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**A Training Needs Assessment:  
Ugandan Agricultural Sector  
DRAFT**

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# **A TRAINING NEEDS ASSESSMENT: UGANDAN AGRICULTURAL SECTOR**

## **EXECUTIVE SUMMARY**

### **CONCLUSIONS**

Traditional institutional capacity building has been an inefficient vehicle for modernizing and commercializing agriculture in Uganda. Alternative models are needed. It is clear that different training interventions and modalities are required for various categories of farmers. NGOs are more effective at working with subsistence farmers who require multiple interventions and extensive support in order to improve their economic situation. With subsistence farmers, the overall goal is to ensure food security, while at the same time to move them to a more market-oriented business approach. Market-oriented and commercial farmers are better served by working with more business-oriented projects. USAID-funded projects facilitating linkages between farmers and private agribusinesses have been notably successful with market-oriented and commercial farmers.

Further development of the agribusiness sector is hampered by a lack of qualified graduates who combine technical skills with a business orientation. There is a particular need for skilled managers in floriculture and horticulture. This can be best achieved through certificate programs for owners and managers and industry-oriented degree programs at Makerere University.

### **DISCUSSION AND FINDINGS**

Notwithstanding the sustained economic progress realized in Uganda over the past decade, the majority of the country's rural population remains mired in acute poverty. Eighty-five percent of Uganda's 23 million people live in rural areas, where they depend on agriculture for their livelihoods in a sector that remains characterized largely by low input/low output production.

Approximately 70 percent of Ugandan farmers can be classified as subsistence. They have low literacy, technical skills, and knowledge levels. Less than 30 percent of subsistence farmers currently use improved seeds, while fewer than 10 percent practice any form of plant protection. On-farm yields are less than one-third of the yields on research stations. Post-harvest losses remain high, perhaps in the 25–30 percent range.

Twenty-five percent of farmers can be categorized as market-oriented. These farmers, having more land than the subsistence farmers, are able to produce both for home consumption and the market. While only some have completely adopted and implemented modern production packages, most have begun the process. They are often unfamiliar with market standards and

quality control and have difficulties accessing markets. No more than 5 percent of Uganda's farmers operate at the commercial level. They use high technology input packages and employ both skilled and unskilled hired labor. Although more knowledgeable about market requirements and standards than non-commercial farmers, many are not well versed in international trade requirements.

**Farmers' Groups:** The Government of Uganda, multiple donors and NGOs have all encouraged the formation of farmers' groups and associations as a means for farmers to access services and collectively address problems. Unfortunately there is now a proliferation of such groups that are poorly organized and managed. Most are ill-equipped to assist members in commercializing operations and access markets and simply do not deliver on their stated mission.

**Extension and Other Service Providers:** The GOU, as part of its overall effort to transform the agriculture sector, is implementing a new extension service system that will depend on private firms. The new service will be a decentralized system operated through local government units that will contract with private companies. The modality for requesting and contracting for extension services, tied to the annual local government planning cycle at the sub-county and district level, appears to be quite complex.

In the absence of a well-functioning extension service, international and national NGOs have tried to fill the gap for subsistence farmers through programs that include agricultural methodologies, environmental protection, health, nutrition and micro-enterprise development. This approach has been generally effective at improving household nutrition, child survival and mitigating the impact of HIV/AIDS (through improved nutrition), though less effective at moving farmers from subsistence to market-oriented farming. A few NGOs are successfully introducing new technologies to subsistence farmers through *farmer field schools*. One is using a promising model that emphasizes increasing household food security while at the same time enabling subsistence farmers to become more market-oriented.

**Input Suppliers:** A major contributor to the overall low productivity of agriculture in Uganda is the fact that the country has the lowest use of fertilizer in Africa. Ugandan farmers use an estimated one kilogram of plant nutrient per hectare compared to the African average of nine per hectare. In 45 percent of rural communities, no farmers are using improved seed. There are a number of reasons for the low use of improved inputs, but lack of access to input suppliers is key. While some suppliers are developing rural networks of *stockists*, most remain urban-based. Farmers cite lack of access, training and professional advice on proper use of fertilizer, seeds and other inputs as primary barriers to expanded use.

USAID-supported projects have pioneered the promotion of a rural stockist system. Financing options such as loan guarantees to distributors and training programs for stockists have resulted in the expansion of a network of rural input suppliers.

**Marketers and Exporters:** Progress has been made over the last several years in upgrading the skills, knowledge, and experience of Ugandan marketers and exporters. The Ugandan Grain Traders (UGT) continues to develop and implement a comprehensive and coordinated strategy aimed at improving regional export of basic grains such as maize and beans. A very innovative and successful community-based grain warehousing and marketing program is being implemented by an Iganga-based NGO. In it, members pool crops and receive certificates based upon the amount of production entrusted to the NGO, then are paid when crops are sold. Prior to selling, members may redeem certificates for input supplies or sell them to other members.

High-value exports from Uganda, particularly flowers, have greatly expanded. Through efforts of the Ugandan Flower Exporters Association (UFEA), flower exports have more than doubled over the last seven years. A mid-management certificate-training program has been implemented to reduce the reliance on expatriate managers within the industry. This training program was implemented by USAID in collaboration with Makerere University and UFEA.

Exporting horticultural commodities such as fruits and vegetables have been less successful. As a land-locked country, Uganda has difficulty competing with countries that ship fruits and vegetables by sea at a quarter of the cost of airfreight. Further, Ugandan horticultural crops often do not meet international quality standards. There has been some success with vanilla beans, hot peppers and chilies, and dried mushrooms and pineapple. The industry association, HORTEXA, assists its members with marketing and provides some training and extension services, though the industry does not have an organized training program for managers. There is now demand for an in-country certificate program in horticulture that would cover production, post harvest handling and packaging, standards for chemical use, and market standards and requirements.

**Dairy Processors:** There are already a number of private dairy processors and the long-standing parastatal—the Dairy Corporation Ltd—is undergoing privatization. Despite this, dairy farmers complain of low prices, late payments and inconsistent market access. A recent development offers good prospects for changing the situation. What appears to be a solid and progressive processor, Alpha Dairy, has established a milk processing plant that began operations in July in Mbarara. Its management is committed to building strong relations with dairy producer groups in order to ensure receipt of quality milk at the plant. Alpha has received technical assistance from USAID's SPEED project while Land O'Lakes (LOL) has trained Alpha staff in marketing and sales. At the same time, LOL has been training dairy farmers in improved production methods, quality control, and basic business skills.

**Agricultural Education and Research:** Decentralization and modernization of the agricultural sector within Uganda has increased pressure on Makerere University's Faculty of Agriculture to provide more applied and practical training for students. New degree programs have been introduced in agricultural extension education, agribusiness management, fisheries and aquaculture, food technology, and food business management. Developed in collaboration with Ohio

State University (OSU), the agribusiness program has earned enthusiastic support from Ugandan entrepreneurs. Student internships with the private sector have also been very successful.

An industry-oriented horticulture degree program will be inaugurated in September. Program staff lack skills and knowledge in important aspects of the field including greenhouse management, specialized agronomic practices, and tissue culture for horticulture crops, however, limit expectations on impact.

**Cross Cutting Issues:** Despite the commitment to gender sensitive policies and practices at the national level, there is concern that the implementation of the Program for the Modernization of Agriculture (PMA) initiative will be detrimental to rural women without concomitant changes within households and communities. Women provide three quarters of the agricultural labor in Uganda, but unequal control of household resources and their lack of power within the family structure often results in men realizing the benefits of women's labor. Paradoxically, although household income may increase as agriculture is commercialized, the increased labor requirements may reduce household food production and the general welfare of the women and children in the household may decline.

Uganda has a high rate of malnutrition related to protein, vitamin A, iron and iodine deficiencies in the diet. Almost all NGOs working in the agricultural sector are trying to address nutrition issues. Their integrated approach includes such activities as backyard gardens, small animal and dairy rearing and encouraging farmers to grow vitamin-rich crops such as orange sweet potatoes. Many NGOs sensitize men as well the women of the community on the importance of good nutrition.

By many measurements, Uganda has done a remarkable job educating the population about HIV/AIDS and reducing the rate of infection. Nevertheless, an estimated 8 percent of the population is now infected with HIV/AIDS and will die within the next ten years. The donor community has made a concerted effort to collectively address the problem by supporting education, counseling and testing programs. Several NGOs are integrating HIV/AIDS awareness education into programs for subsistence farmers. However, many of those living with the disease are too sick to benefit from development programs. Food aid is being provided to this group.

### **RECOMMENDED TRAINING INTERVENTIONS**

Training interventions have been designed to target the particular problems and information gaps of specific groups within the agriculture sector. The assessment team recommends that training be implemented through existing or planned USAID agriculture projects. Most of the recommended training is via in-country seminars and demonstrations. For the development of specific skills or knowledge, short courses available at regional institutions are preferred. The team also suggests that a U.S. university with expertise in horticulture be partnered with the new

Department of Horticulture program at Makerere University. Specific key recommendations include:

- Establish a competitive grants program for NGOs that employ strategies that enable subsistence farmers to become more market-oriented.
- Expand training through field demonstrations and farmer field school methodologies. Incorporate stockists into demonstration training and provide training in product use and handling and business management.
- In collaboration with Makerere University and HORTEXA, develop and implement a tropical fruit and vegetable certificate program. Include training in regional and international trade regulations, and phyto-sanitary, certification, and document requirements.
- Through Land O'Lakes, provide training to both Alpha Dairy as well as the dairy farmer groups who will be selling milk to Alpha Dairy.
- Expand the current internship program with Makerere and implement a pilot internship program with one of the agricultural colleges.
- Establish a partnership program between a U.S. university with expertise in tropical horticulture and the new horticulture degree program at Makerere.
- Incorporate modules on the new National Agricultural Advisory Service (NAADS) into USAID-funded training programs in decentralized planning, management and monitoring for local governments.

Expanded descriptions and justifications of all training interventions recommended by the assessment team are found in the body of the report which follows.

# A TRAINING NEEDS ASSESSMENT: UGANDAN AGRICULTURAL SECTOR

## BODY OF THE REPORT

### INTRODUCTION

The purpose of the Ugandan Agricultural Training Needs Assessment was to: assess and analyze Ugandan agriculture training and capacity development needs; develop a plan of action for short- and longer-term training; and, suggest a limited number of specific quick start, short-term training activities. The document is organized by a brief overview of the Ugandan agricultural sector, followed by a detailed review of findings and conclusions, then a summary of recommendations. More detailed information on certain of the suggested training programs is found in Annex One.

**Overview of Ugandan Agricultural Sector:** Despite the country's substantial economic progress over the past decade, the majority of Uganda's rural population has benefited little and remains outside of the monetary economy. At least 40 percent of the population lives below the poverty line<sup>1</sup>. Eighty-five percent of Uganda's population of approximately 23 million people live in rural areas and depend on agriculture for their livelihood, while earning less than half of the national income. Average land holdings are only 2.2 hectares. Women head 26 percent of rural households and have even fewer assets and resources than male-headed households. While food crops contribute about 71 percent of agricultural GDP, the sector remains largely characterized by low input/output cycles of production.<sup>2</sup>

Transforming the agricultural sector is essential to eradicating poverty and modernizing Uganda's overall economy<sup>3</sup>. The Government of Uganda (GOU) has embarked on an ambitious plan to transform the sector from a largely subsistence to a market-oriented one. The Program for the Modernization of Agriculture (PMA) is based on several inter-related assumptions: increasing per unit productivity will increase the volume of marketable products and raise household incomes; any fall in commodity prices will be absorbed by increases in production per hectare; higher incomes will allow households to spend a smaller proportion of their income on food and allow more spending on non-farm consumer goods and services; and, this rise in income, in turn, will stimulate employment, production, and growth in off-farm sectors of the economy.

Increased agricultural productivity by farmers requires the adoption of improved external inputs—primarily seeds, fertilizers, and chemicals. Uganda currently has the lowest use of fertilizers in Africa. Raising agricultural output will require corresponding development of capacities for processing, marketing, packaging, and transportation of farm produce and create additional



employment opportunities. The process should transform Uganda's agricultural sector from one reliant on highly diversified subsistence farmers into one of more specialized, market-oriented producers requiring improved input and output delivery systems and increased integration of agriculture with other sectors of the overall national economy.

The barriers to achieving this vision are formidable. Smallholders lack resources, technical knowledge, and access to markets. The existing gender division of labor hampers productivity and undermines household food security—in that women are responsible for most of the arduous agricultural labor, but rarely compensated for their work. Commercial farmers and the general agribusiness sector require forward market information and linkages with buyers and exporters as well as backward linkages with subsistence farmers, input suppliers, and processors.

The traditional research and extension system has failed Ugandan farmers at all levels and not contributed to the transformation of the agricultural sector. There is a need for applied research and extension system dedicated to solving production and agribusiness problems. In recognition of this, the GOU is restructuring the extension services and attempting to introduce a demand driven system.

## **FINDINGS AND CONCLUSIONS**

The assessment team organized the data collected into categories: farmers; farmers' organizations; extension services; input suppliers; other private sector actors (exporters and processors), and agriculture education and research. Additionally, cross cutting issues (gender, food security and HIV/AIDS) are addressed.

**Farmers:** The PMA classifies farmers into three groups: subsistence, semi-commercial and commercial. The team has adopted this classification system, but has changed the designation of the middle group of farmers from semi-commercial to market-oriented. The team feels the term market-oriented better captures the level of development of these farmers. Statistics on farmer groups are based on data in the PMA.

Approximately 70 percent of Ugandan farmers can be classified as subsistence<sup>4</sup>. They have low literacy, technical skills, and knowledge levels. Less than 30 percent of subsistence farmers currently use improved seeds; fewer than 10 percent practice any form of plant protection and very few use inorganic fertilizers or other soil and water amendments. On-farm yields are less than one-third of the yields on research stations and most households continue to depend on low-input, low-output technologies, particularly the hand-hoe (93 percent of the farm households rely almost entirely on the hand-hoe for cultivation). Post-harvest losses remain high, at about 25-30 percent, and most of the agricultural produce is sold in its primary form with little or no added value.

Most subsistence farmers continue to produce a wide range of commodities on their farms. They have no access to national markets and little if any knowledge concerning markets standards, grades and quality control. Subsistence farmers are often forced to sell produce to meet domestic needs when the price is low and buy food when prices are high. Due to their precarious and uncertain situation, this group is highly vulnerable to risks associated with price, weather and yield.

About 25 percent of farmers can be categorized as market-oriented. They are a diverse group that includes those who are in various stages of transition between the subsistence and market-oriented levels of production. These farmers have more land than the subsistence farmers and are able to produce both for home consumption and the market. While only some have completely adopted and implemented modern production packages (i.e., improved seeds, fertilizer, and herbicide), most have begun the adoption process. Many are using improved seeds. Their access to extension services is limited and they obtain information about the proper use and timing of inputs largely from their neighbors and reading labels. They, too, are often unfamiliar with market standards and quality control and have difficulties accessing markets. They use both family and hired labor in farming operations that are generally not specialized. Their stronger economic position makes them less vulnerable to risks.

Barely 5 percent of Uganda's farmers operate at the commercial level. They are characterized by the large acreages and/or gross incomes associated with specialized production, marketing, and agro-processing enterprises<sup>5</sup>. They use high technology input packages that often incorporate minimum tillage, improved seeds, fertilizer and herbicide applications and modern machinery implements, and usually employ both skilled and unskilled hired labor. Uganda's farmers view their farming operations as a business and recognize the need to conduct on-farm applied research that addresses their immediate problems. Although they are more knowledgeable about market requirements and standards than non-commercial farmers, many are not well versed in the international certification requirements for exporting agricultural products. They also face problems associated with financing their operations. Many of the commercial operators are self-financed and/or dependent on short-term loans because Ugandan banks do not provide long-term financing options.

**Farmers' Groups:** At one time, most Ugandan farmers were members of local cooperatives that were organized into district unions and culminated in an apex organization in Kampala. The cooperative system provided some extension services, inputs on credit and marketed members' produce. As a result of serious mismanagement and endemic corruption at all levels, the cooperative system collapsed. Today, cooperatives are anathema to most Ugandan farmers. This has left a large hole in the system for providing services to small farmers. Consequently, the government, donors, and NGOs have all encouraged the formation of farmers' groups and associations as a way for farmers to access services and collectively address their problem. The new National Agricultural Advisory Service (NAADS) requires farmers to be organized into

groups in order to receive extension services.

The Uganda National Farmers Federation (UNFFE) is a national level organization established in 1992. Its membership includes individual farmers, farmers' groups and businesses. It was intended to fill the gap left by the collapse of the cooperatives, but as a *top down* organization, had little impact in rural areas. It was decentralized in 1998 in an attempt to make it more locally responsive. UNFFE engages in lobbying and advocacy on agricultural issues. An advisory services component provides training and extension to farmers on a cost recovery basis, although an official admitted that there was little actual recovery to date. DANIDA provides extensive training and technical support to the organization.

At the local level there is a multiplicity of farmers' groups, a number of which formed as a way of obtaining government services. For the most part, they are poorly organized and managed. Most are ill-equipped to assist small farmer members to commercialize operations and access markets. However, there are exceptions. The ones that work best have been organized by farmers themselves, usually for the purpose of accessing markets as a group. Also, their focus is on a very limited number of commodities (i.e., milk, maize and beans) and they do not engage in multiple *income-generating* activities. They have received training in management, financial controls, and marketing and on-going technical assistance in improved crop or dairy production. And finally, a national level organization or donor project has introduced them to urban-based processors and buyers, which is significant in that even with training in marketing, it is difficult for rural producer groups to directly access the large buyers and processors.

There are issues about the legal status of these groups. Most are informal rather than registered legal entities. The few that are official have usually registered as either cooperatives or associations. A very few are organized as limited liability companies. One dairy group that was registered as a limited company had been advised by a lawyer that this would provide the members/shareholders with greater control of financial resources. (This was the only group with which the assessment team met that was aware of the various legal registration options.) Farmers are being strongly encouraged to form groups in order to obtain services and market products without much thought given to the legal implications.

**Extension and Other Service Providers:** Government-sponsored extension services have been the norm in Uganda. Prior to the 1970s, the Agricultural Extension Service had relatively strong impact due to its links to the national cooperative structure and its focus on cash crops such as cotton, tobacco, tea and coffee. It also enjoyed good support from local government agencies. The entire system collapsed during the political turmoil of the 1970s and early 1980s, however, and despite several attempts to restructure it, little progress has been achieved in developing an effective extension system.

In 1999, 62 percent of rural communities reported that they had received no extension services in

the previous year.<sup>6</sup> The GOU, as part of its overall effort to transform the agriculture sector, intends to implement a new extension system that will depend on private firms to provide most services.

The new National Agricultural Advisory Service (NAADS) is being underwritten by the World Bank<sup>7</sup> and other donors through *basket funding*. The goal of NAADS is to affect a shift from farmers being seen as beneficiaries to clients responsible for a demand-driven system. Although it is publicized as a private sector extension system, it would more accurately be described as a decentralized system operated through local government agencies that will contract with private companies for services. The modality for requesting and contracting for extension services is quite complex and is tied to the annual local government planning cycle at the sub-county and district levels. No one that the team met could clearly explain how the process would work.

NAADS was originally to be piloted in six districts for two years. After less than a year, the program is being extended to an additional five districts. To date, the focus has been on the formation of farmers' groups and no extension services have been delivered through local government contracting with private firms. There is a great deal of uncertainty and confusion about how NAADS will actually operate and whether it will be more effective than the current discredited system.

Various NGOs have tried to fill the extension services gap faced by subsistence farmers via programs that include agricultural, environmental, health, nutrition and micro-enterprise development interventions. Many make a special effort to work with women's groups and ensure that women's interests are considered. Others, in addition to targeting women's groups, employ a strategy of working with both husband and wife as a team and conducting sensitization sessions on the importance of joint decision making around the utilization of household resources.

Many NGOs working with subsistence farmers are promoting low input agriculture that relies on organic fertilizers and pesticides and integrates small livestock into the production system. This approach has been effective at improving household nutrition, child survival and, through better nutrition, mitigating the impact of HIV/AIDS. However, it has been notably less effective at moving farmers from a subsistence to a market-oriented approach. A number of NGOs do not employ agricultural specialists and instead have been relying on government extension workers through the use of salary *top-ups*. These arrangements are likely to be adversely affected by NAADS once salaried government extension agents lose their jobs and become private contractors.

The team did visit several NGOs that have well trained and experienced extension agents and marketing specialists on staff. Examples are Africa 2000 and Sasakawa Global 2000. They have been instrumental in implementing and diffusing the use of the *farmer field school models* for the demonstration and dissemination of new technologies. Farmer field schools are an efficient

method of rapidly training a relatively large number of participants. Usually conducted over a period of one-to-two weeks, the field schools train extensionists in such areas as agronomy, production technologies, and enterprise and financial management. The extensionists are then assigned to an area to work with community leaders, identify *model farmers*, set up demonstration plots and train local farmers. The model farmers receive additional training and are expected to take over the local training after one year when the extensionists are reassigned. Post harvest and marketing staff provide specialized training and assistance to the groups.

VEDCO, an NGO operating in Luweero, uses a similar model to reach subsistence and the lower level of market-oriented farmers. The program emphasizes increasing household food security while at the same time enabling subsistence farmers to become more market-oriented. VEDCO also has programs specifically directed to market-oriented and commercial farmers that focus on using improved inputs, accessing markets and meeting quality standards. (See Annex Two for more details of VEDCO's program.)

**Private Sector/Input Suppliers:** A major reason for the overall low productivity of agriculture is Uganda's limited use of fertilizer—the lowest use rate in Africa. Ugandan farmers use an estimated one kilogram of plant nutrient per hectare compared to the African average of nine per hectare. Latin American farmers use five times that amount (about 45 kg/ha).<sup>8</sup> In 45 percent of rural communities, none of the farmers is using improved seed.<sup>9</sup> There are a number of reasons for the low use of improved inputs, but lack of access to input suppliers is key. The sale of a wide range of agricultural inputs including veterinary supplies, chemicals, feeds, and agricultural implements is largely in the domain of the private sector. While some companies are developing rural networks of stockists, most remain urban-based. Barriers to access and use include unavailability of products in nearby markets, lack of guidance and training on using products and cost. Both subsistence and market farmers would like to see the introduction of local supply programs, and the encouragement of stockists to operate closer to their community.

The team met with three input suppliers and one supplier of veterinary pharmaceuticals. Two Kampala-based firms were visited—Gowda General & Allied Limited and Farm Inputs Care Center (FICA). Gowda sells primarily vegetable seeds and has only recently begun offering selected herbicides and fertilizers from Kampala. They have no up-country shops or stockists. Gowda is typical of the many input suppliers that operate only in urban areas. FICA, on the other hand, has outreach agents in rural areas who provide guidance concerning the use of agricultural inputs and who sell a complete line of improved seeds, fertilizer and herbicides. The company has been actively involved with USAID project activities such as demonstration plots. The team also met with a rural-based input supplier who operates only in the Soronko area. This stockist also is participating in demonstration plots as a way to market his products. Although they are currently receiving some training through USAID projects, all input suppliers interviewed indicated that they sought additional training in business management skills, selling techniques and product use and safety.

USAID projects have pioneered the promotion of a rural stockist system. Initially, the IDEA project trained three distributors and fifty associated stockists. They now have five distributors and two hundred and eighteen stockists. The stockists are trained on the proper use and handling of the products they carry. Some business management training is also included. The courses, which were originally four days, have been compressed into two days with one-day refresher courses. Technical training is provided on the many products that the stockists carry as well as business management training. Financing options such as loan guarantees have been extended to distributors and now some stockists have expanded operations to the point that they are considering additional financing.

**Private Sector/Marketers and Exporters/Low Value Crops:** Progress has been made over the last several years in upgrading the skills and knowledge of Ugandan marketers and exporters. The Ugandan Grain Traders (UGT) has and continues to develop and implement a comprehensive and coordinated strategy aimed at improving regional export of basic grains such as maize and beans. Given the current drought and subsequent declines in production in southern Africa, gains in export sales are expected to continue. As a result of the efforts of UGT in working with firms such as Afrokai and CEI, grain sales have become more efficient and therefore more sustainable. The IDEA project has played an active role in the development of UGT, including market linkages, quality control, and grading and standards.

An innovative and successful community-based grain warehousing and marketing program is being run by the Nakisenhe Adult Literacy Group (NALG), an Iganga-based NGO. After members pool crops at one of sixteen receiving centers in the district, certificates are issued based upon the amount of production entrusted to the NGO. NALG then consolidates the commodities and seeks buyers. Upon sale of commodities to outside buyers such as the World Food Programme (WFP) and UGT, members are paid based upon certificates held. Members may redeem certificates for input supplies such as herbicide, fertilizer, or improved seeds or they may sell them to other members rather than wait upon collective sales transactions. This provides farmer members with options and flexibility.

**Private Sector/Marketers and Exporters/High Value Export Crops:** High-value exports from Uganda, particularly flowers, have greatly expanded in recent years. Through the efforts of the Ugandan Flower Exporters Association (UFEA), flower exports have in fact more than doubled over the last seven years. A mid-managers certificate-training program has been implemented in order to reduce the reliance on expatriate managers within the industry. This training program was implemented by USAID in collaboration with Makerere University and UFEA.

This effort has been successful and Ugandan instructors are now teaching many of the modules within current training program and local entrepreneurs have undertaken market contact visits

and study tours. One reason for the success is the fact that the Ugandan flower industry is relatively small and concentrated around the Lake Victoria area. This has provided for an environment conducive to reaching a consensus concerning the goals and objectives for the industry.

Horticultural exports such as fruits and vegetables have been less successful. As a land-locked country, Uganda has difficulty competing with exporters from South Africa and Africa's West coast who ship fruits and vegetables by sea at a quarter of the cost of airfreight. Ugandan crops do not always meet international quality standards and inadequate post harvest handling and storage infrastructure further reduces crop quality. Packaging materials required for international markets are not produced locally and have to be imported. Further, inadequate understanding of market conditions has led to promotion of crops for which Uganda does not have a comparative advantage; the GOU research station at Kawanda, for example, encouraged farmers to grow a specific type of avocado for export although high freight costs made it non-competitive in international markets. There has been better success with spices, vanilla beans, hot peppers and chilies, and dried mushrooms and pineapple. Export quantities remain small, however.

The Horticultural Exporters Association (HORTEXA) was founded in 1990 by a group of commercial farmers. The association has a diverse membership that includes commercial growers, buyers and exporters affiliated with particular cropping schemes. HORTEXA assists members with marketing and provides training in occupational and environmental safety, international requirements for chemical use, and fair purchase practices. The association has set up an auditing system in six districts to monitor the use of chemicals by commercial growers.

The horticulture industry does not have an organized training program for managers. Through donor support, a few growers and managers have been able to attend courses in Kenya and Tanzania. There is now demand for a more widely available in-country certificate program in horticulture that would presumably cover production, post harvest handling and packaging, standards for chemical use, and market standards and requirements. Given the range of horticulture crops, this would be a more complex course to design than the flower course, it should be noted.

**Private Sector/Marketers and Exporters/Processors:** The PMA has identified the lack of processing capacity as one of the major constraints to the commercialization of Ugandan agriculture. A partial exception to this lies in the dairy sector where the number of private processors should soon expand as the long-existing parastatal, Dairy Corporation Ltd, undergoes privatization. Currently, dairy farmers complain of low prices and inconsistent market access and the Dairy Corporation is often months behind in payments to farmers.

A recent development could alter sector dynamics. A seemingly progressive enterprise, the Alpha Dairy, has recently established a milk processing plant in Mbarara. Alpha will initially be

processing 30,000 liters of milk per day, but within the year targets output at 100,000 liters per day. Its management is committed to building strong relations with dairy producer groups in order to ensure that quality milk is received at the plant. Meetings have already been held between Alpha and several producer groups to discuss the idea of setting up localized collection centers. Initially collection will be within a 20-kilometer radius of Mbarara, but Alpha anticipates expanding its purchasing market area to a radius of 180 kilometers. The company intends to provide free veterinary services to milk producers and make basic supplies and equipment available at subsidized prices.

Alpha has received technical assistance from USAID's SPEED project and Land O'Lakes (LOL) has trained Alpha staff in marketing and sales. Concurrently, LOL has been training local dairy farmers in improved production methods, quality control, and basic business skills.

**Agricultural Education and Research/Makerere University's Faculty of Agriculture:**

Decentralization and modernization of the agricultural sector within Uganda has put increased pressure on the Makerere's Faculty of Agriculture to provide more applied and practical training for its students. However, its staff largely lacks the knowledge, experience and skills required to adequately prepare graduates for work in a modernized private sector economy. This is particularly acute with respect to the high-value horticultural industry. Gaps exist in such areas as spice production, post-harvest handling, fruit production, nursery management, tissue culture, and international trade requirements.

Recently the faculty has made progress toward revamping curricula by introducing degrees in agricultural extension education, agribusiness management, fisheries and aquaculture, food technology, and food business management. The faculty recently opened a Continuing Agricultural Education Center and has strengthened the research program to emphasize more applied on-farm applications. The agribusiness program was developed in collaboration with Ohio State University (OSU) and has enjoyed private sector support from Ugandan entrepreneurs. This program involved a survey of the private sector, creation of an active agribusiness advisory committee, development of agribusiness case studies, student agribusiness internships, participation by agribusiness personnel in classroom instruction, and provision of demand-driven training programs for agribusiness stakeholders. Both the IDEA project and the OSU program have sponsored student internships with the private sector. The Faculty's current dean as well as the dean-elect indicate that the expansion of the internship program is a top priority.

A new undergraduate degree program in horticulture will be practically oriented and focus on the horticulture industry's need for technically skilled managers with a business orientation. However, with the exception of the program director, program staff members do not have degrees in horticulture. The Faculty hopes to rectify this by sending staffers to short-term training courses in topics such as greenhouse management, tissue culture for horticulture crops,



and spice production.

The Faculty of Agriculture receives extensive support from the Rockefeller Foundation and SIDA for Masters and Ph.D. training in agricultural extension, soil science, agricultural economics, animal science, plant breeding, and pest management. SIDA is taking a lead role in biotech training and DANIDA may provide training in seed technology.

**Agricultural Education and Research/Agricultural Colleges:** There are four agricultural colleges in Uganda: Arapai, Bukalasa, Busitema (agricultural mechanization) and Entebbe (fisheries). They offer practically oriented three-year diploma courses. The assessment team visited Bukalasa in Luweero. The school was heavily affected by the war and much of its infrastructure is in poor condition. DANIDA is providing support to rehabilitate the classrooms and other facilities. Through the Agricultural Sector Programme, DANIDA is also providing assistance in revising the curriculum. Bukalasa formerly had an extensive outreach and internship programs for the students, but the lack of funds has left them somewhat dysfunctional.

**Agricultural Education and Research/NARO:** NARO—the National Agricultural Research Organization—is responsible for undertaking, promoting, and coordinating research on crops, livestock, forestry and fish and for ensuring the dissemination and application of research results. As with Makerere University, NARO staff are facing stiff pressures to revamp their activities and methodologies to better address the needs of a modernizing agricultural sector. At present, they in fact lack the skills, knowledge and experience required to generate and disseminate appropriate demand-driven technologies and information for a market-oriented agricultural sector. Again, this is particularly true in regards to the high-value horticultural industry.

Training needs for NARO staff members are being addressed through World Bank<sup>10</sup> and other donor programs. Several staff are receiving graduate training sponsored by the World Bank at the Masters and Ph.D. levels in the United States. Supported by various donors, other staff members are undertaking training in Europe. So as to better complement the overall objectives of the PMA, a somewhat thorough restructuring of NARO is currently under consideration.

**Cross Cutting Issues/Gender:** Uganda's comprehensive National Gender Policy was formulated in 1997 and while the government appears to be genuinely committed to gender equality, rural women largely have yet to benefit from the Policy's adoption. In spite of the commitment to gender sensitive policies and practices at the national level, there is concern that without concomitant changes within households and communities the implementation of the PMA program will inadvertently be detrimental to rural women. The complex issues surrounding gender inequality are deeply rooted in cultural beliefs and patterns difficult to change.

Women provide three quarters of the agricultural labor in Uganda, but unequal control of

resources and lack of power for women within the household often result in men realizing most of the benefits of their wives' labor. Thus, increases in household income do not necessarily mean increases in access to income for female members or improved quality of life for all members—especially children facing nutritional deficiencies. For example, husbands market and claim the income from the sale of beans that are traditionally cultivated by women. In addition, increased labor requirements when cash crop acreage is expanded limits the amount of time that women have available for household food crops. Paradoxically, although household income may increase as agriculture is commercialized, the general welfare of the women and children in the household could decline.

In most cases, rural women have few independent sources of income, but instead try to earn cash through a variety of small-scale activities such as backyard chicken and goat rearing, vegetable growing, and crafts. As a result of time limitations and cultural constraints, women are less likely than men to participate in training programs that would expose them to more productive technologies. When women are given the opportunity to participate they are often too shy to do so effectively given the presence of men.

Many rural women have responded to such problems by joining informal groups. Some have been able to access credit programs, training offered by NGOs and support for income generating activities. Most, however, have had little or no assistance. Those involved in small animal/dairy activities often lack the training to make these activities successful. These groups are often poorly organized and managed. They are particularly weak in skills necessary to evaluate the financial viability of an enterprise. All of the groups that the team interviewed were unfortunately involved in *unprofitable income generating activities*. This is in marked contrast to the typical male dominated farmers' group that focuses on a very small number of activities related to the production and marketing of crops and livestock.

**Nutrition and Household Food Security:** Uganda has a high rate of malnutrition<sup>11</sup> stemming from protein, vitamin A, iron and iodine deficiencies in the diet. This particularly affects children and pregnant women. Protein deficiencies reduce survival and productivity while iron deficiency anemia affects both physical capacity and intelligence. Malnutrition results in an enormous loss of productivity in the female workforce. Since women provide most of the agricultural labor, this problem is of central importance in any effective plan to increase the agricultural productivity.

The majority of NGOs encountered by the assessment team are trying to address the nutrition issue. Integrated approaches include such activities as backyard gardens. These are most successful when close to the house, small-sized and focused on vegetables and greens that can be grown and harvested continuously. Another intervention being promoted involves small animal and dairy rearing, which can be a source for increasing household protein consumption. (Women generally control the household use and sale of small animals such as rabbits and poultry.)

Farmers are being encouraged to grow new crops such as the orange-fleshed sweet potato high in vitamin A. Reductions in water-borne illness, particularly among children, are being achieved by boiling water for household consumption. This is most likely to be adopted if low-fuel cooking stoves are introduced. These stoves can heat several pots at the same time so that there is no additional fuel needed to boil the water. Verification of success of nutrition interventions is documented through village-level weighing programs in which a woman in the local community is taught to weigh and record the weight of children on a regular basis.

There is general recognition that household nutrition programs are more likely to be successful if they have the support of the men as well as the women of the community. Initial training and sensitization has included men as well as women. In one village that the team visited, men reported with visible pride and pleasure that as a result of these nutrition programs children in their villages had lower levels of illness.

**Cross Cutting Issues/HIV/AIDS:** While Uganda has done a remarkable job educating the population about HIV/AIDS and reducing the rate of infection, the AIDS epidemic has had a hugely negative effect on agricultural production and will continue to do so. It has resulted in the loss of both skilled and unskilled labor and is now the leading cause of death among adults. It is estimated that about 8 percent of the population is infected with HIV/AIDS and will die within the next ten years<sup>12</sup>. A little over half of those living with the disease are women, many of whom are also taking care of sick family members. Given the fact that women provide the bulk of agriculture labor in Uganda, this has serious implications for the transformation of the agriculture sector.

The donor community collectively has made a concerted effort to address the problem by providing long-term support for the GOU's efforts to combat the epidemic. Through USAID programs, support has been provided to NGOs for education, counseling and testing programs. Several NGOs are integrating HIV/AIDS awareness education into programs for subsistence farmers. However, many of those living with HIV/AIDS are too sick to benefit from development programs. PL-480 provides food commodities directly to this group.

## **CONCLUSIONS**

Traditional institutional capacity building has been an ineffective vehicle for modernizing and commercializing agriculture in Uganda. Despite years of institutional strengthening efforts by several donor agencies, the traditional public institutions—incorporating extension services, research and education—are unable to meet the demands of private sector agriculture. In order to meet this demand, alternative intervention models are needed.

It is apparent after a thorough review of key documents and extensive interviewing of individuals and relevant groups that *different training interventions and modalities are required for the*

*different farmer categories.* NGOs are more effective at working with subsistence farmers who require multiple interventions and extensive support in order to improve their economic situation. They also are better able to help women find strategies for dealing with the very complex issues that keep them mired in poverty. Market-oriented and commercial farmers are better served by working with more business-oriented projects. Success in meeting the training requirements of the three groups will be greatly enhanced if each is paired with appropriate methodologies.

Subsistence farmers have the most intractable problems. Most receive little or no agricultural extension services or informed assistance in accessing markets. What assistance that they do receive is often from an NGO using a food security model that emphasizes increasing on-farm production for household consumption. The agricultural package that is promoted, largely organic, is low input and while this approach has led to real improvements in household nutrition and child survival, it has done little to move smallholder households beyond subsistence level farming. An alternative NGO model starts with farmer needs assessments, categorizing the would-be beneficiaries into subsistence, market-oriented, and commercial farmers. Specific training packages are implemented for each type. With subsistence farmers, the overall goal is to ensure food security, while at the same time to move them to a more market-oriented business approach.

USAID-funded projects that facilitate linkages between farmers, private agribusinesses (input suppliers, food processors, marketing agents, and exporters) have been effective at improving the economic position of market-oriented and commercial farmers. This model encourages and supports the development and provision of extension and marketing services through private businesses that have an economic interest in providing services and technical advice to farmers. Processors, buyers and exporters need to be assured that products meet specified standards. Input suppliers are able to increase sales to farmers by providing product information to potential clients.

Further development of the agribusiness sector is hampered by a lack of qualified graduates who combine technical skills with a business orientation. There is a particular need for skilled managers in floriculture and horticulture. Agribusiness has an economic interest in ensuring that Makerere University produces skilled graduates prepared for private agribusiness employment as well as providing specific demand-driven training for current employees.

## **RECOMMENDED INTERVENTIONS**

The training interventions outlined here have been designed to target particular problems and information gaps of specific groups within Uganda's agriculture sector. They are measures that the team recommends be implemented through existing or planned USAID agriculture projects. This approach reflects that view that in order to be effective, training must be integrated with on-going technical assistance and support and that without adequate backup and reinforcement,

training alone accomplishes very little.

Most of the recommended training is through in-country seminars and demonstrations. For development of some specific skills or knowledge, short courses at regional institutions are recommended. The team also suggests that a U.S. university with expertise in horticulture be partnered with the new Department of Horticulture program at Makerere University.

**Short-Term/Quick Start Activities:** Two of the recommended activities should be implemented as "quick start" activities that can be undertaken immediately:

- **Recommendation One:** *Expand field demonstrations implemented through the IDEA project.* Quick start activities should have immediate and identifiable impact, and field demonstrations are capable of delivering on this goal. First of all, they can reach a large number of people through the multiplier effect. Second, this type of training addresses very specific problems. Demonstrations have an immediate and high impact profile among the intended beneficiaries.
- **Recommendation Two:** *Through Land O'Lakes, provide training to both Alpha Dairy as well as the farmer groups who will be selling milk to Alpha.*

While both of these interventions are identified as potential quick start activities, it is recommended that each continue as part of a longer-term training program.

**Long-Term Training Activities: Subsistence Farmers /Smallholders:**

- **Recommendation Three:** *Establish a competitive grants program for NGOs as a component of a USAID agriculture project.* Grants can be used effectively to support NGO agricultural and food security training activities directed toward assisting subsistence farmers. Funding priority should be given to those NGOs pursuing strategies that enable subsistence farmers to become more market-oriented.
- **Recommendation Four:** *Train selected staff of NGO grantees in project monitoring and evaluation; technical agronomic practices; post harvest storage and handling; business planning; enterprise evaluation; marketing strategies; and, quality standards.*

**Long-Term Training Activities: Market-Oriented Farmers:**

- **Recommendation Five:** *Expand training through field demonstrations and farmer field school methodologies.* The training should continue to emphasize new technologies, appropriate use and timing of inputs, and post harvest handling and storage. A concerted effort should be made to include women and women's groups in the training.
- **Recommendation Six:** *Conduct training seminars on "Farming as a Business" with an emphasis on financial management.*

### **Long-Term Training Activities: Commercial Farmers /Exporters**

- **Recommendation Seven:** *In collaboration with Makerere University and HORTEXA, develop and implement a tropical fruit and vegetable certificate program targeted to owners, mid-level managers, out growers, and exporters.* Additional training could be provided through regional training courses in Kenya and Tanzania.
- **Recommendation Eight:** *In collaboration with HORTEXA, provide training in regional and international trade regulations, and phyto-sanitary, certification, and document requirements.* It is recommended that this training take place in-country and be taught by consultants with expertise in the international marketing of fruit and vegetables.

### **Long-Term Training Activities: Private Sector**

- **Recommendation Nine:** *Expand the stockist in-country training program.* Training should include more business management and salesmanship in follow-up refresher courses offered periodically. Organizers should consider sending selected distributors and stockists to regional training courses on fertilizer, seed technology and pesticide safety.
- **Recommendation Ten:** *Through Land O'Lakes, provide training to both Alpha Dairy and the dairy farmer groups who will be selling milk to that firm.* Training should focus on both technical areas (milk quality control) and business and financial management skills.

### **Long-Term Training Activities: Agricultural Education/Makerere University**

- **Recommendation Eleven:** *Continue and expand the current internship program with Makerere's Faculty of Agriculture.* Internship programs should also be considered for the agricultural colleges. Funding for supervising faculty site visits to student interns should be included.
- **Recommendation Twelve:** *Establish a partnership program between a U.S. university with expertise in tropical horticulture and the new horticulture degree program at Makerere.* The university should be charged with providing short courses in green house and nursery management, tissue culture, and crop specific production in spices, fruits and vegetables.

### **Long-Term Training Activities: Local Government/NAADS**

- **Recommendation Thirteen:** *Incorporate modules on NAADS into the training programs on decentralized planning, management and monitoring for local governments.*

## **ANNEX ONE: ELABORATIONS ON SELECTED RECOMMENDED TRAINING INTERVENTIONS**

### **❑ Intervention for Smallholders/Subsistence Farmers: *NGO Grants Program***

It is recommended that a competitive grants program for NGOs be established as a component of a USAID agriculture project. The grants should be used to support NGO agricultural and food security training activities aimed at assisting subsistence farmers. Funding priority should be given to those NGOs that have strategies that enable subsistence farmers to become more market-oriented. The team was impressed with the both VEDCO and NALG (see Annex Two), but other models that incorporate these key components should be successful:

- Training farmers to manage their farms as a business (see below for discussion of *Farming as a Business* training materials);
- Increasing household nutrition through kitchen vegetable gardens and keeping small livestock through training that, whenever feasible, includes the men of the community;
- Identifying model farmers and training them to manage on-farm demonstration plots and provide extension services to the community;
- Using intensive, improved organic farming methods initially, then as farmers' income increases, introducing them to the use of improved seed, fertilizers and herbicides;
- Introducing low cost methods for better post harvest handling and storage;
- Strengthening farmers' groups through training that specifically develops their skills and management capacity in farming and agriculture related enterprises, with an emphasis on women's groups that in particular need training on evaluating the real income potential of activities and then focusing on one or two core activities; and,
- Linking farmers to markets.

Staff of the grantee NGOs should be linked with the USAID project and receive appropriate training to support their program activities. This should include:

- Monitoring and evaluation;
- Crop-specific technical agronomic packages;
- Post harvest handling and storage;
- Quality standards;
- Marketing strategies.

### **❑ Intervention for Market-Oriented Farmers: *Demonstrations/Farmer Field Schools***

The IDEA project model has worked well with market-oriented farmers who have the financial ability to purchase improved seeds and inputs. Therefore, it is recommended these farmers continue to be directly linked with USAID agriculture projects capable of continuing and

expanding field demonstrations and assisting them in identifying markets. This training should continue to involve and incorporate stockists. Commercial farmers also have the potential to serve as model farmers and/or trainers of market-oriented producers, particularly if they are interested in developing out grower schemes. A successful example of this can be seen in the collaborative efforts between the TILDA Rice Scheme and the IDEA project. Involving stockists and commercial farmers in the training serves to create on-going linkages between the farmers and the private sector that will contribute to the development of private sector extension.

Training should include:

- Demonstrations of input packages (i.e., improved seeds, fertilizers, and herbicides) and new technologies (low tillage);
- Proper handling and storage of inputs on the farm;
- Post-harvest handling and storage. Emphasis should be on low-cost drying and storage facilities such as those promoted by the IDEA project. These have been adopted by farmers more readily than the more expensive technologies developed by NARO's Kawanda research station.

More women should be included in the demonstration training. Women's groups in the community should be contacted to make them aware of the training and an effort should be made to include women as demonstration site coordinators.

#### □ **Intervention for Market-oriented Farmers: *Farming as a Business Training***

In addition to the technical training, market-oriented farmers need training on how to manage their farms as business enterprises. While they are more involved in the markets than subsistence farmers, they lack the fundamental skills and knowledge essential to operating a successful business.

There is an existing training manual, *Farming as a Business*, developed several years ago in Uganda by ACDI/VOCA now being used by a number of NGOs. However, it is quite complex and most of the NGOs are using only sections of it and/or have tried to revise it and simplify it. The need is for two different training programs using simplified training materials for both subsistence farmers and more market-oriented farmers.

- **Farm level:** The training should focus on increasing the profitability of the farm through careful planning, simple record keeping and management of resources. The training schedule should be designed to maximize the participation of farmers—half day training sessions over a four-to-six week period would be appropriate. The teaching materials should be simple, designed for low literacy groups and in local languages.
- **Farmer group level:** This effort would be a more extensive training program that would include such topics as enterprise identification and evaluation, financial management, and



contract negotiation. Enterprise identification and evaluation is a particular problem for groups. Too often this ends up being a wish list rather than a careful analysis of opportunities, skills, equipment, capital requirements– and risks. Enterprise and financial management skills including savings, use of credit and evaluation of enterprise funding alternatives (savings, credit, leasing, credit offered by suppliers or processors) should be included. These same groups will be required to negotiate service contracts with service providers under the new NAADS extension system. They should therefore receive training in contract negotiation and effective lobbying of local government entities.

❑ **Intervention for Commercial Farmers: *Tropical Fruits and Vegetables Certificate Program***

This program should be modeled on the successful tropical floriculture program for mid-level managers, growers and exporters and developed in collaboration with Makerere University and HORTEXA. An international organization with extensive experience in tropical fruit and vegetable production and actual marketing experience should be engaged to develop and initially deliver the course modules. Until there is a certificate course, selected HORTEXA members should be sent for regional short courses such as the four month OJT vegetable training course in Thika, Kenya. In addition, the Asian Vegetable Research and Development Center (AVRDC) in Arusha, Tanzania, offers a number of short-courses, seminars, and individualized training opportunities in vegetable production and post-harvest handling

❑ **Intervention for Commercial Farmers: *Trade Regulations***

While Uganda has regional trade agreements as well as international agreements with the EU and AGOA that provide duty free access, there seems to be limited understanding of the full requirements of the agreements particularly with respect to agricultural products. The team recommends that short seminars be developed and delivered in-country in collaboration with HORTEXA.

❑ **Intervention for Private Sector: *Input Suppliers***

The stockist training program conducted by IDEA is most successful and should be expanded. Both distributors and stockists need more training on the financial management, marketing, salesmanship, and a code of ethical practices. These should be one-or-two day seminars conducted in-country. Selected distributors should attend regional short courses on fertilizers, seed technology and pesticide handling.

❑ **Intervention for Private Sector: *Processors***

Land O'Lakes is providing training to Alpha Dairy as well as basic business, management and

technical skills training to dairy farmer groups in southwest Uganda. The assessment team recommends that they provide additional training support to groups that will be selling milk to Alpha Dairy. Training content should include:

- Advanced financial analysis, business planning and management skills;
- Focused business development training for women's producer groups;
- Analysis of options and implications of legal registration;
- Analysis of options and implications of contracts; and,
- Contract drafting and negotiating.

#### **Intervention for Agriculture Education:**

Makerere University previously benefited from the USAID Manpower for Agricultural Development (MFAD) Project and continues to receive assistance with faculty development from such groups as the Rockefeller Foundation. However, its staff lack both private sector exposure and current knowledge of the country's high-value export market. The team's recommendations concentrate on interventions to upgrade the school's expertise and impact in this vital area.

***Internship Program:*** The private sector internship program for undergraduates has been notably successful and the team recommends that it continue. However, currently only the top 25 percent of the class is eligible for the program and eligibility should be expanded to include the top third of the class with priority given to students who intend to seek employment with agribusinesses after graduation.

A similar internship program should be implemented in at least one of the four agricultural colleges. It is recommended that the program be piloted at Bukalasa Agricultural College and that placements should be made with agribusiness, sub-county extension offices and farmers' groups.

***U.S. University/Horticulture Program Partnership:*** Makerere University and Ohio State University (OSU) have developed a pilot program in agribusiness management at the Masters level. The team recommends that a similar partnership be established with the new undergraduate program in horticulture. The purpose of the partnership would be two fold: to upgrade the skills and knowledge of the staff in specific technical areas; and, to create an effective collaborative relationship between the university and the horticulture industry.

The pilot agribusiness OSU partnership can serve as the model for a new horticulture partnership. The agribusiness program provided assistance in curriculum development, course material design, staff training and creation of a private sector advisory committee. A similar program is envisaged for the undergraduate horticulture program. It should include:

- A student internship program with selected horticulture operations;
- Private sector inputs into course material design;
- Creation of a private sector advisory board; and,
- Short courses for staff in specific technical areas such as green house management and high value horticultural crop production.

The U.S.-based university should be selected through a competitive bid process.

**Intervention for Local Government /NAADS:**

As noted in the findings, modality for implementing NAADS is through local government institutions. The complex procedures are spelled out in the *National Agricultural Advisory Services: Program Implementation Manual*. Experience has shown that many of the districts still have a limited capacity to meet the current mandated requirements for developing annual sub-county and district work plans and budgets. It is recommended that USAID funded projects that are training local governments in how to integrate environmental issues into the planning process should be adapted to include training modules on integrating NAADS as well.

## ANNEX TWO: NOTES ON SELECTED NGO ACTIVITIES IN UGANDA

### □ Nakisenhe Adult Literacy Group (NALG)

NALG was started in 1993 as a literacy class, but within two years had expanded into agriculture, community-based marketing, environmental protection, nutrition and AIDS/HIV care. NALG operates in the Iganga District, where it works closely with the USAID-funded IDEA project. Projects are carried out through an integrated approach encompassing five critical components.

***Agriculture:*** NALG has been successful in mobilizing extension services in the communities it serves. Its agricultural projects use demonstrations, smallholder model farmers, and commercial farmers to extend knowledge and skills related to maize, beans, bananas, horticulture, and animal husbandry (milk goats, primarily). Members are also trained in post harvest handling, storage and quality control. Two thirds of NALG members are women.

***Community-based marketing:*** The NALG community-based marketing program is both innovative and successful. It has established a functioning marketing tool that provides marketing assistance to farmers through pooling of commodities in order to sell larger bulk loads. This effort provides an incentive for buyers to reach out to rural areas knowing that they will be able to accumulate bulk purchases in one geographic area. It also tends to provide farmers with higher prices than they would receive if selling only a few bags of maize to a buyer coming randomly to their village.

The truly unique feature of NALG is the market certificate program. Members pool commodities at one of sixteen receiving centers established in Iganga District. NALG never actually takes legal ownership of their member's production, but, instead, issues certificates to members based upon the amount of production entrusted. NALG then consolidates commodities and seeks buyers. Once commodities are sold to outside buyers such as the World Food Programme (WFP) and Uganda Grain Traders (UGT), members are paid for the certificates held. However, prior to selling, members may redeem certificates for herbicide, fertilizer, or improved seeds. They may also sell or barter certificates to other members. This provides farmer members with additional options and greater business flexibility than a traditional marketing system.

***Natural environmental resource management:*** NALG is training local communities and leaders about the importance of natural resource management by providing demonstration kits and creating income-generating projects that are friendly to the environment.

***Adult literacy education:*** This component focuses on functional literacy for managing the household and the farm. Participants learn, for example, how to read the labels on agrochemicals.

***Nutrition/AIDS/HIV care:*** NALG is sensitizing and training communities on how to care for children by giving them a balanced diet and proper hygiene. They are also training participants on how to prepare kitchen gardens, raise chickens, and produce goat milk for better nutrition and balanced diet. NALG is also creating awareness among the public about HIV/AIDS, its dangers, prevention, the need for good personal hygiene, and community action in furtherance of public health and hygiene.

□ **The Volunteer Effort for Development Concerns (VEDCO)**

VEDCO is an NGO whose mission is to improve the quality of life of smallholders through sustainable food security, household income generation and commercialization of agriculture. The organization is implementing a three-year program for agriculture and rural enterprise development in Luweero, Mpigi and Wakiso districts.

The capacity building program is targeting 4,200 households for a period of three years. Households are categorized into three groups (subsistence/marginal, model farmers and diversifying/commercial farmers) based on a combination of land size, crops grown and the amount marketed. Each of the farmer categories has a specific agricultural training package that include practical agricultural training, specialized field training in management of tradable crops, training of Rural Development Extensionists (RDEs), group management, record keeping and savings.

The strategies used to achieve the capacity building objectives include:

- Community planning and review meetings;
- Farmer to farmer extension services;
- Farmer exposure visits;
- Access to high quality seeds and inputs; and,
- Training in *Farming as a Business*.

The program assists farmers move from one category to the other. It is recognized that it is very difficult for subsistence farmers to become more market-oriented since many of them are severely constrained by a lack of land and labor. However, the program is able to identify subsistence farmers who do have the potential to develop further and to provide them with the services that they require. The program for subsistence farmers focuses on improved organic methods to increase crop yields and maintain soil fertility. As farmers graduate to more sophisticated levels, they are introduced to the appropriate use and timing of chemical fertilizers and herbicides.

***Farmer-to-farmer extension service:*** Model farmers and RDEs are trained to assist, share

experiences and knowledge with other farmers especially with the more marginal farmers. They are identified and selected by the community members. Each RDE is expected to work with about 15-25 neighboring farmers; perhaps one third of the 100 RDEs are women.

***Agricultural Trade (Agric Trade):*** Through this effort, VEDCO identifies and promotes market opportunities for farmers. The program is targeting about 600 farmers diversifying into commercial operation and is promoting four categories of crops:

- high value (okra, chilies, hot pepper),;
- fruit (solar dried and organic pineapples);
- low value vegetables mainly for the local market, such as lettuce, spring onions, garlic; and,
- cereals, primarily upland rice.

The program is running an electronic market information system, which helps farmers acquire market information. Through this system as well as other research techniques, potential buyers are identified and then connected to farmers. VEDCO is building the capacities of farmers to negotiate directly with processors and exporters and reduce reliance on VEDCO. Farmers groups were linked to exporters to European markets including: AMFRI, Ice-Mark, NAMI, FLONA, Victoria Commercial Enterprises, SULMA Foods and Fruits of the Nile.

VEDCO is promoting market centers where farmers' produce is gathered, sorted, measured and packaged. Through the marketing center program, farmers are encouraged to form associations to strengthen their bargaining powers through collective marketing. These centers are further used for exchange of information, sharing of experiences and training.

***Rural Credit Finance Scheme (RUCREF):*** While this program still operates from VEDCO offices and coordinates with other VEDCO programs, it is registered as a private company. The scheme is unusual in that has an agricultural credit component. RUCREF is in the process of redesigning this component to make it more responsive to the needs of farmers while at the same time improving the repayment rate. Across various parts of the central region about 6,000 clients are receiving credit.

## **ANNEX THREE: LIST OF CONTACTS**

### **Agribusinesses**

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## **ANNEX FOUR: BIBLIOGRAPHY**

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## **ANNEX FIVE: NOTES ON ASSESSMENT METHODOLOGY**

A qualitative descriptive study method was employed. Over a period of three weeks interviews were conducted with key informants and groups representing smallholder, market-oriented and commercial farmers, women, NGOs, governmental agencies, and private entrepreneurs such as input suppliers and processors

To establish a climate of trust, an important criterion for successful interviews, initial contacts with individuals and groups were made through current donor contacts. The sessions with the participants were not conducted as formal interviews, but rather an informal conversation that allowed them to share their opinions. Much of the conversations took place during site visits to various farms, offices and businesses. Prior to the interviews a panel of experienced qualitative researchers reviewed the scope of work and provided input information and recommendations for interview strategies and questions. Interview questions and strategies were based upon previous experiences and appropriateness in guiding a discussion around the purpose of the study. The process also provided a sense of direction for the interviewers and helped focus the questions to gain the most insight into training needs and about the activities of the participants. As ideas emerged, participants were encouraged to expand on their responses.

The three-person assessment team analyzed information gathered during the interviews so that a variety of opinions was available for each decision. The data analysis also consisted of looking for patterns of data so that the data itself provided corroboration regarding reliability. Decisions were reached only when there was concurrence among the three investigators. It was not assumed that the information derived from a particular question would automatically fall into one category, nor was it assumed that certain questions were the only source of data for a category.

## ANNEX SIX: ACRONYMS FOUND IN THE REPORT

AVRDC	Asian Vegetable Research Development Centre
DANIDA	Danish International Development Agency
FICA	Farm Inputs Care Centre
GDP	Gross Domestic Product
GOU	Government of Uganda
HIV/ AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
HORTEXA	Horticultural Exporters Association
IDEA	Investment in Developing Export Agriculture
LOL	Land O'Lakes
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MFAD	Manpower for Agricultural Development
MFPEd	Ministry of Financial Planning and Economic Development
NAADS	National Agricultural Advisory Services
NALG	Nakisenhe Adult Literacy Group
NARO	National Agricultural Research Organization
NGO	Nongovernmental Organization
OJT	On the job training
OSU	The Ohio State University
PMA	Plan for the Modernization of Agriculture
SIDA	Swedish International Development Agency
SPEED	Support for Private Enterprise Expansion & Development
UCA	Uganda Cooperative Alliance
UFEA	Uganda Flower Exporters Association
UGT	Ugandan Grain Traders
UNFFE	Uganda National Farmers Federation
UNHS	Uganda National Household Survey
USAID	United States Agency for International Development
VEDCO	Volunteer Efforts for Development Concerns
WFP	World Food Programme

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## End Notes

<sup>1</sup> While most sources, such as UNDP, quote 44% below the poverty line, the latest Government of Uganda Poverty Status Report (2001) states that 35% of the population is below the poverty line. They claim the 44% is a 1997 figure.

<sup>2</sup> Government of Uganda, *Plan for the Modernization of Agriculture: Eradicating Poverty in Uganda*, Entebbe, Uganda, August 2000

<sup>3</sup> Overall GDP growth for 1999-2000 was preliminarily reported as 5.1%, but only 3% for growth in the agriculture sector (Government of Uganda).

<sup>4</sup> According to the PMA: Emerging Issues and Policy Options (October, 1999) a subsistence farmer has less than 2 hectares (5 acres) of land. Compare this to the average land holding of 2.2 hectares.

<sup>5</sup> Between 1992 and 1999 the percent of farmers growing coffee rose from 16.4% to 27.5%, while during the same period the price per kilogram more than doubled and the mean output per farmer increased by 56.5%. It should be noted that the percentage of producers growing maize went from 27.5% to 67.8% over the same period, whose price also doubled. (GOU Poverty Status Report, 2001)

<sup>6</sup> Government of Uganda, *National Household Survey 1999/2000: Report on the Community Survey*, Entebbe, Uganda, January 2001. In addition to the answers provided by respondents in that survey, the Poverty Status Report of the GOU (2001) estimates that access to agricultural extension is only 15%

<sup>7</sup> World Bank IDA loan for the period 1999-2005 alone is \$45 million out of a estimated total project cost of \$108 million.

<sup>8</sup> Government of Uganda, *Plan for the Modernization of Agriculture: Eradicating Poverty in Uganda*, Entebbe, Uganda, August 2000. The UNDP 2001 Human Development Report indicators report fertilizer use at 0.3 kg per hectare (1998), compared to Kenya (28.2 kg/ha), Malawi (25.1 kg/ha) and Tanzania (6.0 kg/ha).

<sup>9</sup> Government of Uganda, *National Household Survey 1999/2000: Report on the Community Survey*, Entebbe, Uganda, January 2001.

<sup>10</sup> The World Bank IDA loan for NARO is \$26 million (IDA covers total project cost), 1999-2005.

<sup>11</sup> The World Health Organization Health Intelligence Network reports 38.3% stunting and 25.5% underweight for age. WHO, UNDP and the World Bank all report a malnutrition rate of 26% for children under 5-years. Undernourishment affects 30% of the total population.

<sup>12</sup> The Government of Uganda reports that HIV/AIDS accounts for 12% of annual deaths.