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A Training Needs Assessment: Ghana Agricultural Sector
DRAFT

Submitted to:

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EXECUTIVE SUMMARY

The Accelerated Agriculture Growth and Development Strategy in Support of Ghana Vision 2020 is a multi-faceted program for realizing the considerable potential of the agriculture sector of Ghana. In implementing this strategy, the Ministry of Food and Agriculture visualizes the transformation of the country from poor and low-income into a prosperous middle income country by the year 2020. Continued development of agricultural education and training programs is necessary to supply the skilled farm managers, agribusiness managers, extension agents, rural bankers, marketing managers and food processors central to this undertaking.

Ghana hosts four university degree-granting faculties of agriculture, six agriculture training colleges and four farm training institutes. While these facilities have traditionally furnished good training for their students, limited financing for the past several years has eroded their collective capacity to fully support the transformation of farming from subsistence level to small-scale commercial operations as called for under the new national strategic plan. The professional leadership of the education and training centers has given significant thought and effort to revamping curriculum, strengthening the practical orientation of graduates to more effective extension services, and introducing the Virtual University and other distance learning approaches. The essential subject of farm management is now generally reflected in the curriculum, but considerably more work on course content is needed for extension agents and farmer training. Agribusiness management is not as well developed as farm management and sorely in need of priority attention by the rural banks.

Continued development of course work for post harvest technology at the college and training center level is needed as are extension programs in this area. Leaders of the relevant institutions display a convincing belief that collaborative relationships with universities and faculty in the U.S. and other countries would be highly effective in converting their mostly well developed concepts into more relevant courses, teaching materials, distance learning programs, extension units and agriculture research programs. The successful development of university-level post harvest technology curriculum and related pilot work in strengthening the field experience of extension staff by the Sasakawa Center are sited as examples of the potential of such collaboration.

Professionals at these institutions have international linkages that can be expanded into effective implementing teams for appropriate up-grading of established teaching, research and extension resources. A number of highly laudable education development interventions
can be realized with short-term grants (less than two years), while others will require long-term

support (two-to-five years) in order to fully develop suitable materials and ensure ultimate effectiveness through a pilot phase of education or training. Recommended by the assessment team is a two-tiered grant program to meet the training and education needs of various players central to the transformation of Ghana's agricultural sector, as spelled out in detail in the report which follows.

A TRAINING NEEDS ASSESSMENT: GHANA AGRICULTURAL SECTOR

BODY OF THE REPORT

I. INTRODUCTION

Purpose of Ghanaian Agricultural Training Needs Assessment: The purpose of this assessment was to: assess and analyze Ghanaian 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 Ghanaian agricultural sector, followed by recommended interventions.

Target organizations were identified and agreed upon during the U.S. team members' initial in-country orientation. Although numerous attempts were made, the team was unable to meet with the Deputy Minister of Agriculture, the highest-ranking official on the list of organizations targeted for consultation. Although the team was also unable to meet with the Deputy Director General, Agriculture, Forestry and Fisheries Sector, and the Council for Scientific and Industrial Research, it was possible overall to gather an enormous amount of relevant information and hopefully some insight concerning research performance and gaps. The team met with the Vice-Chancellor (Elect) of the University of Ghana, currently the Director of the Institute of Social and Economic Research, who broadly confirmed and reemphasized the performance gaps noted below.

Given time constraints, the team elected to pose a basic question in lieu of a standardized assessment questionnaire. Questions and comments posited prompted respondents to reply to the following: *Given the Government of Ghana's Poverty Reduction Strategy and the New Agricultural Policy, both of which view the agricultural sector as the primary engine of development and growth with an increased role for the private sector in transformation, commercialization and exportation of agricultural based commodities, what in your view, are the weaknesses, gaps and constraints of your organization/institution which can be addressed through training and education, in order for it to better support and advance the new strategy and policy?*

The question was designed to elicit thoughtful discussion on areas where training, education and skills development would enhance the ability of the individual, a group of actors or a specific organization to better perform their respective roles.

Identification of performance gaps repeatedly emphasized the need to increase education and training programs in farm and agribusiness management at all levels; increase courses and

training programs in post harvest technology, particularly at the agricultural colleges and farm training institutes; expand training for extension agents and subject matter specialists in the extension service; and, introduce policy and/or marketing analysis in the Ministry of Food and Agriculture.

The assessment incorporated one month of field work during which administrators and senior staff from all levels of the agriculture sector were interviewed, a wide range of recent reports and studies reviewed, and a variety of brainstorming sessions conducted to consider ways and means for improving education and training to advance the proposed transformation of the agricultural sector. The fieldwork was initiated by discussions with USAID/Ghana staff, including project leaders for private sector assistance. Site visits were undertaken in Accra, Kumasi, Tamale and Cape Coast. In each interview the focus of the discussion was the need and suitable means for improvement of agriculture education and training in order to accelerate growth in the agricultural sector.

A. An Agricultural Sector Overview: The agricultural sector, which engages over 60 percent of the country's population, is designated in the Ghana Poverty Reduction Strategy 2002-2004 documents as the point of leverage for a national economic transformation.[1] This transformation will be achieved through agro-based industrialization (*i.e.*, agricultural processing, improved marketing services, and improved input supply services), effective decentralization, private sector investment and altering the role of the state. Components of the transformation will redefine gender roles, address land reforms, improve rural transportation and communication facilities, up-grade rural banking services and the human resources of the agriculture sector in general. While commercial agriculture is emphasized, priority will be given to small holder enterprise, labor-intensive technologies and rural dispersion. The strategy is not intended to counter market mechanisms; instead, support to poor farmers and groups will be informed by successful, market-based practices and sustainable social goals.

The Ministry of Food and Agriculture's (MOFA) primary policy document relevant to this strategy–Vision 2020–is the product of a series of brainstorming sessions and workshops as well as informal networking that began in 1995 and thoughtful analytical studies, and serves as the agricultural sector's contribution to the larger Poverty Reduction Strategy for the nation.[2] The overall perspective of Vision 2020 is that Ghana will be transformed from a poor, low-income country into a prosperous middle income country by the year 2020. GDP is targeted to increase at an average annual growth rate of 8 percent over the period compared with the 4-5 percent achieved in 1995-96. Under Vision 2020 the agriculture sector is projected to grow at an annual

[1] Government of Ghana, Ghana Poverty Reduction Strategy 2002-2004, And Agenda for Growth and Prosperity, Analysis and Policy Statement, February 4, 2002

[2] Ministry of Food and Agriculture, Accelerated Agricultural Growth and Development Strategy in Support of Ghana Vision 2020, Draft October 1997

rate of 4 percent, compared with the 2-3 percent range of 1990-1996. The sector is expected to ensure food security and adequate nutrition for all Ghanaians; supply raw material and other inputs to the manufacturing, food processing and export sectors; contribute to improvement in the national balance of payments; and, significantly improve farm incomes. Increased rural incomes are expected to have wide-ranging benefits, including in particular opening new opportunities for the poor and women. The strategy covers all of the agriculture sector, broadly defined, and includes the traditional cereal crops, non-traditional and export crops, livestock, fisheries, forestry and cocoa. It is consistent with the basic orientation of the government: reliance on the private sector to lead investment and economic growth and devolution of significant responsibilities from the central government to district assemblies.

The policies and programs designed to achieve the objectives for agricultural sector growth and rural development are composed of five major elements:

- Promotion of selected products with potential for reliable access to export markets;
- Development of and improved access to technology for sustainable natural resource management;
- Improved access to agricultural financial services;
- Improved rural infrastructure; and,
- Enhanced human resource and institutional capacity.

MOFA recognizes that well-trained individuals and strong institutions, organizations and businesses are required for strategy implementation. Therefore, the strategy calls for human resource and institutional up-grading across the board. To illustrate the breadth of enhancements to be addressed, Vision 2020 calls for training at the district staff level, within the roads agencies and rural banks, in the farm extension services, and underscores the necessity to expand the number of effective producer groups and strengthen trade associations. Curricula for formal and non-formal agricultural education at all levels, including agricultural extension, are to be revised in order to train farmers, businessmen and women, entrepreneurs and government officials to accelerate contributions to agricultural development and improved rural livelihoods.

The agriculture sector is dominant in the Ghanaian economy in terms of GDP, employment and foreign exchange earnings. In 1996, the sector employed about 70 percent of the labor force, contributed 45 percent of GDP and accounted for over 53 percent of foreign exchange earnings. It is an important source of raw materials for manufacturing and rural households form a large domestic market for textiles, consumer goods and other services.

The sector is usually divided into five principle sub-sectors: crops other than cocoa (61 percent of GDP contribution); cocoa (14 percent); livestock (7 percent); fisheries (5 percent); and forestry (11 percent). The crops sub-sector includes: cereals (maize, rice, sorghum and millet);

roots and tubers (cassava, yams and cocoyams); industrial crops (tobacco, cotton, kola nuts, palm-oil, rubber, groundnuts, copra and sugar cane); horticulture crops (pineapples, mangoes, chili peppers, ginger, lime and oranges); and, other crops (plantain, banana, beans, tomato and others).[3]

Small holder farmers on family-operated farms using rather rudimentary technology supply about 80 percent of the total agricultural production. While some of the industrial crops, such as palm-oil, rubber and pineapples are produced on large, corporate-managed estates, smallholders also produce significant quantities. Sixty percent of the 2 million farmers cultivate under 1.2 hectares, while 25 percent cultivate between 1.2 and two hectares and only 15 percent of farms are larger than two hectares.[4]

Recent improvements in agricultural production generally have been achieved through farm expansion, although some increase has been realized through the application of improved technology (seeds, fertilizer, row planting, etc). Of the total land area of 23.8 million hectares, 13 million (57 percent) is suitable for cultivation with current technology–though only 5.3 million hectares or 39 percent were cultivated in 1994. Total area under irrigation was barely 10,000 hectares out of a potential 1.1 million hectares.[5]

During the period 1983-1996 a number of improved technologies were introduced in the sector such as improved seed production and distribution, fertilizer supply, on-farm processing, agro-industrial processing, export crop production and marketing. *Unfortunately, Ghana's agriculture sector is believed to still operate at only 20 percent of its potential due to the constraints of poor rural infrastructure, minimal development of agribusiness, continued reliance on subsistence rather than commercial farming practices, weak rural financial services and related factors.*

The basic goal for development of the agricultural sector is to establish a viable, open and liberal economic system that optimizes the rate of economic development and ensures the material well

[3] Ministry of Food and Agriculture, Accelerated Agricultural Growth and Development Strategy in Support of Ghana Vision 2020, Draft October 1997

[4] Ministry of Food and Agriculture, Accelerated Agricultural Growth and Development Strategy in Support of Ghana Vision 2020, Draft October 1997

[5] Ministry of Food and Agriculture, Accelerated Agricultural Growth and Development Strategy in Support of Ghana Vision 2020, Draft October 1997

being of all Ghanaians. This will be achieved by encouraging private, domestic and foreign investments, and through improvements in macro-economic management, accelerated construction and reconstruction of rural infrastructure, and major reforms of the legal and administrative systems. Such progress is contingent on the ongoing nurturing of a scientific and technology culture that supports growth and reinforces economic reform.

Well-trained and competent personnel and strong institutions are required for implementing the strategy. Enhanced capacity of education and training institutions which serve the sector are reflective of the government's determination to construct an enabling environment within which private sector producers, marketing companies and farm service enterprises can efficiently perform. Complementing decentralization of the central government's role in rural road maintenance, local administration of extension services, improvement of market infrastructure, strengthening of environmental management services, and related fields, special training and technical assistance will be provided to districts for planning and program implementation purposes. Technical and market information services will be provided to farmers and agribusinesses. Producer and trade associations and rural banks will also be targeted for these human resource development activities. Annex Four's Sector Map of Target Organizations illustrates the linkages between the components of the agricultural sector and the education and training centers.

II. THE AGRICULTURE EDUCATION UNIVERSITIES, COLLEGES AND FARMER TRAINING CENTERS

There are four university degree-granting institutions in Ghana: the Faculty of Agriculture, University of Ghana at Legon; the Faculty of Agriculture, Kwame Nkrumah University of Science and Technology located at Kumasi (KNUST); the School of Agriculture, University of Cape Coast located at Cape Coast (UCC); and, the Faculty of Agriculture, University of Development Studies located in Tamale (UDS). There are also six agriculture training colleges where senior secondary school graduates pursue diploma and certificate programs for employment as extension agents and related rural services. The six are: Animal Health and Production College at Pong-Tamale, Northern Region; Ejura Agricultural College located at Ejura, Ashanti Region; Kwadaso Agricultural College located at Kumasi, Ashanti Region; Department of Agricultural Education, University College of Education at Mampong, Ashanti Region; Damongo Agricultural College at Damongo, Northern Region; and, Ohawu Agricultural College located at Ohawu, Volta Region.

The four farmer training institutes are: Asuansi Farm Institute; Adidome Farm Institute; Wenchi Farm Institute; and, Novorongo Farm Institute. In 1995 the universities granted thirteen PhD/Masters degrees, 213 Bachelor of Science degrees and sixty-two diplomas in agriculture subjects. In that year the agricultural colleges granted about 500 diplomas and the farm institutes

awarded 175 certificates.[6]

An estimate of the staff needs for up-grading academic qualifications to enable these institutions to provide solid programs for three priority areas (post harvest technology, farm and agribusiness management, and policy and market analysis) would aggregate to twenty-five PhDs, forty-seven Masters and thirty-one special short course cycles. The breakdown of this estimate is shown in Annex Three.

At all facilities, primary performance gaps are related to the inadequate financing for maintenance and up-grading of laboratory facilities; the difficulty and cost of providing students with practical experience in farming and agribusiness activities; the need for up-grading qualifications and experience of university and college staff in these areas; and, the institutional constraints in networking with instructors of other universities and colleges and entrepreneurs from the private sector and other agriculture sector services. Draft curricula have been prepared which would introduce farm management, agribusiness management for post harvest technologies (product processing, transformation, conservation and storage) and export crop production and processing.[7] The drafters stressed that the new courses would benefit from assistance by experienced instructors in these fields in the preparation of the detailed syllabus, text material, practical and laboratory work and other areas. Also stressed was the need for additional academic work to up-grade a number of staff and equip them with the knowledge and skills required in these new academic areas.

Within the post harvest technology area the subjects of priority concern include local processing and packaging of farm products as well as processing and storage of horticultural produce. The commodities that need urgent attention are: cereals (maize, millet, rice and sorghum), the legumes (cowpea and groundnut), and root crops (cassava and yam). The estimates of losses for the cereals and legumes is 20 percent as it is for roots, while for tubers and vegetables the losses are estimated at a staggering 40 percent. The key theme of all areas of post harvest improvement is adding value to primary crop production, improvement of income-earning opportunities through the development of small enterprises and support to the private sector.

Women play a major role in the post harvest chain.[8] Women process foods for family consumption with simple, crude technology in working conditions generally severe and with little, if any, access to packaging and quality control expected in the market. New technology

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[6] Ministry of Food and Agriculture, Agriculture in Ghana: Facts and Figures, Statistics, Research and Information Directorate, Revised January 2001

[7] Faculty of Agriculture, University for Development Studies, Handbook for the Bachelor's Degree Program, Draft for Discussion, July 2002

[8] ministry of Food and Agriculture, Gender Training for Agriculture Extension Agents, Support Diverse Rural Needs and Livelihoods, Draft January 2002

introduction, including skills training in operation and small-scale enterprise management for handling any surplus beyond home consumption, were consistently mentioned for the women's component of training for the post harvest technologies.

The generally enthusiastic reception to renewed USAID interest in agricultural education and training was notable in all interviews. There is a strong consensus that collaboration with U.S. education and training expertise offers rich opportunities for up-grading staff qualifications, developing more effective education and training units, accelerating the transfer and refinement of more productive technologies, introducing new concepts for networking with the private sector and providing other improvements for the sector.

There is substantial, recent analysis of agriculture education, training and extension in Ghana and a number of well-written reports addressing aspects for up-grading the education and training programs of the sector. This material will be invaluable in crafting specific linkages between U.S. and Ghanaian institutions.

A. Universities: The Faculties of Agriculture at the universities provide graduates with a good basic education as demonstrated by the graduates' achievements in advanced degree programs in the U.S., Europe and elsewhere, on-the job performance in UN and international organization positions, and placement in governmental and other senior positions across Africa. Bachelors degree graduates of the universities are employed in the ministries, as tutors in the agriculture colleges and farm institutes, extension agents and subject matter specialists; a few find places in the private sector or with NGOs. Graduates at the Masters and PhD level fill senior positions in government and at the agricultural universities and colleges.

Close examination of the facilities and programs of the universities reveals, however, that the education, research and outreach assets are inadequate to provide the new technologies required for the agriculture productivity and poverty reduction programs. New research and educational programs are required for crop diversification, expansion of products for the export markets, transformation from subsistence farming to commercial agriculture, extensive stabilization of agriculture production with irrigation technology and other objectives. Many of the staff have minimum qualifications for the positions they occupy and will be at serious disadvantage in tracking the continued development of technology in their fields. One also finds the teaching laboratories poorly maintained and generally equipped with outdated equipment as a result of inadequate budget support. While some of the library facilities and collections and computer labs are somewhat state of the art, they are hardly adequate to support an expansion of education, research and extension capabilities or expertise.

Current annual expenditure for the universities, colleges and training centers are allotted primarily for salaries–some 90 percent of aggregate budgets–with only 7 percent available for

administration, 2.5 percent for investment and less that 0.5 percent for services.[9]

A number of educators forthrightly acknowledge a near total lack of knowledge of the current professional status of graduates and recognize that consequently they have little feedback to fine-tune research, teaching and extension programs. Several educators indicated that they would like to organize a network of educators, business executives and officials from various governmental departments whom they might periodically engage in planning of research, formulation of new courses or revision of established ones, preparation of new farmer training units and/or the mapping of extension strategy. Several networking and workshop activities have been conducted with *ad hoc* donor support such as the work leading up to the introduction of the post harvest technology course at the University of Ghana. Although the University has revised the curriculum to include farm management and agribusiness, training of additional staff in these fields and in policy and market analysis remains a necessity.

It was also noted that the MOFA effectively used a similar networking approach in drafting the Accelerated Agriculture Growth and Development Strategy. For the near future, it was suggested that networking should be built into all education development activities. It was further proposed that graduate backstopping and technical networking be incorporated into the administrative operations of education and training centers to enable them to closely coordinate training programs with the needs of clients on the farms, in agribusiness and food and export marketing.

There is a high level of concern about the limited field experience built into training programs for virtually all agriculture students. Most students have very little familiarity with current farm production practices when they enter their program of study; then while in school, they receive little or no practical orientation. Nonetheless, at graduation they are expected to consult with experienced farmers, businessmen and others for the purpose of advising them upon the ways and means of utilizing better, more productive, profitable and environmentally sustainable technologies–obviously a major disconnect. Several institutions, notably Cape Coast University with the assistance of the Sasakawa Foundation, have pioneered an effective combination of *supervised experience projects* with classroom work to meet this need. Unfortunately, this field experience is costly to provide and not readily accommodated in the limited financing traditionally allotted to the university and colleges of the country.

A recent Winrock Foundation evaluation of the agricultural faculties and colleges pinpointed the limitations faced:

[9] Department of Cooperatives, Annual report 1999 – 2000, May 2001

- lack of a clear vision statement to help graduates relate to the changing and complex nature of the agricultural sector;
- lack of clarity and consensus regarding the content of curricula required to train individuals to effectively address the needs of the sector;
- lack of practical off-campus training units;
- rapid growth in enrollment taxing the established facilities;
- a dramatic increase in graduation rates exceeding employment opportunities;
- poor understanding of existing agriculture systems in productive regions of the country;
- an exodus of qualified lecturers from agriculture faculties and colleges due to unattractive salary and working conditions;
- poorly equipped laboratories; and,
- lack of commitment to resource-poor clientele, including subsistence and emerging semi-commercial farmers.[10]

B. Virtual University: Cape Coast University, University of Ghana at Legon and Kwame Nkrumah University of Science and Technology at Kumasi are pioneering *the Africa Virtual University* and through this program providing business management, basic science and introductory engineering educational units by using electronic technology to deliver state-of-the-art course material to students. The Virtual University is not being developed as an alternative to the conventional university as much as an educational tool that is well suited to certain elements of university education and a means of meeting the demands of an increasing student population on facilities and staff. A wide variety of formats are being used, including text material on CDs, lectures transmitted by TV with satellite linkages to reach students at the three universities in Ghana and also in Nigeria, Kenya and other African countries. Some lectures include two-way exchange with a question period for clarification of lecture material.

The Virtual University also has distance learning modules for self-teaching and in-service skills up-grading. While the installation costs of the electronic technology are high and there are a number of connectivity constraints, distance learning technology holds promise for reducing the costs of education, accelerating the spread of improved technology, addressing non-formal as well as formal education and training needs, and generally accelerating the pace of human resource development. Coordinators of the Virtual University see interesting possibilities for adding basic agriculture units but note that such an expansion would have major development costs both for educational materials and electronic equipment to serve the additional students, as well as for additional staff to administer the system.[11]

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[10] Moses M. Zinnah, Alex G. Carson and Roger E. Steele, An Assessment of Agricultural Education at the Tertiary Institutions in Ghana, A report prepared under an African Career Awards research grant from the Rockefeller Foundation, Final Report, November 2001

[11] University of Cape Coast, African Virtual University, January 2002

C. Agricultural Colleges: Ghana's agriculture colleges are the primary trainers of staff for the extension service. On paper, the curriculum of these centers provide a comprehensive preparation for extension service. In reality, the weak agriculture background of most students and the limited means of the centers to provide practical experience lead to predictable on-the-job complications for graduates diagnosing farm and agribusiness problems and formulating suitable actions to solve them. The University of Cape Coast, with support from the Sasakawa Foundation, is offering a Bachelors program in agriculture extension that provides experienced agents with two years of additional class work and a program of supervised enterprise projects in four-to-six month field assignments. The graduates of this program are notably more effective in facilitating agriculture growth and improvement of rural livelihoods; consequently they are in high demand for extension and service positions by NGOs. The University of Development Studies in Tamale has a draft curriculum emphasizing a similar approach of expanded field work and is now seeking resources to complete the course planning and initiate a trial phase of introduction.[12]

D. Farm Training Institutes: The farm training institutes provide nine month training courses for prospective farmers and various short courses for practicing farmers intended to introduce improved technology. The faculty members are graduates of the universities with some field experience in the extension service. Unfortunately, poor financing of the centers has lead to deterioration of laboratories, poor conditions in the field demonstration areas and serious reduction in the number of training cycles offered. The institutes need major refurbishing and considerable staff up-grading if they are to play a relevant role in the agriculture growth strategy.

E. The Extension Service: The extension service is a two-tiered organization with district-level extension agents responsible for direct assistance to the farmers and regional subject matter specialists backing up the agents. Decentralization will place the extension agents under the administrative jurisdiction of the district administration; the subject matter specialists, however, will continue to be under the direction of the MOFA and operate from regional headquarters. The extension agents are generalists and certificate holders from the agriculture colleges or Bachelors degree holders from the Faculties of Agriculture at the universities. The subject matter specialists, required to have a Masters degree, are assigned to one of five specialist areas: crops; animal services; post harvest technology/engineering services; policy and planning; and/or, women's services. At present, about half of these positions are vacant and a number of the incumbents do not have the educational qualifications specified under the national strategy. Further, the current ratio of one extension worker to 5,000 farms is grossly inadequate for up-

[12] Joseph A. Kwarteng, Extension Education: Reshaping African Universities and Colleges for the 21st Century, Proceedings of a workshop in Accra and cape Coast, 4 – 6 September, 2000

grading farming techniques at the rate required for the strategy to advance.

A priority of many agriculture officials is up-grading the market-related and farm management skills of the extension service agents. Farm lending could be facilitated by the existence of a farm business plan that, for example, clearly portrayed loan approval as being tied to a viable investment. The extension service is in position to provide similar business management services to rural entrepreneurs–offering farm input supplies, tractor hiring services and rural banking services. In order to respond to these needs, the training of extension agents and of those who train them in the agriculture colleges have to be strenuously revised to include more focus on business management. There is some recognition of this reality in the recent curriculum updates of the university faculties of agriculture, but course content still does not provide adequate focus on the small commercial farm or rural business enterprise.

MOFA's final draft Agriculture Extension Policy Paper (April 2001) presents a vision for the future of the Agricultural Extension Service. In the short- to medium-term (two-to-ten years), according to that document, an efficient and demand-driven extension service in a decentralized system will be established through partnership between government and the private sector. It is envisioned that clients (farmers and other users of the service) would participate in extension program formulation, implementation, monitoring and evaluation. The private sector, including NGOs, will participate in extension service delivery, development of farmer-based organizations and development of the infrastructure of commercial agriculture. Government will provide funding for extension service delivery to small, resource-poor farmers, poverty reduction efforts and activities addressing the quality of rural livelihoods including health issues (HIV/AIDS, Guinea worm), give more attention to gender roles in rural development, sustainable natural resource management and similar socio-economic issues central to its poverty reduction efforts.[13]

The extension service includes subject matter specialists responsible for women's programs, but the scant allocation of one officer per regional level is excessively thin coverage. There are serious technical problems faced by women farmers and they, while generally responsible for food processing and maintenance of equipment, have extremely limited access to financing. It does not appear that the government anticipates addressing these issues until the demand from the districts dictates it.

The HIV/AIDS message of the Ghanaian extension service reflects the comparatively low incidence of the disease in the country–3 percent overall prevalence in 2000 with significantly lower rates in rural areas. It is recognized as a health risk and there is considerable effort given to awareness programs, but it is not yet seen as a major factor in education, training or human

[13] Ministry of Food and Agriculture, Agricultural Extension Policy, Directorate of Agricultural Extension Services, Final Draft, April 2001

resource planning.[14]

F. Rural Financial Services: The critical importance of improvement in financial services for small-scale rural agribusiness is prominently mentioned in the MOFA agriculture growth strategy and generally recognized by all professionals working in the sector. Unfortunately a growth strategy for rural banks and supporting programs for improving rural accessibility and reliability of financial services remains a work in progress. The rural finance review of the Ministry of Finance contains twelve issues and recommendations for increasing the flow of credit for improved farming and expansion of agribusiness. Among them are recommendations for in-service staff up-grading in the rural financial institutions and new training programs to supply the staffing needed to significantly expand these organizations and the services they provide. In the Ministry report, the responsibility for action is assigned to the Ministry of Finance, Bank of Ghana, NGOs and rural financial institutions.

In various interviews conducted by the assessment team, emphasis was placed upon improvement of business planning and better presentation of loan applications submitted by farmers and agribusiness managers. While the agricultural universities and training centers include rural finance and business management in their programs, new courses will be required to fully meet the needs of the transitional commercial farmers and small rural businesses. Several staff and administrators recognize this and acknowledge their need for help in putting together appropriate education modules, gaining the acceptance of their institutions for introduction of these units in the curriculum and continuing technical assistance during a pilot phase of instruction.[15]

G. Trade and Marketing Associations: Discussions with the executives and staff of trade associations, particularly associations dealing with exports of the non-traditional agricultural products, reveal a strong demand for workshops and short-courses on production, management and marketing technologies for high-value food items bound for the highly competitive markets of Europe. The challenges of the export trade are numerous and frequently changing as new products and new markets are considered. The needs of the young, modestly financed and somewhat specialized companies must be addressed in well-focused and not overly time-consuming education and training units as prospective trainees can be away from their work assignments for only limited periods and only at certain times. The trade association staff is available to collaborate in the preparation of practical training units, assist in the conduct of the initial training cycles and progressively assume the full training responsibility for certain units.

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14 Ministry of Health, HIV/AIDS in Ghana, Background, Projections, impact, Interventions, and Policy, National AIDS/STD Control Programme, Disease Control Unit, 3rd Edition, December 2001

15 Kowubas Ltd., Rural Finance Review Study, Ministry of Finance/World Bank/NBFI Project, Final Draft, August 2000

The associations currently require external experts to evaluate the needs of their membership, design appropriate training modules, conduct initial training and train their staff to become trainers. There was frequent mention of the AMEX and Technoserve projects as excellent prototypes, although the need seems to be well beyond the resources of these two projects.

The trade association also advocated more sophistication in policy and market analysis, particularly for the export crops, and in their opinion the needs would be best met at the university level and within strengthened departments of the government. They see market analysis conducted at two levels: specific products and commodities of interest to members in their current operations would be the domain of the trade association while generic issues of world trade for the fruits or vegetables, for example, need more sophisticated treatment by governmental agencies. Discussion at the universities revealed some awareness of this concern, but there is need for more networking with the government officials on modalities. It seems logical that identification of some specific training inputs would be one of the results of this dialogue.

H. Nongovernmental Organizations: There are many nongovernmental organizations (NGOs) at work in Ghana and the government is encouraging them to emerge as major players in rural development. These organizations are generally better funded than the extension service and have been able to attract well-qualified agents for their field work–often at the expense of the extension service itself. NGO development projects are focused on the farm level and integrate social objectives with production improvements and post-harvest technologies. They are resourceful in acquiring improved technology appropriate for their clients and continuously monitor the education and training programs as resources for up-grading outreach. The primary education and training need of these organizations is an enlarged pool of trained extension workers and additional training materials for farmers, women and rural leaders.

I. Cooperatives and Farm-based Organizations: Cooperatives are operational largely in the cocoa producing areas. In the rest of the country the government is encouraging NGOs and extension agents to organize farm-based groups and assist them in realizing the benefits of collective marketing, input buying, project financing and other joint ventures. The legal umbrella and organizational structure for these groups is now being defined, though the education and training programs for extension agents regarding the organization of and operational support for farm-based groups has yet not been developed. Due to their experience in organizing rural economic groups, the cooperatives and the Cooperative Training Center in Kumasi are potentially important resources for crafting suitable education and training programs for the agents.

III. THE USAID COUNTRY STRATEGY PLAN

USAID's current Trade and Investment Reform Program (TRIP) portfolio for Ghana supports agriculture (with $9 million allocated within the Mission's proposed overall $54.7 million program for FY 2003) and emphasizes reforms to increase private-sector led economic growth. USAID is in the process of formulating a new strategic plan for 2004-2010 that will build upon the success of current programs in policy analysis, private-sector export trade, improved governance and expansion of health services. At the present stage of planning, USAID's program will continue the financial, legal and regulatory policy work with increasing attention to agriculture and agribusiness; will continue to address critical problems of the private sector in expanding export trade of the high-value horticulture crops by strengthening trade and marketing associations; assist the development of tourism; support the reduction of the country's energy constraints; support further assistance in primary education; and, assist in addressing the HIV/AIDS and other critical health problems.

While interventions contemplated at present will not directly support development of the agricultural universities or training centers, anticipated activities would be directly complemented by concurrent enhancement of these facilities and their programs.

IV. OTHER INTERNATIONAL DEVELOPMENT PLAYERS

The Japanese (JICA) and the British (DFID) provide significant donor assistance to Ghana, but neither have virtually significant programming in the agricultural sector. Among the bilateral donors, GTZ (with total annual aid to Ghana on the order of $12 million) supports the largest portfolio in the sector with projects addressing agricultural extension services, integrated crop protection, the West Africa Seed Development Unit, and promotion of the private sector.

The World Bank is phasing down a $67 million IDA project, the Agriculture Services Sub-Sector Investment (2000-2003). This project was implemented to strengthen government capacity, promote cost-effective extension, strengthen farmer organizations, and assist MOFA with decentralization. There is also a Bio-diversity Conservation in the Northern Savannah Zone project that runs through 2008. In the pipeline is a $25 million credit for a land administration project to assist the Ghanaian government as it implements land tenure, registration and titling policies.

V. CONCLUSIONS AND RECOMMENDATIONS

A. Grants Program for Institutional Training: This assessment reveals considerable need and opportunity for human resource development to improve agricultural productivity and promote poverty reduction in Ghana. There are numerous relevant institutions with capable staff

whose impact can be enhanced through modest support. Consultations with university, college and training institute staff reveal that most senior administrators have a sound understanding of critical constraints in their fields of specialization and are well informed about developmental, economic and political activities in the wider spheres served by their institutions. These administrators and academics have a prioritized sense of specific inputs needed for research, education and/or training that would effectively complement current or anticipated developmental activities undertaken in pursuit of strategic goals. They are well equipped to articulate grant proposals that would convincingly demonstrate the critical importance of the particular up-grades for agriculture education and training facilities required if those institutions are to reinforce government, donor and private sector efforts to increase agricultural productivity and raise rural income levels.

This conclusion leads to recommendation of a START-funded, five-year training grants program that would enable agricultural education institutions and their training staffs to plan, manage and implement the improvements they self-identified. The START contractor will design the program in close collaboration with USAID/Ghana. Such a training grants program could effectively advance enhancements in three critical areas:

- post harvest technology;
- farm and agribusiness management; and,
- policy and market analysis.

The most efficient structure of the training grants program would be to provide grant resources through U.S. organizations or individuals qualified and prepared to fully collaborate with professional counterparts in Ghanaian education and training institutions. Such collaboration would be centered on developing skills in the high priority areas bulleted above. Two categories of grants are suggested under the five-year program: two or more short-term interventions (each less than two years in duration), and longer-term efforts which could take as long as five years to fully implement. Basic characteristics of the recommended training grants program are described below.

While implementation of training interventions should of course expand the administrative skills of Ghanaian academics, the current structure of academic institutions does not permit the level of independence and quick response found in U.S. institutions and it is uncertain if local faculty could undertake the lead role in implementing targeted interventions on a quick-response time line. Thus, it is anticipated that the most productive track will be to provide grants that team U.S. and Ghanaian college and university staff in equitable partnerships to design and implement training inputs. *Grant proposals that fail to demonstrate a genuine dedication to partnering arrangements that would boost the administrative capacity of Ghanaian institutions should be uniformly rejected.*

For effective utilization of scarce development resources, it will be necessary to carefully focus education and training efforts and ensure that they complement infrastructure improvement, private sector market expansion and other components constructed to ensure sustained growth. The Government of Ghana relies upon donor resources for implementation of its program of agricultural growth and poverty reduction. While to some extent the flow of such resources will be coordinated through donor consultations, neither the government's nor the donor community's agenda adequately visualizes a detailed plan with well-defined goals for an up-grading of human resources–*as is needed.* Administrators of the training grants program therefore have to be fully cognizant of the larger picture unfolding in the country if it is to achieve full strategic impact and maximize immediate and longer-term impact.

Beyond proposing a pairing of American and Ghanaian collaborators, the assessment team does not here present detailed recommendations regarding the structure of a secretariat for training grants administration, deferring that question to Mission preferences and consultations with the potential program administrators.

Because of the currently limited financial allotments to the education and training institutions, and the expectation that government resources will be limited for some time while a new economic growth trend is established, the proposed training grants should include a reasonable time line for phasing in domestic resources for the up-graded research, education and/or outreach activities.

B. Short-Term Human Resource Development Interventions: A number of specific suggestions for addressing well-defined and immediate needs for improvement of agricultural education and training stem from this assessment; all center on post harvest technology, farm and agribusiness management, and policy and market analysis. These are short-term interventions suitable for support throughout the recommended five-year training grants program.

Senior faculty at various universities and training centers emphasize that a number of staff members are ready for additional degree education and/or specialized short course work in related fields. There were suggestions that particular American and other international instructors would be welcomed as collaborators in appropriate research and development of suitable curricula materials. The most consistent suggestions focused on collaboration with international instructors familiar with conditions in Ghana. The consensus of opinion is that experienced U.S. specialists should organize a specialized network to undertake workshops in Ghana for the purpose of course and teaching material preparation, outlining of appropriate research and/or planning of extension activities. Qualified and interested Ghanaian professionals–initially a group of twenty or so individuals–could work with U.S. counterparts to put together detailed proposals within three-to-six months for refinement of concepts into a multi-faceted program that could be completed within two years. The proposal would be in

response to U.S. and Ghana solicitation for proposals for training activities in one or more of the critical fields.

Consequently, a USAID-funded training grants program could fairly quickly solicit and consider proposals from U.S. specialists or relevant organizations working in collaboration with Ghanaian university or college administrators that together have the capability to address the needed enhancement in course development, research planning or preparation of outreach materials. Proposals most relevant would be those that focus on:

- **Technical fields:**
  - **Agriculture management:**
    - Farm management;
    - Course content for the faculties of agriculture;
    - Training units for the farm training institute;
    - Extension programs for the extension service;
    - Skills training for farmers and farm-based organizations; and,
    - Agribusiness management for small scale rural enterprise.

  - **Post harvest and marketing operations:**
    - Improved on-farm cereal and legume storage, processing, handling, transportation and storage of fruits and vegetables, and roots and tubers processing; and,
    - Cassava processing for industrial starch.

  - **Export crops:**
    - Agricultural policy analysis; and,
    - Market information.

- **Resource development to support:**
  - Course content development;
  - Text and teaching materials preparation and publication (including CD and electronic media);
  - Short course and distance learning activities as education and service programs; and,
  - Strengthen staff qualifications in specialized advanced degree activities.

i. Preliminary Implementation Plan: It is recommended that implementation of short-term training interventions roughly follow this outline of activities:

- U.S. and Ghana solicitation for proposals for training activities in one or more of the

critical fields;

- Closing date for proposals and selection of grantees thirty days from advertisement;
- Field survey, consultation and preparation for initial development workshop ninety days from training grants proposal acceptance;
- Development of suitable education and training materials six months after workshop;
- Second workshop for the presentation of materials to Ghanaian administrators and educators on specific subjects by the eleventh month of the grant; and,
- Final report, including sufficient quantity of the new education and training materials for distribution to all education and training institutes with apparent interest in this subject at the level developed one year from issuance of the training grants.

C. Long-Term Human Resource Development Interventions: Activities cited for medium- and long-term human resource development for agriculture growth and poverty reduction in Ghana are expected to require two-to-five years of research and implementation, including degree training. Implementation of new education and training programs, even at the prototype stage, may require a substantial modification of training facilities and revision of institutional budgets. Objectives will best be met through provision of training grants meant to improve the academic qualifications of the grantee, create improved educational units, improve the professional network for the subject matter, and thereby directly improve the technical, economic and social performance of a component of the agriculture sector. Annex Three provides estimates of training needs and the appropriate levels for the three main subject matter areas.

The main features of the recommended training grants application process relative to longer-term interventions should include:

- Provisions for experienced Ghanaian faculty or U.S. academics familiar with the situation in Ghana being eligible for participation;
- Extensive collaboration between U.S. and Ghanaian specialists to feature prominently in the proposed plan of work;
- A preponderance of the training grants should support research, development, pilot utilization and evaluation of new education units;
- Training units intended to improve business practices and suitable for joint implementation with trade associations are to be included;
- Advanced degree training as an option;
- Reserving some training grants to support research in production, processing and/or marketing technologies; and,
- Non-formal educational material development and extension methodology would be supported.

Technical areas appropriate for support correspond to those identified above for short-term

interventions.

i. Preliminary Implementation Plan: Recommended is a program of small training grants to U.S. and/or Ghanaian agriculture education and training faculty for activities designed to more fully define education and training needs in a selected topic (from the list provided above) and prepare a suitable approach to suitable improved courses and instructional materials including a cycle of prototype implementations. The proposers should be encouraged to include participation of middle management staff of trade associations, rural financial services, and NGOs in the planning analysis team.

Again, it is anticipated that the most productive track will be providing training grants to U.S. college and university staff teamed with Ghanaian counterparts. Training inputs could be implemented roughly according to this outline of activities:

- Solicitation of grant proposals ninety days from signing of agreement with the grant program administrator;
- Closing date for proposals and selection of grantees set sixty days from advertisement; and,
- Initial reports from grantees due six months from awarding of grant.

Under the second stage of implementation, written materials would be developed through small grants to U.S./Ghanaian teamed specialists in each subject area prior to convening of workshops which would engage Ghanaians and U.S. participants to review and clarify the education and training needs. Workshops would be convened within ninety days of the awarding of the grants. Then:

- Preparation of improved education and teaching materials would be complete within a six month period following initial workshop;
- A second round of workshops would present new materials to the educators in the field for comment during the ninth month;
- A trial cycle for use of the improved education and teaching material would commence within one year with some resources for evaluation and modification;
- A final report would be due within two years;
- Training implementation would carry on through year five.

Advanced degree work should be supported for up to five individuals determined in the initial report on education and training needs. Grants for subject matter improvement to be written and implemented for one or more subject matter fields and at one or more education and training levels as defined by the initial needs study should be provided. A five year effort is visualized for the long-term intervention program.

ANNEX ONE: CONTACTS

Date	Organization	Contact Person
11/07/02	AMEX International	David Esch, Director
11/07/02	TECHNOSERVE	Nicholas Railton-Brown, Director
11/07/02	SIGMA ONE Corporation	Joseph Goodwin, Senior Economist
12/07/02	Women in Agriculture Department of Agriculture, MOFA	Mrs. Ashitey, Assistant Director
15/07/02	Human Resources Dept., MOFA	Mr. F.W. Aidoo, Director Mr. Mallet
15/07/02	Extension Services Dept, MOFA	Mr. Donkor, Director Mr. Seth Asiamah, Deputy. Director
15/07/02	Department of Cooperatives	Mr. Buache-Aphiram, Registrar
16/07/02	Horticulture Association of Ghana	Mr. Asmah, President Mrs. Tina Ashong, Vice President Mr. Botchwey, Member Mr. Emmanuel K. Tutu, Executive Secretary
16/07/02	Faculty of Agriculture, University of Ghana	Prof. Anna R. Barnes, Dean
16/07/02	Africa Virtual University, University of Ghana	Prof. Dakubu, Co-Coordinator
16/07/02	International Relations Office, University of Ghana	Prof. Sefa Dedeh, Co-Coordinator
18/07/02	Agricultural Engineering Department Kwame Nkrumah University of Science and Technology, Kumasi	Prof. Baryeah Mr. Joseph Aveyire Mr. Bart-Plange
18/07/02	Regional Director of Agriculture, MOFA Kumasi	Mr. Osei Frimpong
18/07/02	Kwadaso Agricultural College, Kumasi	Mr. Appiah, Principal

19/07/02	University of Development Studies, Tamale	Dr. Thomas Bayorbu, Dean Mr. Awudu Abukari, Lecturer Prof. E.O. Otchere, Lecturer Mr. Joshua Adam Yidana, Lecturer
19/07/02	District Director of Agriculture Kushegu Karaga District, Tamale	Mrs. Grace Koyiri
19/07/02	Women in Agriculture, Tamale Shea Butter Producer Group	4 women in the interview group
19/07/02	Animal Health Institute Pong, Tamale	Dr. A.K.A. Deyejhe Mr. A.H. Ibrahim
19/07/02	Women in Agriculture, Tamale Rice Milling Group	12 women in the interview group
22/07/02	Agricultural Engineering Services Directorate, MOFA, Accra	Mr. Joseph K. Boamah, Ag Director Mrs. Ernestina Armah Mr. David Crentil
22/07/02	Association of Ghana Industries	Mr. C.J. Kosiba, Director
23/07/02	African Virtual University University of Cape Coast	Prof. Gadzekpo, Coordinator
23/07/02	Academic Programs Coordinator University of Cape Coast	Mr. Gallow
24/07/02	Sasakawa Extension Education Center School of Agriculture University of Cape Coast	Mr. Samuel Akuamoah, Head of Dept. Mr. Ernest Layeah Mr. Joseph A. Kwarteng Dr. M.M. Zinnah
25/07/02	Export Promotion Council	Gerald Nyarko-Mensah General Promotion Manager Mr. R. Aggor, Dev. Officer
26/07/02	Vice Chancellor University of Ghana	Prof. Asenso-Okyere
26/07/02	Agricultural Development Bank	Mr. William Tetteh General Manager for Credit Admin. Mr. Yaw Opoku-Atoahene Dy Manager and Director for Credit Advances

ANNEX TWO: BIBLIOGRAPHY

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ANNEX THREE: ESTIMATION OF PROFESSIONAL UP-GRADING NEEDS

	Post Harvest			Farm/Agribusiness			Policy & Marketing		
Institution	Ph.D	M.Sc.	S.C.*	Ph.D.	M.Sc.	S.C.*	Ph.D.	M.Sc.	S.C.*
Univ. of Ghana	2	1	2	2	1	2	1		
KNUST	2	1	2	2	1	2	1		
UCC	2	1	2	2	1	2	1		
UDS	3	2	1	3	2	2	1		
Agr. Colleges		4	2		4				
Farm Institutes		4	2		4				
MOFA, SMS		9	6		9	6	2	2	
Export Promotion Cncl							1	2	
Total	9	22	17	9	21	14	7	4	

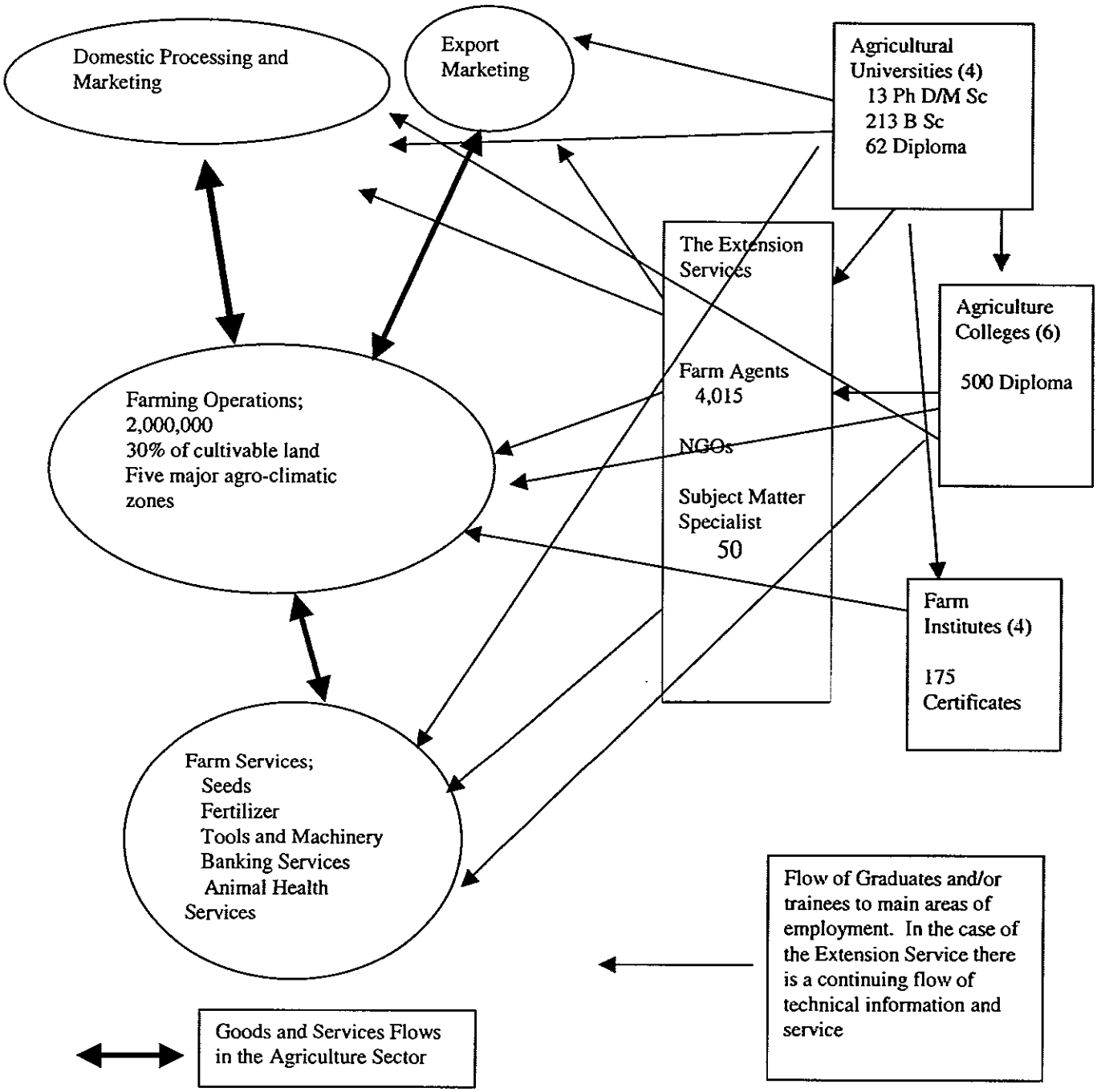
* Short Course

An estimate of the staff needs for up-grading academic qualifications to enable the above-mentioned institutions to provide solid programs for three priority areas (post harvest technology, farm and agribusiness management, and policy and market analysis) would aggregate to twenty-five PhDs, forty-seven Masters and thirty-one special short-course cycles. The above training program is designed to substantially improve the academic qualifications of the selected participants, create improved educational units, enhance the professional network for the subject matter, and thereby directly improve the technical, economic, and social performance of Ghana's agriculture sector.

University of Ghana = Faculty of Agriculture at Legon
KNUST = Faculty of Agriculture, Kwame Nkrumah University of Science and Technology, Kumasi
UCC = School of Agriculture, University of Cape Coast
UDS = Faculty of Agriculture, University of Development Studies, Tamale
MOFA, SMS = Ministry of Food and Agriculture, Subject Matter Specialist

Note: This estimate was compiled by the assessment team in the course of their interviews with staff and administrators of the education and training institutions.

ANNEX FOUR: A SECTOR MAP OF TARGET ORGANIZATIONS



ANNEX FIVE: ACRONYMS FOUND IN THE REPORT

DFID	Department for International Development
GDP	Gross Domestic Product
HIV/AIDS	Human Immune Virus/Acquired Immune Deficiency Syndrome
IDA	International Development Association
JICA	Japan International Cooperation Agency
GTZ	The Deutsche Gesellschaft für Technische Zusammenarbeit
KNUST	Kwame Nkrumah University of Science and Technology
MOFA	Ministry of Food and Agriculture
NGO	Nongovernmental Organization
UCC	University of Cape Coast
UDS	University of Development Studies
UN	United Nations
USAID	United States Agency for International Development
STD	Sexually Transmitted Diseases
TRIP	Trade and Investment Reform Program