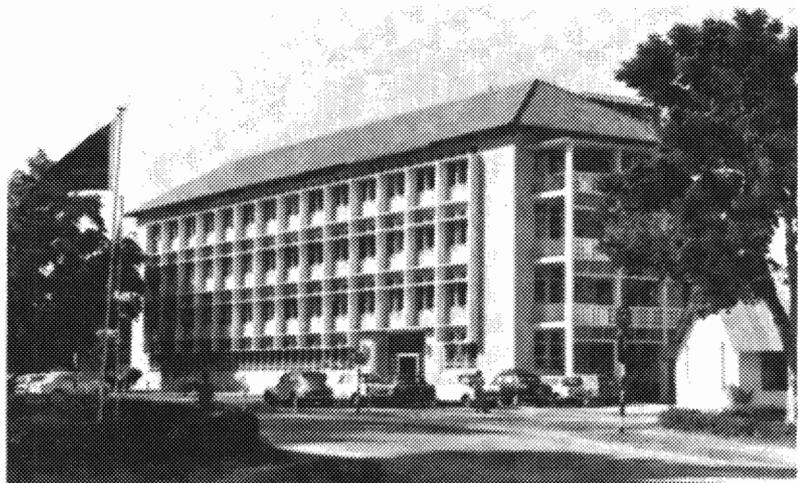


PN-AAN-449

**Progress Report, USAID/afr-438**  
**November, 1966 — June, 1967**

**TANZANIA**  
**SECONDARY SCHOOL**  
**AGRICULTURAL SCIENCE**



OFFICE OF INTERNATIONAL PROGRAMS  
**West Virginia University**  
MORGANTOWN, WEST VIRGINIA  
IP-23                      AUGUST, 1967

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COVER PHOTO. . . . . Ministry of Education Building --  
Dar es Salaam, Tanzania.

PROGRESS REPORT AID/afr-438  
WEST VIRGINIA UNIVERSITY - USAID PROJECT  
SECONDARY AGRICULTURE SCIENCE PROGRAM  
DAR ES SALAAM, TANZANIA

November 1966 -- June 1967

P. Vernon Armbruster  
Agricultural Education Advisor

SUMMARY

Summarized below are the main activities conducted during this reporting period:

Secondary School Visitation

Thirty-seven secondary schools in Dar es Salaam, Tanga, Moshi, Arusha, Mwanza, Mbeya, Songea, Iringa, Morogoro, Dodoma, Lindi and Mtwara areas were visited in connection with this program.

Headmasters were enthusiastic about an agricultural program and indicated willingness to cooperate and encourage young people to become involved in agriculture.

During these visits, discussions were also held with Regional and District Educational Officers of the Education and Agriculture Ministries. Suggestions and ideas were also obtained from Regional Commissioners and their staff.

Information was obtained about available land, staff housing, water and electricity, classroom and workshops availability, general agricultural activity, accessibility to agricultural research and training centers and feasibility of supervision.

Agricultural Training Institutions

Eleven agricultural training centers were visited to obtain information concerning syllabus content, level of training and facilities available. The value of secondary school agriculture training was discussed with principals.

Tentative Report for Introducing Agriculture in Tanzania's Secondary Schools

This report was submitted to USAID/T in February 1967. Circumstances at the time, including the Arusha Declaration and the Education for Self-Reliance Programs, necessitated that this report be revised to emphasize self-reliance in keeping with GOT policy.

Program Integration

Numerous discussions were held within the various ministries to obtain information about integrating agriculture expertise in the program and providing continuity between upper primary, secondary and advanced agricultural education.

## Teaching Material for Agriculture

Few, if any, reference books and teaching materials are available in the secondary schools of Tanzania. Considerable time was spent in writing preliminary drafts for Farm Building, Soils and Animal Husbandry syllabus for Form I and II teaching purposes. Lists of teaching references have been prepared including overseas books and references available in East Africa.

## Agriculture Science for Tanzania Secondary Schools

This report is the combined efforts of several people in East Africa who have added to its scope and value due to greater knowledge and experience of East African conditions.

Dr. Newton Baughman and Mr. Jon Moris have made major contributions to the report. USAID personnel and Tanzania Ministry of Education and Agriculture officials have also made contribution through comments and suggestions for an improved secondary agriculture science program.

This proposal recommends:

1. School selection (4-6 schools)
2. Program supervision (2)
3. Teacher training
4. Agriculture science syllabus
5. Building and equipment
6. Research and evaluation
7. USAID and GOT contributions

## Quarterly Work Plan

Plans and activities for this project depend upon the culmination of a satisfactory agreement between USAID and the Ministry of Education.

## INTRODUCTION

On June 24, 1966 the United States Agency for International Development/Tanzania, at the request of the United Republic of Tanzania, agreed to provide technical advice and assistance by advising the Ministry of Education on vocational education in the following areas:

- (1) Implement secondary school programs to pre-train, orient and motivate young men toward agriculture, including setting syllabi and examinations and planning the program's administrative implementation.
- (2) Integrate the proposed secondary school program with the new policy calling for a vocational agriculture bias in the primary school sector.
- (3) Coordinate efforts between the various ministries concerned, including especially the Ministry of Agriculture, Forests and Wildlife.

One agricultural education advisor assigned to the Ministry of Education would be primarily concerned with:

1. Selecting six secondary schools best qualified to carry out an experimental course in vocational agriculture.
2. Designate sites for school farms and sites and supervise construction of vocational agriculture shops.
3. Determine materials needed for the shop and farm and teaching materials, supplies and textbooks.
4. Suggest adjustments necessary so syllabi and examinations in various schools will meet the requirements of the particular region.
5. Suggest methods for selecting teachers, and counterparts to replace them after adequate training, and for introducing and preparing students for the course.
6. Arrange accommodations for contract staff members.
7. Work with GOT to determine the type and amount of Ministry of Education support for the project.
8. Estimate the amount and type of support for the project required from external sources.

#### TIMETABLE

In October 1966, West Virginia University signed with USAID/Washington to provide this assistance to the Ministry of Education of Tanzania.

P. Vernon Ambrester arrived in Tanzania November 1, 1966 as a WVU employee to fulfill the obligations of this contract. The following is an activity calendar beginning November 1, 1966 through June 30, 1967:

November 1	Arrived in Tanzania. Orientation and discussions with AID/T and Ministry of Education officials.
December 1966 - February 15, 1967	Visited Tanzania Secondary Schools, Agricultural Institutions, Farm Schools, Farming Training Centers and Upper Primary Schools.
February 15-28	Completed preliminary draft for Introduction of Agriculture in the Secondary Schools of Tanzania.
March 1967	Discussed with AID/T continued research and expertise necessary to correlate the program with Education for Self-Reliance.

<p>March 9-12 May 29-June 1</p>	<p>Mr. Jon Moris, Rural Sociologist, Makerere University, arrived for consultation in connection with the project.</p>
<p>April 4-11 May 28-June 2</p>	<p>Dr. Newton Baughman, Senior Agricultural Educator, Makerere University College, arrived for consultation in connection with the project.</p>
<p>May 1- May 6</p>	<p>Visited Vocational Agriculture Project in Kenya to discuss and make observations relevant to Tanzania.</p>
<p>May-June</p>	<p>Preliminary draft of the Agriculture Science Program for Secondary Schools was read and comments made by:</p> <p>Mr. C.L. Tarimu, Assistant Chief Education Officer, Inspectorate, Ministry of Education</p> <p>Mr. H.R. Shekilango, Senior Agriculture Officer, Training Division, Ministry of Agriculture, Forests and Wildlife</p> <p>Dr. Harold Anderson, Institute of Education (Biology), University College, Dar es Salaam</p> <p>Mr. S.S. Rea, Education Program Assistant, AID/T</p>
<p>June 15</p>	<p>A discussion and explanation of the project was held with Mr. J.A. Sawe, Chief Education Officer, Ministry of Education, and Dr. Noel Myers, Chief Education Officer, AID/T.</p>
<p>June 27</p>	<p>Final copy of the project report was submitted to AID/T and the Ministry of Education, Tanzania.</p>

#### VISITATIONS

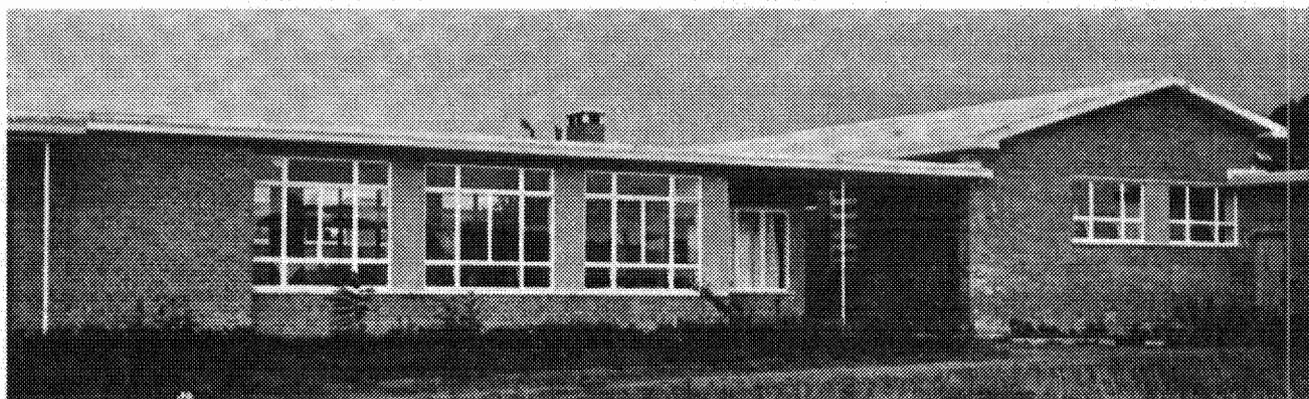
##### Secondary Schools

About 2½ months were spent visiting education and agriculture institutions throughout Tanzania. Conferences and discussions were held in relationship to the feasibility of introducing agriculture into the secondary schools. In connection with this plan, 37 secondary schools have been visited, including the nine in the original West Virginia report.\*

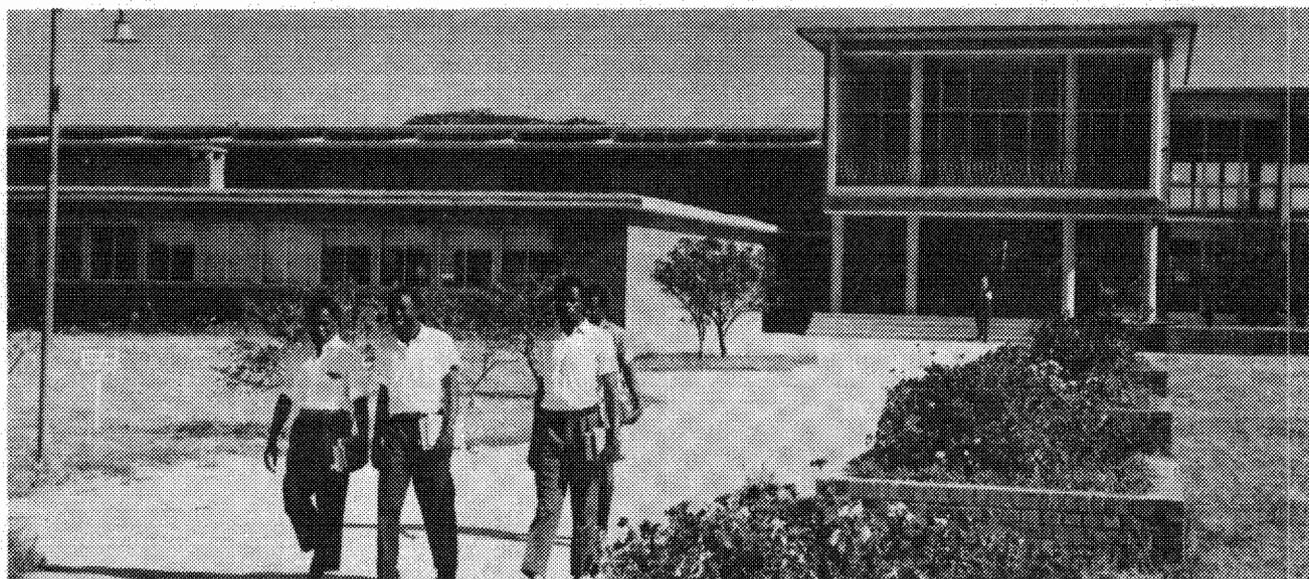
\* Dunbar-Maxwell Report, 1965. A Proposal for Introducing Agriculture in the Secondary School Curriculum of Tanzania.



Lyamungu Secondary School, Kilimanjaro Region.



Mpwapwa Secondary School Shop, Dodoma Region.



Mkwawa Secondary School, Iringa Region.

The criteria used to select pilot schools were:

1. Interest of headmasters and staff at each school
2. Feasibility of administration of the pilot program
3. General facilities already available
4. Located at or near an agricultural center or institutions where field trips, practical work, and other agricultural information may be available.
5. Housing now available or available for an extra teacher by January 1968.
6. Four to 18 acres of land available for demonstration plots and preferably larger acreages for individual and group projects as interest develops in the school.
7. Schools representing various ecological situations (crops, soils, climate, elevation).
8. Land available near the present classrooms to insure the agricultural building being located near the school and land. Agriculture must become an integral part of the school.
9. Apparent interest of students through participation in agriculture clubs and activities.
10. Electricity and water available.

#### Secondary Schools Visited

Coast Region:	Kibaha Secondary School, Minaki Secondary School.
Tanga Region:	Galanos Secondary School, Tanga Secondary School, Magamba Secondary School.
Kilimanjaro Region:	Mawenzi Secondary School (Day), Lyamungu Secondary School, Umbwe Secondary School (Girls), Machame Secondary School (Girls), Ashira Secondary School (Girls).
Arusha Region:	Ilboru Secondary School.
Mwanza Region:	Bwiru Secondary School, Bwiru Secondary School(Girls), Nsumba Secondary School.
West Lake Region:	Nyakato Secondary School, Ihungo Secondary School, Kahororo Secondary School, Rugambwa Secondary School (Girls).
Morogoro Region:	Msumbe Secondary School.
Dodoma Region:	Bihawana Secondary School, Msalto Secondary School (Girls), Dodoma Alliance Secondary School, Mpwapwa Secondary School, Dodoma Secondary School (Day).
Iringa Region:	Mkwawa Secondary School, Malangali Secondary School, Ifunda Secondary School (Technical), Tosamaganga Secondary School.
Mbeya Region:	Iyunga Secondary School, Rungwe Alliance Secondary School.
Ruvuma Region:	Songea Secondary School, Kigonsera Secondary School.

Mtwara Region: Mtwara Secondary School (Girls), Ndanda Secondary School, Chidya Secondary School, Lindi Secondary School (Day).

### Agricultural Training Institutions

At present no program exists in Tanzania for degree level training in agriculture. Agricultural experts are trained overseas or at Makerere University College, Uganda.

Agriculture Diploma College. Morogoro Agricultural College recently opened in Tanzania and will graduate its first class of agricultural diplomates in 1967. This is a 3-year course of training beyond Form IV. The need for a teacher training program was discussed at this college.

Agricultural Institutes. Tengeru, Ukiriguru and Nyegezi agricultural institutes were visited. Discussions were held with principals, concerning agricultural syllabi, training received during the 2-year course and value of an agriculture secondary school program.

Farm Schools. Three farm schools for Standard VII and VIII school graduates were visited. Discussions were held with principals concerning syllabus content, entrance qualifications and follow-up of graduates. Students are given a 2-year agriculture course, consisting of one practical and one academic year. Schools visited were:

Y.M.C.A. Farm School (Kilimanjaro Region)  
Mahiwa Farm School (Mtwara Region)  
Igaboro Farm School (West Lake Region)

Farmer Training Centers. These centers are operated by the Ministry of Agriculture and Co-operatives for local farmers. One to 2-week courses are held for farmers on various agricultural topics. The course content varies with the particular local need.

Centers visited were Msinga at Moshi, Iringi near Iringa, and Hombodo near Dodoma.

### Summary

1. Tanzania has 97 secondary schools, 69 government assisted boarding and day schools, and 29 unassisted schools and seminars.

2. Secondary schools had an enrollment of 27,375 for the first school term beginning 1966:

#### Assisted Secondary Schools

Forms I-IV	21,929
Forms V-VI	1,630 (including 33 at Shinyanga Commercial School)

#### Unassisted Secondary Schools and Seminars

Forms I-IV	3,817
Forms V-VI	2

3. Standard VIII is being eliminated in the primary schools. Of Standard VIII enrollment in 1965, 22.7% continued for secondary education in 1966.

4. Government cost per student per year in secondary schools for Forms I-IV is Shs. 2,140/- for boarding school and Shs. 1,460/- for day schools.

<u>Forms I-IV</u>	<u>Boarding</u>	<u>Day</u>
	<u>Shs.</u>	<u>Shs.</u>
Travel	80/00	Nil
Equipment	150/00	150/00
Boarding	600/00	Nil
Tuition	1,100/00	1,100/00
Admin./Upkeep	160/00	160/00
Sundries	50/00	50/00
	<u>2,140/00</u>	<u>1,460/00</u>

5. Most schools conduct classes on a 40-minute class schedule with 40 to 44 class periods a week.

6. Schools vary from one stream to six streams in schools visited (one stream constitutes 35 students each in Forms I to IV, for a total of 140 students).

7. Schools are in session three terms per year. First Term: first or second week of January to the first or second week of April; Second Term: last week of April or first week of May to last week of July or first week of August; Third Term: third or fourth week of August to last week of November or first week of December.

8. English, Swahili, Religious Knowledge and Current Affairs were required in all schools visited.

9. A typical class schedule in Forms I and II is English, Swahili, Mathematics, Biology, Physics, Chemistry or Physics with Chemistry, History, Geography, Religious Knowledge, and Current Affairs. This, however, varies with schools to a small degree.

10. Forms III and IV students are normally divided into science or art streams. Science students major in science subjects and art students in the social studies. Generally art stream students do not take chemistry and physics and science students do not study geography and history.

11. Ifunda Secondary School was visited. Students there study engineering or building. Moshi Technical Secondary School has a similar syllabus.

12. Agriculture is given as a regular subject (Agricultural Biology) in three schools: Minaki, Kibaha and Galanos. Many schools are practising some type of agriculture in the evening and other free time. Some do agriculture and clean-up jobs during the sports period.

13. Several schools have agricultural clubs where students carry out agricultural enterprises and students receive some financial returns.

14. Most schools visited have land in connection with the school property. This varies from 2-3 to 2,500 acres.

15. A large number of schools visited do not have agricultural books except those in connection with biology. Almost no agricultural magazines are available for student use.

Number of secondary schools visited	37
Teacher training colleges visited	2
Primary schools visited	4
Agriculture training centers visited	11
Discussions held with Education Officers	12 (outside of Head Office)
Discussions held with Agriculture Officers	12 (outside of Head Office)

#### Kenya Vocational Agriculture Visit

Discussion and visits held with the following people:

C. Miller, Acting Director AID/K  
John Dietrich, Chief Educational Officer, AID/K  
Chief Educational Officer - Ministry of Education  
Provincial Educational Officer  
Robert Maxwell, Chief of Party, WVU Contract  
Njoro Secondary School principal and agriculture teachers  
Narok Secondary School principal and agriculture teachers  
Kangaru Secondary School principal and agriculture teachers  
Vocational agriculture students' home projects

#### Objectives:

1. To study student agricultural plots and school farm operations, how they are financed, number acres involved and amount of student labor and machinery used in connection with crop and animal production.
2. To obtain information on agricultural buildings, design, storage and floor space; location in relationship to other educational facilities; and available land.
3. To obtain resource and teaching materials available to Kenya schools.
4. To become familiar with the Advisory Council at Narok Secondary School, how it was organized, frequency of meetings, value and advice given to the school and how members are selected.
5. Through personal interview, obtain information on teacher training, when their training is not adequate, and their general impressions of the program.

#### Observations:

1. Students, teachers and headmasters indicated enthusiasm for the agricultural program. This was evident by various happenings in the schools:

a. One school reported that 60 of 70 students had elected to take agriculture in Forms III and IV. Their choice was in preference to Religious Knowledge.

b. Headmasters have given agriculture teachers responsibility in planning projects, allocating finance for initiating agriculture projects and recognized agriculture as an important subject within the curriculum.

c. Students are working on the school farms and individual plots after normal school days without being requested or required to do so.

d. Agriculture teachers have become advisors to headmasters and local farmers on agricultural practices at the school and in the community.

2. Young Farmers Clubs are taking an active part in fairs, shows, contests, educational exhibits and other activities in the school and community. Membership is voluntary in these clubs and they are not necessarily limited to students studying agriculture. At present, some students are not able to join the Young Farmers Club due to lack of facilities, land and teacher commitments.

3. Agricultural classes are taught four to eight periods per week. Classes are held four periods per week in most schools with Forms III and IV meeting after school hours, and at night for extra training. These extra classes have been at the request of the students.

4. In-service training programs are being conducted between school terms for African and expatriate teachers. African teachers felt these were very valuable and hoped that the government could continue these training periods.

5. Two of the three schools visited were obtaining money from the farms to cover operating costs of the program and purchase more equipment.

6. More vocational agriculture departments will be started in Kenya schools through World Bank funds in 1968.

7. The Ministry of Education is providing bursaries at Egerton College to train secondary agriculture teachers. A teacher training program will start at Egerton to provide teachers training in conjunction with agriculture, which is now a 3-year program for agriculture diplomates.

8. Three recent graduates from Egerton, who have been working with expatriate teachers in these schools, will go to the United States for degrees in agricultural education.

9. The course, "Principles and Practices of Agriculture", has been approved at the "O" level by Cambridge Syndicate and Makerere College, Uganda. Students from seven secondary schools will be sitting examination at the end of 1967. Examinations are to be set and graded in East Africa in the near future. African agriculture teachers indicate that the overseas examination should be eliminated, but it should be continued until some criteria is developed to help teachers evaluate students. Many teachers are still inexperienced and need guidelines to follow.

## Implications for Tanzania:

1. Students have developed individual school plots in addition to a school farm. Two agriculture teachers find some difficulty in supervising these plots (about 70 plots). This indicates that larger group plots should be organized as a means of producing agriculture produce.

2. African agriculture teachers expressed concern over the lack of mechanical and practical knowledge to adequately implement the program. They felt that this part of the program was very important and should not be eliminated. In-service training courses were very helpful to further their knowledge of mechanics.

3. The term "vocational", used in this program, is somewhat misleading as the course is not terminal, but provides training for students entering higher education and other professions, as well as students returning to farming at the end of Form IV.

4. Most teachers agreed that farm tractors, carry-alls, and welders were not essential to their program, although they were excellent teaching aids, were useful to teach farm power and electricity, to make useful items for the school for tractor driving, to take small groups of students on field trips and to haul produce, supplies and equipment. They also indicated the mechanical part of the program provided an added incentive for students to study agriculture.

5. Classroom and shop combinations were not very satisfactory, because two teachers could not use the building at the same time. Also, classroom tables were sometimes used for work benches. Displays of magazines, books and educational exhibits are limited due to dust and dirt from the shop area.

6. Outside labor is being used to perform work tasks, where student labor could have been used. Students indicated a willingness to work after hours to receive money now being paid to hired labor.

7. The maize crib, constructed as part of the shop and classroom, is expensive per square foot and could be constructed from poles and wire less expensively.

8. Teachers felt four periods per week was the absolute minimum of time which should be allocated to agriculture. They preferred more. Some teachers were holding night classes to adequately cover the agriculture syllabus.

9. Officials and teachers agreed that agriculture should be a separate subject to avoid minimizing agriculture. Biology and agriculture teachers were working closely to avoid duplication. One biology teacher visited the agriculture building to borrow a soil testing kit, samples of Kenya soils and other soil aids prepared by the agriculture teachers.

## CONFERENCES

A discussion held with Jon Moris, Rural Sociologist of Makerere University College on March 11, 1967, brought out the following relevant points and observations:

1. Both sociological and economic factors have a direct bearing on agricultural education in Tanzania.
2. The American vo-ag approach in Kenya, although having met a fair amount of success, was not designed for mass implementation into Kenya schools.
3. Areas of the Kenya approach would be relevant in Tanzania with more emphasis on curriculum and teacher preparation.
4. The program should be developed so it can be implemented and financed by the GOT.
5. Agricultural science should be introduced in the secondary schools with a bias toward the science areas, especially in Forms I and II. More emphasis should be placed on economics and mechanization in Forms III and IV.
6. The term "vocational" should be dropped and "agriculture science" used.
7. A great deal of time should be allocated to organizing an integrated syllabus.
8. Agricultural education in the secondary schools does not have a direct relationship to community actions and accomplishment immediately, but results are seen long after schooling.
9. Specialized agriculture subjects should also be introduced in Forms V and VI for A-level examinations -- namely, agriculture mechanics, agriculture economics and agricultural biology.
10. Students should not be expected to furnish labor for the entire school farm, but the farm should be operated on a system similar to the progressive farmer idea by hiring personnel at times of heavy labor requirements.
11. Now is the time to offer to the ministry AID service and guidance for implementing agricultural education.
12. AID contribution might be demonstration schools designed to be replicated by the Ministry of Education. Also, to provide expertise in curriculum development and teacher training.
13. Loans put AID and contract staff at a disadvantage when implementing action programs and curtail effectiveness of staff members.

Participants in the above discussions were:

Samuel H. Butterfield, USAID/Tanzania Director  
Clarke M. George, Assistant Director for Program  
Noel T. Myers, Chief Education Advisor  
Samuel S. Rea, Education Program Assistant  
Boyd Faulkner, Community Development Advisor  
Keith Kelley, COP, West Virginia University Contract  
Harold Anderson, Biology Specialist, TCCU Contract  
Jon Moris, Rural Sociologist, Makerere University College  
Vernon Armbruster, Agriculture Education Advisor, WVU

Conference with C.L. Tarimu, Assistant Chief Education Officer, Ministry of Education Inspectorate:

A general discussion was held to outline the secondary agriculture program and how it would be integrated with the primary program.

Dr. Newton Baughman and Vernon Armbruster gave a description of the preliminary report and obtained opinions and ideas from those present.

Mr. Tarimu suggested that the next step was to bring the report to the attention of the Chief Education Officer, Mr. Sawe.

Participants in attendance were:

C.L. Tarimu, Assistant Chief Education Officer Inspectorate  
Noel Myers, Chief Education Advisor, USAID/T  
Harold Anderson, Institute of Education, University College  
Newton Baughman, Senior Agricultural Educator, Makerere University College  
Vernon Armbruster, Agriculture Education Advisor, Ministry of Education

Conference held in J.A. Sawe's Office, Chief Education Officer, Ministry of Education, June 15, 1967:

Dr. Myers opened the meeting by describing in general terms the planning and scope of the forthcoming proposal. It was emphasized that any program in secondary agricultural education must meet the objectives of national education as set forth by the Government of Tanzania. If a new project in this area is carried out, every effort should be made to minimize failure. It was pointed out by Dr. Myers that an opportunity exists for meeting some basic immediate and long range needs of the agriculture populace which heretofore has been difficult, if not impossible. A successful program in Tanzania would provide opportunity and direction for a similar type of program in many parts of Africa.

The proposal will be for a project of three dimensions: (1) An instructional program at the secondary level; (2) A program for the training of teachers; (3) A research and development program that will relate social and economic environment of rural areas to agriculture teaching.

Participant training was mentioned in preparing Tanzanians as rapidly as possible for total responsibility in the program.

Mr. Armbruster discussed the following considerations in relation to the forthcoming proposal:

1. School selection
2. Program supervision
3. Teacher training
4. Agriculture science syllabus
5. Facilities
6. Evaluation and research

Mr. Sawe was informed that Newton Baughman, Jon Moris, Vernon Armbruster and other AID educational personnel have spent considerable time in planning the proposal. The proposal, in final form, is to be available by the fourth week of June.

Mr. Sawe expressed appreciation for a preliminary review of the proposal. He indicated the desire for further discussion after the final report was in the hands of the Ministry.

Participants in the above discussion were:

J.A. Sawe, Chief Education Officer, Ministry of Education  
Noel T. Myers, Chief Education Advisor, USAID/Tanzania  
P.V. Armbruster, Agriculture Education Advisor, WVU Contract

Mr. H.R. Shekilango, Senior Agriculture Officer, Training Division, Ministry of Agriculture and Co-operatives, also read the preliminary draft of the Agriculture Science Report and made suggestions for improvement, especially in syllabus content.

Dr. Harold Anderson (Biology), Institute of Education, University College, reviewed the preliminary draft, and his views and comments were considered in the final draft.

#### CURRICULUM MATERIALS AND TEACHING AIDS

With the introduction of agriculture science into Tanzania Secondary Schools, it becomes vital to prepare agriculture teaching materials. Confusion and misinformation will result if this material is not prepared before the teaching program is implemented.

Six areas have been recommended for Forms I and II:

##### Form I

Introduction of Animal Husbandry\*  
Food Crop Production  
Cereal Crop Production  
Cash Crop Production  
Fertilizers and Insecticides  
Farm Buildings\*

\* Work is progressing on these two syllabi and rough drafts are prepared for review and revisions.

Local reference books, pamphlets and agriculture syllabus are being collected and selections made for use in the secondary schools.

About 50 bulletins in English and Swahili are now available, with others ready for publication. Several books written for East African conditions have also been reviewed and are recommended for secondary use.

## REPORTS

Several reports have been prepared to provide information to the Ministry of Education in making decisions concerning agriculture in the primary and secondary schools:

### Primary and Secondary Agricultural Education in Tanzania

This report was written for Dr. Noel Myers, CEO, AID/T shortly after arrival in Tanzania. No visitations had been made to schools in Tanzania and the report was based on past experience in the United States and Uganda.

### Primary Agricultural Education

This report was written during the visitation period after discussions had been held with Ministry of Education officials. (Appendix B)

### Agriculture for Girls in Secondary Schools

This report was made in connection with the secondary agriculture program before the Education for Self-Reliance and the Arusha Declaration. (Appendix C)

### Tentative Report for Introducing Agriculture in Tanzania Secondary Schools

This report was written after visitations and discussions with ministry officials. It was agreed that this report should be revised in keeping with the Arusha Declaration and Education for Self-Reliance Program.

This report has not been reproduced here, but can be obtained through the Office of International Programs, West Virginia University.

### The Arusha Declaration

The following is taken from the Arusha Declaration given by Julius K. Nyerere, President of Tanzania, in February 1967 at Arusha, Tanzania:

#### The People and Agriculture

The development of a country is brought about by people, not by money. Money, and the wealth it represents, is the result and not the basis of development. The four prerequisites of development are different: they are (1) People; (2) Land; (3) Good Policies; (4) Good Leadership. Our country has more than ten million people and its area is more than 362,000 square miles.

A great part of Tanzania's land is fertile and gets sufficient rains. Our country can produce various crops for home consumption and for export.

We can produce food crops (which can be exported if we produce in large quantities) such as maize, rice, wheat, beans, groundnuts, etc. and we can produce such cash crops as sisal, cotton, coffee, tobacco, pyrethrum, tea, etc. Our land is also good for grazing cattle, goats, sheep, and for raising chickens,

etc.; we can get plenty of fish from our rivers, lakes and from the sea. All of our farmers are in areas which can produce two or three or even more of the food and cash crops enumerated above, and each farmer could increase his production so as to get more food or more money. And because the main aim of development is to get more food, and more money for our other needs, our purpose must be to increase production of these agricultural crops. This is in fact the only road through which we can develop our country -- in other words, only by increasing our production of these things can we get more food and more money for every Tanzanian.

### The Conditions of Development

#### Hard Work

Everybody wants development; but not everybody understands and accepts the basic requirement for developments. The biggest requirement is hard work. Let us go to the villages and talk to our people and see whether or not it is possible for them to work harder.

In towns, for example, the average paid worker works seven and a half or eight hours a day for six or six and a half days a week. This is about 45 hours a week, excluding two or three weeks leave every year. This means that an urban worker works for 45 hours a week in 48 to 50 weeks a year.

For a country like ours these are really quite short working hours. In other countries, even those which are more developed than we are, people work for more than 45 hours a week. It is not normal for a young country to start with such a short working week. The normal thing is to begin with long working hours and decrease them as the country becomes more and more prosperous. By starting with such short working hours and asking for even shorter hours, we are in fact imitating the more developed countries. And we shall regret this imitation. Nevertheless, wage-earners do work for 45 hours per week and their annual vacation does not exceed four weeks.

It would be appropriate to ask our farmers, especially the men, how many hours a week and how many weeks a year they work. Many do not even work for a half as many hours as the wage-earner does. The truth is that in the villages the women work very hard. At times they work for 12 or 14 hours a day. They even work on Sundays and public holidays. Women who live in the villages work harder than anybody else in Tanzania. But the men who live in villages (and some of the women in towns) are on leave for half of their life. The energies of the millions of men in the villages and thousands of women in the towns which are at present wasted in gossip, dancing and drinking, are a great treasure which could contribute more towards the development of our country than anything we could get from rich nations.

We would be doing something very beneficial to our country if we went to the villages and told our people that they hold this treasure and that it is up to them to use it for their own benefit and the benefit of our whole Nation.

## Intelligence

The second condition of development is the use of intelligence. Unintelligent hard work would not bring the same good results as the two combined. Using a big hoe instead of a small one; using a plough pulled by oxen instead of an ordinary hoe; the use of fertilizers; the use of insecticides; knowing the right crop for a particular season or soil; choosing good seeds for planting; knowing the right time for planting, weeding, etc; all these things show the use of knowledge and intelligence.

The money and time we spend on passing on this knowledge to the peasants are better spent and bring more benefits to our country than the money and the great amount of time we spend on other things which we call development.

These facts are well-known to all of us. The parts of our Five Year Development Plan which are on target, or where the target has been exceeded, are those parts which depend solely upon the people's own hard work. The production of cotton, coffee, cashewnuts, tobacco and pyrethrum has increased tremendously for the past three years. But these are things which are produced by hard work and the good leadership of the people, not by the use of great amounts of money.

Furthermore the people, through their own hard work and with a little help and leadership, have finished many development projects in the villages. They have built schools, dispensaries, community centres, and roads; they have dug wells, water-channels, animal dips, small dams, and completed various other development projects. Had they waited for money, they would not now have the use of these things.

### Hard Work is the Root of Development

Some Plan projects which depend on money are going on well, but there are many which have stopped and others which might never be fulfilled because of lack of money. Yet still we talk about money and our search for money increases and takes nearly all our energies. We should not lessen our efforts to get the money we really need, but it would be more appropriate for us to spend time in the villages showing the people how to bring about development through their own efforts, rather than going on so many long and expensive journeys abroad in search of development money. This is the real way to bring development to everybody in the country.

None of this means that from now on we will not need money or that we will not start industries or embark upon development projects which require money. Furthermore, we are not saying that we will not accept, or even that we shall not look for, money from other countries for our development. This is NOT what we are saying. We will continue to use money; and each year we will use more money for the various development projects than we used the previous year because this will be one of the signs of our development.

What we are saying, however, is that from now on we shall know what is the foundation and what is the fruit of development. Between MONEY and PEOPLE it is obvious that the people and their HARD WORK are the foundation of development, and money is one of the fruits of that hard work.

From now on we shall stand upright and walk forward on our feet rather than look at this problem upside down. Industries will come and money will come but their foundation is THE PEOPLE and their HARD WORK, especially in AGRICULTURE. This is the meaning of self-reliance. Our emphasis should therefore be on:

- (1) The Land and Agriculture
- (2) The People
- (3) The Policy of Socialism and Self-Reliance
- (4) Good Leadership

### Education for Self-Reliance

The following is taken from Education for Self-Reliance, by Julius K. Nyerere, President of Tanzania, in March 1967:

"Alongside this change in the approach to the curriculum there must be a parallel and integrated change in the way our schools are run, so as to make them and their inhabitants a real part of our society and our economy. Schools must, in fact, become communities -- and communities which practice the precept of self-reliance. The teachers, workers, and pupils together must be the members of a social unit in the same way as parents, relatives, and children are the family social unit. There must be the same kind of relationship between children and parents in the village. And the former community must realize, just as the latter do, that their life and well-being depend upon the production of wealth -- by farming or other activities. This means that all schools, but especially secondary schools and other forms of higher education, must contribute to their own upkeep; they must be economic communities as well as social and educational communities. Each school should have, as an integral part of it, a farm or workshop which provides the food eaten by the community, and makes some contribution to the total national income."

### Agriculture Science for Secondary Schools

This report not reproduced here is available for review through the Office of International Programs, West Virginia University, the Ministry of Education, Dar es Salaam, Tanzania, and AID/T.

This report describes in detail the following:

1. Secondary school agriculture science program
2. Program implementation
3. An agriculture program for Tanzania primary schools
4. A political, social and economic rationale for agriculture science in Tanzania

5. The present educational system in Tanzania
6. Reference material and equipment recommended for the secondary school program
7. Budgets, planning table and Kenya vocational agriculture examination papers approved by the Cambridge Syndicate and Makerere University College, Uganda

#### WORK PLAN (JULY - SEPTEMBER 1967)

Work plans during the next 3 months depend almost entirely on decisions made by AID and the Ministry of Education in connection with the Secondary Agriculture Science Program.

Assuming that a project agreement can be reached within the next several weeks for AID to introduce agriculture science in selected schools of Tanzania, the following activity will be necessary:

##### Project Agreement

At present both AID and Ministry of Education officials are studying the Agriculture Science Report for Secondary Schools. Both groups are already familiar with this project and decisions should be agreed to by July 15, 1967.

##### School Selection

It will be necessary to visit the proposed schools to ascertain housing, buildings, etc. Target date July 1967.

##### Equipment and Reference Material

With the approval of the equipment lists, orders should be placed immediately for books, reference material and equipment necessary for implementing the program. July 1967.

##### Agriculture Science Building

Building specifications should be tendered and bids secured for constructing a combined classroom, laboratory and workshop. July - August 1967.

##### Agriculture Science Teachers

At the earliest possible opportunity, WVU should be notified of the required number and qualifications of agriculture instructors. July 1967.

##### Participant Training

Tanzania personnel should be selected for agriculture education training. September 1967.

### Teacher Orientation

An orientation program should be planned for the arrival of the overseas teachers to insure a meaningful and informative program before these teachers assume their teaching responsibilities. September 1967.

### Curriculum Development

Work will continue on syllabus material for Forms I and II. Local materials obtained and cataloged for teaching purposes.

APPENDIX A

REPORT

PRIMARY AND SECONDARY AGRICULTURE

EDUCATION IN TANZANIA

For

Dr. Noel Myers

Chief Education Advisor

U.S.A.I.D.

By

P. Vernon Armbruster

Agriculture Education Advisor

Ministry of Education

November 25, 1966

## AGRICULTURAL EDUCATION

Projections made on my part at the present time might very well be premature, as I have been on the scene a very short time. Neither have I as yet had the opportunity to visit primary and secondary schools, nor any of the Farm schools, Farmer Training Centres and the Agriculture Training Institutes. Before a feasible plan could be outlined to fit the needs of agriculture education in this country, it is essential that a familiarity be acquired of the operational plan of these schools and institutes, their curriculum, teacher qualifications and training, text books, teaching aids and materials, finance, equipment, classroom availability, staff housing, land availability for demonstration purposes and other areas pertinent to the operation of an educational program.

However, in the light of past experience in the agricultural education field and drawing on first hand knowledge of the agricultural education program in Uganda, it would seem the following observations and projections might be relevant.

Statistical figures in 1965 show that Standard V through VIII had a total enrollment of 163,700; Standard V - 53,484; Standard VI - 47,355; Standard VII - 33,892; Standard VIII - 26,610. A total of 8,575 of these entered Form I in 1966, total drop-outs 20,210. It is assumed that the majority of these students would not qualify for employment within the civil service and industry, therefore, some are becoming the unskilled labor force and some of necessity must return to the land.

Of the 4,985 students in Form IV in 1966, only 960 are expected to enter Form V in 1967, expected drop-out of 4,020. A small number of these students will enter (1966 figures) technical trade schools - 176; technical schools - 10. Teacher training colleges will accept approximately 500 students in 1967 for Grade A teachers. The Ministry of Agriculture will accept approximately 300. Approximately 3,000 students remain to again become the labor force and farm people.

These figures indicate that a high priority be given to agricultural training within the primary and secondary schools.

About 80% of Tanzania's foreign exchange comes from agricultural exports. These young men at the Standard VIII and Form IV level returning to the land become very important to the economy and should receive the best possible training in agriculture. Because of this importance, a program should be well planned and highly organized to give the best possible chance of success.

### PRIMARY SCHOOL GROWTH (Public Schools Only)

1960	-	412,874		
1961	-	486,470	:	17.8% increase
1962	-	518,663	:	6.6% "
1963	-	592,104	:	14.2% "
1964	-	633,674	:	7.0% "
1965	-	710,200	:	12.1% "

SECONDARY SCHOOL GROWTH  
(Form I through Form VI)

1961 - 11,752  
1962 - 14,175  
1963 - 17,077  
1964 - 19,899  
1965 - 21,915  
1966 - 27,375

Primary Agriculture Education

The agriculture program now being discussed has a small chance of success unless several factors are taken into consideration before the initial full scale program of upper primary agriculture education begins.

Pilot Programs: A number of schools should be selected to initiate this program using areas where agriculture is of greatest importance.

Curriculum Development: Ascertain what value is being derived from the present science curriculum and supplement this with agriculture or divorce it completely from the science curriculum and add Practical Agriculture as a subject.

Teaching Material: Numerous bulletins and pertinent agricultural information should be available to supplement the agricultural or agricultural science curriculum. A large percentage of this material should be prepared locally with problems of agriculture and its related fields of paramount importance.

Teacher Training: Any program in the field of education must rely, to its largest degree, on the initiative, training, the understanding of students and general native ability of the co-ordinators and teachers involved.

This program should not be instigated without each of the agriculture teachers having had three months' training beyond the Teachers Training College in the field of Agriculture. (This would be an absolute minimum).

All teachers in the school should have inservice training in Agriculture including the Headmaster to ensure the injection of agriculture and its related fields into the entire school curriculum.

Demonstration Plots (School Gardens): A thorough study should be instigated of the best possible use of these plots as teaching devices and not as work details.

Rural Youth Clubs: Very little of the knowledge acquired by a youngster is disseminated beyond the confines of the school unless a carrier is developed to bring this knowledge to the parents and public attention.

A young Agriculture Pioneers group should be formed to carry out activities in agriculture, community service and development, leadership and scholarship achievement. Many such groups are common throughout the world to give attention to young people and glamorize their work.

Staff projections for this program might be as follows:

- (a) An educational expert to advise the Ministry of Education on programming and curriculum development.
- (b) A rural youth advisor to advise on rural youth groups. (Perhaps as a part of TANU).
- (c) A materials and teaching aids specialist should be acquired to develop materials, teaching aids and other information pertinent to agriculture in the school system.
- (d) These three specialists along with local Tanzanians could also be used to give inservice training to teachers preparing for the responsibility of teaching primary agriculture.

Secondary Agriculture Education

Young people graduating from secondary school are more mature than primary children and should meet with more success in developing a quicker and longer lasting benefit in agriculture and its related fields. Many of the observations related in the Primary Agriculture section are applicable to this area as well.

Pilot Programs: Programs should be initiated in a group of schools selected by the Ministry of Education (4 to 6).

Curriculum Development: A syllabus in agriculture education should be prepared and accepted by the Ministry of Agriculture and the Cambridge syndicate. (Until such time as Tanzania has its own accrediting organization).

This curriculum should not become a part of the Agricultural Biology syllabus as is now approved by the Cambridge syndicate.

The curriculum should include biology, mathematics, chemistry, physics, and other subjects as it relates directly to agriculture, being applicable not only to farmers but related fields of feed store operation, processing plants, agricultural credit, water conservation, and other agriculture developments relevant to the country.

This program will also become an avenue for students to enter higher school certificate, the Ministry of Agriculture and other walks of life with a general knowledge of the work, rewards and understanding of agriculture as an honorable profession.

On-the-Job Training: A program should be started to employ these students during and after secondary school with selected farmers and other related areas.

Teacher Training: Because a large number of agriculturally trained students are not available to the Ministry of Education, Tanzania may not be able to produce qualified Agriculture Education Instructors in less than a four year period.

Training for this responsibility should not be less than four years of college and/or University training in Agriculture Education.

Agricultural Mechanics: The lack of mechanical training in the local schools makes it imperative that a program of instruction in Agricultural Mechanics be included along with the Agriculture Education curriculum.

Students must be exposed to mechanics more than is now being practiced in this country.

Demonstration Plots: Land should be acquired at each school site to use as a laboratory for agriculture production and management. These should become a teaching device and not a place for punishment. (5 to 15 acres).

Projections:

(a) An Agriculture Education Advisor attached to the Ministry of Education to advise on planning, curriculum building, tools, equipment and other backstopping necessary for an effective operation.

(b) An Administration Assistant should be employed to provide the backstopping necessary for the ordering of equipment, inventory of supplies and equipment, making housing arrangements, distributing AID logistical support to each house, handling office work connected with the project and assisting in necessary visa and customs clearance.

(c) The rural youth and teaching materials specialist could perhaps fit a dual role and work in both primary and secondary education. This would depend upon the size of operation for each program.

(d) United States Agriculture Education Instructors. Secure the necessary agriculture education instructors from the United States until such time as Tanzania can produce their own instructors. Allowing time for each newly trained Tanzanian to spend at least one term under the direction of a U.S. Instructor and preferably two terms (practice teaching).

(e) Agriculture Education Department. Most Tanzanian schools are not equipped to operate a full scale program in agriculture education. Therefore USAID should provide for buildings, tools and equipment, books, teaching aids, and recurrent costs, necessary for the operation of the pilot schools for a minimum of four years.

(f) Funds should be secured from other sources outside of Tanzania to start other agriculture education departments in selected schools, (If funds are not available in Tanzania). This should be continued until all secondary schools in Tanzania have agriculture education departments where agriculture is prevalent.

Three more areas of agriculture education are pertinent to the development of agriculture in this country and should be mentioned although they are outside the jurisdiction of the Ministry of Education.

A. Farmer Training Centers

1. A program and teaching aids specialist should be provided to help develop curriculum teaching material and aids as an upgrading procedure.
2. Supply textbooks and reference materials suitable for farmer training.

Within these centers lie the quickest economic returns to the country in the form of agriculture production. The Ministry of Agriculture should

make every effort to make this a dynamic program for farmers already in the production of crops, livestock and other agricultural products.

#### B. Agricultural Training Institutes

If the first two parts of this program materialize, Tanzania would soon find a bottleneck of students graduating from secondary schools, interested in agriculture, with very little opportunity to continue their agriculture education to the highest level as a profession. It is the assumption that many of these students would go into farming as a career at the end of secondary school, but a program should be developed to provide highly trained leaders in agricultural education, research, livestock and crop production, conservation and other areas for the development of agriculture.

As the students graduate from secondary school the institutes at Tengeru and Ukiriguru could eliminate one year of training as the secondary program will more than provide one year of training equal to that given at these institutes. If these were upgraded to Diploma school the salary for agricultural field officers would more than double, which the Government cannot afford. Neither can these institutes be justified on the basis of cost per pupil in comparison with secondary figures.

#### C. Morogoro Agriculture College

This agriculture college will not become an advanced center for agriculture in Tanzania as was originally envisioned unless a much larger number of staff is provided to conduct research as well as the day to day teaching and operation of the college.

A much more expanded program should be planned in order to provide for the highest possible type of agriculture training in Tanzania.

The ultimate goals should be a degree college conferring B.S., M.S. and Ph.D. degrees in Agriculture, including a teacher training program for agriculture instructors, and become the Agriculture College of University College, Dar es Salaam.

Much of this support should come from USAID as well as the Government of Tanzania and other Foreign Governments.

The economy of Tanzania is largely based on the land. The vast majority of the people depend directly or indirectly on agriculture. Some 45% of the gross domestic products is contributed by agriculture and a further 12% by other primary products, namely, livestock, forestry and fishing.

The greater part of Tanzania agriculture continues to be characterized by primitive methods of production and inadequate equipment.

Because of the effect that agriculture has on the economy of Tanzania it is becoming imperative that a system of agriculture education be devised to correct the low production methods of agriculture. Although methods of production and inadequate equipment are two reasons for low production,

another factor closely related is the development of the idea that farming is a profitable and honorable profession. This is not a problem which is native to Tanzania alone, but one which has prevailed in most countries throughout the world now and in the past. Only through a technical, highly motivated program of agriculture education to all people of the society has this concept changed. Rural people in many countries now realize that the rural population can have the high standard of living, the luxuries and other amenities found in other walks of life. The following is what young people might expect through an agriculture training program.

	<u>Ph.D.</u>	Administration and Supervision
	<u>M.S.</u>	Ministry of Agriculture
		Research
Agriculture Degree		Farming Schemes
College and/or		Agriculture Education (Instructors)
University	—	Farming
		Related Agriculture Fields
		Ministry of Agriculture
		Teacher T. College - Agr. Ed. Inst.
		(Temporary)
Agriculture Institutes	—	Technical Schools
		Farming Schemes
		Farming
		Related Agriculture Fields
		H.S.C. - Ag. Degree College
		Technical Schools
		Agriculture Institutes
Secondary Agriculture	—	Farming Schemes
Education Form I-IV		Own Farm
		Home Farm
		Farm Labor
		Related Agriculture Fields
		Related Agriculture Fields
Upper Primary	—	Own Farm
Agriculture Education		Home Farm
Standard 5-8		Farm Labor

#### Staff Requirements for Primary and Secondary Programs

Primary Agriculture Education Advisor -  
Primary Section, Ministry of Education

Secondary Agriculture Education Advisor -  
Secondary and Technical Section, Ministry of Education

Administrative Assistant -  
Ministry of Education

Rural Youth Advisor -  
Ministry of Community Development and National Culture

Program Material and Teaching Aids Specialist -  
Planning Section, Ministry of Education

Secondary Agriculture Instructors (4 - 6)

## APPENDIX B

### PRIMARY AGRICULTURE EDUCATION

Statistical figures in 1956 show that Standard II through Standard VIII had a total enrollment of 163,77; Standard V - 53,843; Standard VI - 47,355; Standard VII - 32,892; Standard VIII - 26,610. A total of 8,575 of these entered Form I in 1966, total dropout 20,210. A large majority of these young people will not qualify for employment within Government civil service and industry. They become the unskilled labor force and of necessity must return to the land.

These figures indicate a high priority be given to agriculture training in the primary schools.

The Government has already recognized this need and has started the primary program of agriculture in Standards V through VIII, with a number of U.S. Peace Corps Volunteers. Two very important facts are against this program at the present time:

1. These young people are in general not mature enough to own lands, borrow money and fill the responsibility of farming operations.
2. Very little expertise is available to work closely with the agriculture teachers on syllabus, teaching aids and materials, recommended inservice training and in general coordinate programs in the schools with the Ministry of Education. Several points are relevant to the success of agriculture in Standards V through VII.

Pilot Program: Twenty schools should be carefully selected where the program can be carefully scrutinized, and experimental work carried out. This work should be analyzed and used to improve the program throughout the schools of Tanzania.

Curriculum Development: The Science syllabus devised by the Institute of Education should be used in the initial stages, but should be critically reviewed by Ministry of Education people devoting full time to the agriculture program in the primary schools.

Teaching Materials and Aids: Special teaching aids or packets should be developed for poultry rearing, vegetable gardening, soil conservation, community development, famine crops, farm carpentry and mechanics, sewing, child care, proper diets, cleanliness and health to be used by teachers for instructional purposes. These packets should provide detailed procedure for the successful operation of an agriculture project, leaving with the teacher a clear conception of what and how a project should be carried to its conclusion. Bulletins, visual aids and other references should also be included to give the support necessary for teacher preparation. Additional information or new practices can be added to these packets as they are developed or as agriculture practices change.

The initially selected schools under close observation should be provided with a small assortment of hand tools for carpentry and mechanics, timber, soil test kit, a hand maize planter, garden plow and hand sprayer.

Grass cutters and hoes are already available in most schools.

Demonstration Plots: These plots should be comparatively small (2-3 acres) and insofar as possible provide food for the school. Students should never be sent to the fields without a definite instructional purpose and closely supervised. Students and teachers should concern themselves mainly with the production of vegetables for the human diet. Part of the plot can be used to successfully implement one or two crops of the local area. Comparison can be made between the school plot and farmers plot (approximately same size).

Individual Projects: Students attending day schools should be encouraged to start projects in their community, using practices taught at the schools. Projects might include vegetable growing, crops, pigs, chickens, rabbits, guinea pigs, calves, community and home beautification and improvement, building fences, building a poultry house, rabbit hutch, construction conservation project.

Various step by step procedures should be outlined and given to students wanting to carry out such projects. Teachers should do as much follow-up at the home to give encouragement and advice on correct procedure as time will allow.

There seems to be very little chance of these students carrying out projects at their house because land may not be available and young people are not listened to as individuals. Use may be made of the groups of young people who have already formed age groups in the local society. These groups do have a responsible position and are respected and encouraged by their elders. In some areas these are known as "elika".

Teacher Training: Any program in the field of education must rely, to its largest degree, on the initiative, enthusiasm, resourcefulness and training of the teacher. All teachers expected to teach agriculture in the primary schools should be given specialized short courses as each new packet is prepared for distribution. These should be held at local elementary schools, where many agriculture facilities are not available and the short course instruction would have to be planned to situations as they exist. These courses can be conducted by the Elementary Agriculture advisors and teaching material advisor in cooperation with the Ministry of Agriculture. Agriculture teachers should also be given three months course in general agriculture as well as special projects at one of the Agricultural Institutes. This, however, may not be financially feasible.

All teachers, including the headmaster and agriculture teachers, should be given specialized short courses at the local Farmer Training Centers, (Example - Poultry raising could be given between terms, one term and vegetable growing the next).

A practical agriculture course should be introduced at all T.T.C. to provide necessary basic agriculture information to all students expecting to teach in Tanzania schools. This should be made compulsory in the T.T.C.

### Primary Agriculture Staff Requirements:

#### Elementary Agriculture Education Advisor -

1. Advise on planning, curriculum building, tools, selection of school for analysis, and other backstopping necessary for an effective operation.
2. Help set up and prepare outline of material for teacher short courses.

#### Teaching Materials Advisor -

1. Prepare packets and teaching aids necessary for classroom instruction. Give encouragement and advice on day to day teaching preparation and plans.
2. Prepare group project plans for agricultural clubs. Help to initiate clubs in liaison with other National organizations for nation building projects related to agriculture.
3. Visit schools periodically to analyze teaching material and methods.
4. Both the Agriculture Education and Teaching Materials Advisors can be used to help conduct courses for teachers at the Agricultural Institutions and Farmer Training Centers.
5. The men should hold Bachelor of Science Degrees in Agriculture or Agriculture Education and have teaching experience in primary or secondary schools with considerable knowledge of rural youth work.
6. The Ministry of Education should provide bursaries for two men to train at Morogoro Agricultural College and an Agriculture Diploma and spend an inservice training period for one year before taking supervisor responsibilities of the primary program.

The Ministry of Education should request a grant from USAID for the initial scheme in the twenty pilot schools. Plans should be undertaken in other schools for self-help programs including the continuation in the pilot schools. Groups of the elika or similar to them may be formed to carry out agriculture labor projects to earn funds for the purchase of the equipment necessary for the teaching operation.

Estimate Budget

USAID

	<u>Unit</u>	<u>Cost</u>	<u>Total</u>
Technicians	2	--	---
Set of Household Furnishings	2	3,000	/annual
Utilities	2	800	1,600/annual
Recurrent Costs	20	50.00	1,000/annual
Equipment	20	200.00	4,000.00
Local Travel	10,000 mi.	--	---

Government of Tanzania

Housing	2
Office space	2
Necessary office furniture	
Transportation of equipment to school sites	
Salary of Tanzania replacement personnel	

## APPENDIX C

### AGRICULTURE FOR GIRLS SECONDARY SCHOOLS

A total of seven girls' secondary schools were visited, Mtwara, Machame, Ashire, Assumpta, Bwiru and Msaloto relative to the introduction of agriculture in the school system.

Although women of Tanzania do a great deal of the agricultural work throughout the country, the majority of it deals with farm labor and not necessarily agricultural management.

Tanzania men are being asked to provide more of their own labor and not depend too heavily on labor from their womenfolk. It is important that women find their place in a rural society.

Several factors were imminent during the discussions held with Headmistresses and one Headmaster:

1. Ways of implementing agriculture at their school was of particular interest to them and most schools were groping for some satisfactory program.
2. Five of the seven schools were practicing some sort of shamba work related to agriculture production.
3. The main emphasis has been on vegetable and fruit production.
4. Only one school had an agriculturalist on the staff with any training in agriculture. This school also had two dairy animals.
5. Class schedules were already full and it would be difficult to find very much time for agriculture as a formal subject.

#### Recommendations:

1. Two areas of agriculture should be stressed in the girls' schools:
  - a. Vegetable gardening and fruit production,
  - b. Poultry and small animal rearing.

In addition, crop production and animal husbandry should be taught on a practical basis giving specific recommendations on when to plant, spraying animal breeds, feeding formulas, etc.

2. Two periods should be provided within the timetable for agriculture. One period to be used for the teaching of agriculture theory in the classroom and conducting classroom experiments and one period per week used in actual agriculture practice. This should be compulsory for all students.

3. The students should be allowed to receive monetary reward from labor on the school property.



## APPENDIX D

### TANZANIA BACKGROUND

#### General

The mainland of Tanzania lies south of the equator between the Lakes of Victoria, Tanganyika, Nyasa and the Indian Ocean. Tanzania borders the countries of Kenya, on the north; Uganda, Rwanda and the Congo on the west; and Zambia, Malawi and Mozambique on the south. The total area of Tanzania mainland is 361,800 square miles, including 21,000 square miles of inland water; most of this land is over 1,000 feet high except for a narrow belt along the 550 mile coast. The greater part of the country is approximately 4,000 feet plateau and rising to over 19,000 feet on Mount Kilimanjaro.

In 1965, the estimated population was 10,179,000 people, of whom 10,046,000 were African and the remainder comprised of European, Indian, Pakistan, Arab and others. In 1957, the eleven largest towns were Dar es Salaam, Tanga, Mwanza, Morogoro, Tabora, Ujiji, Dodoma, Mtwara, Moshi, Lindi and Arusha.

In April 1964, the mainland of Tanganyika and the Island of Zanzibar joined to form the United Republic of Tanzania under the current President, Julius K. Nyerere. Tanzania has a one party socialist government with seventeen economical and political regions and 54 districts on the mainland.

The country is served both by the airlines and railways. Internal airflights serve all major cities and Dar es Salaam airport serves international jet flights to many parts of the world.

The railways serve the central and northern part of Tanzania. First class sleeper service is available, although many people find the rail service slow and prefer the airlines or automobiles.

Roads are being built and improved, and most towns are accessible by automobile, except in some areas during the rainy seasons.

Several large game parks are located within Tanzania, including the famous Serengeti National Park and Mount Kilimanjaro, the highest mountain in Africa.

In most areas there are two rainy seasons each year. The short rains are November-December and the long rains April through May. The hottest months are December, January and February, and June and July the coolest.

#### Agriculture

Agriculture is the basis of Tanzanian economy providing approximately 58% of the G.D.P. in 1962 and will continue to be the largest single factor in the economy for many years.

Tanzania is best known for sisal but many crops are grown, including coffee, tea, tobacco, cotton, pyrethrum, sugar cane, groundnuts, cashew nuts and many other food crops.

Coffee, bananas and tea are best known in the Kilimanjaro area; cotton in the Mwanza area; cashew nuts along the coast; sisal near Tanga; cereal crops and tobacco in the Iringa area. These crops are also grown in the other areas of the country along with rice, beans, cassava, oranges, pineapples, vegetables and coconut.

Production of Main Cash Crops

	<u>1963</u> Tons	<u>1964</u> Tons
Sisal fiber and tow	214,300	229,900
Coffee	28,200	32,200
Tea	4,900	4,700
Tobacco (fire cured)	710	330
Tobacco (flue cured)	1,090	1,740
Cotton Lint	45,700	54,400
Sugar	49,200	60,500
Pyrethrum (dried flowers)	2,250	2,260
Oil seeds	116,800	127,800

Export of Main Agriculture Produce (value): (£'000)

	<u>1963</u>	<u>1964</u>
Sisal fiber, flume and tow	22,671	21,867
Cotton Lint	10,717	9,882
Coffee, hulled	6,840	11,051
Tea	1,552	1,560
Tobacco, unmanufactured	71	35
Pyrethrum	-	-
Castor seed	1,167	623
Sunflower seed	208	292
Cashew nuts	2,024	3,290
Groundnuts	766	765

Animal Husbandry (livestock numbers): (thousand head)

	<u>1963</u>	<u>1964</u>
Cattle	8,500	8,782
Goats	4,500	4,494
Sheep	3,000	2,724
Pigs	21.1	21.1

Livestock Sales at Public Markets: ('000 shillings)

<u>1963</u>		<u>1964</u>	
Cattle (Sales	227	Cattle (Sales	256
(Average Price	187/16	(Average Price	206/51
Goats (Sales	75	Goats (Sales	79
(Average Price	26/40	(Average Price	26/74
Sheep (Sales	22	Sheep (Sales	20
(Average Price	29/56	(Average Price	27/51
Cattle, re-sale markets		Cattle, re-sale markets	
(Sales	64	(Sales	75
(Average Price	223/00	(Average Price	224/70
Sale of immature cattle		Sale of immature cattle	
(Sales	50	(Sales	58
(Average Price	108/00	(Average Price	125/38

Annual Production of Timber

Fee Paying Production: ('000 cu.ft.)

	<u>1963</u>	<u>1964</u>
Mninga	952.9	1,006.9
Podocarpus	573.5	863.4
Mvule (Iroko)	195.3	193.5
E.A. Camphorwood	289.9	358.4
Mahogany (Khaya)	158.7	241.0
Muhuhu	392.6	462.7
Miombo	431.6	568.9

Mineral Production (Quantity)

	<u>1963</u>	<u>1964</u>
Diamonds ('000 carats)	589	664
Gold ('000 Troy oz.)	103	93
Lead (tons)	---	---
Building materials ('000 cu.ft.)	10,298	---
Salt (tons)	33,401	32,012
Copper (tons)	---	---
Silver ('000 Troy oz.)	23	25
Mica sheet (tons)	105	94
Lime (tons)	1,240	2,135
Gypsum (tons)	1,864	2,910
Tin concentrates (tons)	337	395

APPENDIX E

SUMMARY

Commodities Received	Nil
Personnel arriving during reporting period	1
Personnel departing during reporting period	Nil
Approximate Mileage during Visitation	9,000
Number of Educational Institutions Visited	54
Reports Written	5
Number of Visitors	9
Local Leave	Nil
Sick Leave	Nil

Visitors:

Dr. J.A. Welch, West Virginia University  
Dr. R. McClung, West Virginia University  
Dr. W. van Eck, Makerere University  
Dr. R. Gay, Arapai Agriculture College  
Dr. N. Baughman, Makerere University  
Mr. J. Moris, Makerere University  
Dr. A.J. Marcis, Agricultural Educ., World Bank  
Mr. W.A. Wayt, CIC-AID Rural Development, Nairobi  
Mr. F. Holmes, Morogoro Agriculture College