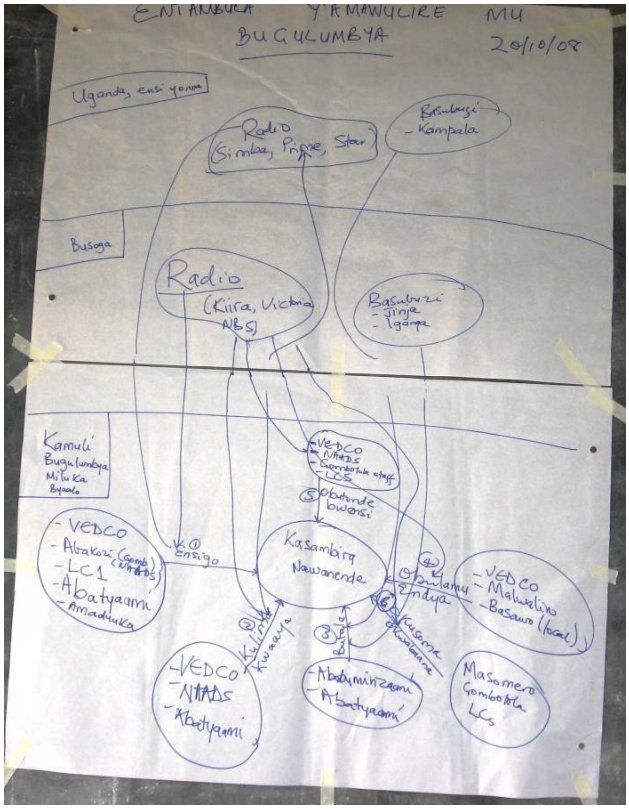

Figure 4.2 An illustration of information flow mapping (diagram for Bugulumbya sub-county, Kamuli district)

Farmers in Bugulumbya sub-county had also been encouraged to test cultural means of controlling nematodes on bananas on their own and sharing results with program staff. Successful practices such as use of 'plant tea,' a mixture of various herbs that can repel the pests, was shared with other participants in the program.

Another important feature was the approach of introducing new technologies in the communities. NGOs operating in the communities introduced the technologies by providing

the farmers with a few of the seeds to test and appreciate their virtues. This was in contrast to local business people who would try to introduce new technologies without providing opportunities for farmers to test them first. In one of the communities, it was indicated that,

> "Before VEDCO started operating in this area, there were supply shops but adoption levels were low because of ignorance about the virtues … but also most of the seeds were sub-standard. It was hard to ascertain the goodness of a new seed when it was possible to find mixed [good and bad] results in the same village. When VEDCO came, the seeds we got were consistently good and the NGO also first gave us some small amounts… If one wanted to grow on a bigger scale, they now knew what they wanted from the input supply shops…" (community member, Bugulumbya sub-county, December 10, 2008).

The foregoing statements imply that if farmers are given opportunities for testing new information that is potentially relevant to their situations such as testing new technologies before adoption, as well as providing feedback that would be integrated in the programs, it would boost their contribution to development interventions. This is different from earlier communication models (Ramirez, 1997) that considered farmers as receivers of technologies, skills and knowledge from research and extension organizations. The contribution of community members would consequently improve the quality of local development interventions.

Information on credit was the hardest to obtain, with most community members relying on local networks of friends and relatives for help when they have a problem. The only exception was Balawoli sub-county (both parishes) where some community members would access credit from commercial banks in Kamuli. It was not established why Balawoli sub-county was an exception in this regard. Information on markets was mainly accessed from local business people, radio and fellow community members, but it was noted in all the communities that the existing marketing mechanisms were exploitative with the middlemen

earning most of the final market price. Information on education, especially at primary level, was accessed from fellow community members, local council members, some NGOs and schools. Health information was accessed from some NGOs, health centers, local leaders and fellow community members. Information on natural resource management was a domain of NGOs, with only two exclusively focusing on natural resource management matters such as using energy saving stoves, agroforestry and soil conservation. Fortunately, they were operational in most of the parishes, although their coverage at household level was still low due to their large area of operation. Although information was accessed from a range of sources and on a variety of development aspects, its reliability and applicability was varied, depending on the source.

Information reliability and applicability

The reliability of information from the various sources was varied. Information of all forms from NGOs was rated highly by all communities on the reliability scale because of its timeliness, good quality and regular follow-up by NGO staff as compared to government departments. It was noted that,

> "Production information from NAADS is not reliable and not easily accessible – they develop programs with communities, which are not implemented… Most of their trainers do not know what they are doing…– they give contradicting information. Their activities are not monitored… The farmers' forum is supposed to participate in the monitoring but it is poorly facilitated" (community member, Namasagali sub-county, December 17, 2008).

> "Oh… it is all praises for [the NGO] Kulika. They regularly visit us in our homes for guidance, are friendly when interacting with us … they listen when one has a problem." (community member, Kisozi sub-county, November 13, 2008).

> "We are our own extension trainers because the RDEs are part of us. The government extension staff say that 'if you want me, come to the sub-county

> office and seek my services…'" (community member, Butansi sub-county, January 8, 2009).
>
> "Government has constructed health facilities but there are no health workers, and there is no medication. The staff are irregular… Even if I am told that there are good services at the health center, I cannot trust that information because I have on many occasions failed to find staff there…" (Community member, Balawoli sub-county, November 6, 2008).

These statements point to a problem of poor monitoring and evaluation of government-led programs compared to NGOs in some African countries, although not all NGO services are well monitored and evaluated (Gugerty, 2008). It was actually hinted at by community members in eight parishes that the problem of unreliability of information from government staff is a result of poor supervision of staff, follow-up of program implementation, and lack of accountability to community members. However, some information from NGOs, especially regarding timely delivery of seeds to farmers, was noted as being irregular, in six parishes, three of which are areas of operation for VEDCO. This was acknowledged as usually beyond the control of field staff since they have to liaise with financial controllers at their respective headquarters.

Information from private business people was also rated low on the reliability scale in all communities. Input sellers tend to supply fake seeds, whereas those who buy farmers' produce usually offer low prices such that they gain bigger profit margins.

> "For input supply shops, the information is not reliable; they sell poor quality seeds … some of it is rotten. Unfortunately we cannot report them anywhere" (Community member, Namasagali sub-county, December 17, 2008)."
>
> "Local businessmen are exploitative – they offer low prices for our produce and there are no alternative regular open markets where we can sell our products." (Community member, Namwendwa sub-county, December 18, 2008).

> "Markets are not good. Local business people – usually young men who move with faulty scales - give us low prices… we have no viable alternative" (Community member, Butansi sub-county, January 8, 2009).

Information from radio, especially regarding production, was rated as being reliable in all communities; but in case clarification is needed, it becomes expensive to follow-up. Information on markets and inputs may be inappropriate for the situation in a community, especially regarding the prices. For instance, a price for a given item may be quoted that may be different from that in the community due to spatial differences. It was thus noted in one of the communities that,

> "Radio [both local and national], as a source of market information is not reliable because sometimes what is provided does not tally with what local buyers want to offer…" (Community member, Namwendwa sub-county, December 19, 2008).

Reliability of the information goes hand-in-hand with its applicability. Most of the information that was perceived as unreliable was also reported to be hard to apply because of the mistrust existing between the source and all community members. The most trusted sources of information were NGOs and fellow community members, with government programs and private businessmen the least trusted, and their information consequently least applicable. For instance, in the case of NAADS staff, who were viewed as lacking in professional skills, community members were hesitant to apply the information. Relations between farmers and information actors were also viewed as a constraining factor as reflected in the statement below:

> "NAADS officials are hypocritical; when they select a farmer to be a recipient of some materials on behalf of the group or community, they usually do not deliver on the promise – yet by this time, the farmer may have already put in a lot of effort implementing the preliminary activities such as land

> preparation…" (Community member, Namasagali sub-county, December 16, 2008).

A similar situation of mistrust applied to utilization of farm inputs from private business people who tend to supply poor quality materials, until it had been confirmed that they are good from other trusted information sources such as NGOs. This is reflected in the statement below:

> "For input supply shops, the information is not easily applicable - they sell poor quality seeds. We need to first confirm with staff from VEDCO whom we know are well trained and will provide good guidance to us when we need it …" (Community member, Bugulumbya sub-county, December 9, 2008).

Similar statements were echoed in all the communities. Further, the possibility of being out of touch with the community reality, as was the case indicated for radio, also affected applicability of the information.

Linkages between the different information providers

Information linkages among the different actors in all the communities were either non-existent or very limited, yet these are necessary for coordination, lesson learning and avoidance of duplication of efforts (Garforth 2001). There seemed to be a high level of indifference among all the actors in the ARKIS regarding information sharing. For instance, NGOs, apart from requesting permission from local leaders when launching activities in new areas of operation rarely work with local extension staff at the sub-county or other NGOs to avoid duplication of efforts. This situation was similar in all the communities In one of the meetings, community members noted that,

> "When VEDCO started operating in our area, sub-county extension staff thought that somebody else is doing their work, so they relaxed..." (Community member, Butansi sub-county, January 8, 2009).

This statement, coupled with the observation that local government staff are poorly equipped (Francis & James, 2003), leading to their failure to serve most of the clients in their areas of jurisdiction compared to NGO staff, indicates a lack of coordination between the different information sources that could have produced better results.

Another manifestation of poor information linkages is the relationship between local leaders and community members regarding local development plans. Under decentralization, sub-county and district local governments are expected to assess community members' needs that would be integrated in development plans at these levels (i.e., sub-county and districts). Community members in all the sub-counties indicated that this is rarely done. When it is done, community members' priority needs rarely get considered if they would not lead to activities that can potentially help local leaders win the next elections to office or use some of the money for their personal ends. For instance, if access to new breeds of crops or livestock was chosen as a priority community need, and the local council believed that investing in a road or water source would benefit them most, their interest would be considered against the community members' priority need. However, this argument was from the perspective of community members, and information from local leaders at sub-county and district levels needs to be accessed to get a comprehensive view of this issue.

Information gaps

A range of information gaps existed in all rural Kamuli communities, and these can be considered under the general categories of accountability and regulation, consultation, and specific competencies. Community members noted with disappointment that potential

sources of information that provide poor quality services cannot be held accountable by the communities. This was especially the case with local government extension staff, government programs and local leaders. However, members had no idea what could be done in such a situation.

> "When a community member raises any issue on anything that is not doing well, local leaders and staff take it personal and they may use force to quash any dissension (one member gives an example of poor quality materials and services, respectively, delivered under the NAADS and LGDP programs (Local Government Development Program) which could not be queried because any dissenter is threatened)…. Members therefore just back off to stay 'in harmony' with the local leaders and staff, especially at sub-county level" (community member, Namasagali sub-county, December 16, 2008).

Related to lack of accountability is absence of regulations for poor services. Two examples were cited: private business people who supply poor quality seeds and civil servants (teachers and health workers) who do not report to work. It was noted that in such cases, there are no regulations or authority where one can report confidentially such that some action aimed at positive improvements is taken.

Another information gap was in relation to consultation of community members on the efficacy of technologies and skills introduced in the communities by other actors. With the exception of NGO staff, government departments and private dealers rarely consult local community members, to enable integration of community members' feedback in development programs. It was noted that the efforts of NGOs are good, but the areas of operation for NGOs are so small. In all communities, it was noted that NGO coverage is less than 50% of households in each parish, indicating that efforts to scale up good practices through mutual consultation between the different actors are necessary. Information gaps also existed in relation to specific

competencies and skills that could lead to better development outcomes. In all the communities, the main gaps were savings and credit management, conflict management and marketing skills.

Conclusion

Access to information is one of the benefits of social capital in a community, manifested by interaction between individuals or organizations through which the information is accessed. In this study it has been established that community members in Kamuli district access information on a range of livelihood issues from other community members, local leaders, private business members, radio, government and NGO departments. However, some of the information is not viewed as being reliable and consequently hard to apply as a result of mistrust in the sources. Community members' involvement in sharing information with other actors is also still low, implying the entrenchment of the ToT model that has been implemented by research, extension and development professionals since the 1960s. Other actors in the Agricultural/Rural Knowledge and Information System (ARKIS) should aspire to genuinely involve local community members in communication activities that have a feedback loop. For instance, all NGOs (some do it already), private entities and government staff should seek feedback on the technologies, skills and knowledge that are delivered to rural communities. Also farmer experimentation and seeking of indigenous knowledge that could be integrated in development programs need to be embraced by other actors in the ARKIS, especially extension staff and agricultural researchers, with policy support in the existing structure of decentralized governance.

In addition, partnerships among the actors are a vital component of a better ARKIS. When implemented they would undoubtedly reduce inefficiencies and duplication of efforts

that potentially characterize the current information sharing efforts in the rural communities. Also, the efforts of staff, such as those deployed at the sub-county who are poorly equipped would be put to better use when they work closely with NGO staff that may not be as poorly equipped. At planning level, all actors in the ARKIS can be involved in planning activities of other actors such as technical planning sessions for local governments, stakeholders' workshops for NGOs, etc. At implementation level, actors could be coordinated at district level by a select team from among the stakeholders such that a forum for sharing work plans, field experiences and information dissemination strategies is created. Local governments also need to be actively involved in the information linkage activities such that they contribute to sensitization and coordination of communities. On this aspect, one community member noted that,

> "There is no team effort in our activities. If the councilors, local leaders and some technical staff could work together to sensitize the communities about their role with respect to collective activities, better achievements would be realized" (Community member, Namasagali sub-county, December 17, 2008).

This statement clearly indicates the importance of strengthening partnerships between the actors in the ARKIS, including local leaders, such that better results are realized. By-laws would even be easier to develop and implement if government or NGO staff jointly developed information sharing programs and jointly implemented them.

Some of the specific information gaps require specific interventions. For instance, in all the communities, access to produce markets (sources and best prices) is an information challenge. Potential solutions for such a problem would include establishing parish-level marketing associations for major enterprises, to help community members access better bulk markets and construction of storage and /or processing facilities. In addition, new

information and communication technologies, such as mobile phones (since the coverage is relatively high in most sub-counties), could be harnessed to link farmers to domestic and international markets and so on. All this would depend on the existing support in terms of local policies and the nature of crop/livestock enterprise in which most community members are engaged.

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CHAPTER 5: IS THERE A RELATIONSHIP BETWEEN SOCIAL CAPITAL AND FOOD SECURITY? A CASE STUDY OF KAMULI DISTRICT, UGANDA.

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Abstract

Social capital is associated with positive livelihood outcomes, such as food security, improved incomes and use of natural resources. This paper examines the relationship between food security and social capital based on a 2008 survey of 378 households in Kamuli district. Food security was measured with a United States Department of Agriculture Household Food Security Scale (USDA HFSS) Module adapted for developing countries. Social capital was measured using both cognitive and structural indicators. A principal components analysis was then conducted to identify key factors of the concept which were used in regression analysis. Households with bridging and linking social capital characterized by membership in groups, membership in more than one group, access to information from external institutions, and observance of norms in groups were more food secure ($p \leq 0.05$) than those not exhibiting these characteristics. Households with cognitive social capital, characterized by observance of generalized norms in the village (trust and belief in helpfulness of residents), tended to be more food secure than others ($p \leq 0.05$). Human capital (education levels, $p \leq 0.05$) was positively related to household food security. Access to physical capital (access to water sources, $p \leq 0.1$), as an indicator of spatial centrality in relation to major trading centers, was negatively associated with household food security. Efforts to strengthen social capital should consider levels of norm observance so that better results with respect to harnessing it for better food security outcomes are achieved.

Introduction

One of the Millennium Development Goals proposed by the United Nations Summit in 2000 was eradication of poverty and hunger by 2015 (United Nations, 2006). The target for hunger was to reduce by half the proportion of people experiencing the problem. In Uganda, recent analyses indicate that achievement of this target is far from being realized, although there is potential if the necessary interventions and efforts are made (UNDP, 2008). Two indicators, prevalence of underweight children under five years of age and proportion of the population living below the minimum level of dietary energy consumption, were used in the analysis of hunger status. Between 1995 and 2006, the proportion of underweight children decreased from 25.5% to 20.4%, whereas the proportion of the population unable to meet the recommended food caloric intake increased from 58.7% in 1999 to 68.5% in 2006 (UBOS and MACRO, 2007; UNDP, 2008). The hunger status of the Ugandan population indicates that food security is still a challenge to the nation's development efforts.

Interventions to augment food security in the country are implemented within a multi-pronged policy strategy, the Poverty Eradication Action Plan (PEAP), whose major activities include primary health care, rural feeder roads, education, water supply and modernization of agriculture (MFPED, 2001). Modernization of agriculture is currently implemented within a holistic framework that aspires to increase farmers' incomes, improve household food security, provide gainful employment, and promote sustainable use and management of natural resources (MAAIF and MFPED, 2000). One of the approaches of the agricultural modernization strategy is involvement of multiple stakeholders in the process, notably farmers, policy makers, public and private sector staff, local governments and donors.

The involvement of various stakeholders partly derives from the realization that positive development outcomes require moving from sole consideration of conventional production factors such as labor, land, financial capital and entrepreneurship to include development and nurturing of stakeholder's institutions and capacities. For instance, one of the pillars of the Plan for Modernization of Agriculture is privatization of agricultural advisory service delivery. The process is largely publicly funded, with for-profit firms and individuals delivering the services, but local people are expected to form farmers' groups and forums and to participate in planning, implementation and evaluation of the services (MAAIF and MFPED, 2000). Local leaders, associations, non-government organizations and the private business sector are also encouraged to actively participate in the process. The focus on institutional development of the various stakeholders by recent programs such as PMA, especially local community members, implies an emphasis on social capital.

In this study, I explore the degree to which social capital at household level is associated with food security outcomes. More specifically, I establish the extent to which the different dimensions and types of social capital affect food security outcomes in Kamuli district. It is hypothesized that households with membership in food security groups are more food secure than those which are not. It is further hypothesized that social capital status at household level (irrespective of membership in a food security group) has a positive relationship with food security outcomes. Also, low human, financial and physical capitals (e.g., education levels, frequency of sickness, access to safe water, land and markets) inhibit the positive relationship between social capital and food security. The remainder of the chapter presents an overview and measurement of social capital and food security concepts, data and methods, results and discussion, and then concludes.

Conceptualization of social capital

Conceptualization of social capital is still evolving with no absolute agreement on its definition or measurement (Akçomak, 2009). However, there is a tendency for the concept to be commonly defined in terms of groups, networks, norms, and trust that people have available for productive purposes. It is thus acknowledged that social capital is multidimensional, comprised of both structural and cognitive forms (Uphoff, 2000). The cognitive form, which includes norms, values, attitudes and beliefs, predisposes people to cooperate, whereas the structural form facilitates collective action, and includes roles, rules, procedures, precedents and social networks (Uphoff and Wijayaratna, 2000). Adi (2004) demonstrates how these forms are related by indicating that the existence of networks (structural social capital) presupposes the existence of trust, which in turn implies the reality of norms or values that provide the basis on which social actors rationalize their behaviors. Thus, both structural and cognitive forms of social capital are vital for understanding the concept and its potential for mutually beneficial collective action.

Social capital also manifests itself at various levels – micro (individual), meso (community), and macro (national or regional). On the basis of this multi-level and multidimensional manifestation of social capital, Flora et al. (2004) suggested bonding, bridging and linking social capital as the core types. Bonding social capital describes the relationships between people of similar ethnicity, social status and location, and refers to social cohesion within the group and community, based on trust and shared moral values and reinforced by working together. Bridging social capital refers to relationships and networks which cross social groupings, involving coordination or collaboration with other groups, external associations, mechanisms of social support or information sharing across

communities and groups (Narayan and Pritchett, 1999). Linking social capital describes the ability of groups or individuals to engage with external agencies and those in positions of influence, either to draw on useful resources or to influence policies (Flora et al., 2004). Thus, bonding social capital provides important benefits to its members through close support for 'getting by' whereas bridging social capital provides opportunities for 'getting on.' Linking social capital further facilitates the connections necessary for accessing resources and institutions that would otherwise be hard to access in the community (Woolcock and Narayan, 2000).

These three types of social capital can co-exist in a community and complement each other, but their levels may be different, leading to different outcomes as a result (Njuki, et al., 2008). Flora et al. (2004) indicate that too much bonding and too little bridging social capital can restrict personal and collective initiative leading to individualism and apathy, whereas too little bridging and too little bonding social capital can leave communities vulnerable, characterized by conflict with the outside world and factionalism. Too much bridging and too little bonding social capital results in clientelism. Further, insufficient linking social capital can leave specific social groups isolated from the centers of power and influence necessary for realization of their goals. Hence, an optimum mix of bonding, bridging and linking social capital is desirable at the community level. Here, we examine the mix at the household level.

Measurement of social capital is a challenging and evolving activity, with most approaches proceeding by developing indicators of the key dimensions for which data are in turn collected (e.g., Narayan and Pritchett, 1999; Grootaert and Narayan, 2004; Coffe and Geys, 2005; Dudwick et al., 2006). For instance, structural social capital may focus on

existing networks (e.g., different groups, associations, local committees, informal networks) and characteristics of their membership (whether members have common characteristics; whether these networks work with others of similar or different characteristics; whether the majority seek information from outside the network; associational membership density; etc). Questions on cognitive social capital may address issues of who is allowed to join the groups or networks, who is trusted most at the different levels, whether sanctions are applied to members who violate norms and whether these are effective, etc. Responses to the different questions are developed into scores that are further analyzed into a social capital index for the unit being studied.

Many of the measurement approaches used in various empirical studies of social capital are contested as confusing due to their failure to separate sources, forms and consequences of social capital (Onyx and Bullen, 2001). For instance, trust is sometimes equated as a source of social capital (Fukuyama, 1997), a form of social capital (Putnam, 1993), or a collective asset resulting from social capital (Lin, 1999). Recent empirical studies contribute to addressing this and the multi-dimensional challenges by using factor analysis and related statistical strategies to group social capital variables into categories that relate to types or dimensions of the concept (e.g., Narayan and Cassidy, 2001; Njuki et al., 2008).

Food security and its measurement

Food security conceptualization has evolved considerably, with earlier accounts suggesting food availability at national or regional level as a key strategy for achieving food security. Food security was defined as availability, at all times, of adequate world supplies of basic foodstuffs (United Nations, 1975). Later, it was realized that food availability at national or regional level was not an adequate condition for achieving food security

throughout a population. Sen's seminal work on poverty and famines (1981) cogently argued that people may experience food insecurity not because food is unavailable but because they lack resources that can be used to access it. Consequently, definitions of food security shifted from a focus on food availability to access (World Bank, 1986). In the 1990s and beyond, two more dimensions, utilization and stability were added to conceptualization of food security (Gross, 2002; Todd, 2004). The current conceptualization of food security accepted by most scholars acknowledges availability, accessibility, utilization and stability as the key dimensions necessary for achieving food security. In other words, food security is achieved if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible for and satisfactorily utilized by all individuals at all times to live a healthy and happy life (Gross, 2002).

Measurement of food security should be informed by the universally accepted conceptual definition, although the indicators may vary. Approaches to measurement of food security have been evolving along with the concept. A number of methods, notably agricultural production surveys, intra-household food frequency interviews, and anthropometric surveys in children under age five have been developed (Maxwell et al., 1999). The main challenge for most of these measures is that they do not take into consideration all the dimensions of the food security concept. There are other measurement approaches that have attempted to overcome this problem such as the food economy approach, rapid appraisals (food security rating and calendars), dietary diversity and coping strategies (Wolfe and Frongillo, 2001).

The food economy approach was developed by Save the Children Fund of the United Kingdom (Bodreau, 1998), and it involves dividing a geographic area into food economy

zones, each representing a common livelihood system. Communities are stratified into three to six wealth groups in terms of locally defined characteristics. Households are then allocated to these wealth groups, which can then be used to generate estimates of food insecure populations for targeting purposes. The methods used are qualitative and participatory, such as proportional piling, wealth ranking and focus group discussions. Its major limitations are scaling up (since different areas may have different criteria for wealth ranking), being resource- and time-intensive, and generating relative proportions rather than absolute numbers. It has also not yet been validated against conventional measures of poverty and food insecurity.

Food security rating is another method, and it evolved out of wealth ranking. So, it shares a basic similarity with the food economy approach. It was tested for reliability by IFPRI in Honduras and Malawi (Bergeron et al., 1998). The approach involves community group representatives assigning members to one of three categories --"food secure", "intermittently insecure "and "food insecure" -- and the results of different groups are compared. It shares similar limitations of scaling up, generation of proportions rather than absolute numbers, and resource constraints as with the food economy approach.

Dietary diversity is another measure, pioneered by IFPRI (Hoddinott and Yohannes, 2002). It involves generating a list of locally consumed foods, asking households if they have consumed each item in the past week. Numbers of different items consumed are simply added and the higher the number, the more diverse the diet and the more food secure the household. It is robust when validated against conventional measurement indicators but would benefit from weighting (Kennedy, 2002)

Another measure is the coping strategies index proposed by Maxwell (Maxwell, 1995). It was tested in Ghana and it shares methodological and conceptual overlaps with the Household Food Security Scale Index (HFSSI) that will be described shortly. It involved generation of coping strategies, and nine were identified by focus groups in urban Accra. Individual households were scored by frequency of adoption of these strategies. Later, composite indices were constructed to rank households by degree of food insecurity. It is quick, cheap and simple to administer but complex in terms of conceptualization and the information it generates about household behavior under stress. All of the approaches reviewed have contributed to a better understanding of the food-security situation in their respective locations, but none has focused on understanding or developing measures based on the experience of food insecurity itself. The in-depth interviews used in several of the examples, especially combined with Rapid Rural Appraisal (RRA) techniques, probably provided the information for such an understanding, but the authors focused on issues other than measurement.

The first documented attempts to systematically measure food security at the household level began in the 1960s in the United States of America (Kennedy, 2002). The United States Department of Agriculture (USDA) developed a household food security scale (HFSS) based on an 18-item questionnaire that measures household food security status in the preceding 12 months (Hamilton et al., 1997). The questions measured four underlying conditions or behaviors in the households: (1) anxiety about the food budget or food supply; (2) perceptions that food is inadequate in quantity and/or quality; (3) reduced food intake in adults; and (4) reduced food intake in children. The series of questions were then converted into a food security scale using a Rasch Measurement Model. The scale is a continuous

measure ranging from a zero to ten. These scales have cut off points, which signify the food security status of a given household (Smith, 2001).

The HFSS has undergone minor modifications over the years and has been reliably used to measure food security in the USA annually. Realizing that the scale can be potentially used in developing country contexts, USDA jointly worked with developing country governments, scientists and non-governmental organizations to adapt it to the different cultural contexts in these countries (Coates et al., 2006). Results of tests conducted in Burkina Faso, Bangladesh, Bolivia, Ghana, and the Philippines indicated that the HFSS approach to developing an experiential household food insecurity scale (HFIS) can be applied successfully to different developing and developed country contexts. However, similarities can only be adduced on four underlying domains of food insecurity (access) represented by nine questions that appear to be universal across different countries and cultures (Coates et al., 2007). These include anxiety and uncertainty about the household food supply, insufficient food quality, insufficient food intake, and its physical consequences.

Data and methods

Population and sample selection

A multi-stage sampling strategy was used to select the sample from six sub-counties in Kamuli district, southeastern Uganda (Figure 5.1). Three sub-counties participating in a sustainable rural livelihoods program jointly implemented by Iowa State University (USA), Makerere University (Uganda) and Volunteer Efforts for Development Concerns - VEDCO (Uganda) were selected: Butansi, Namasagali and Bugulumbya, as well as three sub-counties not participating in the program, but with predominantly agricultural (crop production)

communities (as opposed to pastoral/cattle grazing or fishing activities): Balawoli, Namwendwa and Kisozi.

Within each of the six sub-counties, two parishes were selected in consultation with local leaders and VEDCO field staff. These included Butansi and Naluwoli in Butansi; Namasagali and Bwiiza in Namasagali; Kasambira and Nawanende in Bugulumbya; Kiige and Kasolwe in Balawoli; Namwendwa and Kidiki in Namwendwa and Kakunhu and Kiyunga in Kisozi. Non-contiguity was ensured between parishes participating in the program and non-participants to facilitate comparisons. It was assumed that communities in non-contiguous parishes would have minimum contact with communities participating in the livelihood improvement program by VEDCO, thereby enabling the comparisons. In cases where the participating sub-county bordered with a non-participating one, non-contiguity was maintained by selecting parishes not bordering with the participating sub-counties.

We used a simple random sampling strategy to select 191 households from the 800 participating in the rural livelihoods program. An additional 90 households were selected within the communities where the livelihoods program is being implemented that do not participate in any food security group. Further, 97 households, at least 32 from each sub-county, were randomly selected from the non-contiguous sub-counties. The final sample size was 378.

The VEDCO field office in Kamuli provided up-to-date lists of group members participating in the program, from which we used simple random sampling to select a representative proportion for each group. For non-group members, lists of all village residents were obtained from village local leaders (Local Council I). In consultation with both the community and group leaders, names of household members who belonged to any

food security group were removed. The remaining names then provided a sampling frame for non-group members, from which respondents were randomly selected. For non-contiguous sub-counties, lists of all households were obtained from village local leaders (Local Council I), and random selection was conducted, irrespective of whether a household belonged to a food security group.

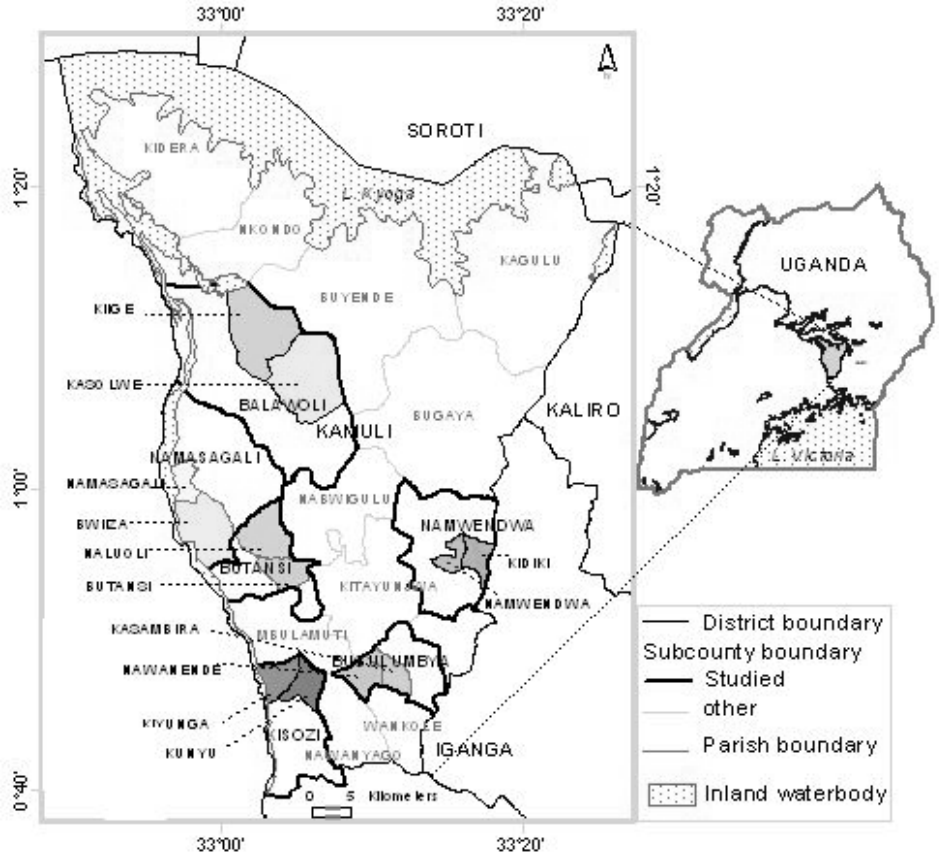

Figure 5.1 Map of Kamuli district showing the study area

Data Collection

A team of four researchers used a household-level questionnaire to collect the data between August and December 2008. The research team first participated in on-line human subjects training sessions before starting data collection. They then participated in

preliminary activities aimed at clarifying the study aims. The activities included joint translation of the data collection instrument (survey questionnaire and semi-structured interviews) into local dialects (Lusoga and Luganda) and clarification of confusing questions. The instruments were then pre-tested over a week in Nabwigulu sub-county in Kamuli district with 30 respondents. Issues addressed included ambiguous questions and words that were confusing to the respondents. In addition, some questions that would elicit more useful information for the study were added.

Information was collected on socio-demographic, economic and spatial characteristics, including age, education level, marital status and land ownership. Additional information was collected on group participation issues such as level of participation, heterogeneity, nature of contributions made, level of sanctions, leadership selection and group orientation. Additional information was collected on perceived levels of and reasons for group success, trust levels in the group and beyond, group interaction with other groups in and outside the village and status of exclusion of others from joining groups. Information was also collected on levels of collective action, information access, trust in external institutions, mutual assistance and everyday sociability. Food security questions focused on months of plenty and scarcity, food sources and consumption frequencies during the different seasons, and questions on household food security based on an adapted HFSS (Table 5.1). Choice of the study variables was guided by earlier research on social capital and development outcomes (Narayan and Pritchett, 1999; Grootaert and Narayan, 2004; Martin et al., 2004; Melgar-Quinonez et al. 2006; Coates et al.2007).

Table 5.1 Adapted household food security scale (HFSS) module*.

1. Were you at any time in the past 12 months worried that food would run out before more could be obtained?
   0. No (Go to Question 2)**
   1. Yes

   1a. How often did this occur? *0. Rarely 1. Sometimes 2. Often****
2. In the past 12 months, was any adult household member not able to eat the preferred kinds of foods due to lack of resources?
3. In the past 12 months, did any adult household member have to eat a limited variety of foods due to lack of resources?
4. In the past 12 months, did adults in the household reduce the size of meals because there wasn't enough food?
5. Did any adult skip some of the daily meals because there wasn't enough food for 3 or more months?
6. In the past 12 month months, did adults in the household ever eat less than they felt they should because there wasn't enough food?
7. Did adults in the household ever fail to eat for a whole day because there wasn't enough food?
8. In the past 12 months, was any adult ever hungry and did not eat because there wasn't enough food?
9. In the past 12 months, did any adult in this household lose weight because there wasn't enough food?

* The complete module has questions items about children but these were left out because it was anticipated that differences in children's age and gender, number in the household and differences in family structure (e.g., monogamous, polygamous) could generate inconsistent responses to the items.

** All questions had this response format.

*** Follow-up question applied to all items except #9 (that is, 1a – 8a).

Sources: (Melgar-Quinonez et al., 2006; Coates et al., 2007).

Variables

The dependent variable for the study is household-level food security status. Households were categorized based on their responses to the HFSS question items. Affirmative responses to the initial questions were coded as 1 and negative responses as 0. For the follow-up responses, "often" or "sometimes" responses were coded as 1 and "rarely" responses as 0. For each of the nine items, negative responses (0) to the initial questions, as well as responses of ''rarely'' to the follow-up question, were coded as 0, even if the response to the initial question was ''yes." Item responses were then summed to calculate the raw food security scale score ranging between 0 and 9 points, with 0 corresponding to the most food-secure households and 9 to the most food insecure. A three-tier food security categorization was generated based on guidelines by Bickel, Nord, Price, Hamilton and Cook (2000): food-

secure households (0-2 points), food insecure (3-5 points), and extremely food insecure (6-9 points).

The independent variables included social, human, financial and physical capital. Since social capital is multidimensional, manifesting itself through diverse levels of trust, norms, solidarity, and networks, we used factor analysis to establish which of its underlying indicators exhibit social capital of a given type -- bonding, bridging or linking (Njuki et al., 2008), and how much of each of the types they account for. Specifically, principal components analysis (PCA) was used, based on variance maximizing (varimax) rotation, to extract a few components or factors that effectively capture the common variability in the correlations between indicators or factors for each type of social capital. Based on Kaiser's criterion (1960), only factors with Eigen values greater than one were retained in the analysis. Factor score regression was then generated for each household, representing the social capital types (bonding, bridging and linking), which were then used to develop a multinomial regression model for food security and social capital. For other independent variables, their respective indicators or measures were considered: human capital (educational level of household head, and sex of household head), financial capital (total land size owned) and physical capital (distance to major trading center and water source).

Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software, Version 16. Descriptive statistics (frequencies, means, modes, etc.) were used to summarize food consumption trends during seasons of scarcity and plenty, as well as food security. Chi-square tests established whether differences in food security status existed among the three categories of households: those participating in the food security program,

and the contiguous and non-contiguous households. Logistic regression was conducted to establish the relationship between the dependent and independent variables, since the dependent variable has three categorical levels.

Results and discussion

Principal components analysis results

Principal components analysis with varimax rotation revealed three factors underlying social capital. After rotation, the first factor accounted for 40% of the variance, the second factor accounted for 21%, and the third factor accounted for 13%. Table 5.2 displays the factor loadings and communalities for the rotated factors, with loadings less than .50 omitted to improve clarity.

Table 5.2 Factor loadings for the rotated factors underlying social capital

Social capital variables	Factor loadings			Communality
	Bridging and linking	*Bonding (cognitive)*	*Bonding (structural)*	
Membership in a group	.916			.842
Membership in more than one group	.754			.614
Heterogeneity index of the group(s)	.830			.694
Access to information from NGOs in the group	.720			.519
Trust in group members	.930			.871
Willingness of group members to help	.917			.849
Trust in respondent's tribe members		.834		.696
Trust in respondent's village members		.915		.845
Willingness of people who live in the village to help		.883		.782
Number of times other people in the village visited respondent's home			.868	.768
Number of times respondent visited others			.869	.767

Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy = 0.815

The first factor seems to indicate bridging and linking social capital and loads most strongly on variables related to participation in groups. All loadings are high, indicating the importance of participation in groups as a strong indicator of social capital at household

level. This is in agreement with earlier studies by Putnam (1993), Narayan and Pritchett (1999), and Grootaert and Narayan (2004), whose measurement of social capital focused on participation in groups and associations as one of the measures of social capital. Narayan and Pritchett (1999) and Grootaert and Narayan (2004) exclusively focused on participation in groups and associations, and then developed indices which were aggregated into an overall social capital index: the density of associations and groups, their internal heterogeneity, the frequency of meeting attendance, members' effective participation in decision making, members' contributions and community orientation of the associations or groups. Njuki et al. (2008) also used factor analysis and found bridging and linking social capital characterized by membership in groups, presence of an extension worker in the community, participation in training activities and contributions to groups as factors underlying social capital.

The second and third factor loadings seem to indicate bonding social capital. The second factor reflects the importance of cognitive social capital in terms of generalized norms (trust and helpfulness) in the village whereas the third factor reflects informal interpersonal networks. The high loadings of trust at village level corroborates Saegert et al. (2001), who note that bonding social capital provides the foundation for trusting, and reciprocal relationships in turn catalyzing solidarity, cooperation and coordination in the community. Informal networks, such as those exhibited by the third factor reflect the potential of community members to collectively share information, care for the welfare of others and presumably work together to improve food security and other conditions.

Household food security status

Food security status varied among the three different categories of households (Table 5.3). Overall, most households were food secure (53.7%) whereas the least number of households were extremely food insecure (19%).

Table 5.3 Food security status of households disaggregated by participation status in the CSRL/MU/VEDCO livelihood improvement program in Kamuli district (n = 378)

Status of participation in the program	**Food security status (%)***			**P values for Chi-square tests**				
	FS	*FI*	*EFI*	*Overall*	*1&2*	*2 &3*	*1&3*	*(1+2) &3*
1. VEDCO	63.1	24.1	12.8					
2. Non-VEDCO (VEDCO sub-counties)	38.4	38.4	23.3	.001	.001	.683	.002	.024
3. Non-VEDCO (non-VEDCO sub-counties)	44.3	28.9	26.8					
Overall FS status for the entire sample	53.7	27.2	19.1					

*FS = Food Secure; FI = Food Insecure; EFI = Extremely Food Insecure

When each participation category is considered separately, households participating in the VEDCO program exhibited a higher proportion of food secure households (63% FS, 24% FI, 13% EFI), compared to other categories: Non-VEDCO households in VEDCO sub-counties (38% FS; 38% FI, 23% EFI) and non-VEDCO households in non-VEDCO sub-counties (44% FS, 29% FI and 27% EFI). However, the food security status of households not participating in the food security program was higher than the 2005 baseline status of 9% FS, 48% FI and 43% EFI (Sseguya and Masinde, 2005), because households in the VEDCO sub-counties were able to access planting materials and advice from households participating in the program (see chapter 3) and non-contiguous households had programs recently launched in their respective areas that focused on food production and related food security

aspects (personal communication, Local Council III chairperson, Namasagali sub-county, 6th August 2008).

Significant differences in food security status existed between all categories when disaggregated by participation in the program ($p \leq 0.05$). The only exception was between households not participating in the program, irrespective of whether they were located in the participating parishes or the non-contiguous ones ($p = 0.683$) This result indicates the probable importance of program activities in enhancing food security status at household level. Households involved in program activities indicated that they had accessed a variety of services from the program: production knowledge and skills (91%), agricultural technologies (83%), nutrition knowledge and skills (76%), cheaper food (22%), and additional incomes (14%).

Food consumption trends and sources

A variety of foods were consumed at the household level, with variations occurring depending on food availability. The most common months of food availability for at least 40% of the households were August (75%), July (67%), September (48%) and June (45%). The most frequent months of food scarcity for at least 40% of the households were March (60%) and April (59%), with January, February and May experiencing substantial proportions (21%, 39%, and 37%, respectively). The food items consumed included cereals, legumes, nuts, tubers, vegetables, fruits, animal products and other products (tea, coffee, sugar, salt and cooking oil) (Table 5.4). The means of access varied, with 'own' production as the major food source during months of plenty and purchase the main source during months of scarcity.

Table 5.4 Food items consumed during the months of plenty and scarcity in Kamuli district (n = 378)

Food item/type	Food value*	% consuming during months of plenty	% consuming during months of scarcity
Onion	V	97.4	74.1
Iodized Salt	-	97.1	81.0
Sweet Potato	E	96.8	76.2
Maize (*any* form)	E	96.3	78.0
Beans	P	95.8	74.3
Jackfruit	F	95.8	42.3
Sugar	-	95.5	70.9
Cassava	E	94.2	75.9
Tomato	V	93.9	67.7
Tea	-	93.7	74.9
Groundnuts	P	91.0	76.2
Milk	P	90.5	62.4
Mango	F	90.5	24.3
Matooke (plantains)	E	88.4	52.4
Cabbage	V	86.4	56.1
Cooking Oil	-	82.3	54.5
Pawpaw	F	81.5	38.6
Rice	E	80.7	41.0
Orange	F	80.7	29.4
Fish	P	75.9	46.6
Beef	P	74.1	38.4
Bread	E	72.8	30.2
Chapati	E	68.8	31.2
Eggs	P	67.2	31.2
Leafy Amaranth	V	66.9	43.7
Soybean	P	60.8	37.8
Passion fruit	F	60.3	31.2
Millet	E	60.1	43.7
Simsim	V	57.4	31.7
Goat	P	55.8	22.5
Pineapple	F	52.4	16.1
Chicken	P	51.1	17.2
Amaranth Grain	P	49.2	34.9
Yam	E	42.1	18.8
Pork	P	32.3	17.5
Sorghum	E	31.7	18.0

*Main food value: P = high in protein content; F = fruit; V = vegetable; E = energy food; - = other

Twenty-two main food types were consumed by at least 70% of the households during months of plenty: beans, groundnuts, milk, fish and beef (proteins); sweet-potatoes, maize, cassava, matooke, rice and bread (carbohydrates); onions, tomatoes and cabbages (vegetables); and jackfruit, mangoes, pawpaws and oranges (fruits); and iodized salt, sugar,

tea and cooking oil. During months of food scarcity, the food items consumed by at least 70% of the households fell to nine: beans and groundnuts (proteins); sweet potatoes, maize and cassava (carbohydrates); onions (vegetables); and salt, sugar and tea. Chi-square tests indicated a significant difference ($p \leq 0.05$) in the proportion of households consuming the food items during the two periods.

Relationship between food security and social capital

Logistic regression does not have a provision for testing multicollinearity (possibility of high correlations among the independent variables), which can lead to misleading or inaccurate results. However, Leech et al. (2005) suggest running a linear regression between the categorical dependent variable and the independent variables to test for multicollinearity. All independent variables with a tolerance value of less than the difference between 1 and the adjusted R (i.e., $1\text{-}R^2$) should not be included in the final model. Six independent variables had tolerance values greater than $1 - R^2$ (1 - 0.119 = 0.881) and were included in the model (Appendix 7).

A multinomial logistic regression was run to establish the relationship between food security and social capital. Multinomial logistic regression provides for prediction of factors between the reference category and other categories of the dependent variable. In this analysis, food security (1) is the reference category, and was compared with the other scales: food insecurity (2) and extreme food insecurity (3). The resulting model (Table 5.5) significantly fit the data (χ^2=38.08, df=16, p=0.001). Since more than 50% of the households were food secure, with less than 20% extremely food insecure, a binary logistic model combining both food insecurity categories was also generated, to establish whether there are

any vital different relationships (Table 5.6). The model also significantly fit the data (χ^2 = 27.95, df = 8, p = 0.000).

Table 5.5. Multinomial logistic regression of food security with social, human, physical and financial capital in Kamuli district

Food security scale for household [a]	Independent variables	β	SE	Odds Ratio	p
food insecure	Intercept	0.624	0.692		0.367
	Linking and bridging social capital	-0.348	0.162	0.706	0.032**
	Bonding social capital (cognitive)	-0.074	0.167	0.929	0.660
	Bonding social capital (structural)	-0.124	0.168	0.884	0.461
	Total land owned (acres)	-0.025	0.028	0.975	0.370
	Distance to major trading center (km)	-0.033	0.024	0.968	0.174
	Distance to major water source (km)	-0.353	0.253	0.703	0.164
	Educational level of household head	-0.177	0.152	0.838	0.243
	Male headed household (hhhsex=0]	0.252	0.518	1.286	0.627
	[hhhsex=1]	0[b]	.	.	.
extremely food insecure	Intercept	0.951	0.737		0.196
	Linking and bridging social capital	-0.439	0.187	0.645	0.019**
	Bonding social capital (cognitive)	-0.477	0.182	0.621	0.009*
	Bonding social capital (structural)	0.099	0.171	1.104	0.561
	Total land owned (acres)	-0.017	0.028	0.983	0.532
	Distance to major trading center (km)	-0.028	0.028	0.972	0.311
	Distance to major water source (km)	-0.444	0.292	0.642	0.129
	Educational level of household head	-0.523	0.176	0.593	0.003*
	Male headed household (hhhsex=0]	0.066	0.557	1.069	0.905
	[hhhsex=1]	0[b]	.	.	.

a. The reference category is: 1 food secure.
b. This parameter is set to zero because it is redundant.
*Significant at α = 0.01.
** Significant at α = 0.05.

Table 5.6 Binary logistic regression of food security with social, human, physical and financial capital in Kamuli district

Independent variables [a]	β	SE	Odds Ratio	p
Linking and bridging social capital	0.382	0.144	1.465	0.008*
Bonding social capital (cognitive)	0.242	0.144	1.274	0.091***
Bonding social capital (structural)	0.030	0.137	1.031	0.824
Female headed household (1)	-0.154	0.440	0.857	0.726
Total land owned (acres)	0.022	0.022	1.022	0.326
Educational level of household head	0.314	0.134	1.369	0.019**
Distance to major trading center (km)	0.031	0.021	1.031	0.138
Distance to major water source (km)	0.380	0.218	1.462	0.081***
Constant	-1.473	0.591	0.229	0.013

[a] The dependent variable is food security status (0 = food insecure; 1 = food secure)
*Significant at α = 0.01
** Significant at α = 0.05
*** Significant at α = 0.1

Both models show that bridging and linking social capital significantly distinguish between food secure and food insecure households; cognitive bonding social capital also significantly distinguishes food secure from extremely food insecure households ($\alpha \leq 0.01$). Respondents with linking and bridging social capital were less likely to be food insecure or extremely food insecure (dependent variable (DV) categories 2 and 3) rather than food secure (DV category 1). The odds of not being among food insecure or extremely food insecure households for a respondent with linking and bridging social capital decreased by 29.4% and 35.5%, respectively. Further, the odds of not being extremely food insecure households for a respondent with cognitive bonding social capital decreased by 37.9%.

The importance of both bridging and linking social capitals in ensuring improved food security, as opposed to bonding social capital, is consistent agreement with observations reported by Fox (1996) and Cleaver (2005) with respect to increased capacity of household members and communities to leverage resources, information, and ideas from formal institutions and associations. However, bridging social capital needs to be supported by bonding social capital, especially of the cognitive type as indicated by Saegert et al. (2001), since norms of trust and helpfulness in a community potentially facilitate cooperation and coordination that renders benefits from bridging and linking social capital more useful to members. Narayan and Pritchett (1999) and Grootaert and Narayan (2004) also found positive associations between household welfare and social capital (mainly bridging and linking levels) in their studies in Tanzania and Bolivia, respectively.

Relationship between food security and other capitals

Other community capitals also affected food security status of households apart from social capital. Households whose heads have high education levels were less likely to be extremely food insecure than food secure, with the odds decreasing by 40.7% for each unit increase in education level ($\alpha \leq 0.01$). The probable explanation would be linked to the likelihood of households with better educated heads to access other resources necessary for food security such as income for buying food or land for food production, better than less educated members. However, none of these factors is highly correlated with education level ($r_{educ\&totland} = -0.008$, $p = 0.882$ and $r_{educ\&incomesource} = 0.088$, $p = 0.87$), although income source is weakly correlated with educational level at p=0.1. A better alternative explanation is that households with better educated heads tend to participate more in groups than less educated members and through groups, more resources that contribute to better food security are accessed.

Binary logistic regression indicates that households located nearer to water sources are less likely to be food secure than food insecure, with the odds increasing by 46.2% for each unit increase in proximity (in kilometers) to the water source ($p \leq 0.1$). Further, although not significant in the model, thus making the determination of the direction of the relationship difficult, distance from major trading center individually significantly predicts food secure vs. food insecure households ($p = 0.083$). The probable explanations are that proximity to a water source is an indicator of physical spatial centrality implying that households near water sources are likely to be in more densely populated areas or towns where access to land for production is hard. As a result, access to food for households closer to water sources is affected.

Conclusion

The key objective in this paper was to test differences between households with membership in food security groups and those without, and whether social capital status at household level (irrespective of membership in a food security group) has a positive relationship with food security outcomes. I also examined whether low human, physical and financial asset endowments (e.g., education levels, land owned, and access to safe water) inhibit the positive relationship between social capital and food security. This suggests that those promoting food security interventions need to work with community groups but also to establish generalized community norms in the communities in order to ensure effective social capital building efforts, and sustainable livelihood outcomes such as food security.

Other capitals (human, physical) also affect the relationship between food security and social capital. Low education levels are associated with low participation in groups (see Chapter 2), in turn leading to a tendency for households with low educational levels to be food insecure. Luckily, the Ugandan government has embraced a Universal Primary Education Policy which can potentially address the shortcoming. Households remote from water sources tend to be more food secure, potentially as a result of better access to other resources such as land necessary for food production. It is therefore necessary for programs to promote intensive agriculture for those with low access to land resources especially from major trading centers. This will potentially contribute to better food security achievements in the hitherto affected households.

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CHAPTER 6: GENERAL CONCLUSION AND IMPLICATIONS

Summary and conclusion

Although the Ugandan government has embarked on the task of improving food security through a number of efforts, it remains a considerable challenge. The government has implemented the PMA, decentralization (Bahiigwa et al., 2005) and has also made a commitment to monitor the country's progress towards achievement of Millennium Development Goals (MDGs), the first of which relates to eradicating extreme hunger and poverty (UNDP, 2008). Some successes have been achieved, but food insecurity gaps still exist, with implications for more concerted investments in a multiplicity of community assets to achieve better results (Muwonge, 2007).

The goal of this study was to establish whether social capital is a key asset for achievement of food security in Kamuli district, southeast Uganda. More specifically, it focused on the determinants of participation and participation levels in food security groups since one of the consequences of social capital debate and practice in community development has been promotion of community associations in developing countries (Titeca & Vervisch, 2008). In addition, since social capital facilitates information sharing among community members and with external agencies, the study also explored the status, challenges and gaps of information flow in rural communities. Lastly, the study examined the possibility of relationships between the different dimensions of social capital and food security, and the effects of other community capitals on the relationship between social capital and food security.

I found that participation in food security groups is affected by socio-demographic, economic and spatial factors. Age had an N-shaped relationship with participation of community members below 30 years and between 46-60 years compared to other age categories. The probable explanation is linked to a need for quick economic returns that may not be forthcoming through group participation and resource constraints in terms of time and labor for the two age categories. Households with more members also tended to participate in groups better than those with less, probably due to increased time availability for group activities and increased perception of more benefits from joining groups among households with more members.

Leadership in the groups was positively associated with education level of the household head. A household's possession of an additional source of income beyond farming was negatively associated with group leadership. High education level is associated with increased capacities to lead the group that an uneducated member may feel incapable of doing. Since these groups are largely focusing on food security through farming, households with additional sources of income may not have the motivation to dedicate additional time to group leadership.

However, households with additional sources of income belonged to more groups than those whose sole source is farming. This was explained as being related to the time and resource constraints that may be associated with households that rely only on farming compared to those with other sources of income. Households with other sources of income may also require more information and have belonged to more networks than those that rely only on farming. In addition, households with more land belong to more groups and hold more leadership responsibilities than those with less land. The increase in participation level

in groups due to education level of the head, alternative sources of income and land size increase raises issues of potential elite capture that need special consideration so that other households realize benefits from their participation. Lack of spatial centrality is also associated with less participation in the groups, implying a need for programs to consider the plight of remote households when planning and implementing development interventions.

Participation in the food security groups is motivated by perceived benefits, such as access to material incentives and capacity building opportunities. Group leadership style affects participation with those that are more involving for all members (democratic) being more effective than the less involving (autocratic). Mutual trust among members also affects the level of participation, such that groups where mutual trust is low face challenges of getting members to participate. All better performing groups were associated with maintaining local networks and external linkages with organizations and government departments. Most of the groups had minimal links with other groups and external organizations, mainly due to low perceived benefits from such past partnerships and ignorance of potential benefits from other partnerships. Partner organizations working with the groups involved them up to a certain level in needs assessment, resource mobilization and program implementation, with some gaps, especially in needs assessment and program evaluation.

In Uganda, changes in policies that impact rural development interventions have been accompanied with changes in information access for rural communities. Since access to information is one of the benefits of social capital, the status, challenges and gaps in information accessibility for 12 rural communities in Kamuli district was assessed. A modified Agricultural Knowledge and Information Systems (AKIS) framework that

considers information beyond agricultural-related issues was used. It was found that community members accessed information from a variety of sources, including local community members and leaders, private business entities and staff from government and non-governmental organizations. The major information types included agricultural technologies and production, health, education, natural resource management, markets and credit. Reliability and applicability of the information from the perspective of community members varied, with information from government departments and private businessmen was viewed as least reliable. Unfortunately, community members had no capacity to hold accountable those who provide low quality information services. Information linkages among the actors were low or non-existent in all the communities, and feedback to other actors from community members was rarely ensured.

The final analysis used quantitative data to establish whether any of the dimensions of social capital is associated with food security outcomes. Additional analysis was also conducted to establish whether other capitals (human, physical and economic) are significantly associated with food security outcomes. A principal components analysis was used to establish the elements of social capital that are significantly associated with food security. Bridging and linking social capital characterized by membership in groups, membership in more than one group, access to information from external institutions, and observance of norms in groups are positively associated with food security. In addition, cognitive social capital, characterized by observance of generalized norms in the village (trust and belief in helpfulness of residents) was positively associated with food security. Human capital (education levels) and physical capital (access to water sources) were also significantly associated with food security.

In conclusion, social capital definitely matters for achievement of food security. Within community groups, common as vehicles for accelerating development interventions, some key factors are important determinants of community members' motivation to participate. Levels of participation in the groups are associated with group characteristics such as capacity building opportunities, leadership styles and relations with external partners. Access to information for community members is also affected by its perceived veracity, applicability and linkages between the various actors in the information system. Issues of accountability to community members and feedback on information quality and applicability also matter for social capital to have an impact on food security. Other capitals, notably human and physical capital, also influence food security outcomes.

Policy implications

Education has been suggested as a key policy action for enhancing food security prospects in developing countries (Burchi &De Muro, 2007; World Bank 2007a, 2007b). The recent Universal Primary Education (UPE) policy on elementary education is a move in this direction, but this type of education does not provide enough skills for those who may drop out since it exclusively focuses on formal education. There is a need to enrich formal education to include vocational training that can provide technical and business skills which potentially generate employment for youth and ultimately contribute to agricultural sustainability and food security reducing pressure on land resources and potentially retaining some youth in the villages with a motivation to join groups. Non-formal education opportunities should be augmented to enable local people to gain knowledge and skills that would enable them to manage both their resources and communities better, but these should

be based on their articulated needs. Some of the key skills would include agro-processing, carpentry and small-scale manufacturing. For community members already participating in groups, capacity building opportunities in leadership, communication skills, conflict management, enterprise management, lobbying and advocacy and other needs as they emerge need to be flexibly incorporated in efforts to strengthen social capital through augmentation of members' capacities.

Strengthening linkages, both horizontal and vertical, is necessary and requires a change in the processes through which both government and non-governmental organizations work with rural communities. Complementing the usual means of working with communities through home visits and group training with tours and competitions within neighboring and distant communities will potentially enhance horizontal linkages. In addition, existing groups should be facilitated to form 'second order' associations and beyond, complemented with capacity building in leadership, management and other necessary skills. Government commitment through funding support, training of trainers and appropriate monitoring and evaluation are necessary components of the framework. Partnerships between organizations both government and non-governmental at district or regional levels are necessary and should be complementary. The district- or sub-county-level political leadership or another suitable entity should assume a coordination role. Sharing of plans (or joint planning among organizations if possible) as well as joint implementation of activities, evaluation and sharing lessons learned are vital measures. The partnerships should also ensure mutual trusting relationships among the partners, communication, and addressing potential power inequities between the different partners.

Measures should also be put in place to ensure sustainability (an exit strategy) for the groups and associations so they do not become dependent on external organizations. Such a strategy should pay close attention to a number of issues. Some of these include: level of sense of 'ownership' and 'value' for food security activities, level of knowledge and skills of members for continuing with the activities, quality of and potential partnership opportunities with other organizations that may provide additional support to the groups and associations and constant evaluation and lesson learning (Gardner, Greenblott & Joubert, 2005). As the groups and associations evolve, there is a need to monitor signs of elite capture such that benefits do not accrue to only a few members (the elites) and the expense of others (non-elites). Any sign of elite capture should be handled through consultation with members in a non-confrontational manner through, for instance, referring to established rules and regulations.

One of the anticipated goals of decentralization of government programs in Uganda was enhanced involvement of local people in planning, monitoring and evaluation such that their efforts contribute to better programs. This study (in part) and previous studies (e.g., Francis & James, 2003; Pijnenburg, 2004; Steiner, 2006) clearly established that decentralization efforts have not been based on the core principles of popular participation, responsive policy-making, and efficient service provision as anticipated at the outset. Problems of poor service delivery, services not based on local needs, and local elite capture, among others, characterize the process. Local community members lack the capacity to demand accountability regarding poor service delivery on non-consideration of their needs. The implication of this is that farmers' associations and local institutions need a supportive legislative and regulatory framework in which they can thrive and assume greater

responsibilities related to monitoring of community members' needs and demanding accountability.

Further, there is a need for the government and donors to politically commit themselves to empowering the local institutions and associations to contribute to development interventions. For instance, under a supportive legislative and regulatory framework, the parish development committees which are responsible for participating in planning, implementation, supervision and evaluation of government programs at sub-county level can be enabled to directly but cost-effectively collaborate with other external control systems at national level (the inspector general of government and auditor general) to improve service delivery for better food security outcomes. In closing, government efforts of using multi-pronged strategies for addressing food security challenges should be upheld since, in addition to social capital, other capitals (human and physical) also affected food security outcomes.

Implications for theory and literature

Participation in groups and use of participatory approaches in development interventions are largely based on Habermas's theory of communicative rationality. Habermas (1984) states that participants or actors aim to reach an agreement on a shared definition of a situation and coordinate their activities through an open process of communication. Further, communicative action assumes an inclusive, coercion free and open discussion among free and equal participants in a situation, and consensus is a result of the better argument. This study had demonstrated that participation is not value free: the elite tend to participate differently than the non-elite; program staff may not be able to incorporate

the needs of local people and technical staff and local leaders may provide poor quality services to community members with a view that they have more influence over the community members to the extent that they cannot be effectively held to account. Since the different actors in a participatory intervention tend to have different priorities, it is necessary for the theoretical frameworks of participation in development work to pay closer attention to communicative issues as well as issues of power, politics and conflict.

Measurement of social capital has all along emphasized a need to consider both the structural and cognitive types of social capital, although some scholars have only focused on one dimension (e.g., Fukuyama, 1995; Grootaert, Oh & Swamy, 1999; Sabatini, 2009). Cavaye (2004) tried to address the impasse by suggesting that measurement of social capital should pay close attention to the context and purpose. This study has demonstrated that both types of social capital are important for understanding the extent of and relationship to development outcomes such as food security. It confirms a need to focus on all types of social capital by developing multiple indicators for measuring the different types of the concept.

Areas for further research

One of the key areas identified for better social capital impacts on food security is partnerships among local communities and their organizations, local institutions, government departments and the private sector. Since the approach of working with other actors is relatively new in Uganda, research on the conditions that support or impede the emergence of such synergies is necessary.

Further, this research did not exhaustively explore how the different functional aspects of groups affect group performance. Research on the relationship between group performance and leadership qualities, decision making processes and resource contributions is a necessity. Results of this research have the potential to benefit second-tier organizations that were advocated for as a result of the findings of this study. On the issue of information access and utilization, studies to understand the perspectives of other actors in the ARKIS are necessary to form more balanced decisions.

This study also established the importance of other capitals besides social capital in achieving food security outcomes. Because of the potential complexity of the relationships, harnessing of information technology to improve targeting of interventions is a researchable issue. For instance, geographical information systems (GIS) can be used to map and analyze the distribution of these capitals vis-à-vis food security. The results can then be integrated with other variables to generate better food security solutions.

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APPENDIX 1: SURVEY INSTRUMENT

Impact of Social Capital on Food Security in Southeast Uganda
Household-Level Questionnaire (2008)

Questionnaire ID: _____Date_____

Name of Enumerator _____

1.11 (i) Name of household (HH) head _____
(ii) Gender_____[(1. Male; 2. Female)]
(iii) Age _____
(iv) Number of years living in the village ____
(v) Ethnicity _____
[*(1) Musoga (2) Muganda (3) Munyoro (4) Mugisu (5) Luo (6) Iteso (7) Other (Specify) ……..)].*
(vi) HH Marital Status_____[(1) Married (2) Widow/Widower (3) Unmarried (4) Separated)]
(vii) Religion ___ *[(1) Anglican (2) Catholic (3) Muslim (4) SD Adventist (5) Other Christian (6) African traditional (7) Other (specify)*

1.2 Village _____Parish/Sub-county _____/_____

1.3 VEDCO Group Name*_____HH role in Group_____
[(1) Member, (2) Demo. Plot host (3) RDE (4) CNHW (5) Exec. Cmte member (6) Other_____]

*(*Indicate as Not Applicable (N/A) if no household member belongs to a VEDCO group)*

1.4 Total Members in the household: ----
Adult Males: ----------
Adult Females: ----------

Male Children 10 -18: ------
Female children 10 -18: ----
Male Children 5-9: ---------

Female children 5 -9 : ----------
Male children Under 5: --------
Female children Under 5: -----

2a. What are the main crops grown in this household? (Refer to last season - list up to four.

Crop	Amt. harvested	Major problem(s)* - max. 2 (*in order*)

2b. What are the major types of livestock kept in this household? (Refer to last 3 months - list up to four.

Livestock	Number	Major problem(s)* - max. 2 (*in order*)

**Codes for major problems*: [(0) None, (1) Water, (2) Soil fertility (3) Pasture/feed, (4) Pests (Specify), (5) Diseases (specify), (6) Markets (7) Other (specify)_____)]

2c. Which of the livestock that you own has changed in number in the past five years? (**Codes for kind of change*: 1. Decreased 2. No change 3. Increased)

Livestock name	Kind of change

3a. In total, how much land (in acres) does this household own? ____.__ acres

3b. Did the total acreage owned change in the past five years? _____(*see codes below*)

1. Decreased, 2. No change, 3. Increased

4a. In which months do you have enough food to eat (list up to three, starting with the most important, if any)?
(1) _____ (2) _____ (3) _____

4b. In which months don't you have enough food to eat (list up to three, starting with the most severe, if any)
(1) _____ (2) _____ (3) _____

5a. Education level* of ….

HH head	Spouse	Most male adults (>18yrs)	Most female Adults (>18yrs)
_____	_____	_____	_____

**Codes:*

1.	None	4.	Lower Secondary (S.1- S.4)	7.	University
2.	Lower Primary (Nurs. – P.4)	5.	Upper Sec. (S.5 – S.6)	8.	Other (specify) ----------
3.	Upper Primary (P.5 - P.7)	6.	Vocational College	9.	999. N/A

5b. If you have children of school going age, do all of them attend school? ---------- (0. No, 1. Yes, 999. N/A)

5c. During the last six months, did you ever get your child of school-going age out of school to provide labor in the home?
---------- (No, 1. Yes, 999. N/A)

5d. Average number of days of illness per month in past 6 months for

Adult males	Adult females	Males 10-18	Females 10-18	Males 5-9	Females 5-9	Male children under 5	Female children under 5
_____	_____	____	_____	_____	_____	_____	_____

6a. During the 'months of plenty' which of the following foods are consumed in the household?

Food item	Freq/week	How mainly accessed*	Food item	Freq/week	How mainly accessed*
Cereals			Vegetables		
Maize (*any form*)			Tomato		
Millet			Leafy Amaranth		
Sorghum			Other veg.		
Amaranth Grain			Fruits		
Rice			Mango		
Bread			Jackfruit		
Chapati			Orange		
Other cereals			Pineapple		
Legumes			Pawpaws		
Beans			Passion fruit		
Soybean			Other fruits		
Other legumes			Animal products		
Nuts			Eggs		
Groundnuts			Beef		
Simsim			Chicken		
Other nuts			Pork		
Tubers			Goat		
Sweet Potato			Fish		
Cassava			Other products		
Yam			Ghee		
Other tubers			Milk		
Matooke			Tea		
Vegetables			Sugar		
Cabbage			Iodized Salt		
Onion			Cooking Oil		

1. Grown; 2. Bought 3. Exchanged 4. Loaned 5. Gift 6. Food aid.

6b. During the 'months of scarcity' which of the following foods are consumed in the household?

Food item	Freq/week	How accessed*	Food item	Freq/week	How accessed*
Cereals			Vegetables		
Maize (*any form*)			Tomato		
Millet			Leafy Amaranth		
Sorghum			Other veg.		
Amaranth Grain			Fruits		
Rice			Mango		
Bread			Jackfruit		
Chapati			Orange		
Other cereals			Pineapple		
Legumes			Pawpaws		
Beans			Passion fruit		
Soybean			Other fruits		
Other legumes			Animal products		
Nuts			Eggs		
Groundnuts			Beef		
Simsim			Chicken		
Other nuts			Pork		
Tubers			Goat		
Sweet Potato			Fish		
Cassava			Other products		
Yam			Ghee		
Other tubers			Milk		
Matooke			Tea		
Vegetables			Sugar		
Cabbage			Iodized Salt		
Onion			Cooking Oil		

6c. On average, how many meals are consumed daily in your household during the 'season of plenty'?

Adults: Children under 5:

6d. On average, how many meals are consumed daily in your household during the 'lean season'?

Adults: Children under 5:

7. Compared to the rest of the people in this village, do you consider yourself …

_____1. Poorer than most others?
_____2. Like most others?
_____3. Richer than most others?

8. Do you consider your household to be …

_____1. Always food insecure (Not having enough to eat for more than six months)?
_____2. Sometimes food insecure (Not having enough to eat for at least one month but less than six months)?
_____3. Food secure (Having enough to eat throughout the year)

9. The following statements are about the food eaten in your household in the past 12 months, and whether you were able to have or afford the food you needed (Response categories for the first questions: 0. No 1. Yes; Response categories for subsequent questions: 0. Rarely 1. Sometimes 2. Often)

Statement	Code
1. Were you at any time in the past 12 months worried that food would run out before more could be obtained?	
1a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
2. In the past 12 months, was any adult household member not able to eat the preferred kinds of foods due to lack of resources?	
2a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
3. In the past 12 months, did any adult household member have to eat a limited variety of foods due to lack of resources?	
3a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
4. In the past 12 months, did adults in the household reduce the size of meals because there wasn't enough food?	
4a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
5. Did any adult skip some of the daily meals because there wasn't enough food for 3 or more months?	
5a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
6. In the past 12 month months, did adults in the household ever eat less than they felt they should because there wasn't enough food?	
6a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
7. Did adults in the household ever fail to eat for a whole day because there wasn't enough food	
7a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
8. In the past 12 months, was any adult ever hungry and did not eat because there wasn't enough food?	
8a. How often did this occur? *0. Rarely 1. Sometimes 2. Often*	
9. In the past 12 months, did any adult in this household lose weight because there wasn't enough food?	
Questions 10 – 15 are about children living in the household who are under 10 years old. Do not ask if the household does not have children under 10	
10. Did you fail to feed the children a balanced meal most of the time because there wasn't enough food?	
11. Did you regularly fail to give the children enough food to eat because there wasn't enough food?	
12. Did you regularly reduce the size of the meal for any child in the household because there wasn't enough food?	
13. Did any child skip a meal because there wasn't enough food in the household for 3 or more months?	
14. Was any child ever hungry and did not eat because there wasn't enough food?	
15. Did any child in the household ever fail to eat for a whole day because there wasn't enough food for 3 or more months?	

10a. Do you or any other household members currently belong to any (other) groups?
0. No (go to 29 if respondent does not belong to any group)
1. Yes

10b. If yes, how many? _____

10c. If yes, which one(s)? Do you or any other household member hold a leadership position in the group?

Group type	Name(s)	Status of household in the group (1). Member (2.) Exec. committee member (3). Other
VEDCO group		
Other farmers' group		
Credit & savings group		
Religious/spiritual group		
Cultural group (e.g. arts, drama, …)		
Burial or festivals group		
Marketing group/association		
Other (specify		

11. Generally speaking, to what extent do people in your village participate in groups?
To a small extent
Neither small nor large extent
To a large extent

12. Compared to 5 years ago, do you and members of your household today participate actively in more or fewer groups?
Fewer groups
Same number of groups
More groups

13. Of these groups, which two are the most important to your household's food security?

1. _____

2. _____

For questions (14 – 27) please refer to the two most important groups given in question 14.

14. Who originally founded the group?

Grp1:	Grp 2:

1. Central government (e.g. ministries)
2. Local government
3. NGO
4. Church/mosque
5. Local leader
6. Community members
7. I don't know

15. How did you become a member of this group?

Grp 1:	Grp 2:

1. Born into the group
2. Required to join
3. Invited
4. Voluntary choice
5. Other (specify)

16. Did you make a contribution in order to join?

Grp 1:	Grp 2:

1. Entrance fee only
2. Annual fee only
3. Entrance and annual fee
4. Labor contribution
5. Other contribution
6. No contribution
7. Other (specify) _____

17. How likely is it that people who do not participate in group activities will be criticized or sanctioned?

Grp 1:	Grp 2:

1. Unlikely
2. Neither likely nor unlikely
3. Likely

18. On average, how many times do you participate in group activities such as meetings, operational activities, etc, in a month?

Grp 1:	Grp 2:

19a. On average how often does this group meet every month?

Grp 1:	Grp 2:

19b. In your view, to what extent do you participate in this group's general activities compared to other members?

Grp 1:	Grp 2:

1. To a small extent
2. Neither small nor large extent
3. To a large extent

19c. To what extent do you participate in this group's decision making?

Grp 1:	Grp 2:

1. To a small extent
2. Neither small nor large extent
3. To a large extent

20. How are leaders in this group selected?

Grp 1:	Grp 2:

1. By an outside person or entity
2. Each leader chooses his/her successor
3. By a small group of members
4. By decision/vote of all members
5. Other (specify) _____

21. Overall, how effective is the group's leadership?

Grp 1:	Grp 2:

Not effective at all
Somewhat effective
Very effective

22a. In your view, has membership in this group contributed to improved food security in the household?

Grp 1:	Grp 2:

0. No (Go to 22d)
1. Yes

22b. If yes, how? (*check all that apply*)

Grp 1:	Grp 2:

1. Access to technical information for production
2. Access to information on nutrition
3. Access to improved technologies (specify) ----------
4. Access to food aid during shocks (such as drought or floods)
5. Access to cheap food
6. Access to new produce markets
7. Access to additional incomes
8. Other (specify) _____

22c. If yes, what do you think are the main reasons for success of the group (rank up to four)?

Reason	Rank (Grp1)	Rank (Grp2)
Strong leaders		
A strong sense of community/community unity		
NGOS (e.g. VEDCO, Plan)		
Gov't support (local & central gov't)		
Politicians		
Our desire to progress		
Other (Specify)		

22d. If no, what do you think are the main reasons for the failure (rank up to four)?

Reason	Rank (Grp1)	Rank (Grp2)
No strong leaders		
No sense of community/community unity		
Conflict between different groups in the village/community		
People are selfish		
There is no adequate government support		
People are too busy		
Politicians		
Lack of resources		
Other (specify)		

23. To what extent has your village/community benefited from the activities of this group?

Grp 1:	Grp 2:

1. To a small extent
2. Neither small nor large extent
3. To a large extent

24. Thinking about the members of this group, would you say MOST of them are from the same …*

Village	-------- Group 1	--------- Group 2.
Family or kin	-------- Group 1	--------- Group 2
Tribe	-------- Group 1	--------- Group 2
Religion	-------- Group 1	--------- Group 2
Gender	-------- Group 1	--------- Group 2
Age	-------- Group 1	--------- Group 2
Educational background	-------- Group 1	--------- Group 2
Income level	-------- Group 1	--------- Group 2

**Codes: 0. No*
1. Yes

25a. What are the four most important sources of information for group members (e.g. production expertise, markets, technologies, etc)?

Rank for group 1	Rank for group 2

25b. With whom do you regularly share this information (*list up to a maximum of three*)*?

Group 1:	Group 2:

Codes:

1. None
2. Family members
3. Group members
4. Friends outside the group within the village
5. Friends outside the group and also from outside the village
6. Other (specify _____)

26. In general, do you agree or disagree with the following statements? (0. Disagree 1. Agree)

Most people in this group can be trusted to reciprocate ------- Group 1 -------- Group 2
Most people in this group are willing to help if you need it ------- Group 1 -------- Group 2

27a. Does this group work or interact with other groups with similar goals *in* the village?

1. No
2. Yes, occasionally
3. Yes, frequently

999. I don't know

Group 1	Group 2

27b. Does this group work or interact with other groups with similar goals *outside* the village/neighborhood?

1. No
2. Yes, occasionally
3. Yes, frequently

999. I don't know

Group 1	Group 2

27c. Does this group work or interact with other groups with different goals *in* the village/neighborhood?

1. No
2. Yes, occasionally
3. Yes, frequently

999. I don't know

Group 1	Group 2

27d. Does this group work or interact with other groups with different goals *outside* the village?

1. No
2. Yes, occasionally
3. Yes, frequently

999. I don't know

Group 1	Group 2

28. Are there categories of people in this village who are prevented from joining groups? ____ (0. No; 1. Yes)

29. If yes, why is this so? (*Check any* and briefly explain in space if possible)

Lack of land resources	
1. Poverty (low wealth/material possessions)	
2. Affliction with some diseases (e.g., HIV/AIDS)	
3. Gender/cultural barriers	
4. Age barriers (young Vs older generations)	
5. Residence (e.g. long term and recent residents)	
6. Political party affiliations	
7. Religious beliefs	
8. Ethnic background/tribe	
9. Other (specify) _____	

30. If no, why do some members not join groups? (*tick or write any*)

1. Lack of interest
2. Lack of time
3. Lack of trust
4. Other (specify _____)

31a. People from the same village often get together to address a particular issue that faces the community, fix a problem, improve the quality of life, or something similar (e.g. maintaining a well, road, etc)...

In the past 6 months, have you or anybody in the household participated in such an activity. Was the participation voluntary or required? (Note: *Indicate as N/A in the table below if no household member participated in any collective activities*).

Activity	Voluntary	Required
1.		
2.		
3.		

31b. How likely is it that people who do not participate in collective activities will be criticized or sanctioned?

1. Likely
2. Neither likely nor unlikely
3. Unlikely

31c. Compared to the last five years, has the spirit of cooperation in the village changed or not?

1. Decreased
2. Remained the same
3. Increased

31d. If there is a change, what are the three most important reasons?

1. Differences in wealth/material possessions
2. Differences in ethnic background/tribe
3. Differences between long-term and recent residents
4. Differences in political party affiliations
5. Differences in religious beliefs
6. Other differences (specify) _____

31e. Do you agree or disagree that people in this village nowadays look out mainly for the welfare of their own families and they are not much concerned with village welfare? _____ (0. Disagree, 1. Agree)

32a. In the last month, how many times have you met with people in a public place (e.g. market, village meeting place) either to talk or do something developmental (apart from group meetings)? _____

32b. In the last month, how many times have people visited you in your home? _____

32c. In the last month, how many times have you visited people in their home? _____

32d. Were the people you met and visited with mostly…

	No; 1. Yes
1. Of different ethnic group/tribe	
2. Of different economic status	
3. Of different social status	
4. Of different religious group	

32e. On an average monthly basis how often does your household participate in the following activities?*(*see codes*)
Going to public markets _, attending prayer meetings _____, attending village weddings ____, attending school open days _____, attending funerals/burial ceremonies ____,
(**Codes*: 1. Less often than most village members 2.like most village members 3. More than most village members)

33a. Do you agree or disagree with the following statements (0. Disagree 1. Agree)

Most people in my close family can be trusted	
Most people in my close family are willing to help one in need	
People from my tribe in this village can be trusted	
Most people from other tribes in this village can be trusted	
Most people who live in this village can be trusted	
Most people in this village are willing to help one in need	
Local leaders in my community can be trusted	
Spiritual leaders in my community can be trusted	
Local government officials (e.g., extension workers, police, doctors) can be trusted	
Officials from non-government organizations can be trusted	

33b. Of these, who do you trust most? Rank them in order.

Category	Rank
People in my family	
People from my tribe in this village	
People from other tribes in this village	
Local leaders	
Spiritual leaders	
Local government staff	
Staff from non-government organizations	

34. If there was a food shortage problem due to drought, floods, crop failure or an epidemic in this village, to whom would turn for help? (*Record the three most important ones*)- see codes below

1.	2.	3.

1. No one would help
2. Family
3. Neighbors
4. Friends
5. Church
6. Mosque
7. Local council- LC's
8. Government departments
9. Non-government organizations
10. International organizations (e.g. Red Cross; Red Crescent)
11. Group to which I belong.
12. Other (specify) ----------

35. Taking the past year and five years ago, what were the main sources of income for this household? (*Select one main and another source*).

A. Main source

1. Farming
2. Livestock sales
3. Fishing
4. Remittances
5. Civil servant
6. Shopkeeper
7. Agricultural processing

Past year: | Past 5 years:

B. Other source

1. Farming
2. Livestock sales
3. Fishing
4. Remittances
5. Civil servant
6. Shopkeeper
7. Agricultural processing

Past year: | Past 5 years:

36. Which of the following household sanitation & health items/practices do you use? (*Tick if positive; cross if not used*).

Latrine/Toilet__, Bathroom__, Kitchen__, Drying Racks for Utensils__, Rubbish Pit__, Can for Washing Hands__, Boil Drinking Water__, Improved Stove__

37. (i) Do you own the house you currently live in? _____ (0. No, 1. Yes)

(ii) Condition of the house *(tick if available)*: Brick Walls__, Iron Sheet/Tile Roof__, Cement Floor__, Electricity/Solar power __

(iii) a. What is the main source of fuel/heating for the household?(**see codes below*) _____

[Codes: (1). Firewood (2). Charcoal (3). Crop residues (4). Manure (5). Other (Specify _____)]

b. How do you regularly access this fuel?

Dry season: | Other seasons:

(iv) How many of the following *Household Items* do you own? Radio__, Clock__, TV__, Mobile Phone__, Sewing Machine__, Pressure Lamp__, Lantern__, Bicycle __, Motorcycle__, Motor Vehicle__, Other major Asset(s)

_____

(v) How many of the following *Agricultural Implements* do you own: Hoe__, Panga__, Rake__, Shovel__, __, Slasher__, Wheelbarrow__, Ox-Plough__

38. *Access to infrastructure*

From household to (nearest)…							
	Local trading center	District major trading center	Market	Paved road	Clean water	School	Health Center
Distance							
Time							

39a. What is the main source of water for the household during…?

Dry season:	Other seasons
1. Borehole 2. Spring well 3. River/lake	4. Pond 5. Other (Specify)

39b. Who regularly collects the water? (*Check all that applies*)

Dry season:	Dry season:
1. Adult females 2. Adult males	3. Female children 4. Male Children

40a. What major crises *related to food security* has the household faced in the past five years? (*Check any, indicating the most severe/important*).

1. Floods	3. Death of a breadwinner/key relative	5. Health epidemics (specify) ----------
2. Drought	4. Indebtedness	6. Other (specify) ----------

40b. Compared to the past 5 years, has the incidence of crises changed? [(1. Increased 2. No change 3. Decreased (4). Cyclic)]

Nature of crisis	Nature of change

40c. If there was a change, what is the main reason for the perceived change for each of the crises in 40b? (*Indicate for up to three major crises*).

Crisis	Reason(s)/cause(s) for change
1._____ 2._____ 3._____	

41a. How has the range of livelihood opportunities available for the household changed in the past five years?

1. No change
2. Extensification (*more land opened; no change in others*)
3. Intensification (*more labor, capital and technology/inputs on same land*)
4. Diversification *(making income beyond farming*)
5. Migration
6. Other (specify) ----------

41b. To what factor(s) can the change be attributed? (*List up to three major changes*)

1.Change: _____ Reason: _____

2.Change: _____ Reason: _____

3. Change: _____ Reason: _____

41c. What are the three main barriers associated with access to other livelihood opportunities besides farming in your household?

(1) _____ (2) _____ (3) _____

APPENDIX 2: GROUP DISCUSSION GUIDE

Impact of Social Capital on Food Security in Southeast Uganda
Group discussion guide (2008)

Group name: _____
Sub-county: _____
Village: _____
Current membership: _____ M (_____) F (_____)
households served by the group: _____

1. Evolution of the group

(a) When, why and how was the group started? Who was most responsible for its creation (e.g., government mandate, community decision, suggestion of an NGO, etc)?

(b) What are the requirements for joining the group? Who is eligible to join this group? (*and who is not?*)

(c) Considering this group, is there any uniform factor (e.g., age, education, gender, wealth level, ethnicity, family lineage …) that is similar to most (or all) members?

(d) Since the group started, has membership increased, declined or remained the same? Why?

(e) Since the group started, has its goals changed or remained the same? What is the main purpose of your organization today?

(f) As the organization evolved, what sort of help has it received from outside? Has it received advice and/or funding, etc. from government or non-government sources? How did you get this support? Who initiated it? How was the support given? Has it been good for the organization, or not?

2. Group activities and participation of members

(a) What are the principal activities of the organization? Which new activities have emerged in the last 1-2 years?

(b) In each of the activities, how would you characterize the quality of participation in terms of (i) attendance, (ii) participation in decision-making, (iii) dissemination of relevant information prior to the decision, (iv) broad debate, including opposition positions, and honesty, and (v) the number of women, young people, poor people in the group and who occupy positions of responsibility in the organization? Explain each with an illustration.

(c) Also probe for
… How often meetings, activities, etc. are called per month, per week, per year
… What issues are discussed or activities are done in such gatherings?

… How attendance of such activities is enforced
… What happens to those who fail to adopt soil and water conservation measures?

(c) What specific procedures are used to ensure that members participate well in group activities?

(e) What are the main constraints in implementing some of the activities, if any?

3. Information and communication

(a) What are the common sources of information for your group?
(b) What are the common channels of information within your group?
(c) For (a) and (b), which are the most important? (*Rank them after listing).*
(d) Do you think access to information is a key motivator or limitation to performance of your group?
(e) What information do you perceive as being hard to access for group members?
(f) What are your suggestions for improving access to all kinds of information for and within the group? Give specific examples.

4. Group management

(a) How are leaders of the group selected? Are there gender and age considerations in leadership positions?
(b) What leadership competencies do you feel that group leaders possess?
(c) What leadership competencies do you feel that group leaders lack?
(d) Do you have a technique of assessing the management competencies in your group? Are you able to decide what you can handle yourselves and what you cannot? Give examples of how you have handled this situation if applicable to the group (if you have the techniques).
(e) Are there recurring disagreements in the group? If yes, what are (or were) they about? What caused them? Give example(s)? How do (did) you handle them?
(f) Do you feel that you have enough capacity to manage such disagreements?

5. Linkage with other players in development (other groups, government & non-government organizations, local institutions, markets, research, …).

(a) With what organizations and/or groups have you established linkages and what is their nature?
   i. Proceed from linkages between groups in the village with the same objectives, then to those with different objectives (bonds/bridges). If no such links, why not?
   ii. Then continue to groups outside the village, with same objectives and also to different objectives (bridges). If no such links, why not?
   iii. Then proceed to groups, associations and institutions outside the villages (links). If no such links, why not?

Organization/institution	Location (local, district, national, international)	Nature of linkage (e.g., access to training, markets, resources, etc).

(b) For each of the partnerships/linkages established, how would you rate the value of services available? Are they helping groups to develop? Explain, giving examples.
(c) Do you have suggestions for any improvements in the linkages available for groups to manage their affairs better?

6. Food security profile of members

a. What is the food security status of members? How has it changed for each member compared to the period before joining this group? How many are still food insecure? Why? Where the changes have been positive, can we attribute it to group membership or there are other factors? If the changes have been negative, what is (are) the cause(s)? *Generate food security indicators and let members rank each member. If baseline secondary data is available (from the program office), make quick comparisons.*
b. What are the major causes of food insecurity scenarios for members?
c. What are the main threats to food security (vulnerability) for members?
d. During periods of food scarcity, how do members cope? Give specific examples.

7. Self-assessment

a. What benefits have members achieved as a result of belonging to this group?
b. In your opinion, do the benefits of this particular group spread beyond its members? Give examples?
c. In your view, has this group been successful (in relation to the goals that you set, and the achievements so far?).
d. If yes, what are the main factors for success? (Note: *First let the participants list them, and then probe for further explanations of how each factor has worked out. The factors should also be ranked*).
e. If no, what are the main factors for failure? (Note: *First let the participants list them, and then probe for further explanations of how each factor has worked out. The factors should also be ranked*).
f. How can the group ensure that the good factors in this group are even implemented better to further the goals of the group?
g. How can the group ensure that the bad factors are avoided to further the goals of the group?

Thank you.

APPENDIX 3: COMMUNITY DISCUSSION GUIDE

Impact of Social Capital on Food Security in Southeast Uganda
Community discussion guide (2008/09)

Date: _____ Sub-county/Parish _____/_____

Distance (km) from Parish to nearest …..

District administrative center _____Major trading center _____Major market _____

A. General Discussion

a. Cultural

1. What is the ethnic and cultural background/history of the community? (e.g., the different religious and ethnic groups living in the community?)
2. What important events, natural disasters, significant changes in the prosperity and/or level of well-being have affected (or are affecting) the community?
3. Any migration patterns (historical, recurrent or recent)?
4. Any conflict or alliances among ethnic groups?

b. Political/institutional

1. (Categories of leaders in the area and whether they are appointed, inherited, elected; formal or informal; rotating or inclusive)
2. What are the different government departments and non-government organizations working in the community? What kind of support do they provide?
3. Of the organizations you have listed, which ones are most accessible to the community? Which are least accessible? Which are somewhat accessible? What is the perceived quality of the services they provide? (Relevance, appropriateness, etc.)
4. Which organizations work together? How do they work together (hierarchically, collaboratively)?
5. Are there any organizations that work against each other (compete or have some sort of conflict)? Which ones and why? How are these conflicts being addressed, if at all?
6. Some groups may share the same members and some groups have different members. Which organizations have the same or similar membership?
7. How is access to services provided by government departments and NGOs distributed among communities, households and groups? What impact have they had?
8. How do you perceive the quality of political leadership? Is it supportive of rural development and decentralization? top down or open/inclusive?
9. What kinds of formal and informal mechanisms are available to individuals and groups to demand accountability from local leaders, government departments and non-government organizations?
10. Which groups or segments of the community have greatest influence over public institutions?
11. What is the source of influence of these groups (e.g., group size, ability to mobilize members or expand member base, connections to power elite, economic importance)?
12. Which groups have the least influence over public institutions and why?

13. To what institutions (formal or informal) do people turn when they have individual or family problems? On whom do people rely for different kinds of assistance (e.g., goods, labor, cash, finding employment, entering university, etc.)? How is trust distributed in the community (e.g., primarily within extended families or clans or through specific networks and/or localities)?
14. What potentially prevents services and expenditures from reaching the poorest and most vulnerable groups? Are the reasons related to ethnicity, gender, a political agenda, or geographic isolation? Give specific examples.
15. Has the political situation in any way affected the food security condition of this community?

c. Natural

1. Trends in land access
2. Trends in agricultural technologies/innovations: which ones, who introduced them, perception on their relevance, utilization levels and why?
3. Natural resource/environmental trends (changes in rain patterns/seasonality, water scarcity, fuel scarcity, pest attack, soil fertility…)
4. Trends in access to services (health, agriculture, marketing services, education)
5. Has the condition of these resources (list each and ask in turn) generally improved in the last 5 (or 10 years?). How have they affected food security?

d. Physical

1. What are the different types of infrastructure in the area? (credit, market, transport, communication, electricity, schools, factories/small scale processing units, health units, storage facilities, etc.)?
2. Changes in these infrastructure (access to water, roads, electricity, markets)
3. What are their present conditions?
4. How does the community perceive the benefits from these infrastructures? Give specific examples for each.
5. How has the status of physical infrastructure affected the food security and general livelihoods of the community?

e. Social/Human

1. To what extent do community members collaborate with one another in order to solve community problems? What cultural, social, or community traditions potentially affect patterns of mutual assistance, cooperation, and collective action?
2. What kinds of constraints limit peoples' ability or willingness to work together (e.g., lack of time, lack of trust or confidence in outcomes, suspicion toward the mobilizers, etc.)?
3. How do people help each other during shocks and risks? Describe an example of what you did when a collective problem happened in this community. *Who initiated the activities? How were people mobilized?* Were your actions successful? What made it succeed? What do you think could be done to improve the outcome of your action(s)? If it failed, why and how can the causes be avoided in future?
4. What are the potential constraints to collective action in this parish? Do communities have the capacity to identify their needs for better performance (leadership, management, etc.)? Explain.

5. What networks or groups do people in this community rely on to resolve household level problems? Are social networks effective in helping overcome vulnerability? Explain with examples.
6. How has interaction between households and with institutions for solving problems changed in the last ten years? Explain with examples.
7. Who are the most socially or economically isolated people in the community? How does this isolation correlate with the kind of networks to which these people belong?
8. How are resources such as land, wealth, education, etc distributed in the community? What percent of the population has access to such assets? (enough/good land, higher education, etc.)
9. Are some groups, villages, and/or households more likely than others to work together, and if so, why?
10. Are some groups, villages, and/or households more likely to exclude themselves or be excluded from collective activity, and if so, why?
11. What are the social sanctions for violating expected norms of collective action in the community?

f. Economic

1. Economic trends (land, poverty, rights, opportunities, skills …)
2. Sources of credit (NGOs, bank, money lender, etc). How has this changed in the past ten years?
3. Market facilities (local, indigenous, national) - what is sold? Where? How has this changed in the past ten years?
4. Status of individual and group savings. How has this changed in the past ten years?
5. Business development: history of entrepreneurship, experience with middle men/marketers, financing, groups, marketing information…
6. Successful examples in business? Why they have been successful?
7. How has access to markets affected the status of household level food security in the parish?

g. Household food security

1. What are the foods commonly eaten in the community during the seasons (lean and plenty) in a year? *(When listing the foods do not restrict the list)*
2. Can you rank these foods according to their frequency of consumption for each season? *(Give 10 marks to the most frequently consumed food and 1 mark to the least frequently consumed food. Mark the remaining foods on a scale between 1 and 10)*
3. How does the diet change during the seasons and why? *(Add or subtract foods from the list. Rank the foods again)*
4. What do you consider to be a good quality diet in your community? *(Rank the foods listed before according to importance)*
5. During the last year, what have been the problems in the community, households and individuals to obtain such an adequate diet *(to be food secure)*? *(focus on the three levels:* **community, household and individual** *so as to reveal issues of food distribution within the community and within the household)*
6. In your view, what were the reasons for these problems? What did the community and households do to resolve these problems? *(Probe deep enough into the reason for the problem in order to understand the underlying causes)*

7. How are decisions made within the household with regard to achieving food security or responding to problems of attaining food security? Who makes specific decisions (e.g., allocating food, etc)? How are resources reallocated in case of food insecurity?
8. Has the food security situation of community members improved in the past five years? What are the reasons for the situation?

B. Information Mapping

1. Divide a large sheet of paper into three sections, representing the village, parish, sub-county, district, region (Busoga) and national levels (i.e., local, regional and national).
2. Draw a circle representing the farmers in the middle of the "local area" section.
3. Beginning with the parish, ask participants who they get information from, and who they communicate with. Draw a circle for each one they identify, and draw a line between each circle and the circle representing the farmers.
4. For each of these sources or contacts, ask participants to describe (and make notes against the lines on the paper, or on a separate piece of paper):
    a. What kinds of information are exchanged between them?
    b. How frequently are they in contact with them?
    c. What are the advantages and disadvantages of each one, as a source of information on food security? What is the perceived *reliability*, *veracity*, *availability*, and the *extent* to which these sources are used in practice?
    d. Then repeat the process for the sub-county level, and then for the district, region and national levels.
5. At the district, regional and national levels, explore their access to mass media (radio, newspapers ...).
6. Once the "information map" is complete, ask participants what they think are their main information gaps, and their main difficulties in getting access to useful information.

APPENDIX 4: TESTS OF MULTICOLLINEARITY BETWEEN INDEPENDENT VARIABLES FOR REGRESSION OF PARTICIPATION IN GROUPS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.310[a]	.096	.060	1.04754

a. Predictors:

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.532	9	2.948	2.687	.006[a]
	Residual	249.097	227	1.097		
	Total	275.629	236			

a. Predictors:

b. Dependent Variable: partvedco Level of participation in vedco groups

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.303	.353		.859	.391		
Major source of income	.289	.171	.108	1.690	.092	.981	1.020
Respondents' age	.015	.006	.175	2.672	.008	.927	1.078
Number of livestock units owned	-.005	.009	-.034	-.527	.598	.976	1.024
Distance to major trading center (km)	-.003	.010	-.021	-.332	.740	.965	1.036
Distance to nearest water source	-.111	.102	-.070	-1.090	.277	.966	1.036
Ethnic group of respondent	.094	.184	.033	.513	.609	.975	1.025
Religion of household	-.002	.140	.000	-.013	.989	.966	1.035
Educational level of household	.157	.139	.071	1.125	.262	.985	1.015
Total number of household members	.043	.016	.173	2.639	.009	.930	1.075

a. Dependent Variable: partvedco Level of participation in vedco groups

APPENDIX 5: TESTS OF MULTICOLLINEARITY BETWEEN INDEPENDENT VARIABLES FOR REGRESSION OF LEADERSHIP IN GROUPS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.320[a]	.103	.047	.48275

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.892	9	.432	1.856	.063[a]
	Residual	34.025	146	.233		
	Total	37.917	155			

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.410	.239		1.720	.088		
Age of respondent	.002	.003	.063	.776	.439	.934	1.071
Ethnic group	.018	.109	.013	.168	.867	.973	1.027
Religion	-.039	.080	-.039	-.488	.626	.952	1.051
Number of household members	.003	.009	.024	.296	.768	.931	1.074
Educational level of head	.071	.035	.163	2.054	.042	.977	1.023
Distance to major trading center	-.007	.006	-.093	-1.155	.250	.940	1.064
Distance to market	-.022	.022	-.081	-1.020	.310	.984	1.016
Major source of income	.263	.097	.215	2.709	.008	.972	1.029
Total land owned	.001	.001	.093	1.142	.255	.928	1.078

APPENDIX 6: TESTS OF MULTICOLLINEARITY BETWEEN INDEPENDENT VARIABLES FOR REGRESSION OF PARTICIPATION LEVEL IN GROUPS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.356[a]	.127	.100	1.03125

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.489	7	5.070	4.767	.000[a]
	Residual	244.599	230	1.063		
	Total	280.088	237			

b. Dependent Variable: part_level participation level of household in groups

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.904	.378		2.394	.017		
Sex of household head	-.181	.210	-.055	-.861	.390	.916	1.092
Educational level of hh head	.365	.137	.164	2.659	.008	.995	1.005
Age of respondent	.015	.006	.169	2.645	.009	.928	1.078
Total land owned	.001	.002	.026	.418	.677	.974	1.027
Major source of income	.413	.136	.189	3.047	.003	.984	1.016
Distance to major trading center	-.017	.008	-.136	-2.185	.030	.977	1.023
Distance to nearest health facility	-.053	.032	-.104	-1.668	.097	.976	1.025

APPENDIX 7: TEST OF MULTICOLLINEARITY BETWEEN INDEPENDENT VARIABLES FOR REGRESSION OF FOOD SECURITY STATUS

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.348[a]	.121	.090	.749

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.571	8	2.196	3.918	.000[a]
	Residual	127.255	227	.561		
	Total	144.826	235			

b. Dependent Variable: fsscale1 Food security scale for household

Coefficients[a]

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.210	.147		15.026	.000		
Linking and bridging social capital	-.138	.050	-.177	-2.759	.006	.944	1.059
Bonding social capital (cognitive)	-.131	.049	-.168	-2.655	.009	.962	1.040
Bonding social capital (structural)	.006	.047	.008	.121	.904	.972	1.029
Sex of household head	.004	.152	.002	.025	.980	.921	1.086
Total land owned by household (acres)	-.002	.001	-.091	-1.444	.150	.982	1.018
Educational level of household head	-.134	.045	-.190	-2.965	.003	.947	1.055
Distance to major trading center (km)	-.008	.006	-.090	-1.422	.156	.962	1.039
Distance to nearest water source (km)	-.087	.049	-.114	-1.778	.077	.947	1.056

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