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A STUDY OF THE DEVELOPMENT OF THE UNIVERSITY
CENTER FOR AGRICULTURE AT DSCHANG, CAMEROON:

Agricultural Manpower Needs Assessment and Implications
for Participatory Development

Conducted by

The Rural Development Committee, Cornell University

in cooperation with

Ecole Nationale Superieure Agronomique

at the request of

The United States Agency for International Development

September 1979

For Cornell University

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Forward

The USAID Mission in Yaounde, Cameroon has offered to assist the Cameroon Government to develop its new University Center for Agriculture at Dschang. In preparing for this assistance project, USAID decided to conduct a brief study of agricultural manpower needs and the potential impact of the Center on rural development in Cameroon. At the request of the Office of Rural and Administration Development of DSB, USAID in May 1979, the Rural Development Participation Project staff at Cornell agreed to undertake this pre-project study on higher agricultural education.

The following scope-of-work was outlined for the Cornell team in a cable from the USAID Mission to USAID Washington.

- A. The Mission has requested DS/RAD to provide the service of a rural sociologist fluent in French, a senior international agricultural and manpower specialist, and an advanced graduate student in international agriculture to carry out pre-PP assessments. They will be provided under the DS/RAD - Cornell Rural Development Participation Cooperative Agreement.
- B. The rural sociologist and mission staff will conduct discussions with GURC ministries, other donors and officials of UCA to explore the implication of various center models for participatory development leading to increased food production by smallholders, including women farmers. Output will be paper describing role of UCA in rural development which will serve as conceptual framework for PP teams review and guidance.
- C. The senior agricultural manpower specialist will advise UCA staff on the dimensions and methods of carrying out the manpower requirements study and will review and comment on the results of the study. The graduate student will work with staff and student from the UCA department of rural economics in doing the actual study. In addition to collecting the required data, the study will add perspectives on ways in which curriculum and training modes can be devised so as to provide GURC and the private sector with trained manpower appropriate to the various levels required, including paraprofessionals and first-line agricultural workers.

In accordance with this request, a team consisting of Larry W. Zuidema, Assistant Director, International Agriculture at Cornell, Larry Busch, Associate Professor of Sociology at the University of Kentucky and William Dalrymple, graduate

student in Agricultural Economics at Cornell (2 years in Cameroon as Peace Corps volunteer), departed for Cameroon on June 30, 1979. Larry W. Zuidema set up the plan of work for the agricultural manpower needs assessment with William Dalrymple and four members of the faculty at ENSA and departed after two weeks. William Dalrymple worked for two months with the ENSA staff to complete the study. Larry Busch worked with ENSA staff for one month and developed a conceptual framework for the future development of the University Center at Dschang.

The Cornell team received the cooperation and assistance of the officials of the University Center for Agriculture at Dschang (UCD) who provided access to data and release time for four staff of the Ecole Nationale Supérieure Agronomique (ENSA) to conduct various aspects of the study. Members of the study team from ENSA were: Wilfred Banmbuh, Department of Rural Economy; Francois Kamajou, Chairman, Department of Rural Economy; Joseph Sama, Department of Rural Economy; and Francois Tchala-Abina, Chairman, Department of Rural Education and Extension.

Although the study team operated under a severe time constraint and had operational difficulties with respect to access to data, it is felt that the report provides a reasonable approximation of the manpower needs in the agricultural sector. It also identifies specific rural development issues and makes some positive suggestions regarding the further development of the UCD. The team made an effort to develop the report in such a way as to be helpful to the design team to be chosen by USAID to assist in the development of UCD over the next 5 - 10 years.

A listing of the persons interviewed during the conduct of this study is given in Appendix A. The important documents relevant to the study which were reviewed by the study team are listed in Appendix B.

The study team gratefully acknowledges the assistance provided by staff of several Ministries of the Government of Cameroon, the UCD, several parastatals and the U.S. Agency for International Development in Yaounde.

Abbreviations Used in this Report

ATA	Agent Technique d'Agriculture
ATEF	Agent Technique des Eaux et Forets
BAC	baccalauriat
BCA	Bamenda Cooperative Association
BCD	Banque Camerounaise de Developpement
BEPC	Brevet d'Etudes du Premier Cycle
BIRD	Banque Internationale pour la Reconstruction et le Developpement
CAMSUCO	Cameroon Sugar Company
CCCE	Caisse Centrale de la Cooperation Economique
CDC	Cameroon Development Corporation
CEPE	Certificat d'Etudes Primaires Elementaires
CFA	Communante Financiere Africaine; the common currency of Cameroon, Gabon, the Central African Empire, the People's Republic of the Congo and Chad.
CFDT	Compagnie francaise pour le Developpement des Fibres Textiles
CFZV	Centre de Formation Zootechnique et Veterinaire
CNA	College National d'Agriculture
CRA	College Regional d'Agriculture
CUDS	Centre Universite de Dschang (also JCA or UCD)
CUSS	Centre Universitaire des Sciences de la Sante
EEF	Ecole des Eaux et Forets
ENS	Ecole Normale Superieure (a professional school for teachers)
ENSA	Ecole Nationale Superieure Agronomique (also NASA)
ETA	Ecole des Techniques Agricoles
FAC	Fonds d'Aide et de Cooperation
FAO	Food and Agricultural Organization
FED	Fonds Europeen de Developpement
FONADER	Fonds National du Developpement Rural
GCEA/L	General Certificate of Education Advanced Level
GCEO/L	General Certificate of Education Ordinary Level
GURC	Government of the United Republic of Cameroon
HEVECAM	Societe de Developpement de l'Hevea en Cameroon - (Hevea, Cameroon)
IA	Ingenieur Agronomes
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IMPM	Institut de Recherches Medicales et d'Etudes des Plantes Medicinales
IRAF	Institut de Recherches Agricoles et Forestieres
IRTISS	Institut de Recherches sur les Techniques, l'Industrie et le Sous-Sol
IRZ	Institut de Recherches Zootechniques
ISH	Institut des Sciences Humaines
ITA	Institut des Techniques Agricoles or Ingenieur des Travaux Agricoles
MIDEVIV	Mission de Developpement des Cultures Vivrieres, Maraicheres et Fruitières
MINEP	Ministry of Economy and Plan
MOA	Ministry of Agriculture
MOL	Ministry of Livestock

NASA	National Advanced School of Agriculture (also ENSA)
NWCA	North West Cooperative Association
OCB	Organisation Camerounaise de Banane
ONAREST	Office National
ONCPB	Office National de Commercialisation des Produit de Base
SCT	Societe Camerounaise de Tabac
SEITA	Service d'Exploitation Industrielle des Tabacs et Allumettes
SEMNORD	Secteur de Modernisation du Nord
SEMRY	Societe d'Expansion et de Modernisation de la riziculture a Yagoua
SOCAPALM	Societe Camerounaise des Palmeraies
SOCOOPER	Societe Cooperative de Developpement Rural
SOCOOPED	Societe Cooperative d'Epargne et Developpement
SODEBLE	Societe de Developpement pour la Culture et Transformation de Ble
SODECAO	Societe de Developpement du Cacao
SODI.COTON	Societe pour le Developpement du Coton
SODENKAM	Societe de Developpement du Nkam
SODEPA	Societe de Developpement et d'Exploitation des Productions Animales
SODERIM	Societe de Developpement de la riziculture dans la Plaine de Mboa
SOFIBEL	Societe Forestiere et Industrielle de Belabo
SOSUCAM	Societe Sucriere du Cameroun
TA	Technicien d'Agriculture
TEF	Technicien des Eaux et Forets
UCA	University Center of Agriculture (also CUDS or UCD)
UCCAO	Union Central des Cooperatives Agricoles de l'Ouest
UCD	University Center of Dschang (also CUDS or UCA)
UNDP	United Nations Development Program
UNVDA	Upper Nun Valley Development Authority
WADA	Wum Area Development Authority
ZAPI	Zone d'Actions Prioritaires Integrees (also known as ZAPI-EST)

A STUDY OF THE DEVELOPMENT OF THE UNIVERSITY
CENTER FOR AGRICULTURE AT DSCHANG, CAMEROON:

Agricultural Manpower Needs Assessment and Implications
for Participatory Development

Introduction

This study provides an assessment of the needs of academically trained agricultural manpower in Cameroon over the next 5 to 6 years. It also provides background information concerning agricultural institutions requiring trained agricultural manpower and some discussion of the determinants of future manpower needs. A large section of the study focuses on the types of program thrusts which will be required to ensure that the new University Center for Agriculture at Dschang will have an impact on agricultural and rural development in Cameroon. Issues of rural development participation are discussed with respect to the curriculum of ENSA and the involvement of the UCD in research, extension and service activities.

Section I of the report provides background data on agriculture and agricultural institutions in Cameroon. Detailed data on ENSA curriculum, staff, alumni and current students are provided at the conclusion of this section.

Section II reflects the data and information gathered to make an assessment of the future needs of academically trained agricultural manpower. Included are summaries of current manpower, information on sources of trained manpower, a discussion of factors influencing manpower demand, and quantitative and qualitative projections of needs to 1985.

Section III deals with the role of UCD in rural development of Cameroon. The final portion of this section focuses on structural factors likely to influence the success of the development of the UDC.

Section IV enumerates the implications and recommendations derived from the study by the members of the study team.

SECTION I

Background Information

A. Agriculture and Agricultural Development in Cameroon

Agriculture remains the predominant sector in Cameroon's economy. There are approximately one million farm families who cultivate 1.5 million hectares of land, producing a combination of subsistence food crops and cash crops. More than 70 percent of the country's total population (estimated to be 8.1 million in 1979) still live in rural areas. The export of crops represent about 70 percent of total exports, and these crops are almost entirely produced by small farmers. Still, over two-thirds of all farm acreage is devoted to food crop production.

Cameroon is marked by four distinct ecological zones: The Western highlands, (North West and West Provinces), the Southern rain forests (East, Center-South, South-West, and Littoral Provinces), the central savannah (southern portion of the North Province, and the northern arid region (northern part of the North Province). The major cash crops vary accordingly. Cotton is grown in the North, cocoa and robusta coffee in the South, tobacco in the East, and arabica coffee in the Western Highlands. Food production is also quite varied as one travels from North to South. The most important food crops in the northern half of the country are made up of the different varieties of sorghum or millet, while the southern forest areas rely on coco-yams and cassava, as well as maize, plantain, and peanuts. Maize is the major staple in the Western Highlands, and the diet is varied by the consumption of root crops and peanuts. The western region is also quite favorable to the production of vegetables such as beans, tomatoes, cabbage, etc. Livestock plays an important role in the North, being raised by one-third of the families. In most areas of the country, cultivation of food crops is generally the task of women, while men are in charge of clearing the land and raising the cash crops. Around the growing urban centers, however, some food crops such as tomatoes, plantains, and maize, are becoming important cash crops, and both men and women are involved in their production.

The marketing of foodstuffs remains largely in the hands of traditional small merchants, although the parastatal organization MIDEVIV has begun marketing some food crops in an effort to keep prices down in the larger cities. Cash crops on the other hand are generally marketed through cooperative societies

such as the NWCA (coffee), UCCAO (coffee), and the SOCODER's (cocoa, and coffee), or through parastatal organizations like ZAPI (cocoa and coffee) and SODECOTON (cotton). These institutions are usually granted monopoly rights over the marketing in their respective regions, however the Office National de Commercialisation des Produits de Base (ONCPB) handles the actual selling on the World market.^{1/}

Agricultural extension work has traditionally been the responsibility of the Ministry of Agriculture, but in recent years parastatal organizations have been acquiring some of these duties. The fourth five-year plan encourages such development organizations as SEMRY and SODERIM for rice, MIDEVIV for foodstuffs, SODECAO for cocoa, SODECOTON for cotton, SOCAPALM for palm oil, to undertake training and extension programs. The planned expansion of UCCAO and the NWCA to include most of the agricultural extension activities in their respective areas shows that the move toward decentralization of extension is continuing.

The present strategy for Cameroon's agricultural development is to improve the training and organization of farmers as well as to increase production. The fourth five-year plan names cocoa, coffee, tea, palm oil, cotton, rice, sugar, bananas, rubber, and quite specifically foodstuffs as the major crops to be improved and expanded. In the past the production and marketing of export crops have received the major emphasis. These crops have consequently benefited from a much greater part of investments in agriculture, mainly within the parastatals. The fourth five-year plan, however, extends the emphasis to include the production of foodstuffs to meet rising domestic and external demand from neighboring countries. Indeed, because of the high demand prospects and consequent rising food prices, some farmers have begun to move progressively out of traditional export crops into the production of food crops. In fact, the long-run allocation of the farmer's resources between the traditional export crops and foodstuffs will depend largely on how the farm level prices of these commodities are managed in the future.

B. Agricultural Organizations

The following section gives a brief outline of the most important organizations in Cameroon's agricultural sector. These organizations are current employers of ENSA graduates (as shown in a later section of this report) and potential employers for other future graduates of the University Center of Dschang.

^{1/} Agricultural organizations are discussed in the following section.

1. Government

The government of the United Republic of Cameroon (GURC) is headed by a President who has under him a cabinet of ministers constituting the central administration. At the provincial level, the government is represented by governors who coordinate the activities of the various ministries at that level. Similarly, the senior divisional officers, or prefects, represent the government and coordinate the activities of the ministries at the divisional level.

The ministries are organized in a similar general pattern. Each ministry is placed under the authority of a Minister who may or may not be assisted by a Vice-Minister (depending on the size and importance of the ministry.) Under each Minister is a Secretary General, one to three Technical Advisors, and a number of Directors who head the various departments of the ministry. These constitute the ministry's central, as opposed to the provincial, administration. The Secretary General works closely with the Minister and the Vice-Minister. He has authority to sign and act for the Minister in certain matters, and coordinates the activities of all departments within the ministry. The Technical Advisors are charged with the conduct of studies and missions which the Minister or Vice-Minister may from time to time confer on them.

The organization of the Ministry of Agriculture (MOA) follows the general pattern. Being one of the largest and most important ministries, it has both a Minister and a Vice-Minister. There are three Technical Advisors and two General Inspectors who are generally the most experienced senior members of the technical staff. The central administration of the MOA consists of a general secretariat, seven technical departments, and a department of general administration. The seven technical Departments are Agriculture, Forestry and Wildlife, Rural Engineering, Agricultural Training, Cooperation and Mutuality, Community Development, and Studies and Projects. Each department is subdivided into technical and administrative units or services, and each of these services is subdivided into bureaus which deal with specific aspects of the service. The departments are headed by directors assisted by deputy directors; the services are headed by chiefs of service; and the bureaus are headed by chiefs of bureau. The functions of each director and the chief of service under him are well defined by a government text.

The Provincial Administration of the Ministry of Agriculture consists of a provincial delegation and provincial services. A provincial delegate represents

the Minister and coordinates all activities of the MOA at the provincial level. The provincial services represent the technical departments of the central administration, and are headed by provincial chiefs of service. In each division there is a divisional delegation of agriculture and divisional sections representing the technical departments. A divisional delegate is in charge of the delegation and divisional chiefs of section head the various sections. At the sub-divisional or district level are agricultural and sometimes forestry posts headed by their respective chiefs of post. Within the provinces are also found technical units of operation such as phytosanitary bases, seed multiplication and demonstration farms, wildlife reserves, botanical gardens, schools of agriculture. A general outline of the Ministry of Agriculture, and the hierarchy of the different positions within it can be found in Appendices C and D.

The Ministry of Livestock (MOL) has a slightly different organization from the MOA. The central administration is much the same, having a minister, a general secretariat, a department of general administration, and three technical departments: Veterinary Services, Livestock, and Fisheries. Each of these departments is subdivided into specific services and bureaus not unlike the MOA. The provincial delegations also follow the same organizational pattern as described above, but the MOL differs at the divisional level. Instead of having a divisional delegation, there are veterinary sectors in each division, headed by a chief of sector and three assistant chiefs of sector representing the technical departments of the central administration. At the sub-divisional level there are also assistant chiefs of sector, as well as chiefs of zootechnical and veterinary services.

2. Research

National Office for Scientific and Technical Research (ONAREST)

ONAREST was created by law in 1965, but not fully organized until June 1974. It took control of the pre-existing French and British research structures located throughout the country. ONAREST is an autonomous legal and financial entity under the supervision of the Ministry of Economy and Planning (MINEP). It is mainly financed by GURC, but some of its research programs receive financial support from foreign and international organizations.

The general purpose of ONAREST is to build up a scientific and technical infrastructure which can respond to development needs of the country.

Its objectives as stated in Decree No. 76/116 of March 16, 1976 are as follows:

- a) To orientate, coordinate and control research throughout the United Republic of Cameroon.
- b) To encourage and facilitate scientific and technical research designed to promote the economic and social development of the nation.
- c) To oversee the execution of research and, insofar as possible in its own laboratories, to collect data, formulate scientific documentation, and publish the results of research.
- d) In the name of the Government, to assure liaison with foreign and international scientific bodies.
- e) To provide for the training of researchers and technicians needed to accomplish its mission, in cooperation with appropriate ministerial departments.
- f) To register technical processes by means of patents and licenses filed with appropriate organizations for the account of the United Republic of Cameroon, as well as to negotiate them with a view to their exploitation.

Originally, ONAREST was composed of 9 research institutes. It was reorganized by the 1976 Decree which consolidated the nine institutes into five as follows:

a) Institute of Agriculture and Forestry Research (IRAF)

IRAF is headquartered at Ekona and has four sub-centers:

- 1) The Center of Perennial Crops, at Ekona
- 2) The Center of Food Crops and Fruits, at Njombe
- 3) The Center of Textiles and Food Crops at Maroua
- 4) The Center of Forestry Research, at Douala.

b) Institute of Zoological Research (IRZ)

IRZ is headquartered at Ngaoundere and includes:

- 1) The Zoological Research Center, at Wakwa and
- 2) The Research Stations, at Bambui and Mankon

c) Institute of Technological, Industrial, and Geological Research (IRTISS)

IRTISS is headquartered in Yaounde and included:

- 1) The Center for Soil and Sub-soil Research, at Garoua
- 2) The Public Works Research Center, at Yaounde and
- 3) The Center for Studies and Experimentation of Mechanized Agriculture, at Yaounde.

d) Institute of Medical Research and Study of Medicinal Plants (IMPM)

IMPM is headquartered in Yaounde and included:

- 1) The Pasteur Center, in Yaounde and
- 2) The Center for Study of Medicinal Plants in Yaounde.

e) Institute of Human Sciences (ISH)

ISH is headquartered in Yaounde and includes:

- 1) The Center of National Education, in Yaounde
- 2) The National Geographic Center, in Yaounde
- 3) The Center for Economic and Social Sciences, in Yaounde and
- 4) The Center for Research on African Languages and Oral Traditions, in Yaounde.

In 1979, a new Decree removed three Centers from two research Institutes of ONAREST: the Public Works Research Center and the Center for Studies and Experimentation of Mechanized Agriculture of IRTISS have respectively been transferred to the Ministry of Equipment and Housing and the Ministry of Agriculture, while the Pasteur Center of IMPM was transferred to the Ministry of Health. ONAREST is planning a new Industrial and Technological Research Center in Douala, however. This new center will be part of IRTISS and will take over all technological activities carried on at Ekona and Njombe (IRAF sub-centers).

3. Agricultural Credit

National Fund for Rural Development (FONADER)

FONADER (National Fund for Rural Development), is a government financial institution for agricultural credit. It was created in 1973 and reorganized in 1977.

FONADER has 4 main objectives:

- a) The extension of agricultural credit.
- b) The management of specific funds entrusted to it by the Government and some domestic and foreign financial organizations.
- c) The concession of collateral for loans granted by commercial banks to some organizations which intervene in the rural areas.
- d) The implementation with the Cameroon Development Bank (CDB) and the commercial banks, of joint financing in favor of rural development.

FONADER is, therefore, the major supplier of funds for the development of the Camercon agricultural sector. It has recently created 4 provincial branches at Douala, Bafoussam, Bamenda and Garoua and is expected to create 2 more at

Bertoua and Buea.

During the 1977-1978 fiscal year, FONADER disbursed a total of CFA \$2,401,782,961. Of that sum 29.3% went to individual farmers, 17.1% to groups of farmers, 16.5% to cooperatives, and 37.1% to development organizations. FONADER has registered repayment rates on outstanding loans of about 55% on production credit.

4. Agricultural Development Societies

Society for the Development of Cotton (SODECOTON)

SODECOTON is a parastatal organization established in September 1974 to replace CFDT, a 25 year old French company responsible for cotton production in the Northern Province. Under the supervision of MINEP, SODECOTON is jointly financed by GURC and CFDT which hold 55% and 45% of its \$1,360,000,000 CFA capital respectively.

About 150,000 farmers are involved in the cultivation of cotton under the close supervision of SODECOTON extension agents. The society sells work-oxen, equipment, and other inputs on a cash and credit basis to farmers. It also controls the marketing of cotton. SODECOTON is currently trying to incorporate corn and peanuts in its production activities.

Society for the Development of Cocoa (SODECAO)

This society was established in February 1974 after the ZAPI program in the Center-South was terminated. SODECAO is jointly financed by GURC, IBRD, and FAC.

Its major objective is to consolidate and organize a national program for cocoa production. In addition to research and extension activities on cocoa, however, SODECAO is also in charge of building 930 Km of roads inside the project area, and 300 Km of roads outside the project area. About 30,000 cocoa producers are involved in the society.

Society for the Development of Rice in the Region of Mbos (SODERIM)

SODERIM was established as a society in January 1977 under the supervision of MOA, to replace MIDERIM, a four-year old pilot rice project. It is jointly financed by IBRD, CCCE and GURC. The objective of SODERIM is to promote the cultivation of rice and soybeans in the region. Until now, SODERIM activities have been focused on rice. Only 85 farmers were involved in the program in 1979; however, the society also has its own rice plantations.

Society for Expansion and Modernization of Rice Cultivation in Yagoua (SEMRY)

Originally, SEMRY was a specialized section of "SEM NORD" in charge with rice development in the Yagoua area. It became a society in February 1971, and is under the supervision of MOA. It is jointly financed by the GURC, FAC CCCE and IBRD with its main objective being the expansion of irrigated rice cultivation. In 1977, about 12,000 farmers were already involved in the scheme. Diversification of SEMRY activities is projected in the fourth five-year plan, particularly the implementation of cattle feed lots and fish culture.

Cameroon Tobacco Society (SCT)

This society was established in January 1974 under the supervision of MINEP to replace the French-Cameroonian Tobacco society. The GURC holds 66% of its 1,200 million CFA capital, and the remaining 34% is held by SEITA, a private French company. The objective of SCT is to organize the production and marketing of cigar wrapping leaves.

Although its headquarters is located in Yaounde, all the production activities are carried out in the East Province. About 10,000 small scale farmers distributed among 13 production centers are involved in the growing of the tobacco under the close supervision of SCT staff. The fourth five-year plan authorizes SCT to introduce the cultivation of tobacco in the Northern Province.

Society for Development of the Yabassi/Bafang Area (SODENKAM)

Initiated in 1966 by the French firm "CET-COOP" under the supervision of MINEP, the project became a society in 1971. The Society is now financed by GURC. The objective of SODENKAM is to resettle people on individual 6 ha farms in the Nkam Division, and promote the cultivation of cocoa and coffee in addition to food crops.

The society is responsible for the basic physical and social infrastructures, service roads, water points, schools and dispensaries. It provides settlers with subsidies in cash and equipment during their first 3 years, in addition to regular extension services, input supplies, and credit. About 1,700 families are actually involved in the program, coming mainly from the West province, and to a lesser extent from the Center-South, North-West and littoral provinces.

Upper Nun Valley Development Authority (UNVDA)

UNVDA was established as a development society in May 1978 under the supervision of MOA, after being a development mission for 7 years. It is jointly financed

by CCCE and GURC. The objective of UNVDA is the extension of rice cultivation in the upper Nun Valley. It provides services such as extension and input delivery, in addition to the allocation of landplots to the 6,000 farmers of the scheme. UNVDA has a monopoly on the marketing of rice in the area.

Wum Area Development Authority (WADA)

WADA was organized as a development mission in January 1973 to replace the agricultural training center located in Wum. It is under the supervision of MOA and is jointly financed by the German Government and GURC.

The main objective of WADA is to promote group farming and improve the working conditions of farmers by introducing animal traction. It provides various material inputs on credit to farmers in addition to regular extension services. About 1,000 farmers are presently involved in the scheme.

Integrated Zone of Priority Action (ZAPI)

ZAPI was created in 1967 as a development mission. It became a development society in September 1972 and is under the supervision of MOA. Initially, ZAPI was financed by FAC and GURC, and has depended largely on Government subsidies since 1972. The objective of ZAPI is to improve the socio-economic and cultural conditions of farmers involved in their programs.

From 1967 until 1974, there were two ZAPI programs operating respectively in the Center-South and in the East Provinces. Only the latter, known as "ZAPI-EST", has survived, and it is presently expanding its activities. Some of its programs have received substantial external financial assistance from various sources such as Switzerland and IBRD. ZAPI-EST intervenes in six locations: Nguelemendouka, Doume, Angossa, Diang, Belabo and Mbang. Its production activities cover a wide range of crops including coffee, cocoa, palm oil and food crops. About 15,000 farm families are involved in its programs.

Food Crop Development Authority (MIDEVIV)

This parastatal organization was established as a development mission in September 1973 under the supervision of MOA. It is mainly financed by GURC. The objectives of MIDEVIV are:

- a) Implementation of the "Green Belt" program around major urban centers
- b) Identification, study, and realization of any other development projects related to food crops production in order to supply urban centers
- c) Creation of food crops plantations

d) Marketing of food crops.

Since its creation, MIDEVIV has produced and distributed to farmers over 15,000 plantain plants, over 30,000 pineapple seeds, and about 20,000 fruit-tree plants. With the aid of FONADER, over 600 hectares of small holder plantations of plantain have been realized. Approximately 300 tons of foodstuffs are brought into Yaounde markets each month by MIDEVIV vehicles. MIDEVIV also supervises an important seed multiplication project in Maroua financed by USAID.

Society for the Development of Animal Production (SODEPA)

This society was formed in March 1974 by GURC to implement an IBRD loan of \$11.3 million in support of livestock development, and is administered under the supervision of MOL. The objective of SODEPA is to promote cattle production and marketing in the southern and western regions. SODEPA has already distributed credit to over 45 cattle breeders, and has helped reorganize private ranches. The society is also supervising the construction of two modern slaughter-houses in Yaounde and Douala.

5. Agricultural Production Units

Cameroon Development Corporation (CDC)

CDC is one of the oldest public corporations in Cameroon, having been established in the former British Cameroon to manage former German plantations. CDC was reorganized in September 1973. Since then, the GURC has been the major shareholder of the Corporation. It is under the supervision of MINEP. CDC is financially supported by IDA-BIRD and FED and its purpose is to acquire, develop and operate extensive plantations of tropical crops. It is responsible for the cultivation, processing, and marketing of banana, palm oil, rubber, tea, cocoa, pepper, and wood fuel (Eucalyptus Soligna). CDC has received some 80,000 hectares of land under lease from GURC, of which over 31,000 hectares are under crops. It employs about 20,000 workers to whom it provides medical and other social services.

Cameroon Banana Organization (OCB)

OCB was organized in 1970 under the supervision of MINEP. Financially, it is mainly supported by GURC. Originally, OCB's objective was to help farm families achieve the production target of the nation. Since 1972, however, OCB has become a production unit managing 1,600 ha of banana plantation in the Mungo area (Penja, Loum, and Mandjo).

Cameroon Sugar Production Society (SOSUCAM)

SOSUCAM was created in 1964 to produce refined sugar for internal consumption. It has under its possession 10,000 hectares of land under lease from the Government, of which 7,200 hectares are under plantation in the Mbandjock area.

Cameroon Rubber Development Society (HEVECAM)

HEVECAM was created in April 1975, and is jointly financed by IDA, CCCE and GURC. HEVECAM's objective is to realize an industrial rubber plantation of 15,000 hectares in the Kribi area, however, the development of a new scheme of small holders is also part of its activities. The plantation target for 1980 is 5,800 hectares.

Cameroon Sugar Company Inc. (CAMSUCO)

CAMSUCO was created in March 1975, and is almost entirely financed by GURC (85% of its capital). The objective of CAMSUCO is to produce refined sugar primarily for internal consumption, and later on for export to neighboring countries. The company has some 16,000 hectares of land in Mbandjock under lease from the Government, of which over 7,000 ha are already under plantation.

Cameroon Palm Development Society (SOCAPALM)

SOCAPALM was created in November 1968 to replace SOPAME (Eseka and Mbongo Palm Growing Society) and SOCAPAR (Oriental Cameroon Palm Growing Society). It consists of state-owned oil palm plantations and its activities are jointly financed by IBRD, CCCE, FAC, FED and GURC. SOCAPALM plantations are found in Dibombari, Edea, Eséka, Mbongo and Kribi, and about 16,000 hectares had been planted by 1978. An important scheme of small holders known as "plantations villageoises" was added to SOCAPALM's regular plantation program in 1978.

Society for Development of Wheat Cultivation and Transformation in North Cameroon (SODEBLE)

Created in 1973, MIDEBLEN (Mission for Development of Wheat Cultivation in North Cameroon) became a Development Society in February 1975. It is a joint venture between GURC and SOMDIAA (International Food and Industry Development Organization). The objectives of SODEBLE are: 1) the promotion of the cultivation of wheat, 2) the marketing and transformation of wheat into flour, and 3) the improvement of wheat cultivation techniques. About 10,000 hectares of wheat are planned to be under cultivation by the end of 1979.

Forestry and Industrial Development Society of Belabo (SOFIBEL)

This society was created in June 1975 under the supervision of MOA. It is the result of a joint financial and technical venture between GURC and UNDP/FAO. The objective of SOFIBEL is the national exploitation of forest in a concessional area of 210,000 hectares. The estimated cost of the first part of the project is over 4 billion CFA.

6. Cooperatives

In recent years, the GURC has turned more strongly toward cooperatives as a means of improving the production and marketing of cash crops, as well as for certain savings, credit, and rural development activities. There are presently six main cooperative organizations or groups in Cameroon. All of them are under the tutelage of the Department of Cooperation and Mutuality (Coop/Mut) in the MOA. At present almost no Cameroonianians with a university level education in agriculture are working within the cooperatives. Coop/Mut, however, is gradually increasing the number of people working for them who have training in agriculture, and they would like to have many more people specialized in cooperatives in the near future to be available to both the department and the coops. A brief description of the six cooperative groups are as follows:

North West Cooperative Association (NWCA)

An apex organization grouping all the marketing cooperative societies within the North West Province, the NWCA consists of eleven district unions, each made up of a number of village primary societies. There are 117 primary societies in the province, with approximately 24,000 members. Formerly the Bamenda Cooperative Association (BCA), the NWCA was organized in 1978, and given a monopoly for the marketing of arabica coffee in the North West.

At present, there are plans for launching a large integrated rural development project in 1981 through the NWCA. To be financed by FED, the Government of West Germany, and the GURC, the \$45 million project will be directed toward improving both cash crop and foodstuff production. The NWCA, which at present offers some credit and building supplies, may eventually take over all agricultural extension activities in the province and move into the marketing of food crops.

Central Union of Agricultural Cooperatives of the West (UCCAO)

The Provincial Union of the West Province, UCCAO groups six divisional cooperative societies. Begun in 1958 as the Union Cooperative de Cafe Arabica

de l'Ouest, it has a monopoly on the marketing of arabica coffee in the province and is the only cooperative society in Cameroon with a license to export directly on the World market. Having over 80,000 members, UCCAO also extends credit to small farmers for inputs for their cash crops.

A World Bank/UCCAO project of \$25 million was started in December 1978. Its objectives are to improve the infrastructure within the province as well as to increase the production of arabica coffee. Long-run plans include diversifying the production and marketing of food crops.

Cooperative Societies for Rural Development/Cooperative Societies for Savings and Development (SOCOODER/SOCOOPED)

There are twelve SOCOODER's, 9 in the Center South Province, two in the Littoral province, and one in the East Province, as well as three SOCOOPED in the East Province. The SOCOODER were formed from previous SOCOOPED in 1978.

There is one cooperative per division, and their major function is the marketing of cocoa and robusta coffee. They are also involved in selling building supplies, giving agricultural credit, and working on various local development schemes. Most have a monopoly on the marketing of cash crops in their respective division.

There are in addition five cooperatives in the Lekie division of the Center-South under the supervision of the Centre National de Developpement des Entreprises Cooperatives (CENADEC). A proposal is under consideration to create a cooperative union in the Center-South province in the near future.

Unions of Northern SOCOOPED (UNISOCOOPED-NORD)

A Provincial Union, it groups six divisional SOCOOPED in the North Province. Begun in the early 1970's, the cooperative's main function is to supply services, providing cotton oil, rice, and sugar to their individual areas.

Cooperatives in the Littoral Province

There are nine cooperative societies in the Mungo division of the Littoral Province. Mainly dealing with the marketing of robusta coffee, there are plans for forming them into a Provincial Union; but, trained manpower is needed at all levels of the societies before this will be approved.

Cooperatives in the South West Province

The South West Province has nine cooperative societies. Most of them have monopolies for the marketing of cocoa and robusta coffee in their respective regions. They also supply members with agricultural inputs on credit, and are expected to be grouped into a Provincial Union in September 1979.

7. Private Enterprises

Few commercial private enterprises presently exist in Cameroon's agricultural sector. The large majority of the ones that can be found are in the forestry sub-sector, and include lumber and sawmill companies. Only about 25% of the forestry exploitation licenses given by the GURC go to Cameroonian firms. Many of the technical and management positions in these companies, and essentially all upper level positions in foreign companies, are filled with expatriate personnel.

A few private agricultural plantations such as the PAMOL oil palm and rubber plantations and Njikam's cocoa plantations in the South West province, and a few coffee plantations in the West and East provinces do exist. Of these, the PAMOL company, owned by the Lever Brothers of Britain, is the most important. It is the only private organization presently capable of employing highly trained agricultural manpower, but at the moment almost all its management remains in the hands of expatriates.

C. Higher Education

The University of Yaounde, a bilingual institution established in 1961, is the prime source of university trained students in Cameroon. About 70% of its faculty are Cameroonian. Of its 10,000 students, 80% are enrolled in general studies programs not directly applicable to specific manpower requirements of the country. The University also provides degree training for a number of students from other neighboring African countries. Until recently, ENSA was a part of the University of Yaounde. In an effort to improve and expand the professional training offered within the country, the Government of Cameroon has recently decided to create four new University Centers, each specializing in a professional area. These Centers are being developed in locations appropriate to their academic specialization in order to decentralize university education. Eventually, they may provide degree training beyond their area of specialization. The four University Centers now created are:

University Center for Agriculture at Dschang
University Center for Business Administration at Douala
University Center for Technology at Ngaoundere
University Center for Languages and Literature at Buea

Each of these University Centers will have a Director General who will be responsible to the Minister of Education. The University Centers of Dschang and Douala went into operation in 1978 and Director Generals were appointed at that time. A council of administration including the Director General, representatives of the Ministry of Education and other ministries concerned, and other personalities appointed by the President of the Republic will handle policy matters.

The majority of the students at the University of Yaounde are in non-professional programs and enter on the basis of their prior academic performance at the Baccalaureat or GCEA Level. Some are able to secure full or partial scholarships on the basis of merit. Students entering the professional education degree programs, such as at ENSA, CUSS, and ENS, are selected from among those holding a BAC or GCE A Level through competitive examinations. Those who are awarded places are provided with a full scholarship which meets their personal and educational expenses while enrolled. These full scholarships are apparently enough enticement for a number of students to seek a professionally oriented education since applications are numerous (e.g. 2,000 candidates for 50 places at ENSA and 100 places at ITA).

D. Agricultural Education

At present the administration of agricultural education in Cameroon is divided among three different ministries. The UDC is in the Ministry of Education; the training of middle level veterinary personnel in Maroua and Jakiri is supervised by the Ministry of Livestock; while the technical agricultural, forestry, and cooperative colleges are in the Department of Agricultural Training within the Ministry of Agriculture. The following list of agricultural institutions by Ministry is summarized in Table 1. The relationship between the primary and secondary school systems and agricultural education institutions in Cameroon is given in figure 1.

1. Ministry of Education

a) Ecole Nationale Superieure Agronomique (ENSA)

At present, ENSA recruits students with BAC or GCE A/L certificates who have excelled in the annual entrance exam given by the UDC. After completing

Table 1
Agricultural Education Institutions in Cameroon
1978-1979

MINISTRY	NAME OF ESTABLISHMENT	LOCATION	RECRUITMENT	ENTRANCE REQUIREMENT	TITLE UPON GRADUATION (1)	CADRE UPON GRADUATION	PROGRAM DURATION	PRESENT CAPACITY	NUMBER OF FACULTY (2)	NUMBER OF 1979 GRADUATES
Ministry of Education	École Nationale Supérieure Agronomique	Yaounde	Annual	BAC or GCE A/L	I.A.-I.E.F.	A2	5 years	250	38 (3)	0 (4)
	Institut des Techniques Agricoles (Cycle Ingénieurs) (Cycle Techniciens)	Dschang	Annual	BAC or GCE A/L	I.T.A.	A1	3 years	300	17 (6)	0 (5)
		Dschang	Annual	BEPC or GCE O/L	T.A.	B	3 years	360		23
Ministry of Agriculture	Collège National d'Agriculture Bamilli (2nd cycle) (1st cycle)	Bamilli	Annual	GCE O/L	T.A.	B	3 years	45	11P (6) 2PT	14
		Bamilli	Annual	CEPE	A.T.A.	C	2 years	30		
	Écoles des Eaux et Forêts Mbalmayo (2nd cycle) (1st cycle)	Mbalm.	Annual	BEPC	T.E.F.	B	3 years	25	18P (6) 7PT	12
		Mbalm.	Annual	CEPE	A.T.E.F.	C	2 years	50		
	Écoles Techniques d'Agriculture	Abong-Mbang	Biennial	CEPE	A.T.A.	C	2 years	25	6P, 1PT	25
		Efong	Biennial	CEPE	A.T.A.	C	2 years	25	5P, 2PT	18
		Ebolowa	Biennial	CEPE	A.T.A.	C	2 years	25	7P, 2PT	18
		Maroua	Biennial	CEPE	A.T.A.	C	2 years	25	5P	19
	Centre National de Formation Cooperative (2nd cycle) (1st cycle)	Ebolowa	Annual	BEPC	-	-	2 years	20	6P (6)	8
		Ebolowa	Annual	CEPE	-	-	1 year	20		
National Cooperative College	Bamenda	Annual	GCE O/L	-	-	1 year	30	4P, 6PT	26	
Ministry of Livestock	Centre de Formation Zootechnique et Vétérinaire (2nd cycle) (1st cycle)	Maroua and Jakiri	Biennial	Probatoire or GCE A/L	I.V.	B	3 years	20	6P (6)	5
		Maroua and Jakiri	Biennial	BEPC or GCE O/L	I.V.A.	C	2 years	40		25

(1) I.A. - Ingénieurs Agronomes; I.E.F. - Ingénieur des Eaux et Forêts; I.T.A. - Ingénieurs des Travaux Agricoles; T.A. - Techniciens d'Agriculture; A.T.A. - Agents Techniques d'Agriculture; T.E.F. - Techniciens des Eaux et Forêts; A.T.E.F. - Agents Techniques des Eaux et Forêts; I.V. - Infirmiers Vétérinaires; I.V.A. - Infirmiers Vétérinaires Adjoints.

(2) P - Permanent; PT - Part time

(3) A large number of ENSA faculty teach part-time at ITA.

(4) ENSA recruited its first class for the 5 year curriculum in 1975, and its last class for the two year curriculum in 1976, therefore there were no graduates in 1979.

(5) ITA (cycle des Ingénieurs) will graduate its first class in 1980.

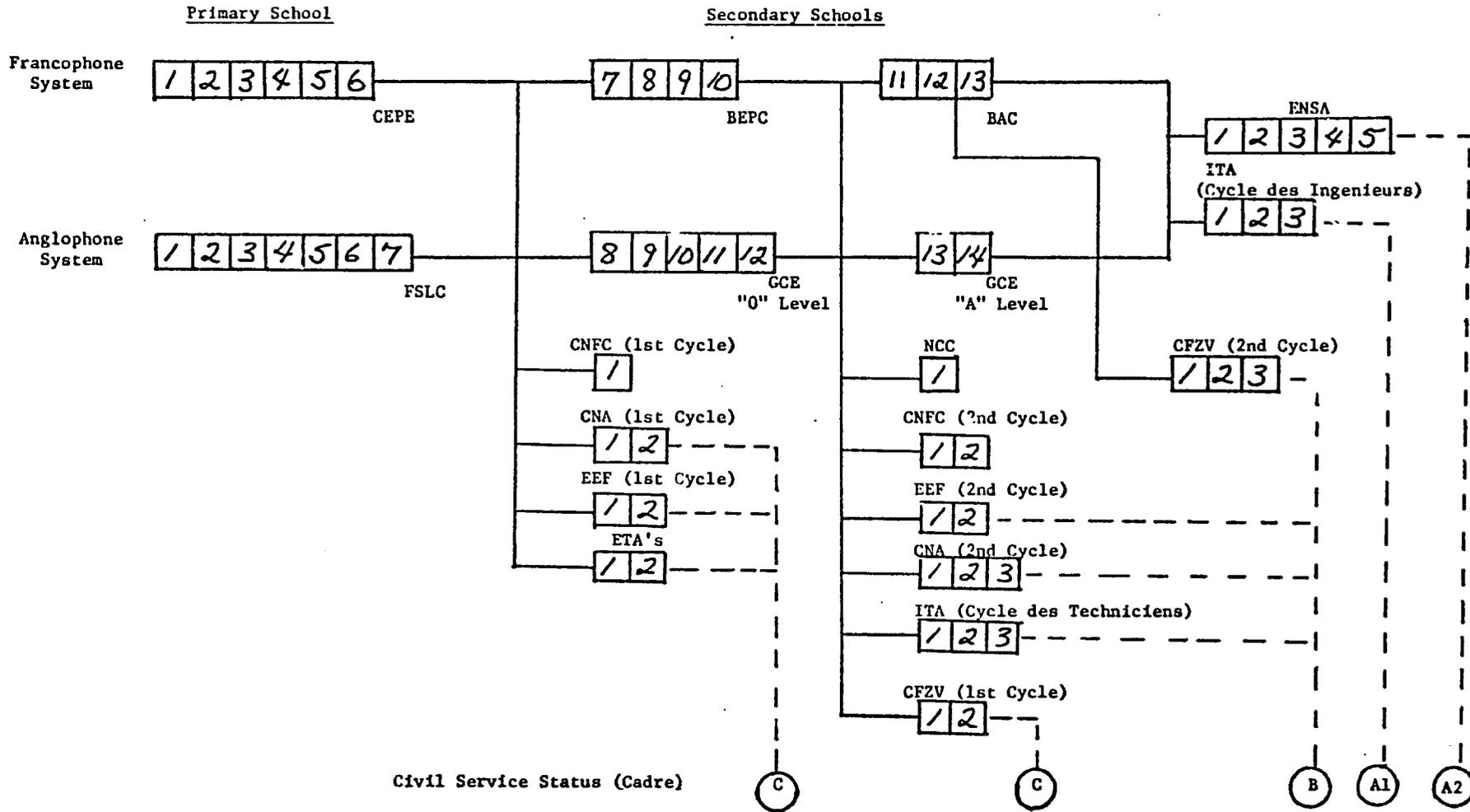
(6) The same faculty teach both cycles.

(7) Includes both the center in Maroua and in Jakiri

Sources: University Center of Dschang
Dept. of Ag. Education, MOA
Service of Studies and Planning, MOL

Figure 1

Relationship Between the Primary and Secondary School Systems and Agricultural Education Institutions in Cameroon



Source: Ministry of Education, 1979

the five year program, the students are assigned to the MOA in the A2 cadre, as "Ingenieurs Agronomes" or "Ingenieurs des Eaux et Forets". The first three years of study are devoted to basic sciences and general agriculture for both Agronomists and Foresters. For agronomists the fourth year is spent in some specialized areas of agronomic sciences. The final year is spent in the student's chosen field of specialization. Four areas of specialization have been defined: animal production, crop production, rural economics and extension, and rural engineering. Only the first 3 will start for the 1979/1980 academic year. For foresters, the last two years are devoted to technological training, management of forestry resources, and timber industry. Fifty students are accepted annually. The next section of this report provides considerably more information and data about ENSA.

b) Institut des Techniques Agricoles de Dschang (ITA)

- Cycle des Ingenieurs: has the same entrance requirements as ENSA. Begun in 1977 with the aid of the third IBRD education project, ITA's course work consists of one year of basic sciences and two years of agricultural specialization. Many of the ENSA faculty teach part-time at ITA.

Graduating with the title of "Ingenieurs des Travaux Agricoles", the students are assigned to the MOA in the A1 cadre. One hundred students are recruited each year.

- Cycle des Techniciens: basically an agricultural secondary school, the BEPC and a top score on the entrance exam are required for admittance. Graduates move into the B cadre of the MOA after three years of study, with the title "Techniciens d'Agriculture". Recent expansion has increased the capacity of this cycle to about 120 students per year.

2. Ministry of Agriculture

a) College National d'Agriculture de Bambili (CNA)

- Second Cycle: basically the same as the "Cycle des Techniciens" of ITA, but in anglophone Cameroon. There is an entrance examination, and either the BEPC or GCE O/L is required. The duration of the program is three years, and graduates enter the B cadre of the MOA, as "Techniciens d'Agriculture". At present the school graduates about 15 students per year, but it is undergoing expansion that will increase that figure to 25 by 1981. The cycle will change its name in 1980 to College Regional d'Agriculture de Bambili (CRA-Bambili).

- First Cycle: requires the CEPE or FSLC and has an entrance examination. Candidates must be between the ages of 17 and 25. After two years of study, graduates enter the C cadre of the MOA as "Agents Techniques d'Agriculture". This cycle of the CNA is also enlarging its capacity, from 15 to 30 students per year by 1980, and will change its name to Ecole Technique d'Agriculture de Bambili (ETA-Bambili) at that time.

b) Ecoles Techniques d'Agriculture (ETA's)

There are presently four ETA's in Cameroon at Abong-Mbang, Bafang, Ebolowa, and Maroua. The curriculum and recruitment procedures are exactly the same as the first cycle of the CNA, except that recruitment takes place every two years. In 1977, eighty students graduated from the ETA's as "Agents Techniques d'Agriculture". Expansion under the third IBRD education project will increase the ETA's capacity to 160 students per year in 1980, and recruitment will be annual.

c) Ecole des Eaux et Forets de Mbalimayo (EEF)

- Second Cycle: consists of two years of specialization in forestry after one year of basic courses in ITA's "Cycle des Techniciens". Entrance requirements are the same as for ITA "Cycle des Techniciens", and due to recent expansion approximately 20 students will enter each year. Graduates enter the MOA's B cadre, as "Techniciens des Eaux et Forets.

- First Cycle: recruits students, aged 17 to 25 with the CEPE, via an entrance examination. At present 30 students enter each year, and graduates gain the C cadre of the MOA as "Agents Techniques des Eaux et Forets". The cycle lasts two years.

d) Colleges Regionaux d'Agriculture (CRA's)

Expected to open in 1980, the CRA's in Ebolowa and Maroua will join the CRA in Bambili (former CNA Second Cycle) in training "Techniciens d'Agriculture". The entrance requirements and curriculum for the three year programs will be the same as the CRA - Bambili, and 25 students will enter annually in each school. The CRA's will share certain facilities (e.g. laboratories and libraries) with the ETA's in their respective locations. The first two years of study will be spent in one of the colleges. The students will travel to each of the other schools during the third year to experience different ecological and cultural regions of Cameroon.

e) Centre National de Formation Cooperative d'Ebolowa (CNFC)

- Second Cycle: recruits candidates from cooperatives, and public and private organizations, who are no older than 35, and have the BEPC or its equivalent. On completion of the two year curriculum graduates receive a "Diploma in Cooperative Techniques", but are not entitled to enter the Civil Service. Students normally return to the organizations which have sponsored them. The cycle may be used in the future for specializing people who already have jobs in the B cadre or its equivalent, and who would maintain this cadre after their training.

- First Cycle: also recruits from cooperatives, and public and private organizations but lasts only one year. In the future, this cycle may specialize people from the C cadre for work in cooperatives. The CEPE is required, and graduates return to their sponsoring organizations with a "Certificate in Cooperative Principles and Practices". Graduates are not entitled to a cadre in the Civil Service.

f) The National Cooperative College of Bamenda (NCC)

Requiring the GCE O/L, the college has traditionally geared its curriculum toward specializing cooperative employees. Normally just a one year program, a second year may be offered in 1979. Students are entirely funded by their sponsoring organizations, and are not entitled to enter the Civil Service upon graduation. A "Certificate in Cooperative Studies" is given at the completion of the one year course. The school also offers periodic seminars and short courses to cooperative personnel as a type of in-service training. The few civil servants in the school come from the B cadre, and keep this cadre upon graduation.

g) Ecole de Faune

Based in Garoua, the school is used to specialize civil servants from the MOA in wildlife ecology and conservation. The first cycle, lasting two years, recruits "Agents Techniques d'Agriculture" or "Agents Techniques des Eaux et Forets". The second cycle, also two years, trains "Techniciens d'Agriculture" or "Techniciens des Eaux et Forets". The training does not increase one's cadre, but does count as time spent in the civil service.

h) Centres de Formation des Jeunes Agriculteurs

These centers train between 10 and 20 young farming couples each year in basic agricultural practices and techniques. The couples are then expected to return to their villages where they can be a source of information for the general public. Now located throughout the country in such towns as Goyang, Dadjamka, Dana, Moulvoudaye, and Binguela, more centers are in the process of being created.

3. Ministry of Livestock

a) Centre de Formation Zootechnique et Veterinaire de Maroua (CFZV-Maroua)

Established in 1961, the school has two cycles. The upper level, cycle B, recruits students biennially who have the "Probatoire certificate". Recruitment is done through an entrance exam. After three years of study, graduates gain the B cadre of the MOL as "Infirmiers Veterinaires". About 15 students finish this cycle every two years.

The lower level, cycle C, requires the BEPC and a high score on the entrance exam. Studies last two years, and upon completion students receive the title "Infirmiers Veterinaires Adjoints" and a place in the C cadre of the Civil Service. Approximately 25 students finish every two years.

There are plans for enlarging the facility in Maroua with Belgian aid. This would double the annual output by allowing the school to recruit students every year. The expansion, however, will probably not affect output until after 1985.

b) Centre de Formation Zootechnique et Veterinaire de Jakiri (CFZV-Jakiri)

Established in 1974, the school in Jakiri is the anglophone counterpart of the one in Maroua. Also having B and C cycles and recruiting biennially, the requirements are the GCE A/Level for the upper cycle, and the GCE O/Level for the lower cycle. The length of study, title, and cadre gained are the same as in Maroua, though only about five students finish the B cycle every two years, and fifteen complete the C cycle every two years.

E. University Center of Dschang

The present UCD consists of ENSA in Yaounde, and ITA in Dschang. As mentioned above, ITA has two levels, the "Cycle des Ingenieurs" which trains students at a University level, and the "Cycle des Techniciens" which is basically a senior high school for agriculture.

Since its creation in 1960^{1/}, the training of students at ENSA has gone through some major structural and functional changes: (1) in the length of time spent on ENSA campus, (2) in the selection of students and (3) in the content of the programs.

Three, four, two and five years have respectively been the various lengths of time needed for the training of students in succeeding "regimes" at ENSA.^{2/} This variation in the length of the training period has of course had direct implication in the selection of students.

Indeed, from 1961 until 1968, during the three and four year program, the minimum requirement for recruitment for the first year at ENSA was either Baccalaureat C or D or an Advanced Level in Science and Math. Some students with a Physics, Chemistry and Natural Sciences Certificate (SPCN) of the Faculty of Sciences were also accepted in the 2nd year but had to take extra complementary courses offered in the first year.

The two year program (1971-1976) was characterized by the recruitment of students having successfully completed the DUES (CB I and CB II) in the Faculty of Sciences in addition to complementary courses specially in the Faculty of Sciences for anticipated ENSA candidates.

The selection of students in the ongoing 5-year program is similar to that of the three and four year period. Although the Baccalaureat or the Advanced Level are the required degree, an important number of applicants have actually spent at least one year in the Faculty of Sciences.^{3/}

The variation in the length of the training program has been accompanied by succeeding important modifications in program contents.

The first area of change is the total course hour loads for students as illustrated in Table 2.

(1) ENSA was created in 1960 under the name of ENCA, (Ecole Nationale Camerounaise d'Agriculture. It became EFSA, (Ecole Federale Superieure Agronomique) in 1963 and was integrated into the University of Cameroon, before becoming ENSA in 1972 a result of the creation of the United Republic of Cameroon.

(2) It should be noted that the three year program was transitional and concerned only the first promotion of ENSA students.

(3) 25 out of the 54 students in the 18th promotion fall in this case.

Table 2.

Distribution of Course Hours Loads for Students in Three
Succeeding "Regimes" at ENSA

Year	Course hours load for students		
	Four-year program	Two-year program	Five-year program
1st year	762 1/2	NA	730
2nd year	824 1/2	NA	705
3rd year	847	750	675
4th year	856	750	590
5th year	NA	NA	400

It is clear from this table that the trend has been toward a substantial decrease in the volume of course hours. The 5-year regime is the reverse of the 4-year regime since there has been a gradual decrease in the volume of course hours from the first year to 5th year. As a general pattern each change of "regime" has resulted in a substantial reduction of course hours for students. The two main objectives of this were to give students an opportunity to complement their course by personal study in the library and above all to give more practical character to the training of students.

Another area of major change in the program content is the increased importance of social sciences in the curriculum: from less than 8% in the four-year program to more than 20% of the total courses hours in the two and five-year program. As a result of this, the perspective (or the outlook) of ENSA graduates is no longer "purely" technical as in the past.

Last but not least, with the new 5-year program, future graduates from ENSA will be somewhat more specialized than generalists of previous years. It has been proposed that the first two years of the program be spent at the Faculty

of Science at Yaounde in order to clearly separate the ITA and ENSA programs. Because of entrance requirements, it is unlikely that there will be any upward mobility from the ITA to the ENSA program. Furthermore, it would seem desirable for the entire training of ENSA graduates to be conducted at Dschang so as to assure its relevance to agriculture and provide program continuity.

An important feature of the ongoing program at ENSA is the great emphasis on the practical experience for students. Indeed, in addition to specific practical exercises related to various courses, the five-year program differs from the previous one by the number and the nature of "stages" (field experiences) included in the program. (See Table 3.)

Table 3.

Practical Experience for Students in Various Programs at ENSA

STAGES (Field Experiences)			
Year	Four-year program	Two-year program	Five-year program
1st year	none	NA	Stage ouvrier
2nd year	Stage monographique	NA	Stage de production
3rd year	Stage pre-speciali- zation	Stage monographique	Stage monographique
4th year	none	none	Stage pre-optionnel
5th year	NA	NA	Stage de pre-speciali- zation

Through this series of field experiences, there is an attempt, in the five-year program, to systematize an alternating training between on- and off-campus activities, giving an opportunity to students to become familiar with the realities of rural development.

Indeed, through the "stage-ouvrier", students participate in various types of farm work as agricultural laborers. The "stage de production" leads them to the study of the organization and functioning of public, parastatal and private organizations responsible for the implementation of various agricultural development programs. During the "stage monographique", they live in a rural area and study the socio-economic characteristics of farmers and the numerous problems surrounding their agricultural activities. The "stage pre-optional" brings them back to public, private and parastatal organizations to focus on some specific activities. Finally, in the "stage of pre-specialization", every student has to design and complete a small research project related to an agricultural development problem of his choice.

However, in the five-year program, study trips, which were considered as special safaris of learning, have been eliminated for financial and practical considerations. As a result of this, the opportunity for students to become familiar with the great diversity of technical, social and economic problems in different provinces is very limited. This was a very positive aspect in the previous training programs, Cameroon being known as a small scale replica of Africa.

ENSA began a comprehensive five-year curriculum in 1975, and will therefore graduate its first class of this program in 1980. The upper cycle of ITA will also graduate its first class in 1980, having opened in 1977. The lower cycle of ITA was formerly the College National d'Agriculture de Dschang, but became a part of ITA when the university center was established.

As a part of this study, a questionnaire was completed by all of the current ENSA students in July, 1979. The following tables (4 - 12) were constructed from the data obtained.

Table 4.

Number and Average Age of ENSA Students by Class

<u>Class</u>	<u>No. of Students</u>	<u>Average Age</u>	<u>Range</u>
1st year	54	23	19 - 23
2nd year	52	24	20 - 36
3rd year	48	25	22 - 31
4th year	38	26	20 - 29

Since a large number of students take one or two years of science courses at the University of Yaounde and then take the entrance exam for ENSA, the average age of students is higher than would be expected from students entering immediately after receiving the baccalaureat (see Table 4). Only five of the 192 students had any work experience before entering ENSA.

Table 5.

Number and Percent of ENSA Students by Father's Occupation

<u>Father's Occupation</u>	<u>Number of Students</u>	<u>Percent</u>
Farmer	84	44
Police or Military	6	3
Merchant	5	3
Nurse or Doctor	5	3
Civil Servant	5	3
Tailor	4	2
Truck Driver	3	1
Chief of Village	3	1
Accountant	2	1
Carpenter	2	1
Mechanic	2	1
Teacher	2	1
Other	7	4
Deceased or No Response	<u>62</u>	<u>32</u>
Total	192	100%

Of those reporting an occupation for their father, 65 percent said farmer, with the next highest occupation, police or military, reporting only 5 percent (see Table 5). It is clear, therefore, that a large percentage of students come from a rural farming background.

Table 6.

Number and Percent of Current ENSA Students
from Rural and Urban Areas by Province of Origin

<u>Province</u>	<u>Number of Students From Rural Areas</u>	<u>Number of Students From Urban Areas</u>	<u>Total Students</u>		<u>Population in Provinces (percent of national total)</u>
			<u>Number</u>	<u>Percent</u>	
North West	3	1	4	2	-
South West	1	1	2	1	22 ^{1/}
Littoral	19	3	22	11	14
West	66	11	77	40	26
Center-South	61	5	66	34	19
East	3	0	3	2	5
North	13	4	17	9	14
Foreign	-	-	1	1	-
Total	166	25	192	100%	100%

Source: Le Cameroun, Jean Imbert, Presse Universitaires de France, 1973.
Estimates are for the year 1971

^{1/} This percentage includes population from both the NW and SW provinces.

The vast majority of ENSA students, 87 percent, come from rural areas (as shown in Table 6 above), which would appear to be fairly representative of the general population distribution. It must be noted, however, that students who have passed the BAC and are therefore eligible to enter ENSA, have spent most of their secondary school time in larger towns or cities.

There is also a noticeable lack of students from the anglophone part of the country (the NW and SW provinces). This is possibly due in part to the extensive use of French at ENSA, but mostly to the type of entrance exam given.

Since ENSA is the only agricultural university in Cameroon, steps might possibly be taken in the future to rectify this situation.

Table 7.

Number and Percent of Current ENSA Students
by Area of Specialization

<u>Area of Specialization</u>	<u>3rd Year Students^{1/}</u>		<u>4th Year Students^{1/}</u>	
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>
Forestry	9	19	15	39
Animal Production	7	15	6	16
Plant Production	11	23	11	29
Rural Economics and Extension	7	15	5	13
Undecided	<u>14</u>	<u>30</u>	<u>1</u>	<u>3</u>
Total	48	100%	38	100%

1/ Projected field of specialization

2/ Actual field of specialization

The 1979-1980 school year, will be the first time any specialization has been offered to ENSA students. Although it is currently limited to only four fields, and consists of only the final year of study, this specialization is a large step toward attempting to satisfy specific demands of the agricultural sector. ENSA will continue to emphasize a basic education in all aspects of agriculture, and is planning on expanding the number of specializations available to students in the near future to include rural engineering. Table 7 shows the number of current ENSA students by area of specialization.

There are 10 women presently attending ENSA, representing about 5 percent of the total enrollment. Although it was not possible to get statistics on students at ITA, the percentages of father's occupation, province of origin, and rural vs. urban origin are probably quite similar to the ENSA figures, since ITA and ENSA recruit from the same sources and use similar criteria. The percentage of women in the two cycles of ITA, however, is close to 10 percent.

Data were also obtained on former ENSA students. The following two tables show the geographical distribution and present employers of these alumni. From Table 8 one can again see that the great majority of ENSA graduates come from the West, Center-South, and Littoral Provinces. There was a definite increase in the number of women at ENSA in 1978, and there has been a decreasing number of foreign students.

Table 9 shows the recent importance of parastatal organizations as employers of ENSA graduates. This can be attributed both to the increased role which the GURC has given to parastatals in Cameroon's development, and the desire of graduates to earn the higher salaries paid by these organizations. It must be pointed out, however, that all ENSA students are required to work for the GURC for ten years after their graduation. Assigned to the MOA upon graduation, they can be seconded to other ministries or organizations.

Tables 10, 11 and 12 yield information on the present faculty at ENSA. The average age of all faculty is 33 years and the average number of years spent at ENSA is 4.8 years. There is only one woman presently on the staff.

Since many of the ENSA faculty also teach at ITA, the ITA staff has only 15 members. The following staff are presently at ITA:

- a) Cameroonians: 2 Assistant Professors, 2 "Ingenieurs Agronomes",
1 Chemical Engineer
- b) French: 2 "Ingenieurs Agronomes", 1 Ingenieur des Travaux Agricoles"
- c) World Bank Technicians: 3 "Ingenieurs Agronomes", 1 Master of Science,
1 "Ingenieur des Travaux Agricoles"
- d) Soviets: 3 Mechanical Engineers, 1 Electrical Engineer, 1 Translator

Table 8

Number of ENSA Alumni by Year, Sex and Province of Origin

PROMOTION	YEAR OF GRADUATION	NO. OF GRADUATES	MALE	FEMALE	PROVINCES OF ORIGIN							
					CENTER-SOUTH	EAST	LITTORAL	NORTH	NORTH-WEST	SOUTH-WEST	WEST	FOREIGN
1st	1965	5	5	-	3	-	-	-	-	-	2	-
2nd	1966	10	10	-	5	-	-	1	-	-	4	-
3rd	1967	13	13	-	4	-	4	-	-	-	5	-
4th	1968	8	8	-	1	-	2	-	-	-	5	-
5th	1969	8	8	-	1	-	2	-	-	-	5	-
6th	1970	6	5	1	1	1	2	-	-	-	2	-
7th	1971	15	15	-	5	-	3	-	-	-	4	3
8th	1972	30	30	-	8	-	3	2	-	-	12	5
9th	1973	28	27	1	4	-	5	-	-	-	13	6
10th	1974	27	25	2	4	-	3	1	-	-	16	3
11th	1975	32	32	-	4	-	6	-	-	-	22	-
12th	1976	31	31	-	1	2	6	-	2	-	19	1
13th	1977	28	28	-	9	-	7	-	-	-	12	-
14th	1978	<u>35</u>	<u>29</u>	<u>6</u>	<u>17</u>	<u>-</u>	<u>7</u>	<u>-</u>	<u>1</u>	<u>-</u>	<u>10</u>	<u>1</u>
TOTAL		276	266	10	67	3	50	4	3	-	131	18

Table 9

Number of ENSA Alumni by Year and Present Employer

PROMOTION	YEAR OF GRADUATION	NO. OF GRADUATES	EMPLOYER										
			MOA	OTHER <u>1/</u> MINISTRIES	PARAS-TOTALS	ONAREST	FONADER	COOPS <u>2/</u>	AGRIC. SCHLS.	PRIVATE ENT 'PRISE	INTER-NATIONAL ORGAN.	NOT REPORTED	FOREIGN STUDENTS
1st	1965	5	3	1	-	-	1	-	-	-	-	-	-
2nd	1966	10	4	1	1	-	-	1	1	1	1	-	-
3rd	1967	13	2	2	4	1	1	1	1	-	-	1	-
4th	1968	8	1	-	3	-	1	-	-	2	-	1	-
5th	1969	8	3	1	-	2	-	-	2	-	-	-	-
6th	1970	6	4	1	-	1	-	-	-	-	-	-	-
7th	1971	15	3	-	-	3	-	-	3	-	1	3	2
8th	1972	30	5	3	3	6	-	-	6	1	-	1	5
9th	1973	28	7	2	3	5	-	1	1	-	-	3	6
10th	1974	27	2	1	5	-	-	1	1	-	-	14	3
11th	1975	32	1	1	6	-	-	-	2	1	-	21	-
12th	1976	31	-	-	10	-	-	-	1	-	-	19	1
13th	1977	28	-	-	6	1	-	-	8	-	-	13	-
14th	1978	35	13	-	17	3	-	-	2	-	-	-	-
Total	-	276	48	13	58	22	3	4	28	5	2	76	17

1/ Principally the Ministry of Economy and Plan and the Ministry of Livestock.

2/ People working for the Department of Cooperation/Mutuality of the MOA were reported under the MOA.

Table 10

General Information on ENSA Faculty by Department

DEPARTMENT	NO. OF STAFF	AVERAGE NO. OF YRS. AT ENSA	AVERAGE USE OF TIME			AVERAGE AGE	QUALIFICATIONS			PROFESSORIAL RANKS ^{1/}			
			TEACHING %	RESEARCH %	ADMINISTRATION %		PH.D.	M.S.	B.S.	ASSISTANT	CHARGE DE COURS	MAITRE DE CONFERENCE	PROFESSEUR
Agriculture	10	7	35	50	15	36	1	7	2	4	5	-	1
Animal Science	7	4	45	25	30	31	-	6	1	5	2	-	-
Soil Science	8	4	35	45	20	32	1	6	1	5	2	1	-
Rural Economy	6	3	50	20	30	32	2	3	1	4	2	-	-
Plant Protection	3	6	20	35	45	32	-	2	1	1	2	-	-
Rural Education	4	5	50	40	10	29	-	2	2	4	-	-	-
Forestry	5	4	60	25	15	39	-	1	4	3	2	-	-
	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	43	-	-	-	-	-	4	27	12	26	15	1	1

^{1/} These titles are roughly equivalent to the following: "Assistant" - Lecturer, "Charge de Cours" - Assistant Professor, "Maitre de Conference" - Associate Professor, "Professeur" - Professor.

Table 11

ENSA Faculty by Nationality

<u>Nationality</u>	<u>Number</u>	<u>Percent</u>
Cameroonian	32	75%
French	4	9
Belgian	5	12
Dutch	1	2
Benin	1	2
	<u> </u>	<u> </u>
Total	43	100%

Table 12

Cameroonian Faculty by Province of Origin

<u>Province</u>	<u>Number</u>	<u>Percent</u>
West	14	44%
Center-South	9	28
Littoral	4	13
North West	3	9
South West	1	3
East	1	3
North	-	0
	<u> </u>	<u> </u>
Total	32	100%

SECTION II

Assessment of Agricultural Manpower Needs

A. Manpower Employed in Agriculture

Civil servants in all the ministries of the URC are classified in four major cadres: cadre A for senior staff, cadre B for intermediate staff, and cadres C and D for junior staff. In the Ministry of Agriculture the technical staff are classified into the various cadres according to qualification and/or seniority. The A cadre is divided into cadres: A2 and A1. Cadre A2 is the highest cadre in the Civil Service, and, in the MOA, it is composed of "Ingenieurs de Conception"^{1/} whose functions are to conceive, direct, and control agricultural policy and rural production. The A1 cadre consists of the "Ingenieurs des Travaux" who are in charge of the conduct and control of agricultural operations.

The next rank is that of the "Techniciens d'Agriculture", cadre B. Their general functions are those of execution of agricultural programs. The "Agents Techniques d'Agricultures" of cadre C and the "Agents Techniques Adjoint" of the cadre D are in charge of on-the-job extension work.

Approximately 70 percent of cadres A, B, and C are to be recruited directly by educational qualifications. Cadre A2 accepts graduates with diplomas from ENSA, or from any recognized foreign or international school that awards equivalent diplomas. Similarly a diploma from ITA (Cycle des Ingenieurs) or its foreign equivalent is necessary for entry into the A1 cadre, while cadres B and C require diplomas from the technical agricultural schools listed in Section 1 of this report (e.g. ITA-Cycle des Techniciens for cadre B, and the ETA schools for cadre C).

It is also possible to gain entrance into a cadre through competitive professional examinations, and approximately 20 percent of the people hired each year in cadres A through C are to be accepted in this fashion. Finally, about 10 percent of the new employees of the first four cadres are to be promoted from lower cadres through general promotions, taking into account seniority and experience.

The Ministry of Livestock has the same methods of recruitment as the MOA, but has different requirements. The A2 cadre consists of veterinary doctors and

^{1/} Including mainly Ingenieurs Agronomes, Ingenieur des Eaux et Forets, and Ingenieur du Genie Rural.

a few "Ingenieurs Agronomes", the A1 cadre has "Techniciens Superieurs d'Elevage", the B cadre consists of veterinary nurses, and the C cadre has assistant veterinary nurses. Most of the people in the A2 and A1 cadres have received their training overseas, while the people in the B and C cadres are normally trained in the Ministry's schools in Maroua and Jakiri.

The current stock of agricultural manpower in the MOA (by far the largest employer of trained agricultural manpower in the country) is shown in Table 13.

Table 13.

Distribution of Agricultural Manpower within the MOA

<u>Location</u>	<u>Number of Personnel in Cadres</u>			
	<u>A2</u>	<u>A1</u>	<u>B</u>	<u>C</u>
Central Administration	36	25	37	-
Center-South Province	5	15	69	95
Littoral Province	4	6	50	35
West Province	8	6	52	77
East Province	6	4	29	35
North West Province	3	4	49	79
South West Province	5	3	33	51
North Province	<u>6</u>	<u>3</u>	<u>63</u>	<u>69</u>
Total	73	66	382	441

Source: Personnel Service, Department of General Administration, MOA.

The Ministry of Agriculture would prefer filling all positions from the Technical Advisers to the Divisional Delegates with staff from the A2 cadre, and all of the Divisional Chiefs of Section and Principal Chiefs of Post positions with personnel from the A1 cadre (see Appendix D for the Hierarchy of MOA positions). This leaves a gap at present in the A2 cadre of 140 positions, and about 340 positions in the A1 cadre. (Table 14 shows the breakdown by position).

ONAREST employs approximately 48 Cameroonians who are at least Ingenieurs Agronomes, as well as 50 expatriates. According to a recent study on the

TABLE 14

Current Stock of Manpower in the Cameroon MOA by Position

POSITION	STOCK OF MANPOWER BY CADRE				VACANT	TOTAL NO. <u>1/</u> OF POSITIONS	CURRENT GAP IN PERSONNEL	
	A2	A1	B	C			A2 CADRE	A1 CADRE
Technical Advisors	2	-	-	-	1	3	1	-
General Inspectors	2	-	-	-	-	2	-	-
Directors	7	-	-	-	-	7	-	-
Deputy Director.	7	-	-	-	-	7	-	-
Officer in Charge of Studies	1	1	-	-	-	2	1	-
Chiefs of Service	6	8	1	-	4	19	13	-
Assistant Chiefs of Service	4	10	4	-	3	21	17	-
Chiefs of Bureaux	7	4	26	2	10	49	42	-
Provincial Delegates	7	-	-	-	-	7	-	-
Provincial Chiefs of Service	12	18	15	1	3	49	37	-
Assistant Provincial Chiefs of Service	4	2	-	-	1	7	3	-
Divisional Delegates	14	17	9	-	-	40	26	-
Sub-Total	73	60	55	3	22	213	140	-
Chiefs of Section	-	N.A.	N.A.	N.A.	20	160	-	160 <u>2/</u>
Principal Chiefs of Post	-	-	N.A.	N.A.	-	181	-	181
Other Positions or Unclassified	-	N.A.	N.A.	N.A.	-	454	-	-
Total <u>1/</u>	73	66	382	445	42	1,008	140	341

1/ As given by the Service of Personnel in the MOA.

2/ Because of lack of information it is assumed that none of the Chief of Section positions is filled by personnel from the A1 cadre.

Source: Personnel Service, Dept. of General Administration, MOA.

immediate needs for IA's by ONAREST (presented in Appendix E), there is also a gap in this organization of 226 positions in the A2 cadre.

Finally, the UCD has reported specific needs for Cameroonian teachers in a report prepared in January by Dr. Jean Ongla (presented in Appendix F). Dr. Ongla points out the need for 44 teachers with advanced training in various disciplines to both replace expatriates and fill existing vacancies. The present manpower situation at the UCD has been given previously in Tables 10, 11, and 12. In total then, there is at present a need for at least 410 IA's (A2) and 340 ITA's (A1) in the MOA, ONAREST, and UCD.

B. Sources of Agricultural Manpower

The only sources of trained agricultural manpower within Cameroon are those schools mentioned in the first section of this report. The past output and predicted future output of graduates from these schools are shown in Table 15.

As can be seen, ENSA is the only institution supplying manpower to the A2 cadre. Approximately 265 A2's will be trained in the next six years. Similarly ITA is the sole institution preparing students for the A1 cadre (Ingenieurs des Travaux Agricoles) and it is estimated that about 525 students will graduate into this cadre by 1985. It is also expected that the schools preparing students for the B and C cadres will train approximately 950 and 1,180 students respectively in the next six years.

The number of Cameroonians being trained abroad in agriculture is difficult to determine due to a lack of centralized records in this area. It is estimated, however, that about 10 students return to Cameroon each year with a university degree in agriculture from foreign institutions. This figure is quite small due to the existence of ENSA and ITA, and the government's desire to train people within the country whenever possible. Occasionally a few of these students may accept jobs directly with parastatal organizations such as the CDC, or in research with ONAREST (especially IRAF), but by far the most common procedure is to be seconded to other organizations from the Ministry of Agriculture. There are no Cameroonian facilities for advanced degrees in agriculture. Students wishing to further their studies after ENSA must go abroad. People already working for the GURC who are sent overseas for further training are not included

Table 15

Sources of Agricultural Manpower: Agricultural Education Institutions in Cameroon

CADRE	INSTITUTIONS	NUMBER OF GRADUATES					ESTIMATED NUMBER OF GRADUATES					
		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
A2	ENSA	32	31	28	35	(1)	38	45	45	45	45	45
A1	ITA (cycle des ingenieurs)	-	-	-	-	-(2)	73	90	90	90	90	90
B	ITA (cycle des techniciens)	31	32	28	35	23	35	95	90	90	90	90
	CNA (2nd cycle) (3)	N.A	N.A	12	15	14	14	-	-	-	-	-
	CRA (Bambili) (3)	-	-	-	-	-	-	25	25	25	25	25
	CRA (Ebolowa) (4)	-	-	-	-	-	-	-	-	25	25	25
	CRA (Maroua) (4)	-	-	-	-	-	-	-	-	25	25	25
	EEF (2nd cycle)	N.A	N.A	10	N.A	12	10	20	20	20	20	20
	CFZV (2nd cycle) (5)	0	0	5	15	5	15	5	15	5	15	5
	Total B Cadre	N.A	N.A	55	N.A	54	74	145	150	190	200	190
C	CNA (1st cycle) (6)	N.A	N.A	N.A	N.A	14	15	-	-	-	-	-
	ETA (all) (6)	74	0	71	0	80	0	110	190	190	190	190
	EEF (1st cycle)	N.A	N.A	15	N.A	23	23	30	30	30	30	30
	CFZV (1st cycle) (5)	30	15	15	13	25	15	25	15	25	15	25
	Total C Cadre	N.A	N.A	N.A	N.A	142	53	165	235	245	235	245

(1) ENSA recruited its first class for the 5 year curriculum in 1975, and its last class for the two year curriculum in 1976, therefore there were no graduates in 1979.

(2) ITA (cycle des ingenieurs) will graduate its first class in 1980.

(3) The CNA (2nd cycle) will become CRA (Bambili) in 1980.

(4) The CRA schools in Ebolowa and Maroua are expected to open in 1980.

(5) Includes both the center in Maroua and in Jakiri.

(6) The CNA (1st cycle) will become ETA (Bambili) in 1980, and join the schools in Abong-Mbang, Bafang, Ebolowa, and Maroua in the ETA framework.

Sources: University Center of Dschang
Dept. of Ag. Education, MOA
Service of Studies and Planning, MOL

in this statistic since they retain their position while abroad, and therefore never officially leave the work force.

Expatriates play an important role in several areas of the agricultural sector. There are probably less than ten expatriates in the entire MOA, but parastatal organizations, agricultural schools, ONAREST, and the private commercial organizations discussed in Section I all have relatively high percentages of expatriates in upper level positions. Almost all the management positions of the private plantations and forestry operations are occupied by foreigners. Several parastatal organizations such as SODECOTON, HEVECAM, SOCAPALM, SODERIM and SEMRY have expatriate directors, and many parastatals have between 40 and 50 percent of the positions requiring highly trained manpower filled with expatriates. Over half of the ONAREST personnel, and between 20 and 40 percent of the teachers in agricultural schools are foreigners due to the present shortage of Cameroonian specialists in certain fields of study. Although the French are by far the most numerous, Dutch, Belgian, German, Soviet, and U.S teachers and advisors are also found in the agricultural sector.

The policy of the GURC is to gradually replace expatriates as more trained and experienced Cameroonians become available. Due to present plans for expansion in many areas, especially in the agricultural schools and parastatal organizations, the actual number of foreign teachers and technicians will probably increase while the percentage of upper level positions they occupy will decrease. This will be due mostly to the increase in trained agriculturalists coming out of the UDC.

C. Determinants of Future Needs for Trained Agricultural Manpower

Several factors will influence the future needs for trained manpower for the agricultural sector in Cameroon. Most of these factors relate to decisions that will be made by GURC during the next 5-year plan and beyond. Some of these are discussed here to demonstrate their importance in projecting needs for high level manpower in agriculture.

1. One of the major factors determining the needs of trained agricultural manpower is the growth of the agricultural sector. The growth rate of the sector is usually set by policy but may in fact be altered by external market and other economic forces. The contribution of the agricultural sector to GNP stood at 35% in 1970/1971, 36% in 1974/1975, and is expected to stand at 34% in 1981. In terms of public investments, the sector has registered annual growth rates of 13% between 1970/1971 and 1974/1975 (Third Plan) and 7% between 1975/1976

and 1981 (Fourth Plan). In terms of production, the annual average growth rates were 10% for major food crops and 5% for major export crops during the Third Plan. The Fourth Plan target growth rates are 10% for food crops and 11% for export crops.

From an early evaluation report (not yet made public), the Fourth Plan growth targets are barely being met for some food crops, and they certainly will not be met for the majority of export crops. For cocoa, the target growth rate of 14% will not be met. The best estimate now stands at 7%. It was learned from the officials of the Ministry of Economy and Plan that the same targets will be maintained for the Fifth Plan. If they are to be met, a much greater emphasis has to be placed in the reorganization and supervision of farmer programs. This closer technical supervision will require a substantial increase in the number of trained personnel.

2. The level of government intervention in the sector both in production and marketing, and even in agricultural research, is a second factor which greatly affects the need for trained manpower. Discussions with the Division of Human Resources of the Ministry of Economy and Plan, and with the Department of Projects and Studies of the Ministry of Agriculture centered on the increasing role to be played by agricultural parastatals in the economy of Cameroon. In total, 21 existing agro-industrial complexes will be extended in the next 5-Year Plan, and 22 new projects, (14 under the Ministry of Economy and Plan and 8 under the MOA) have been prepared and presented for funding. It was not possible to obtain exact figures on the subsequent increase in trained manpower since very little information on the magnitude of the extension and on the new projects is being released at the present time. Still, it is approximated that every extended project will require on the average three Cameroonian IA's and six Cameroonian ITA's as well as two expatriates, and that every new project will need on the average four Cameroonian IA's, eight Cameroonian ITA's, and three expatriates.

From these two government sources and from many other interviews, it is clear that the needs for trained agricultural manpower will increase considerably in the next 5 years. There will be an even greater need for specialists, particularly in the areas of animal and plant production and research, and in management.

3. A third related factor which affects the needs for trained manpower is the level of technology in the agricultural sector. A developing agriculture needs both quantitative and qualitative improvements. The low technology level of Cameroon agriculture requires that great emphasis be given to increasing the number of trained personnel, and to improving the quality of training towards more specialization.

The size of the extension staff is in proportion with the number of farmers and Cameroon agriculture will be dominated for a long time by large numbers of small farmers. The agricultural sector will therefore require a considerable increase in the number of trained extension specialists in order to have an impact on the productivity and welfare of these farm families.

4. The extent to which government agencies and parastatals seek to up-grade existing staff positions will determine to a large extent the numbers of middle and high level agricultural workers which will be needed in the next 5 - 10 years. Data from this study and interviews with key officials indicate that there are active programs and future plans to up-grade several classifications of agricultural workers as soon as possible. Information concerning this up-grading is given in the next section of the report.

5. In calculating the need for additional agricultural manpower, one must consider the rate of exit from and entry to the agricultural sector and hence the need for replacement. This may be due to intersectoral transfers, the export or import of agricultural manpower to or from other countries, or deaths, retirements, illness, etc. From past observations and discussions held during the course of this study, it appears that intersectoral transfers are negligible. With respect to the drain of trained agricultural manpower out of Cameroon, this too does not appear to be significant. There have only been a few cases over the past five years where Cameroonians doing advanced degrees in agriculture overseas have failed to return home. Indeed, the wide variety of work available within Cameroon to people with a university education in agriculture, coupled with the strong sense of national pride found in the country, makes it doubtful that this will be a problem in the near future.

There are some unique factors relating to the relatively recent government investment in the agricultural sector which tend to minimize the number of replacements which will be needed each year in the next 5 - 10 years due to death, retirement, illness, etc. At the present time nearly all the Cameroonian

Ingenieurs Agronomes are under 50 years of age, thus, none of them will be retiring in the next 5 years. There is a relatively large number of Ingenieurs des Travaux Agricoles, however, who will soon reach the retirement age (55 years). A previous study estimated that about 3% of the Ingenieurs des Travaux Agricoles will retire every year (Projet Education BIRD-Cameroun 1973).

Because the creation of ITA in Dschang will inject about 90 young Ingenieurs des Travaux Agricoles into the sector every year, that figure will decrease rapidly. Retirement therefore will have very little impact on the future needs of agricultural manpower for the A2 and A1 cadres. It is nevertheless assumed that about one percent of IA's and ITA's per year, will have to be replaced during the next 5 years due to early retirement, death, early resignation, etc.

D. Past Projections of Agricultural Manpower Needs

Three previous manpower studies are worth noting. In 1974, the Education Project of the IBRD published a report through Cameroon's Ministry of Education. Though the report goes into detail about the factors affecting supply and demand, the data is now out-of-date due to a reorganization of the Ministry of Agriculture in 1976, and shifts in the direction of agricultural development in Cameroon.

A short study of agricultural manpower requirements was done in the World Bank's "Appraisal of a Third Education Project in Cameroon", published in April of 1976. Once again the data is somewhat out-of-date, but the assumptions used are reasonable.

Finally an assessment of the quantitative needs for Ingenieurs des Travaux Agricoles (A1 cadre) was completed in January 1979 by the Department of Agricultural Education in Cameroon's Ministry of Agriculture (MOA). Besides breaking down the needs of the MOA into its various departments, the study also looks at the individual needs of the majority of the development organizations and projects existing in Cameroon. A similar assessment is planned in the near future for manpower in the other cadres of the civil service.

E. Projections of Qualitative and Quantitative Needs to 1985

In the past, both the University of Yaounde and the Polytechnic School of Yaounde have provided some manpower to the agricultural sector. Since ENSA graduates have normally moved directly into the MOA, parastatal and private organizations have had to look elsewhere for trained personnel.

During this study, representatives of some of the major employers of UCD graduates were interviewed. These included the senior staff of the MOA and the MOL, directors of parastatals CDC, SOCAPALM, HEVECAM, and SODERIM, the senior staff of ONAREST, and the directors of ENSA and ITA. Besides discussing the current manpower needs of these organizations, talks also centered on the qualitative aspects of demand.

Within the MOA there is a specific demand for specialists with management capabilities in the various fields of agriculture. Since future ENSA and ITA graduates will be working in more specialized positions than past graduates (who have occupied most of the upper level administrative posts), they must be able to implement projects at a more local level than their predecessors. Indeed, most ENSA graduates will no longer fill positions that demand "Ingenieurs de Conception", and MOA officials repeatedly stated the need to prepare students for more extension related roles.

Two departments of the MOA also desire students with training in subjects not presently stressed at UCD. The Department of Agricultural Training will need teachers for its expanding middle level agricultural schools, and would therefore like people with a strong background in agricultural education. Similarly, the Director of Coop/Mut mentioned the recent policy of the GURC to train cooperative specialists within Cameroon, and yet there is not a program at present for training senior staff in cooperative principles and practices.

The parastatal organizations were unanimous in arguing that since they were increasingly becoming employers of ENSA graduates, courses in human relations, management techniques, and extension should become an important part of the ENSA Syllabus. They expect graduates to be able to communicate with farmers and plantation workers. Therefore the graduate, in addition to being a good university trained agriculturalist, must be able to disseminate knowledge of improved techniques to the small farmer. The directors requested that the departments of agricultural economics and rural education design courses with these new responsibilities of graduates in mind.

The specific qualitative needs of both UCD and ONAREST are given in the reports in Appendices E and F. These are basically the only two organizations which require people with a very high degree of specialization in specific agricultural sciences.

The estimated agricultural manpower needs for the A2 and A1 cadres to the year 1985 are presented in Table 16. In developing this data, the following

Table 16

Projection of the Manpower Needs of the A2 and A1 Cadres to 1985

<u>Organization</u>	<u>Needs to 1985 for the A2 Cadre</u>	<u>Needs to 1985 for the A1 Cadre</u>
MOA <u>1/</u>	140	341
MOL	30	60
Other Ministries	18	-
ONAREST <u>2/</u>		
IRAF	168	-
IRZ	34	-
IRTISS	24	-
CUDS <u>3/</u>	44	-
New Parastatal Projects (22x4 and 22x8)	88	176
Extension of Existing Parastatal Projects (21x3 and 21x6)	63	126
Approximate Replacement <u>4/</u>	19	17
<hr/>		
Subtotal	628	720
Plus loss to upper cadre in MOA through promotion or examination <u>5/</u>	-	14
<hr/>		
TOTAL	628	734
<hr/>		

1/ From Table 12.

2/ From Appendix C.

3/ From Appendix D.

4/ Using MINEP's estimate of 218 I.A.'s and 84 I.T.A.'s as the current stock of Cameroonians holding these titles, and the projected output from ENSA and ITA (Cycle des Ingenieurs) from Table 13.

5/ Although the official text of the MOA says 30% of hirings of each cadre will be through promotion or examination, in reality at present no more than 10% are taken in this fashion. Therefore only 14 (140 x 10%) will move from the A1 cadre to the A2 cadre.

assumptions were made:

- a) The stated current needs for the MOA would remain their major goal until at least 1985.
- b) The MOL would continue its present trend toward the use of veterinary people rather than animal scientists, and therefore would need no more than 5 IA's and 10 ITA's specialized in animal science per year until 1985.
- c) Other ministries of the GURC would need no more than three IA's per year and no ITA's.
- d) ONAREST would maintain its present plan of development until at least 1985.
- e) The MINEP and Department of Studies and Projects projection for the needs of new parastatal projects and present parastatals being extended holds true.
- f) The needs of the private sector are negligible.
- g) MINEP's estimate of the current stock of IA's and ITA's is correct.
- h) The replacement rate for the A2 and A1 cadre is one percent.

With these assumptions in mind, the following analysis of needs of trained agricultural manpower at the A2 and A1 can be made. Of the 628 people needed for the A2 cadre, approximately 30 would be supplied by the return of Cameroonian students overseas (5 per year x 6 years) and about 14 would be filled through normal promotion from the A1 cadre. This leaves 584 IA's to be supplied from ENSA, or about 95 per year. Similarly, about 30 ITA's would return from overseas and 73 would be promoted from the B cadre to help fill the needs of the A1 cadre, leaving approximately 630 positions for ITA's to be filled by graduates from ITA (Cycle des Ingenieurs), or about 105 per year.

The study team is aware, however, that plans and budgets do not always materialize. For example, it is unlikely that ONAREST, which projects 35% of the need for IA's (see Appendix E), will be able to meet their manpower needs by 1985. Since their stated need of 216 is probably a more long-term figure, this would tend to lower the annual need for IA's to 1985.

Accordingly, the study team believes that the annual output of IA's from UCD in 1985 and beyond should be approximately 70 students per year. This would allow for modest program expansion, up-grading of staff, and some replacement of expatriates in the agricultural sector. It means, however, that ENSA will need to admit 70 or more students beginning in 1980.

SECTION III

Role of UCD in Rural Development

The planned development of the UCD, and specifically the movement of ENSA to Dschang, offers exciting possibilities for increasing the Center's potential impact on rural development in Cameroon. In Dschang, the practical experience for students may be expanded. The existence of a large experimental farm at Bansoa will provide, in addition to more practical work, opportunities for students to develop their managerial skills. Dschang being a rural area, contacts with farmers may be easily institutionalized.

The following sections elaborate proposed improvements in teaching, research, and extension activities at UCD.

A. Curriculum

Talks with various officials reveal a strong need to increase the social science component at ENSA and to perhaps offer a specialization that would include rural sociology, extension education, and teacher education. This, of course, will require staff expansion in the affected areas. Areas mentioned include:

1. Management

Since the UCD graduate (particularly ENSA) is likely to be placed in an administrative position in the MOA or a parastatal, his effectiveness in serving the needs of poor farmers is also conditioned by his ability to manage resources (people, money, information and ideas) at his disposal in an effective manner. In fact, this is particularly true when one is bringing new concepts and ideas into an existing traditional bureaucracy.

It appears that the curriculum at ENSA should include a course or two dealing with the administration (management) of agricultural and rural development programs. There is a fast growing body of literature which addresses the concepts of management in a developing situation such as exists

in Cameroon which could be utilized in teaching such courses. ^{1/}

The course could be designed 1) to prepare the student psychologically and practically for the unique environment of a manager - the pressures from above, clientele groups, external organizations, political groups and factions, and those personnel supervised. 2) The course could also focus on nuts and bolts aspects of management such as budgets, personnel matters, information systems, etc. This could be done completely in the context of the existing structure of government and civil service realities. 3) A separate course or portion of the course could deal with the behavioral aspects of management such as group formation, achieving consensus, motivation of personnel. This could be widened to include some of the socio-cultural aspects of development situations existing in Cameroon. 4) An important area of concentration would be a focus on management in specific contexts such as extension, research, production units, development projects, credit programs, input supply units, marketing organizations, and cooperatives. How do they differ with respect to management in relation to the clients they serve, the control of resources, etc.?

Such training would allow students to have a practical look at agricultural and rural development activities through the window of administration - an activity in which nearly all ENSA graduates will be engaged shortly after graduation. Practical exposure to management situations could easily be provided for short periods allowing students to assess current development thrusts in terms of the implementation of agricultural projects and programs dealing with the rural poor.

It is possible that some or all of this training might be contracted through the Pan African Institute for Development (PAID) and/or the Business School in Douala. These possibilities need further exploration.

2. Cooperatives

Cooperatives play a major role in Cameroonian agriculture. Despite the existence of two cooperative training schools at the high school level and

^{1/} This literature includes such books as: Managing Rural Development by Robert Chambers; Policy and Practice in Rural Development by Guy Hunter, A. H. Bunting and A. Bottral; Designing and Managing Basic Agricultural Programs by Earl Kulp; and Serving Agriculture as an Administrator by Arthur Mosher.

cooperative federations, no systematic program exists for training upper level personnel in management. The program described above could provide some of that training. However, there are certain aspects of cooperative management that are quite different from the management of parastatal organizations. Particularly, member recruitment, education, and participation must be taken into consideration. Such a course could be directly tied to supervised practical experience within an ongoing cooperative society.

3. Teacher Education

A substantial number of ENSA and ITA graduates fill teaching positions at lower level agricultural schools. The Division of Agricultural Education would like to encourage the continued upgrading of that staff by filling vacancies with ENSA graduates. They also expect an administrative statute to be passed soon that will raise the pay and status of these positions substantially.

Currently, many of the teachers at these institutions have only technical training. Teaching consists almost entirely of lecturing. As these schools are responsible for training all lower level personnel for extension, improvement of teaching there would result in a substantial upgrading of extension agent competence.

Such a course or series of courses should include 1) practical experience in teaching, perhaps by participating in short courses, 2) training in the use of visual aids, 3) training in group discussion techniques, and 4) training in the management of student field experiences.

4. Extension Education

Many ENSA graduates also enter upper level positions in the extension services. For these students, several courses in informal education techniques and the use of visual aids would be useful. Such courses should emphasize the eliciting of information about agricultural problems from peasants. The program might include a specially designed practical experience in which students hold discussions about agricultural problems with villagers and then assess the situation collectively. Some discussion of criteria for intervention technologies would also be a useful addition to the course of study (see Chambers, 1978).

It is clear, of course, that all of these diverse needs cannot be met at once by ENSA. However, steps in that direction can be made by virtue of the kind of expatriate personnel supplied and the overseas training provided for Cameroonian staff. It is also conceivable that an integrated program specialization covering these four areas could be started up shortly and later broken up into several specialties as staff availability permits. In any case, it is possible that this material could be made part of the "economie et vulgarisation" specialization.

Also worthy of note is that the new UCD will have three "antennae". These will be regional field stations located in different ecological zones. They will provide students with the opportunity to experience at first hand the different agricultural, social, economic, and cultural patterns in other parts of the country. Given the wide ecological variation found in Cameroon, this appears quite worthwhile.

Each "antenna" will have basic facilities for 15-16 students and staff and will be available for ITA, ENSA, or short course use.

5. Relations With Other University-Level Agricultural Education Centers

Currently no university-level agricultural education exists in Cameroon other than that provided by UCD. The GURC does plan to establish a university center for sciences and technology at Ngaoundere. However, no funds have been secured for such a center to date. A conversation with the Conseiller Culturel of the French Embassy has revealed that the project was proposed several years ago to the French government. The French decided that they could not afford to finance the entire university center but did agree to finance a school for agricultural processing technology (e.g. food processing, tanning, etc.) through FAC. Bids have been requested and construction should begin as soon as the GURC brings services to the site.

The program at the new school will parallel that at Dschang. There will be three levels of students enrolled. One program will provide three years of post-BAC training, a second will provide five years. The last program will require only the BEPC and will provide two years training to technicians. In total, no more than 200 students will be enrolled.

The school is planned for Ngaoundere on the assumption that its presence will attract industries to the area. In the meantime, graduates are expected

to be employed at existing processing plants in the coastal regions. No study of manpower needs in this area has been made or is foreseen.

This development will in no way overlap with the curriculum at ENSA. No food technology program exists or is planned there in the foreseeable future. Moreover, the food technology school is oriented towards providing staff to agribusiness; it makes no pretense of being oriented toward farmer needs.

Finally, it should be noted that no university-level veterinary or livestock school at any location has received financing to date although it is possible that one will be included in the new five year plan. In any case, it should not provide a duplication of ENSA programs.

B. Research

1. At ENSA

Over the several years of the school's existence, ENSA faculty have been active in a number of research projects. (For a partial list see ENSA, 1978.) Research may be divided into two parts: that initiated by the ENSA faculty and that initiated by other organizations. Projects undertaken have been quite diverse. For example, projects have been undertaken concerning 1) shifting patterns of cultivation in the forest region, 2) a number of soil analyses for specific crops, 3) host-parasite relations involving coffee rusts, 4) a study of the role of women in development, 5) an examination and appraisal of the school's own extension efforts, and 6) a review of the objectives of the lowest level agricultural schools (ETA, CFJA).

Most of these projects have been of short duration and have been undertaken at the request of various governmental bodies and parastatal organizations. In the future, it is suggested that students become more involved in the process of setting research agendas. This might be accomplished by having students feed into the system research requests obtained through consultation with peasants. (See section C.1. below).

2. Other Research Institutions

Most state-sponsored agricultural research in Cameroon is conducted under the auspices of the Institut de Recherche Agricole et Forestiere (IRAF).

IRAF itself is one branch of the Office National de Recherche Scientifique et Technique (ONAREST). IRAF runs a rather large number of research stations around the country. Following French and British patterns, most of these stations tend to be small and focus on one or a few crops. Unlike ENSA, IRAF research stations perform virtually all their work on the stations themselves and have little direct impact on peasants. IRAF research also tends to be more basic than that done at ENSA.

There are two types of relations between ENSA and IRAF: administrative and functional. Administratively, there is an ENSA member on the board of IRAF and vice versa.^{1/} Functionally IRAF stations 1) accept students from ENSA for short-term training, 2) request and receive help from ENSA staff members for IRAF projects, and 3) provide ENSA faculty with help by teaching short courses. One problem of note is that IRAF cannot pay ENSA faculty for their help on IRAF projects unless those projects are funded by parastatals or foreign organizations. Students may visit the IRAF facilities as long as arrangements have been made with IRAF researchers.

Approximately one year ago the problems associated with agricultural research management in Cameroon were discussed at a symposium held jointly with the U.S. National Academy of Sciences (see N.A.S., 1978). A number of issues emerged from that conference, among them: 1) that weak links between extension and research services made it difficult to see that research was utilized and, 2) that the small size of research stations tended to isolate staff.

Of particular importance was the issue of pressure for research results. Researchers felt the very weakness of extension services pushed them to do research applicable to large plantations rather than small holders. This was the case in that plantation owners would come to the station for research results whereas smallholders generally could not afford to do so. This issue, in particular, reiterates the need for trained personnel in extension, especially in the upper echelons, so that the liaison between research and extension may be strengthened.

^{1/} The Minister of Economy and Plan appoints one member to the ENSA Council. In the past, this person has been the IRAF Director. However, there is no provision that requires that an IRAF staff member be appointed to the ENSA council.

Social science research is also conducted by ISH (Institut des Sciences Humaines). Much research conducted by this organization is of agricultural interest. Informal relations between ISH and ENSA are good.

C. Extension

1. Training of Students

Until 1970, the training of students in extension was done in the classroom. As a result of a reorganization of ENSA programs in 1970-1971, an area around Yemessoa in the Lekie Division, 65 km from Yaounde, became an operational and practical activities area for ENSA. Three major objectives were to be achieved in the area:

- a) To give the students, while still in school, an opportunity to have practical experience under rural conditions.
- b) To open an experimental area to the specialized departments for research in village settings.
- c) To provide external assistance to the populations of the area and help them improve their living conditions.

The creation of this area gave a new dimension to the training of students in extension. Indeed, now, there is an alternating training system in extension between on-campus theoretical discussions and off-campus extension practice. Farmers were involved in all activities related to the determination, implementation and evaluation of the agricultural development programs in the area. Demonstrations were made both in groups and individual farmer's fields as needed (See Tchala-Abina, 1974 and Van Gils, 1978).

Special training programs for locally selected leaders were organized. After a few years, some trained local leaders were even in charge of carrying out information campaigns and farm demonstrations under the supervision of ENSA staff and students. Although Yemessoa has been replaced by Bankomo at the Intervention Zone of ENSA since last year, the training of students in extension has not changed.

One aspect of the Yemessoa project of particular interest was the coordination of activities of health and agricultural extension. This was due in part to the mission-financed health program on the site. Nevertheless, given the close link between agriculture and nutrition, possibilities for developing a similar program at Dschang should not be overlooked.

2. In-Service Training

The main thrust of ENSA has been in offering degree programs. However, the Division de Pedagogie Rurale within the Department of Rural Education was formerly engaged in in-service training (recyclage) for teachers at the (secondary level) agricultural colleges under the direction of the Division of Agricultural Education within the Ministry of Agriculture. Indeed, provision of this sort of training is a part of the administrative code establishing ENSA. This in-service training consisted of three parts: first, teachers were provided with help in improving their teaching techniques, including training in the use of visual aids, fiches techniques, and other non-lecture type materials. Second, teachers were invited to submit their course materials for review by ENSA faculty and offset printing for class use. This is of particular importance given the great shortage of books on agriculture suitable to a secondary level African audience. Third, they prepared curricula in collaboration with the staff of the secondary institutions and Ministry of Agriculture officials (see Parrot and Bauchau, 1973). Also the entire Department of Rural Education participated in a training program for Animation Rurale in an effort to integrate these workers into the extension service in 1974 (Parrot and Bauchau, 1974).

Unfortunately, this in-service training had to be discontinued with the reassignment of a key staff member to a higher post within the Ministry of Agriculture. Nevertheless, it shows the willingness and demonstrated ability of individuals in both institutions to work together to achieve desired goals. It also re-emphasizes the need for ENSA to be of sufficient size that the removal of a single staff member does not eliminate a part of the program.

If ENSA and the UCA are to be effective institutions it appears imperative that this program be re-instituted. The Division of Agricultural Education is in the process of preparing an in-depth study of in-service training needs within its jurisdiction for submission to various donor agencies (Ministere de l'Agriculture, 1978). Under the proposed plan the provision of in-service training for extension agents would be institutionalized. Rather than providing specialized training for each organization, the training would focus upon the overall agricultural situation as typically found among Cameroonian farmers, i.e. a diverse multi-crop agriculture. With over 1,300 extension agents at the lowest level and in various organizations, the development of such capacity appears quite appropriate.

Within this proposed framework ENSA could provide training for those who

would conduct the training programs. This would consist of several parts: pedagogical training, communication training, and technical training on specialized topics as necessary.

a) Pedagogical training. As noted above, ENSA has substantial experience in this area and is well-equipped to provide this type of training. It is likely that short courses will need to emphasize classroom as well as informal techniques. Again, training should be suited to the situations within which agent training will take place. Training in the use of visual aids will be of little use unless coupled with a program to provide such equipment to each trainee. The Division of Agricultural Education is currently exploring the possibility of obtaining financing for such a program.

b) Communication training. It is probably in this area that the greatest degree of training is needed. A number of reports attests to the fact that one-way communication of information to peasants is often doomed to failure. Such failure not only discourages the peasant who finds the information unsuited to his/her needs, but also discourages the agent who, not understanding the peasants' view, sees them as tradition-bound and ignorant of what is best for them. Thus, this type of training should emphasize finding out what peasants need and extending that information back to the research stations. Such will insure in the long term that research is relevant to peasant needs and will thereby make the job of the extension agent a great deal easier and more rewarding.

c) Technical training. Only minimal additional technical training is required as trainers have already received this as part of their formal education. (At the lower, provincial level such training is necessary). To the extent that it is provided, it should, in general, be of such a nature as to require minimal new inputs when extended to farmers. This is particularly true in the case of food crops and in geographic regions where manufactured inputs are difficult to obtain on a regular basis. An exception might be made in the case of specialized training for parastatal organizations responsible for a single crop as these organizations usually provide their own input infrastructure. Moreover, the content of such training should be arrived at through careful consultation with peasants.

In order to accomplish these tasks, it is recommended that a separate facility be constructed at ENSA for the purpose of providing in-service training. Such a facility would ensure the year-round availability of in-service training without interfering with the regular university programs. The center would contain classrooms, small-group meeting rooms, dormitories, and other appropriate facilities. It would also have a small permanent staff consisting of a coordinator and a technician capable of using and maintaining audio-visual equipment. The coordinator would draw on the talents and capabilities of regular ENSA and ITA faculty and students as well as IRAF staff as necessary.

Some individual in each department would be responsible for coordinating with the center so as to insure that technical personnel were available when needed. The center would remain a part of the Division of Rural Education as it is now. Further discussions of the organizational details would need to be worked out.

D. Other Issues Relating to the UCD

1. Location at Dschang

The moving of ENSA from Yaounde to Dschang is part of a national plan to establish regional university centers. Nevertheless, it does involve substantial construction expense and might reduce the effectiveness of the teaching program. Among the disadvantages mentioned are: (a) cost of construction of new facilities, (b) loss of staff due to the move to a rural area with fewer urban services, and (c) distance from supporting facilities of other parts of the university system. In contrast potential advantages include: (a) close availability of peasant population, (b) setting in a prime agricultural area of the country, (c) the opportunity to link agricultural education at secondary and university levels, and (d) proximity to a research station. Let us examine each of these issues in turn.

a) New facilities at Dschang are to be financed through the World Bank, Belgian Aid, USAID and The Cameroonian government. Despite the substantial size of the expenditure, it appears warranted in that the current center is poorly located for serving the peasant population. Moreover, the level of development reached by Cameroon is such that it should be able to support several regional universities within the foreseeable future. This represents a first step in that direction.

b) The staff loss due to the move is expected to be minimal. Dschang is no more than a half day's drive from Douala and only a short ride (60 kms.) from the provincial capital of Bafoussam. Moreover, the town itself possesses a wide

variety of secondary schools, hotels, and other urban amenities. It appears likely that the short section of the road from Douala that is unpaved will be paved in the near future further reducing travel time. From discussions with faculty, it appears that there is general satisfaction with the move.

c) Following French tradition the current link between ENSA and other parts of the University of Yaounde is not particularly strong. Moreover, the current ENSA campus is a substantial distance from the rest of the university. Hence, little will be lost through the move to Dschang.

On the other hand, quite substantial advantages will be had as a result of the move:

a) The relocation of ENSA at Dschang will make it more accessible to the peasant population. Currently, extension and on-farm research activities take place at Yemessoa, some 65 kilometers from ENSA. By moving to a densely populated agricultural region, students will have relatively easy physical access to the peasant population.

b) The western region and particularly the area around Dschang is characterized by a highly productive volcanic soil. It is likely that this area has the capacity to provide abundant food and cash crops for both domestic production and export. ENSA should be able to make a significant contribution to the improvement of agriculture in the area.

(This raises the difficult issue of the placement of agricultural colleges. Locating research stations in highly productive areas may have the effect of increasing the gap between those who can produce some surplus and those who are at the margin. However, ENSA's major role will be in the areas of teaching and extension. In providing field experience for students, it is essential that they have a reasonable chance of success. Not surprisingly, farmers in more productive areas are likely to be more receptive to change than those who are closer to the margin. Hence it appears appropriate to teaching objectives that the school be located at Dschang.)

c) Moving to Dschang permits ENSA to be linked to lower-level agricultural education centers, i.e. ITA. ENSA will be incorporated with the already existing ITA schools. This will permit sharing of facilities and staff as necessary. For example, the audio-visual equipment in the Division of Rural Education would, with careful planning and maintenance, serve all three levels.

d) The new UCD will be located adjacent to a research station run by IRAF. That station has already permitted its staff members to provide their part-time services to ITA and could presumably do the same for ENSA. Moreover, it should permit a division of labor as long-term research is undertaken at the research station and extension-oriented research is undertaken through ENSA.

The IRAF director is cognizant of the desirability of cooperation and has invited ENSA/ITA faculty to view their research during the field days set up for peasants.

In short, it appears that the advantages of moving ENSA to Dschang outweigh the disadvantages.

2. Budgetary Considerations

Budgetary autonomy for the university has already been assured by decree 77/108. After the move to Dschang, all expenses other than approval of the annual budget, will require only the approval of the director. In addition, the university is exploring the possibility of setting aside part of their farming acreage as a profit-making and food supplying enterprise. Any funds thereby generated would be used to expand university programs and would not have to be returned to the central government. Such a financial arrangement has built-in problems, but serves to illustrate the level of budgetary autonomy which is planned.

3. Other Donors' Plans

The United States is not the sole donor of facilities at Dschang. The Soviets have recently completed classroom, laboratory and dormitory facilities for the use of the lower level ITA students. Currently all ITA students are using these very overcrowded facilities. The Soviet technicians are expected to leave soon and their aid will not be renewed.

Two other donors expect to contribute to the UCD:

a) The World Bank. The Bank has signed an agreement as part of their 3rd Education Project calling for the construction of the upper ITA facilities. The Bank will provide: (1) financing for the construction of ITA dormitory, classrooms and laboratories, (2) an unspecified number of expatriate teachers over a five-year period, and (3) financing for the regional antennae.

The building plans are currently being drawn up and construction is supposed to begin on the site on 30 July.

The 3rd Education Project appears to have as one of its goals, the development of "a service-oriented philosophy: namely an appreciation that the raison d'etre of the public service is to be of service to the public, and not just to be of service to the public service" (Ministere du Plan et de l'Amenagement du Territoire, 1974: V-4). This includes improving the quantity and quality of trained personnel capable of participating more effectively in extension programs.

Moreover, a participatory element is written into the program: "La seule voie de reussite pour un programme de formation et de vulgarisation agricole consiste donc a etablir un dialogue...de telle sorte que la programmation au sommet soit directement inspiree par les travaux effectues a l'echelon local, au niveau des communautes villageoises elles-memes" (V-10).

In short, unlike the World Bank's Western Highlands Project (see section E2 below), the upper/ITA project appears quite complementary in its goals to that proposed by USAID. Given the propensity of the ENSA faculty toward practical training at the village level, it is likely to be successfully executed.

b) Belgium. The Belgian Government expects to sign an aid agreement with the GURC in January. The Belgian project consists of two parts: A radio-isotope tracing laboratory and soil science laboratory. The Belgians will provide a "Chef du Projet" for each project and one assistant for the former and three for the latter project. These technical personnel will remain on-site for five years beginning in 1981.

The Belgians will also finance three scholarships for Cameroonians leading to the PHD (Doctorat du 3e cycle). Upon their return, these persons will spend some time with their Belgian counterparts and take over the operations of the department at the end of the aid contract.

The Belgians will pay for construction of the laboratories and for equipment. No support facilities will be included in this contract. While the Belgian project does not specifically address participation issues, it should in no way impede efforts to increase participation.

4. The Role of Women

Much of the agricultural work in Cameroon is done by women: "Men in the southern part of Cameroon are mainly involved in cash crop production, while those in the north participate on an essentially equal basis with women in food and cash crop production. Although women provide support in cash crop production, food crop production is the dominant economic role of women in all parts of Cameroon and consumes a large share of their waking hours" (Bryson, 1979:48). Despite this dominant role of women in foodcrop production, most agricultural extension activity has been directed toward men. Bryson suggests that this was done out of concern by colonial administration and missionaries for the heavy toil of women. It is equally plausible, however, that program planners merely took for granted the universality of the Western pattern of the division of labor. Moreover, it is important to note that food crop research only began in Cameroon with the development of IRAF in 1964. Therefore, until recently extension efforts reinforced the same sexual division of labor by encouraging men to focus more and more on cash crops and providing no information of interest to women. Whatever the case, it is clear that greater effort needs to be made to direct extension activities toward women.

In contrast to the relatively weak extension work, women have been successfully organized in cooperatives in the northwest and southwest provinces for some time. These cooperatives, revolving around maize milling and food marketing (Bryson, 1979:92-94) have been operating successfully since the 1950s. They demonstrate the ability of women to enter the modern economy and to improve their living standards through the adoption of new techniques when the social and economic conditions are ripe.

The ENSA project at Yemessoa is one of the few extension projects to effectively address the issue (Tchala Abina, 1974; Van Gils, 1978; Bryson, 1979:77). While the program did not specifically focus on women it appears that a clear attempt was made to see that all benefitted. As such, students were given the opportunity to work with the entire village. They should bring that realization with them to their future jobs. It is expected that ENSA will continue to train its students in a similar manner at its new locations.

With regard to recruitment of students, ENSA regulations require that examination scores be the sole basis of admission. Few women have been admitted as few have taken the exam and even fewer have passed. Currently, there are ten women enrolled in the ENSA program.

Some time ago, the idea of establishing a minimum level of female students was suggested in relation to lower ITA. It was rejected by women's organizations, however, who saw it as second class treatment.

Currently there is only one ENSA faculty member who is a woman. Though one woman is about to take graduate work in phytopathology in the States, it is unlikely that this situation will change markedly in the near future. This is the case as the supply of faculty is dependent upon the supply of ENSA graduates.

In sum, ENSA appears to be aware of the issues with regard to women in agriculture but for structural reasons, progress is likely to be slow.

E. Structural Factors Likely to Influence the Success of the UCD

While the short duration of this trip precludes a detailed analysis, discussions with various persons suggest certain features of the Cameroonian situation will have an impact on the development of the UCD. These issues need to be further explored by the design team.

1. The Food Price Structure

Food pricing in developing countries is at best a very difficult issue. Governments wish to maintain relatively low food prices so as to satisfy burgeoning urban populations. Failure to do so is likely to result in instability as either deprived urban populations or the small middle class or both demand lower prices. Moreover, the nature of food crops is such that they are difficult to tax. In contrast export crop prices have little effect on urban populations and by virtue of the inability of individual peasants to market them, marketing boards can act as both taxing and extension organizations. To this must be added the fact that the very profitability of export crops to both governments and plantation owners has encouraged research to increase productivity. Foodstuffs research lags far behind.

Currently, it appears that the Cameroonian government is concerned about high food prices. The export of food crops to Gabon and Nigeria is discouraged (prohibited?) despite the much higher prices paid for food in those countries. The GURC has apparently had some success in limiting cattle exports, but little in the area of grains. Northern markets contain many goods of Nigerian origins. In addition, the GURC has established MIDEVIV which "buys at fixed prices and sells below going market prices... The profit and loss statement of MIDEVIV for the year ending June 1975, showing a loss of CFA 9.5 million on sales of CFA

33.5 million, confirms this" (IBRD, 1977: Annex 9, 15). While MIDEVIV has apparently been unsuccessful in achieving its goals, it nonetheless is an indicator of the GURC's concern for this issue.

The impact of low food prices upon production is well-illustrated by two studies conducted by ENSA. The first, (Tchala Abina, 1974) notes that nearly all the target population adopted at least some of the recommended food production techniques (pp. 186-189). The second report, however, (Van Gils, 1978) notes that many had abandoned such practices by 1978 due to their high costs relative to returns (p. 9). In short, the extension training effort of ENSA was substantially undercut by the structure of food prices. (The lack of success may also be attributed in part to the attempt to introduce monoculture).

In short, there appears to be a partially articulated policy at the national level that is spottily carried out locally. Prices paid to farmers are often higher than "official" prices but are probably not rising as fast as the prices of consumer goods. In any case, it is clear that overly low food prices will have the effect of cancelling out any extension efforts no matter how well-trained agents may be. While it cannot be part of this project, the food price issue needs to be squarely addressed.

2. The Western Highlands Rural Development Project

The World Bank, in conjunction with the International Development Association appears to be about to embark upon a \$25 million project in the Western province. This province includes the Dschang area. The project was initiated as a result of GURC concern with increasing coffee production (IBRD, 1977:1). The Bank found this inappropriate and recommended instead that a "balanced rural development" project be prepared. A similar project is being considered for the Northwest Province. The former project is described in detail in IBRD, 1977 and IBRD, 1978.

There are a number of issues raised by a review of those reports:

a) The project will reorganize all extension activities into a single service under the direction of UCCAO, the coffee marketing cooperative. While extension workers will remain employees of MINAGRI, they will be seconded to and paid by UC .0. Their numbers will be substantially increased. It is unclear whether such an extension system would be interested in cooperating with UCD. It is also unclear how non-member farmers would receive extension services.

b) The extension program envisioned is clearly not participatory: it will consist of "A systematic program of visits to farmers coordinated with short training sessions for extension staff dealing with recommendations that

can be applied immediately afterwards..." (IBRD, 1977:ii). This is merely the old top-down type of extension that has proved unsuccessful many times in the past. It presumes that the extension organization has all the certified knowledge and merely needs to pass it on to the farmers.

Moreover, evidence available suggests that UCCAO was established from the top-down and is not the cooperative organization it pretends to be. (In contrast, it appears that the Northwest Cooperative Association is the result of a 30 year grassroots effort.) It appears to be successful not because of its extension activities or grassroots support but because it holds a monopoly on coffee marketing. For example, in order to be a candidate for a section post, it is necessary to have marketed a ton of coffee over a two year period (Tchouamo, 1978:24). Yet according to Tcheulachue (1977:42), 76.5% of the farms in the Western Province have less than one hectare of trees. In short, larger farmers dominate the organization.

c) Despite discussion of food crops, coffee appears to be far and away the prime interest as evidenced by the fact that: (1) the pest control section of the report discusses only coffee, and (2) village water supply is to be developed essentially to provide coffee washing facilities. In addition, the cooperative will only be able to control marketing of coffee and its major revenues will be derived from this service. Finally, it should be noted that the multiplication of improved foodcrop seed is included in the project but cannot take place until after varietal trials are conducted by IRAF. Thus, there will be a delay of several years in implementing this part of the project. When all this is taken together, it suggests that it is quite likely that coffee production and marketing will dominate the project and that food crops will receive short shrift.

An alternative possibility is that world coffee prices will drop and that the cooperative, by virtue of its high level of capitalization will be able to buy food crops from peasants at slightly higher prices and sell at slightly lower prices in Douala or Yaounde. This would not necessarily result in more efficient marketing but it would result in the elimination of most middlemen from the marketing process. It is not clear that it would result in higher returns to peasants as there appears to be no provision for returning dividends to users of the systems as is generally true of marketing cooperatives elsewhere.

Currently, the gap between the buying prices and the world market price appears to be growing (Tcheulachue, 1977:101).

If this assessment of the World Bank project(s) is accurate, then it will develop in ways virtually antithetical to those being propounded by USAID and ENSA. (An interview with a UCCAO advisor lends strong support to our interpretation of the World Bank project) It appears highly unlikely that ENSA would be able to effectively operate its extension and practical training programs in the face of such a massive infusion of capital and organization oriented toward non-participatory development. Moreover, this project could well become the model for future efforts, especially if it proves profitable. If that were to happen, it is possible that the Ministry of Agriculture would cease to function as a viable organization.

3. Discussion

The Cameroon Government does not appear to have any clearly defined statement of food or extension policy. Indeed, the developments described above appear to be the result of ad hoc decisions rather than a concerted effort. The pressure on limited governmental finances makes the possibility of using parastatal organizations to provide extension services a very inviting prospect. Hence, extension policy is often a matter of doing several antithetical things at once.

While the issues raised here are beyond the scope of the UCD, the success of that venture will be in large part determined by the way in which the GURC deals with these broader issues. It appears advisable that these issues be raised now, so as to insure the success of the new University Center of Dschang. So doing will require more than a few short consultations with officials. It will require a long-term concerted effort to help the GURC raise, define and resolve these issues. Given the level of aid forecast, and the degree to which effective utilization of that aid is dependent upon these issues, such an investment of time and expertise appears quite justified. In any case, the challenge to ENSA will be to inject the participatory mode into the extension services.

SECTION IV

Implications and Recommendations

This section provides a listing of the salient implications and recommendations derived from the study. An effort was made to respond to the issues raised by USAID/Washington in its review of the Higher Education Development PID 631-0031, University Center for Agriculture element.

A. Size of the University Center of Dschang

This study demonstrates that there is an increasing need for Ingenieurs Agronomes (IA's - ENSA graduates) and Ingenieurs de Travaux Agricole (ITA graduates) within Cameroon. The present output of the UCD will almost meet the need for ITA's during the next 5 to 10 years, but will fall short of filling the needs for IA's. With current enrollment at ENSA already fixed until 1984, it may be necessary to increase employment of expatriates in agriculture to meet the needs anticipated to 1985.

It should be pointed out that the UCD presently produces trained manpower solely for positions defined by the MOA, and that in essence, when a student is admitted to the UCD, he is entering the civil service of Cameroon. Therefore, even though the needs for UCD graduates come from various organizations throughout the agricultural sector, the initial demand is determined by the MOA and GURC and reflected in the number of students admitted to the UCD each year. The fact remains, however, that the present output of the UCD will not satisfy the projected needs for ENSA graduates to 1985. The needs will continue to grow after 1985 with the expansion of livestock programs, new parastatal projects, further up-grading in the MOA, increased needs in cooperatives, and the eventual replacement of the large numbers of expatriates in the agricultural sector. Although the rate of up-grading in the MOA may decrease a bit, and the needs of ONAREST will most likely be modest for a period of time after the present gaps are filled, the current inability of ENSA to fill about 300 positions at the A2 level (IA degree) by 1985 will place an extra burden on the school after that date.

It is for these reasons that it is suggested that the size of ENSA within the UCD be expanded. The actual magnitude of the expansion must be discussed closely with the MOA and MINEP to take into account possible budgetary

constraints not included in this study, and to review any information not obtainable during the course of the study. It would seem reasonable, though, to recommend an increase in enrollment to 70 or more students per year to begin to close the gap between the needs for, and supply of, ENSA graduates.

Social, political, and economic factors, which are instrumental in determining future needs, are difficult to predict beyond 1985. It is recommended that a periodic update of the agricultural manpower needs of Cameroon be conducted in order to continue to balance supply and demand.

B. Educational Emphasis at the UCD

While the MOA continues to be the prime employer of UCD graduates (and indeed has the final say as to where all graduates eventually work), parastatals have recently become important employers, and ONAREST has plans for employing a large number of ENSA students in the near future. There is also a shift going on within the MOA whereby UCD graduates are receiving posts in more rural areas. These changes in potential employers should be reflected in the UCD curriculum.

There is a very distinct need at present for UCD graduates with a good background in management, extension, teacher education, and cooperatives. The current goal is to improve the organization and training at the UCD so as to produce a graduate who is an excellent agronomist. While this is a worthwhile goal, more courses need to be introduced into the curriculum which provide the student with techniques to handle the responsibilities of his future position and transfer his knowledge to the small farmer or plantation worker. The absolute lack of any upper level training in Cameroon in cooperatives also needs to be addressed, given the growing importance of these institutions in the agricultural sector.

A substantial number of ENSA and ITA graduates fill teaching positions at lower level agricultural schools. As these schools are responsible for training all lower level personnel for extension, improvement of teaching there would result in substantial upgrading of extension agent competence.

The specializations chosen by the present students at ENSA do not reflect the actual needs. The number in Forestry is much too high and the number in Rural Economics and Extension is too low. In the future, students should have some sort of guidance as to the demand prospects of each discipline.

Finally, no matter which specialization chosen, students must be prepared to enter more practical work than previous Ingenieurs Agronomes. There are no longer many positions for "Ingenieurs de Conception", where IA's have traditionally gone, and future UCD graduates must be prepared to work in more rural settings with fewer resources available to them.

C. Role of the UCD in Other Agricultural Education Activities

Since the UCD will continue training many of the directors and teachers of middle level agricultural schools, the opportunity should be taken to strengthen the ties and dialogue between these institutions. Not only would the teachers at the middle level schools be able to benefit from newer teaching methods and up-to-date information, but the UCD would gain more insight into specific problems in the field. Also, parastatal organizations and cooperatives have expressed their interest in sending employees to the UCD for special courses or seminars.

It is suggested that in-service training previously conducted by the Dept. of Rural Education at ENSA/or the Division of Agricultural Education at MOA be reinstated as a permanent part of the ENSA program. This would consist of pedagogical, communications, and to a lesser extent, technical training. In order to accomplish these tasks, it is recommended that a separate facility for this purpose be constructed at UCD in Dschang.

Perhaps the best opportunity for the University Center to have direct impact on the small farmer is to arrange periodic meetings and seminars with extension workers of the MOA, and play a direct role as an important source of information for them. Indeed, if the UCD is to seriously address participation issues, it must expand its education activities beyond the university curriculum.

D. Advanced Degree Training

At present, it is recommended that advanced training continue to be carried out overseas, while ENSA concentrates on improving the organization and content of its undergraduate program. When this program reaches its desired level in a few years, the question of beginning an advanced degree program should be raised again. The current development objectives should continue to be the improvement of the present ENSA curriculum and the expansion of UCD activities to other areas of the agricultural sector.

E. Background of Students To Be Trained

From the statistics collected, the students recruited into ENSA have, in general, a rural agricultural background.

There is, however, a noticeable lack of students from the anglophone part of the country. This is mostly due to the basing of the entrance examination on the BAC syllabus and, to a lesser extent, the extensive use of French in ENSA and ITA. Since the UCD is the only agricultural university in Cameroon, it is recommended that steps be taken to improve this situation, possibly through a review of the entrance examination to take cognizance of the two educational systems involved.

F. Development of the UCD Staff

The current staff at ENSA is insufficient to meet current program needs. The implementation of development plan for ENSA will require up-grading of and additions to ENSA staff. While members of the Cameroonian staff are overseas getting advanced degrees, it is recommended that the temporary expatriate staff replacing them have experience in research and extension. Indeed, this assistance is needed to alleviate the present heavy teaching requirements which restrict UCD staff from carrying out research or doing advanced degree work. Present UCD policy states that a teacher cannot become a permanent staff member without a Ph.D. degree, and yet, the teaching load makes this very difficult to accomplish. The resulting lack of job stability has had a direct effect on the morale of the teaching staff, and efforts to improve this situation should be included in the project design.

G. Training of Women

There is no entrance discrimination against women at the UCD. The prerequisite for taking the entrance exam is the BAC-C or BAC-D (i.e. major in science and in the past, very few women have chosen this specialization. As more and more women move into this area, however, their numbers at ENSA are likely to continue to increase proportionately. ENSA administrators are aware of the issues with regards to women in agriculture, but for structural reasons, progress is likely to be slow.

The former women graduates of ENSA interviewed have found good jobs and had no complaints about discrimination. The job prospects look even better

in the near future as new projects for good crops are introduced, and as women's foodstuff cooperatives gain momentum. Again, these types of jobs will require people with a good background in management and extension, as well as cooperatives in specific instances.

H. Movement of ENSA to Dschang

The moving of ENSA from Yaounde to Dschang is part of a national plan to establish regional university centers. Among the potential disadvantages of such a move mentioned are: a) cost of construction of new facilities, b) loss of staff due to the move, and c) the distance of UCD from other supporting parts of the university. In contrast, potential advantages include: a) close availability of the peasant population, b) setting in a prime agricultural area, c) the opportunity to link agricultural education at several levels, and d) proximity to a research station. A thorough examination of the disadvantages reveals them to be either unfounded or far less important than anticipated. The potential advantages, however, are likely to be realized.

The question of a possible gravitation of students from the mid-level training to high level training if ENSA is to share a campus with ITA, is at present unfounded. The entrance requirements prohibit any such movement, and will most likely continue to do so in the future.

I. Research and Extension Activities at UCD

Despite the fact that other government agencies have major responsibilities for agricultural extension and research, ENSA has had, in the past, activities in these areas primarily for the purpose of training students. It is recommended that the UCD continue to develop mechanisms for involving students with peasant farmers in participatory research and extension type activities. Students involved with farmers in extension training roles might well help set the agenda for research by reporting back to ENSA and IRAF staff the needs and requests of small farmers.

J. Effectiveness of UCD

The potential impact of UCD in encouraging participatory agricultural and rural development will be in large part determined by ways in which the GURC deals with food price policies and the several proposed regional integrated rural development projects supported by the World Bank which are in various stages of implementation in the region.

Appendix A

Persons Interviewed by Members of Study Team

Dr. Giberling Bol Alima, Director General, CUDS
Mr. Devaux, Technical Consultant, UCCAO
Mr. Joseph Djoukam, Director, ITA
Mr. Francois Douxami, Director General, SOCAPALM
Mr. Eteme Daniel, Department of Agricultural Education, MOA
Mr. Thomas Fofoung, Provincial Delegate, North West Province, MOA
Mr. Jacob Foko, Deputy Director, ENSA
Mr. Fomcoe, French Embassy, Yaounde
Mr. Paul Fortem, Assistant Director, CARE/Cameroon
Mr. B. A. Fultang, Deputy Director, Department of Waters and Forests, MOA
Mr. Gara, FAO, Yaounde
Mr. Denis Gbetkom, Director, General Administration, MOA
Mr. Norman Green, USAID, Yaounde
Dr. Jane Guyer, Anthropologist
Mr. Joseph Kamga, Director, Department of Studies and Projects, MOA
Ms. Kathy Kelleher, Director, Catholic Relief Services, Yaounde
Ms. Christine Koloko, Assistant Provincial Delegate, Littoral Province, MOA
Mr. Benjamin Kouesseu, Secretary General, MOA
Mr. Mamadou Kouotou, World Bank 3rd Education Project
Mr. Alexander Lantum, Provincial Chief of Service Coop/Mut., S.W. Province, MOA
Mr. Dean Mahon, USAID/Coop/Mut., Yaounde
Mr. Patrice Mandeng, Chief of Service, Service for Human Resources, MINEP
Mr. Georges Malempre, Belgian Embassy, Yaounde
Mr. Mbepi, Deputy Director, Department of Rural Engineering, MOA
Mr. Andre Meka, Director, Department of Agricultural Training, MOA
Mr. Richard Molu, Director, ENSA
Chief Otto Monomo, Chief Administrator, Provincial Delegation of Agriculture, South West Province, MOA
Dr. Jean Morize, World Bank, Cameroon
Mr. Mosi, Manager, NWCA
Mr. Ngoye Moukouri, Provincial Delegate, West Province, MOA

Mr. Phillip Moumie, Deputy Director, Department of Agriculture, MOA
Mr. Andrew Ndonyi, Director, Department of Community Development, MOA
Mr. Samuel Ndoumbe-Manga, Director, ISH
Mr. Joseph Jacques Nga, Assistant Director General, SODERIM
Ms. Justine Ngandja, Provincial Delegation of Agriculture, West Province, MOA
Dr. Amos Ngongi, Assistant Chief of Service, Department of Studies and
Projects, MOA
Mr. Felix Nkonabang, Deputy Director, Department of Community Development, MOA
Mr. Jean Nya-Ngatchou, Director, IRAF
Mr. Jean Ongla, Secretary General, CUDS
Mr. M. O. Oyebog, Chief Production Manager, CDC
Mr. Francois Essam Oyono, Chief of Service, Personnel Service, MOA
Mr. Jean Remy, Director General, HEVECAM
Mr. Martin Schulman, USAID, Yaounde
Mr. S. S. Shang, Director, Department of Cooperation and Mutuality, MOA
Dr. Taptchet, Chief of Service, Service of Information, MOL
Dr. John Tumenta, Chief of Service, Services of Studies and Planning, MOL
Mr. Eric Witt, USAID, Yaounde
Mr. Robert Vautherin, ILO, Yaounde

Appendix B

Documents Reviewed During Course of Study

AID/W

March 12, 1979

Telegram State 059182

Subject: Higher Education Development

PID 613-0031, University Center for Agriculture Element

Bureau International du Travail

1977 Emploi et Developpement

Au Cameroun: Perspectives Sectorielles

Addis-Ababa: BIT, Version Provisoire

Bryson, Judy C.

1979 Women and Economic

Development in Cameroon,

Mimeo

Centre Universitaire de Dschang

1979 Programme de developpement des Infrastructures

Chambers, Robert

1978 Towards Rural Futures:

An approach through the planning of technologies

Sussex: Center for Development Studies, DP 134

ENSA

1975 ? Livret de l'etudiant, 1975-1976

Yaounde: Universite de Yaounde

ENSA

1975 Ecole Nationale Superieure Agronomique

ENSA

1978 Activites d'appui a la production

Fikry, Mona and Francois Tchala Abina

1978 People and Water. Yaounde: USAID

Gentil, D. V.; P. Marzin; P. Richard

1973 La Formation Paysanne

Paris: Institut des Recherches et d'Application de
Methodes de Developpement

Green, Norman

1978 Report on the visit to the United States by the Cameroonian
Higher Education Delegation, 1978

IBRD

1977 Appraisal of Western Highlands Rural Development Project,
Cameroon, Washington ?
Report No. 1780-CM

IBRD

1978 Cameroon. Education Sector Memorandum. Volume I, Main Report,
Appendices I-II

IBRD

1978 Report and Recommendation of the President of the International
Development Association to the Executive Directors on a Proposed
Credit to the United Republic of Cameroon for a Western Highlands
Rural Development Project. Washington ?
Report No. P-2195-CM

IBRD

13 November 1978

Rapport d'Evaluation Retrospective,
Premier Projet Education au Cameroun (Credit 161-CM)

IBRD

13 December 1978

Cameroun: Memorandum sur le Secteur de l'Education, Volume II
Appendice Statistique

Ministere de l'Agriculture

1978 Les Etablissements de Formation du Personnel d'Encadrement
de l'Agriculture. Yaounde: Direction de l'Enseignement Agricole

Ministere de l'Economie et du Plan

1977 IVe Plan Quinquennal de Developpement Economique,
Social et Culturel (1976-1981)

Ministere du Plan et de l'Amenagement du Territoire

November, 1974

"Requete a la Banque Mondiale pour le Financement d'un troisieme
Projet d'Education"

Nelson, Harold D., Margarita Dobert, et al.

1974 Area Handbook for United Republic of Cameroon

Ngue, Marcel

1979 Agriculture and Rural Development Statistics
Yaounde: USAID

ONAREST

July 1979

"Besoin a Court Terme en Matiere de Formation des Cadres Superieurs
en Recherche Agronomiques"

Ongla, Jean

20 January 1979

"Situation du Corps Enseignant du Centre Universitaire de Dschang"

Parrot and Bauchau

1973 Division de Pedagogie Rurale, Rapport d'activites
 Juillet 1973-Juillet 1974

Sanders, Charles A. and Cao Quan

September/October 1975
 Assessment of Agriculture Institutions

Sous-Commission du Comite National de l'Enseignement Agricole Charge de
l'Elaboration de l'Enseignement Agricole

December 1978

Document Final

Object: Insertion et Adaptation du Programme de l'ITA de Dschang
dans le cadre du Centre Universitaire Agricole de Dschang

Tchala Abina Francois

1974 Contribution a une experience de vulgarisation agricole: Yemessoa.
 Yaounde: Dept. d'Education Rurale, ENSA

Tchouamo, I. R.

1978 Relations entre les structures hierarchiques d'une institution
 rurale et l'organisation socio-economique de sa zone d'intervention:
 cas de l'UCCAO. Dschang: Centre Universitaire, Departement
 d'Education Rurale

United Republic of Cameroon

1976 Decret No. 76/256
 Reorganisation du Ministere de l'Agriculture

United Republic of Cameroon

1977 Order No. 194/CAB/PR of 28 September 1977 to set up and organize
 the Institute of Agricultural Technology of the Dschang University
 campus

United Republic of Cameroon

1977 Decree No. 77/108 of 28 April 1977 to set up and organize University campuses and to lay down provisions common to them.

Van Gils, Lambert

1978 La zone d'Application et de Vulgarisation de l'ENSA (1971-1978). Yaounde: ENSA, Etude Technique No. 20

Ministere de l'Economie et du Plan 1978

Recensement General de la Population et de l'Habitat d'Avril 1976.
Yaounde: Bureau Central du Recensement

Ministere de l'Economie et du Plan 1979

Developpement Rural dans la Province du Nord-Ouest. Projet Definitif

National Academy of Sciences

1978 NAS/ONAREST Workshop on Management of Agricultural Research in Cameroon, Staff Summary Report. Washington: NAS

Ongla, Jean

1973 An Economic Survey of Food Production Variables in the Zone of Intervention: Yamessoa. Yaounde: ENSA, Research Report

Tcheulachuie, Jean

1977 The Evaluation of a Regional Agricultural Program: The West Province of Cameroon. Yaounde: ENSA, Department of Agricultural Economics and USAID

Appendix C

Organization of the Ministry of Agriculture

A. Central Administration

1. Secretariat General

- (a) Agricultural Information Service
- (b) Mail and Translation Service

2. Department of General Administration

(a) Personnel Service

- (i) Bureau of Established Personnel
- (ii) Bureau of Contract and Auxiliary Administrative Personnel
- (iii) Bureau of Daily Paid Personnel

(b) Finance and Markets Service

- (i) Bureau of the Budget
- (ii) Bureau for Obligations
- (iii) Bureau for Materials
- (iv) Bureau for Markets

(c) Regulation and Exterior Relations Service

- (i) Bureau of Regulation and Litigation
- (ii) Bureau of Documentation
- (iii) Bureau of Exterior Relations

3. Department of Agriculture

(a) Agricultural Extension Service

- (i) Bureau of Programs
- (ii) Bureau of Agricultural Expertise
- (iii) Bureau for Training Professional Staff

(b) Agricultural Operations Service

- (i) Liaison Bureau
- (ii) Provisions Bureau
- (iii) Soils Bureau

(c) Plant Protection Service

- (i) Phytosanitary Operations Bureau
- (ii) Phytosanitary Laboratory

(d) Bureau for Communal Affairs

4. Department of Waters and Forests, and of Hunting
 - (a) Studies and Programs Service
 - (i) Bureau of Studies and Documentation
 - (ii) Bureau of Statistics
 - (iii) Bureau of Forestry Management
 - (b) Wildlife and Forest Environment Service
 - (i) Bureau of Hunting
 - (ii) Bureau for Inland Fishing and Fish Culture
 - (c) Development and Industrial Forestry Service
 - (i) Bureau for Licenses and Permits
 - (ii) Bureau for Wood Production and Wood Industries
 - (iii) Supervision and Recovery Bureau
5. Department of Cooperation and Mutuality
 - (a) Service of Cooperative Organization and Development
 - (i) Bureau of Studies and Statistics
 - (ii) Bureau of Agreements and Litigation
 - (b) Service of Cooperative Education and Formation
 - (i) Bureau of Liaison and Education
 - (ii) Bureau of Publications
 - (c) Auditing and Accounting Service
 - (i) Bureau for Accounting
 - (ii) Bureau for Audits and Finances
 - (d) Bureau for Communal Affairs
6. Department of Rural Engineering
 - (a) Service of "Agricultural Engineering" and of Rural Development
 - (i) Bureau of Studies, Audits, and Statistics
 - (ii) Bureau of Civil Engineering
 - (iii) Bureau of Village Hydraulics
 - (b) Service of Agricultural Mechanization
 - (i) Bureau of Programs
 - (ii) Bureau of Extension and Technical Assistance
 - (c) Bureau for Communal Affairs

7. Department of Community Development
 - (a) Service of Organization and Community Actions
 - (i) Bureau of Programs and Statistics
 - (ii) Bureau of Projects
 - (iii) Bureau of Organization
 - (b) Service of Women's Agricultural Actions
 - (i) Bureau of Organization
 - (ii) Bureau of Extension
 - (c) Technical Service
 - (i) Bureau of Studies
 - (ii) Bureau of Technical Actions
 - (d) Bureau of Communal Affairs
8. Department of Studies and Projects
 - (a) Service of Studies and Projects
 - (i) Bureau of General Studies
 - (ii) Bureau of Planning
 - (b) Service of Agro-economic Studies
 - (i) Bureau of General Studies
 - (ii) Bureau of Agro-economic Studies
 - (c) Service of Agricultural Statistics
 - (i) Bureau of Statistics of Perennial Crops
 - (ii) Bureau of Statistics of Foodstuffs, Truck Farming, and Fruits
 - (d) Bureau for Communal Affairs
9. Department of Agricultural Education
 - (a) Service of Programs and Examinations
 - (i) Bureau of Programs and Examinations
 - (ii) Bureau of Inspection
 - (b) Service of General Affairs
 - (i) Bureau of Administration
 - (ii) Bureau of Scholarships
 - (c) Bureau for Communal Affairs

B. Exterior Services

1. Provincial Delegation of Agriculture

- (a) Provincial Service of Agriculture
- (b) Conservation of Waters and Forests, and of Hunting
- (c) Provincial Service of Cooperation and Mutuality
- (d) Provincial Service of Rural and Agricultural Engineering
- (e) Provincial Service of Community Development
- (f) Provincial Service of Agricultural Statistics
- (g) Administrative and Financial Service

2. Departmental Delegation of Agriculture

- (a) Departmental Section of Agriculture
- (b) Departmental Section of Waters and Forest
- (c) Departmental Section of Cooperation and Mutuality
- (d) Departmental Section of Rural Engineering
- (e) Departmental Section of Community Development
- (f) Departmental Section of Agricultural Statistics
- (g) Bureau for Communal Affairs

Appendix D

Hierarchy of the Ministry of Agriculture

Minister

Vice-Minister

Secretary General

Technical Advisors and Inspectors General

Directors

Deputy Directors

Officers in Charge of Studies

Provincial Delegates of Agriculture

Provincial Chiefs of Service

Administrative and Financial Chiefs of Service

Assistant Chiefs of Service of the Central Administration

Assistant Provincial Chiefs of Service

Divisional Delegates of Agriculture

Bureau Chiefs of the Central Administration

Divisional Chiefs of Sections

Principal Chiefs of Agricultural and Forestry Posts

Chiefs of Agricultural and Forestry Posts

Chiefs of Departmental Communal Affairs Bureau

Appendix E

Short Term Needs of ONAREST for Upper Level Manpower in
Agricultural Research by Subject of Specialization

Table 1. IRAF

Table 2. Summary of Needs for IRAF by Discipline

Table 3. IRZ

Table 4. IRTISS

Source: An unpublished report by ONAREST, Yaounde, July 1979.

Table 1

IRAF

<u>Programmes</u>	<u>Cadres</u>			<u>Planning de Formation</u>		
	<u>En place</u>	<u>En formation</u>	<u>A former</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
<u>CACAOYER</u>						
Geneticiciens	1	-	4	2	1	1
Agronomes de Cacao	-	-	2	1	1	-
Phytopathologistes	1	-	4	2	1	1
Entomologistes	1	-	3	2	-	1
Technologie	1	-	2	1	1	-
<u>CAFEIER</u>						
Geneticiciens	-	1	5	3	1	1
Agronomes du cafeier	-	-	2	1	1	1
Phytopathologistes	1	-	4	2	1	1
Entomologistes	-	1	3	2	-	1
Technologie	-	-	2	1	1	-
<u>PALMIER ET COCOTIER</u>						
Geneticiciens	1	-	3	2	1	-
Agronomes	2	-	2	1	1	-
Phytopathologistes	1	-	2	1	-	1
Entomologie	1	-	3	2	-	1
<u>HEVEA</u>						
Geneticiciens	-	-	2	1	1	-
Agronomes	1	-	3	2	1	-
Phytopathologistes	-	-	2	1	1	-
Physiologie	-	-	3	2	1	-
Technologie du Caoutchouc	-	-	3	2	1	-

<u>Programmes</u>	<u>Cadres</u>			<u>Planning de Formation</u>		
	<u>En place</u>	<u>En formation</u>	<u>A former</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
<u>RIZ (Nord, Ouest, Nord-ouest, Est)</u>						
Geneticiciens	1	-	5	3	2	-
Agronomes	2	3	2	1	1	-
Phytopathologistes	-	-	6	3	2	1
Entomologistes	-	-	2	1	1	-
Malherbologistes	-	-	2	1	1	-
<u>CEREALES (Mais, Ble, Mils et Sorghos)</u>						
Geneticiciens	3	-	8	4	2	2
Agronomes	-	-	3	2	1	-
Phytopathologistes	1	-	5	2	2	1
Entomologistes	1	-	3	2	1	-
<u>LEGUMINEUSES (Arachides, Soja, Haricot)</u>						
Geneticiciens	-	-	2	1	1	-
Agronomes	1	-	4	2	1	1
Phytopathologistes et Entomologistes (Voir Riz et Mais)						
<u>TUBERCULES (Ignames, Manioc, Macato, Patate)</u>						
Geneticiciens	1	-	2	1	1	-
Agronomes	2	1	4	2	1	1
Phytopathologistes	1	1	3	2	1	-
Entomologistes	-	-	3	2	1	-

<u>Programmes</u>	<u>Cadres</u>			<u>Planning de Formation</u>		
	<u>En place</u>	<u>En formation</u>	<u>A former</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
<u>COTON</u>						
Agronomes	-	-	3	2	1	-
Geneticiciens	-	-	2	1	1	-
Entomologistes	-	-	2	1	1	-
<u>FRUITS</u>						
Geneticiciens	-	-	6	3	1	2
Agronomes	-	-	6	3	2	1
Phytopathologistes	-	-	4	2	1	-
<u>TECHNOLOGIE ALIMENTAIRE</u>	2	1	6	3	2	1
<u>RECHERCHES FORESTIERES</u>						
Hautes Savanes de l'Ouesá	-	-	2	1	1	-
Forêt Biafraise du Sud-Ouest	1	-	1		1	-
Forêt du Littoral	2	-	2	1	-	1
Forêt Semi-décidue du Centre-Sud	-	-	3	2	1	-
Zones Semi-arides du Nord	-	-	2	2	-	-
Cartes de Végétation et Flore Camer.	2	-	6	3	2	1
Pisciculture	-	-	2	1	1	1
Faune Sauvage	-	-	4	2	1	1
<u>ETUDES PEDOLOGIQUES (EKONA, IRAF NORD)</u>	4	2	7	3	3	1
<u>ET AGRO-ECONOMIE (Nord, Ouest, Centre-Sud)</u>	-	-	4	2	1	1
TOTAUX IRAF	34	11	168	91	53	24

Table 2
Summary of Needs for IRAF by Discipline

<u>Disciplines</u>	<u>Cadres</u>			<u>Planning de Formation</u>		
	<u>En place</u>	<u>En formation</u>	<u>A former</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
Genetique	7	1	39	12	6	6
Agronomie	8	4	31	17	11	4
Phytopathologie	5	1	30	15	10	6
Entomologie	3	1	21	13	5	1
Physiologie	-	-	3	2	1	-
Technologie	2	2	9	5	2	2
Malherbologie	-	-	2	1	1	-
Flore et Faune	5	-	22	12	7	3
Pedologie	4	2	7	3	3	1
Agro-Economie	-	-	4	2	1	1

Table 3

IRZ

Programmes	Cadres			Planning de Formation		
	En place	En formation	A former	1980/81	1981/82	1982/83
Gros betail (WAKWA, BAMBUI) ^{1/}	2	1	8	1	2	2
Procins (MANKON) ^{1/}	1	-	8	3	3	2
Caprins-Ovins ^{1/}	1	1	4	2	1	1
Volaille ^{1/}	1	1	10	5	3	2
Recherches Veterinaires (WAKWA)	1	-	4	2	1	1
Agrostologie (WAKWA, BAMBUI) ^{1/}	2	-	4	2	1	1
Lait (WAKWA - MANKON)	-	1	6	3	2	1
Recherches Halieutiques	-	-	5	3	1	1
Océanographie	-	-	3	2	1	-
TOTAUX IRZ	7	4	52	26	15	11

^{1/} Programs which require Ingenieur Agronomes. These five programs need a total of 34 IA's.

Table 4
IRTISS

1 - Machinisme Agricole (CENEEMA)

	Cadres			Planning de Formation		
	<u>En place</u>	<u>En formation</u>	<u>A former</u>	<u>1980/81</u>	<u>1981/82</u>	<u>1982/83</u>
Experimentation des machines	2	-	6	3	2	1
Construction du petit materiel adapte	3	1	8	4	2	2
Sechage produits agricoles	1	-	4	2	1	1
Formation and recyclage des agents ruraux	1	-	2	1	-	1
Conseil et Assistance	<u>8</u>	<u>-</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>1</u>
TOTAL PARTIEL	12	1	24	12	6	6

Appendix F

The Teaching Staff Situation at the
University Center of Dschang

Table 1. Current Situation and Future Needs for Teachers at ENSA and ITA of the UCD.

Table 2. Summary of the Quantitative Needs for Teachers at the UCD.

Source: A report completed by Dr. Jean Ongla, Secretary General of the UCD, in Yaounde, January 20, 1979.

Table 1
Current Situation and Future Needs for Teachers at ENSA and ITA of the UCD

<u>Departements</u>	<u>Matieres</u>	<u>Postes</u>		
		<u>Prevus</u>	<u>Pourvus</u>	<u>A pourvoir</u>
AGRICULTURE	Phytotechnie	6	3	3
	Microbiologie generale	2	1	1
	Genetique vegetale	2	1	1
	Biometrie	2	0	2
	Agroclimatologie	1	1	0
	Botanique Systematique	1	0	1
	Ecologie	1	0	1
	Radioisotopes	3	0	3
	Technologie alimentaire	1	1	0
EDUCATION	Agropedagogie	2	0	2
	Psychopedagogie	1	0	1
RURALE	Sociologie Rurale	3	2	1
	Vulgarisation agricole	5	1	4

<u>Departements</u>	<u>Matieres</u>	<u>Postes</u>		
		<u>Prevus</u>	<u>Pourvus</u>	<u>A pourvoir</u>
	Economie de la Production et gestion des exploitations Agricoles	3	2	1
	Economie de la Consommation et Market- ing des produits Agricoles	2	1	1
ECONOMIE	Cooperatives et Finances Agricoles	2	2	0
RURALE	Econometrie et Programmation Lineaire	1	0	1
	Economie de Developpement Agricole et planification rurale	2	1	1
	Mathematiques et Statistiques Appliquees a l'Economie	2	0	2
	Machinisme Agricole	2	1	1
	Topographie et Construction Rurales	2	0	2
GENIE	Electrotechnique	2	0	2
RURAL	Hydraulique Agricole	1	0	1

<u>Departements</u>	<u>Matieres</u>	<u>Postes</u>		
		<u>Prevus</u>	<u>Pourvus</u>	<u>A pourvoir</u>
PROTECTION DES VEGETAUX	Entomologie	3	2	1
	Nematologie	1	0	1
	Phytopharmacie	1	0	1
	Phytovirologie	2	1	1
	Mycologie appliquee	3	2	1
	Malherbologie	1	0	1
SCIENCES DU SOL	Pedologie Generale, Systematique	2	1	1
	Physique des sols, cartographie	2	1	1
	Chimie du sol	2	2	0
	Fertilite-Fertilisation	2	1	1
ZOOTECNIE	Nutrition	2	1	1
	Genetique	2	1	1
	Biochimie de la nutrition	1	1	0
	Physiologie animale	1	1	0
	Zoohygiene	1	1	0
	Agrostologie	1	1	0
	Technologie des productions animales	1	0	1

Table 2
Summary of the Quantitative Needs for
Teachers at the UCD

<u>Departements</u>	<u>Enseignants Camerounais</u>		<u>Total prevu</u>
	<u>En poste</u>	<u>A recruter</u>	
Agriculture	7	12	19
Education Rurale	3	8	11
Economie Rurale	6	6	12
Genie Rural	1	6	7
Protection des vegetaux	5	6	11
Sciences du Sol	5	3	8
Zootechnie	<u>6</u>	<u>3</u>	<u>9</u>
Total	33 <u>1/</u>	44	77

1/ One Cameroonain teacher has left since this report was published.