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# TUSKEGEE INSTITUTE

Center for Rural Development  
International Rural Development



**THIRD ANNUAL REPORT  
COMPREHENSIVE PLANNING FOR  
RURAL DEVELOPMENT**

**November 1, 1980**

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COMPREHENSIVE PLANNING FOR RURAL DEVELOPMENT

THIRD ANNUAL REPORT

I. GRANT TITLE: COMPREHENSIVE PLANNING FOR RURAL DEVELOPMENT

211-d Annual Report  
Date Due: November 1, 1980  
Date: November 1, 1980

GRANTEE: Tuskegee Institute

GRANT PROGRAM DIRECTOR: Glenn R. Howze

AID SPONSORING TECHNICAL OFFICE: Development Assistance Bureau

A. Statistical Summary

Period of Grant: September 1, 1979 to August 31, 1980

Amount of Grant: \$750,000

Expenditures for Report Year FY 1980

Accumulated: \$445,376

Anticipated for FY 1981: \$189,395

B. Narrative Summary

1. Principal Accomplishments of the grant--Accumulative and and FY 1980:

There was major progress made toward the achievement of the grant objectives during its third year of operation. In the area of research, a Tuskegee team successfully began a new research project for USAID/Mali Mission. Progress was made in the realization of the Education and Training objectives with the

continued offering of courses related to development, the support of graduate students and language training for faculty/staff members. The grant also sponsored a three day workshop entitled "The Role of U.S. Universities in International Rural and Agricultural Development." Furthermore, Tuskegee maintained old and created new linkages with other schools and organizations concerned with international development. The project continued to experience problems in locating opportunities for its faculty and staff to become involved in short-term advisory and consultative activities. The major accomplishment of the grant to date can be summarized as outputs under the five grant objectives:

1. Research

a. FY 1978

--A Tuskegee team identified appropriate research activity in Mali and negotiated a supplemental research contract with USAID/Mali. The research was titled: "Study of Extension Sciences in Mali."

--A Tuskegee Team provided 5 work months in Mali conducting the first phase of the study.

b. FY 1979

--The second year of the grant was spent completing the research initiated in Mali during the first year.

--The data from the first phase of the project were analyzed and English and French versions of a report were produced.

--The academic year at Tuskegee was spent reviewing the literature concerning Malian agriculture and extension education.

--The Tuskegee team spent 10 work months in Mali completing the data collecting task and

producing necessary reports. Four additional research reports were produced in both French and English.

--Final conferences were held with Malian and USAID/Mali officials and the terms of the contract were successfully completed.

--At Tuskegee, final copies of all reports were produced and sent to the appropriate officials in the Malian government, USAID/Mali USAID/Washington.

c. FY 1980

--A Tuskegee Team identified appropriate research activity in Mali. USAID/Mali requested the grant to develop a Model for Credit Risk to be utilized by USAID-funded agricultural projects in delivering credit to small farmers.

--A Tuskegee Team spent 2 work months in Mali conducting the first phase of the project. They identified parameters for a Farm Management Workshop to be held Summer 1981.

--Final conferences were held with Institut d'Economie Rurale and USAID/Mali officials and agreement was reached as to the need for the proposed Workshop.

--Phase II Workshop preparation was begun at Tuskegee. The draft of the Workshop manual should be completed by December 1980.

2. Education and Training

a. FY 1978

(1) Student Support

--Two undergraduate and four graduate students were supported during the first year of the grant. They were involved in a development seminar and were assigned to work with project staff.

(2) Workshops and Seminars

--The 211-d grant organized a session at the Annual Meeting of the Society for Applied An-

thropology titled: "Social Science Education for Regional Development." The session was attended by William Vickers and Glenn Howze, in Merida, Mexico.

--Willie Baber conducted a seminar on campus titled: "Economy, Society, and Change: Morne Paysan Twenty Years Later."

--Suchet Louis attended the International Nutrition Workshop at Massachusetts Institute of Technology.

--David Libby and John O'Sullivan attended the Arid Lands Conference in Denver, Colorado.

--Glenn Howze attended the Population and Food Policy Conference in Washington, D.C.

--Doris Oliviera attended the Agricultural Science in Africa Workshop in Ibadan, Africa.

### (3) Curriculum Modification

--Two existing courses were revised to include more international development related content.

--Five new courses in anthropology related to development were approved by the Institute.

--Two new faculty members, an anthropologist and an agricultural economist were added to the staff.

### (4) Faculty Training

--During FY 1978, one faculty member, Doris Oliviera, started French Language Training at the Foreign Service Institute in Washington, D.C. Another, Glenn Howze, was approved for training.

--Glenn Howze, William Vickers, and John O'Sullivan completed the Design and Evaluation workshop conducted by USAID/Washington.

b. FY 1979

(1) Student Support

--Three graduate and two undergraduate students were supported with grant funds during the second year.

--Two of the graduate students were in the field of agriculture; they were assigned to work with the agricultural economist associated with the grant. The other graduate student was utilized to teach French and to work with the Malian research project.

--The undergraduates were assigned to work with faculty participants on various aspects of the grant.

(2) Workshops and Seminars

--John O'Sullivan and Brooke Schoepf attended the Annual Meeting of the African Studies Association in Baltimore.

--Brooke Schoepf attended the Annual Meeting of the American Anthropological Association in Los Angeles.

--Brooke Schoepf attended the International Congress of American Studies in Kinshasa, Zaire.

--Susan Gotsch Thomson presented a paper, "Rural Development, Women's Roles and Demographic Change," at the Population Association meetings in Philadelphia.

--Mohammed Sarhan attended the National Association of State Universities and Land-Grant Colleges, where he participated in the sessions devoted to international programs.

(3) Curriculum Modification

--Dr. Brooke Schoepf, a developmental anthropologist, was hired to develop and teach grant related courses in the Department of Sociology.

--Dr. Mohammed Sarhan was hired to develop grant related courses in agricultural economics. When Dr. Sarhan resigned in August, 1979, Dr. T.R. McIntyre was hired to fulfill these responsibilities.

--Dr. Sarhan developed a proposal for a M.S. program in agricultural economics. This curriculum was presented to the administration and hopefully will be approved in the near future.

#### (4) Faculty Training

--Two faculty members, Glenn Howze and Doris Oliviera, completed French Language Training at the Foreign Service Institute during FY 1979. Both received ratings of 2s/2r from the FSI.

--Several faculty members participated in French Language Training at Tuskegee Institute. The class was taught by Cheickna Singare, a graduate student from Mali.

### c. FY 1980

#### (1) Student Support

--Five undergraduate and four graduate students were supported by the grant during its third year. The students were involved in the International Conference and were assigned to work with project staff.

--Three of the students, one graduate and two undergraduates, developed and were instructors in the summer French Language Training Program sponsored by the grant at Tuskegee Institute.

--The new graduate student is in the field of agronomy and was assigned to work with the Cooperative Extension Services Agronomist; he was also assigned to work with the Mali Research Team during the summer. The other graduate students continued their studies in agriculture and education.

--Fourteen additional students from various departments on campus were hired to work in various capacities during the International Conference.

## (2) Workshops and Seminars

--Glenn Howze made a presentation on the impact of the 211-d on Tuskegee Institute at a seminar sponsored by the grant.

--John O'Sullivan attended the African Studies Association Meeting in Los Angeles.

--Gregg Sullivan of Auburn University made a presentation on "Economic Discontinuities Affecting Cattle Production in Ghana, Tanzania and Syria," at a seminar sponsored by 211-d.

--Emmanuel Acquah of Virginia State University made a presentation regarding institutional constraints to development in Ghana, at a seminar sponsored by 211-d.

--Ed Braye, Cooperative Extension Services Veterinarian, presented a paper, "Management and Health Aspects of Small Ruminant Production," at the XII Biennial Caribbean Veterinary Conference in Port-of-Spain, Trinidad-Tobago. Dr. Braye later presented a report on his paper at a seminar sponsored by 211-d.

--John O'Sullivan presented a paper on agricultural development efforts in Mali at a seminar sponsored by 211-d.

--Comprehensive Planning for Rural Development (211-d), the Health Research and Demonstration Center (122-d), and the Center for Food and Nutrition Studies (Title XII) sponsored a three-day Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development."

--John O'Sullivan chaired a panel on Agricultural Development in Sahel and presented a paper, "Agricultural Development in Mali," at the Arid Lands Conference in Albuquerque, New Mexico.

--Willie Baber, John O'Sullivan and Brooke Schoepf attended the Second Workshop on Sahelian Agriculture at Purdue University. Dr. Schoepf presented a discussion paper, "Macrosystem Factors in Farming Systems Research: Some Theoretical and Methodological Considerations."

--Brooke Schoepf co-ordinated the Exchange Workshops, "On Using Tools," at the Forum held in conjunction with the UN Mid Decade Conference on Women and Development held in Copenhagen. She also served as convenor of two series workshops: Research and Policy: Making a Case for Women; and Developpement Rural Integre: Solutions Pratiques.

--Glenn Howze attended the 5th World Congress for Rural Sociology: Agrarian Problems, Peasants, and Development in Mexico City.

### (3) Curriculum Modification

--Glenn Howze used the Population Dynamics Computer Model to teach problems of development, in his population course.

--Robin McIntyre developed and taught grant related courses in agricultural economics, including "Economic Planning for Regional Resource Development," "Agricultural Policy in Planning in Developing Countries."

--Willie Baber developed and taught grant related courses in the Department of Sociology, including "The Political Economy of Development in the Caribbean."

--Brooke Schoepf developed and taught grant related courses in the Department of Sociology, including "Sociocultural Change in Africa," "Rural Sociology," and "Applied Anthropology."

### (4) Faculty/Staff Training

--The 211-d grant sponsored French Language classes during the academic year.

--The 211-d grant sponsored an intensive French Language Training Program at Tuskegee Institute during the summer semester.

--Faculty and staff from various departments on campus participated in the Language Program: Willie Baber, Ceola Baber, Robin McIntyre, Janie Carlisle, Olga Brown, Laurie Walker (211-d staff); Waswa Semafuko (Vet Medicine); Ron Field, Marvin Burns (Applied Sciences); Larry Koons (Chemistry); Judy Harmon (English). There were also a few community people who participated in the program.

--Robin McIntyre attended the Program Design and Evaluation Seminar in July, in Washington, D.C.

### 3. Advisory and Consultative Services

#### a. FY 1978

--Two work months of faculty release time were made available for advisory and consultative services.

--Contact was made with the missions in Jamaica, Guyana, The Gambia, and Senegal concerning possible involvement of Tuskegee personnel in advisory and consultative roles. Contact was made with USAID/W personnel in all major Bureaus concerning possible involvement.

--A Tuskegee faculty member served as a project design officer on a USAID project design team to Upper Volta. Dr. Suchet Louis represented Tuskegee on a SECID team for 1.5 months.

#### b. FY 1979

--Two work months of faculty release time were made available for advisory and consultative services.

--Contact was made with the missions in Ghana and Niger and REDSO in Ivory Coast to discuss the use of Institute personnel for advisory and consultative services. The Niger Mission

indicated an interest in using Dr. Schoepf for a short term assignment.

--Dr. Arthur Henry served as a team member on a project design team in Nepal.

c. FY 1980

--Glenn Howze provided two and one-half work months of advisory services to the Mali Mission. He concluded a study of the utilization of extension agents by the various agricultural services in that country.

--Glenn Howze provided one week of consultative services to the Fertility and Rural Development project conducted by SECID in Upper Volta.

--Revision of brochure, "Tuskegee Institute and International Development" (for December publication).

4. Linkages and Networks

a. FY 1978

(1) Domestic

--Supporting participation in BIFAD meetings

--Supporting participation in meetings of 1890 Land Grant Schools

--Supporting participation in relevant professional organizations

--Supporting contact with other 211-d schools

--Supporting participation in SECID meetings

(2) International

--International linkages were fostered by supporting site visits to Jamaica, Guyana, The Gambia, Mali and Senegal to explore possible Tuskegee involvement in Mission activities.

**b. FY 1979**

**(1) Domestic**

--Dr. George Cooper and Dr. B.D. Mayberry participated in BIFAD meetings.

--Various faculty members participated in meetings of 1890 and 1862 Schools.

--Various faculty members and administrators participated in SECID meetings.

--Contact was established with various organizations involved in international development.

--The grant sponsored participation in professional organizations by faculty members.

**(2) International**

--Participation in international organizations.

--Visits with USAID officials in Washington and REDSO.

--Development of contacts with Malian officials while completing a research activity in Mali.

**c. FY 1980**

**(1) Domestic**

--Sponsoring International Conference (involving 1890 Land Grant Schools, Title XII Schools and other 211-d Schools).

--Supporting participation in relevant professional organizations.

--Supporting participation in BIFAD meetings.

--Supporting participation in SECID meetings.

**(2) International**

--Meeting with visiting African Journalists from Francophone Africa.

--Meeting with Mr. Bryte, Personnel Officer for The Gambia.

--Meeting with visiting African Economists Regional Economic Project for Francophone Africa, (sponsored by the Institute of International Education.)

--Meeting with officials of the African Bureau, including the Assistant Administrator for Africa.

--Meeting with Mr. Bachir Amadou, Niger; Mr. Molende Tansia, Zaire; and Mr. Daniel Tsoukou-Mbaya, Congo, visiting economists sponsored by Operations Crossroads Africa, Inc., African Leaders Program.

--Meeting with Dr. Amadou Bocoum, Chief, Europe and Americas Section, Ministry of Foreign Affairs and International Cooperation, Bamako, Mali.

## 5. Information Capacity

### a. FY 1978

--Publication of brochure, "Tuskegee Institute and International Development," which outlines the Institute's experience and interest in international programs.

--Publication of the "Proceedings of the Symposium on Social Science in Regional Development."

--Acquisition of relevant books and journals for the library.

--Acquisition of computer data analysis programs, computer models and data bases related to international development.

### b. FY 1979

--Continued acquisition of relevant books and journals for the library.

--Continued acquisition of computer models and other computer based materials.

c. FY 1980

--Revision of brochure, "Tuskegee Institute and International Development" (for December Publication).

--Editing of "Proceedings of Tuskegee Institute Conference, The Role of U.S. Universities in International Rural and Agricultural Development" (for December publication).

--Continued acquisition of relevant books, journals and other library materials.

--Continued acquisition of computer models and other computer based materials.

C. Detailed Report

1. General Background and Description of Problem

The Grant recognizes an urgent need in most developing countries to improve the performance of their overall economic and social development. In many developing countries, food production has barely kept pace with population growth, while in Africa and parts of other continents per capita food production has actually declined. This inadequate output growth is in spite of massive expenditures on agricultural programs, including billions of dollars of external development assistance. This assistance, while increasing the production of a few basic grains grown largely in irrigated areas, has failed to solve many problems that require much more attention if LDCs are to have the capacity to produce adequate food for their burgeoning populations in the future.

The situation in many countries is even less satisfactory in regard to objectives other than increasing food production such as improving income distribution, reducing underemployment, rais-

ing productivity and levels of living of the rural and urban poor, and maintaining price and balance-of-payments stability. Countries and international assistance agencies are placing priority on programs whose benefits will be widely distributed by the output and productivity increasing process itself, rather than deferring concern with equity objectives until adequate output levels have been achieved.

Tuskegee Institute, through almost 100 years of developing solutions to human and community resource development problems among disadvantaged people, now recognizes the need for the involvement of "the people to be served" in the planning and in program implementation. While it has been determined that the need for involvement is paramount, it is recognized that adequate expertise among local citizens in these situations is usually nonexistent. To bridge this all important gap, there is an urgent need for a cadre of professionals in this country and in LDCs capable of providing technical assistance in the broad areas of human resource and community development with emphasis on such specialty areas as:

- 1) improving income distribution
- 2) raising productivity and levels of living among the rural and urban poor
- 3) reducing underemployment
- 4) improving the general welfare

Tuskegee Institute has a very long history of successful involvement in helping limited resource people. In the early years of Tuskegee Institute, this group constituted its only clientele. Through this involvement, Tuskegee acquired a commitment to serve the disadvantaged. Today this commitment stands as a major focus of this institution. Through this functional commitment, Tuskegee has amassed unusual expertise in dealing with the problems of the poor. This expertise has been acquired, not only in the United States, but also in many foreign countries in South America, the Caribbean, West Africa and Asia. Thus, historically, Tuskegee Institute has been involved in, and committed to rural development. It is significant to note the parallelism which exists between the priorities of USAID and the comprehensive (educational, research and extension) objectives of Tuskegee Institute. Both by design and by demand, Tuskegee Institute's objectives have concentrated on the human resource and community development needs of disadvantaged people of the deep South. Subsequently, Tuskegee's influence was extended first to the nation, and then, to the developing nations of the world.

Agency priorities are now focused generally on programs aimed at a predominately rural target group and in the key areas of food production, nutrition, population, health, education and human resources. Mission requests for technical assistance accordingly have focused on these areas of concern as well and increasingly, the Agency is promoting programs that are de-

signed specifically for the most disadvantaged segments of the LDCs.

Therefore, the focus of Tuskegee's grant--Comprehensive Planning for Rural Development-- meshes well with current and anticipated future demands and opportunities within the Agency. The major thrust of Tuskegee's 211-d grant will be in the areas of agricultural economics, economics, and the other social sciences. The effort focuses on problems associated with the transfer of appropriate technology to poorly-educated, traditional producers in varying social and cultural contexts. Four sub-areas of Comprehensive Planning for Rural Development are being emphasized by Tuskegee: farming systems, community organization, marketing and new land development and management. 211-d grant proposal seeks to strengthen the Institute's capacity to respond the Agency's needs and to the needs of developing countries in the area of rural development. This project will emphasize a multi-disciplinary approach to rural development through the involvement of several disciplines including (1) agricultural economics, (2) economics, (3) rural sociology, (4) anthropology, (5) extension, (6) education, (7) agriculture, and (8) veterinary medicine.

The grant funds are being used for (1) faculty growth and development, (2) advanced undergraduate and graduate student support, (3) domestic and international travel for the purpose of research and the development of networks and linkages, and (4) library and other information holdings.

In general, the grant is being directed toward developing programmatic capabilities required by USAID including project identification, design analysis, implementation and evaluation.

## 2. Purpose of the Grant

The purpose of this grant is to develop Tuskegee Institute's responsive capability and multidisciplinary capacity to assist LDCs in the general area of Comprehensive Planning for Rural Development emphasizing farm systems, marketing, community organization and new lands development. The 211-d grant enables Tuskegee Institute to provide technical assistance to LDCs with an emphasis on small scale agriculture technology and technology transfer. One of the major deterrents to development efforts in LDCs is the development of appropriate methodologies for the transfer of technology to poorly educated traditional producers in varying social and cultural contexts. The major thrust of the project will be in the areas of economics, agricultural economics, rural sociology, anthropology and extension. Where appropriate, the grant also involves personnel from agriculture, animal science, veterinary medicine and other technical areas.

In order to achieve enhanced capability in the area of Comprehensive Planning for Rural Development, the grant focuses on five activities/outputs: Research; Education and Training; Advisory and Consultative Services; Linkages and Networks, and Information Capacity. These activities are designed to prepare the Institute and its personnel to be able to respond

to LDC's needs in the broad areas of project identification, design, analysis, implementation and evaluation.

### 3. Objectives of the Grant

#### a. Objectives Restated

The expected outputs from the 211-d grant can be grouped into five categories:

#### I) Research (Expanded Knowledge Base)

- A) General literature reviews and consultation with recognized experts on selected topics.
- B) Development and execution of selected research projects in selected LDCs.

#### II) Education and Training

- A) Support for graduate and undergraduate students academic programs in academic programs related to rural development and international agriculture.
- B) Workshops and Seminars
- C) Curriculum modifications designed to improve Tuskegee Institute's offerings in International Rural Development.
- D) Language training for faculty.

#### III) Advisory and Consultative Services

- A) Create and maintain a handbook detailing Tuskegee Institute's experience and interest in international programs and providing detailed resumes of individual faculty members' interest and experience in international work.
- B) Provide release time for faculty to respond to requests from USAID and other donors for advisory services.

#### IV) Linkages and Networks

- A) Strengthen and develop new ties with 1890 and other minority institutions and firms involved in international work.
- B) Strengthen and develop new ties with 1862 and other U.S. institutions and firms doing similar work in LDC's.
- C) Develop linkages with USAID regional bureaus and missions.
- D) Develop linkages with LDC's and other donors.

#### V) Information Capacity

- A) Acquisition of books, journals and other library materials.
- B) Acquisition of computer models and data bases.
- C) Publication of seminar and research reports.

#### b. Review of Objectives

##### I) Research

The objectives of Tuskegee's research activities are to:

- A) increase the Institute's capability for doing applied research relating to comprehensive planning for rural development.
- B) provide faculty and students with significant overseas experience working in LDC's.
- C) generate research findings and other information which will be useful in development efforts.

The research effort is being carried out by inter-disciplinary teams of social science faculty members and graduate students. Where appropriate, the teams will be assisted by technical personnel from agriculture, animal science veterinary medicine and other technical fields.

It is anticipated that during the grant's five year period each of the four major subtopics will receive research attention. However, since each of the four subtopics are substantial areas for research, it is possible that the bulk of the research effort might be centered on only one or two areas.

Farming Systems -- This would involve the identification of appropriate agricultural and other economic activities which could easily fit within the existing socio-cultural matrix in order to improve the economic status of traditional producers. The research would involve:

- The Identification and analysis of the existing social and agricultural systems. Such studies will provide an understanding of the socio-cultural context for development and baseline data for assessing the effects of development programs.
- The examination of alternative farming systems and methodologies for the transfer of appropriate practices and technology. Emphasis will be on the improvement of existing systems and the development of supplemental and alternative agricultural and related economic activities. The goal would be the development of systems that are compatible with existing socio-cultural contexts.

Community Organization -- Recognizing that one of the major deterrents to development efforts is the problem of gaining the cooperation and participation of traditional producers, research would focus on strategies for community organization and local participation. Among the research concerns are:

- Social organization
- Communication networks
- Non-formal education and extension strategies

Marketing -- The concern is to develop alternative methodologies for improving the marketing systems of traditional producers. Research would include the following concerns:

- Describing the current system of marketing by obtaining baseline data associated with current practices.
- Examining non-economic aspects of marketing and agricultural production among traditional producers.
- Examining possible modifications of existing marketing systems designed to improve them.

New Lands Management -- As a part of development efforts many LDC's have opened up "new lands" to agricultural production. This is especially true in both the dry lands and wet lands areas of the tropics. In the dry lands areas, reliable and year around water supplies have been developed which have greatly altered the cropping and/or livestock patterns in the areas. In the wet lands deforestation is making land available for agriculture. Disease control programs, such as tse-tse fly eradication efforts, are also opening up lands. Unfortunately, many of the "new lands" efforts have not been coupled with management plans that are designed to protect the ecology and future usefulness of the lands for agricultural purposes. Rather, the lands are often settled in unplanned and haphazard ways-- Research will focus on the efforts of LDC's to open up "new lands"

to agricultural production. Major topics of concern will be:

- Identification of problems associated with recent New Lands Projects. This will involve a review of the literature on new lands projects.
- An assessment of the "state of the art" concerning New Lands development. What guidelines and methods have been developed.
- An examination of alternative models for New Lands Development. Specific concern will be with that type of social, cultural and physical infrastructure needed and land management necessary to protect the ecology and to insure long term use of the land.

Each academic year is spent reviewing the literature, consulting with authorities in the U.S., designing a research activity for specific LDC's and making all of the necessary contacts for field operations. On-site research in the LDC's will most likely be carried out during the summer term.

The specific research projects are selected in collaboration with host governments and USAID personnel. In general, the research will be of an applied nature and will address specific problems of LDC's.

The expected outputs for this activity are publications, project reports and graduate student theses.

The estimated faculty release time for this research activity is 15 work months per year or 75 work months for the five year period. It is anticipated that nine (9) graduate students will be involved in the research activity.

## II) Education and Training

The purpose of the education and training aspect of the grant is to:

- A) Increase Tuskegee's response capabilities in agricultural and rural development.
- B) Create interest in and train minority graduate and undergraduate students in rural development and international agriculture.

Four major sub-activities will be supported:

Student Support -- In order to increase the interest of minority students in international rural development and agriculture, the project supports both graduate and undergraduate students in the social sciences and other disciplines related to international development. The graduate students are employed in the research activities. All will be involved in special courses, seminars and workshops dealing with international development. The expected outputs for this sub-activity will be nine graduate students and nine undergraduate students trained in international development.

Workshops and Seminars -- A regular series of workshops and seminars dealing with small scale agriculture and international rural development is planned. Workshops and seminars will be designed to complement the research activity and this will focus on farming systems, community organization, marketing and new lands management. Workshops will be of a general nature and will employ several outside expert consultants. Semi-

nars will deal with specific problems related to research and will usually employ only a single outside consultant. The expected output for this sub-activity will be five workshops and ten seminars. Summaries of the workshops will be available.

Curriculum Modification -- In order to improve its educational offering in international rural development, Tuskegee Institute will do the following:

- Revise appropriate existing course offerings in the social sciences.
- Add new courses dealing with international development.
- Increase the faculty in areas related to international development.

It is anticipated that during the first two years of the project appropriate courses in economics, agricultural economics, sociology and anthropology will be modified in order to have a more international and developmental perspective. In some cases specific segments dealing with development problems will be introduced into the course. In other cases new materials will be added to existing segments. It is anticipated that three work months of efforts during each of the first two years will be required.

Approximately three new courses dealing with development are being added to agricultural economics and four new related courses to sociology/anthropology. These course additions will necessitate the two new

faculty positions, one in agricultural economics and the other in developmental anthropology. It is anticipated that the courses will have sufficient enrollment to be maintained after the expiration of the grant.

The outputs for this sub-activity will be:

- Three to five existing courses modified to contain sections related to international development.
- Three new agricultural economics and four new sociology/anthropology courses related to international development will be added.
- Two new faculty positions, one agricultural economist and one developmental anthropologist, will be added.

Faculty Training -- In order to upgrade faculty skills the project supports faculty training related to international development work. The major activity to be supported will be intensive language training for faculty members. This effort will be realized in a threefold manner: language classes offered at Tuskegee Institute during the academic year; intensive language classes at the Institute during the summer; and individual language training programs. In addition, faculty will be supported to attend short courses sponsored by USAID and other organizations. Three work months per year of such training are supported by the grant.

The outputs for this sub-activity are:

- Four faculty members trained in a foreign language
- Faculty members trained at USAID in relevant subjects such as project design.

### III) Advisory and Consultative Services

Tuskegee is making available faculty members in economics, agricultural economics, sociology, anthropology and other areas related to agricultural and rural sector policy analysis so that they may be available to USAID and LDC's for short-term advisory and consultative services in such areas as project design, analysis and evaluation.

It is expected that requests for such services will be made so as to minimize any adverse effects on the educational program at Tuskegee Institute. This will involve providing ample lead time so that faculty can adequately arrange their work schedules, and where possible the scheduling of such activities will correspond with breaks in the academic calendar.

It is also expected that USAID and other organizations requesting services will provide travel, per diem and necessary logistic support for such services. Furthermore, it is understood that grant funds will be used for such activities only when the activities clearly are in the best interest of the project.

Four work months per year are devoted to this activity. The expected output from this activity is increased usage by USAID of Tuskegee personnel for short-term assignments. Also, Tuskegee will create and maintain a handbook detailing its interest and experience in international work and containing

resumes of faculty interested in international work.

#### IV. Linkages and Networks

Tuskegee Institute is increasing its linkages and networks in the area of international rural development and agriculture both domestically and internationally.

- A) Domestically, Tuskegee is increasing linkages and networks by:
  - 1) Establishing stronger ties with 1862 and 1890 colleges working in the field of international development.
  - 2) Developing ties with other minority institutions involved in international work.
  - 3) Establishing ties with non-educational institutions working in the international field.
  - 4) Participating in professional organizations concerned with international development.
  - 5) Continuing to participate in the Southeast Consortium on International Development (SECID).
  
- B) Aided by USAID/Washington, Tuskegee is increasing its international linkages and networks by:
  - 1) Informing USAID missions of Tuskegee's interest and experience in international development.
  - 2) Making contact with LDC's and providing them with information concerning Tuskegee and its faculty.
  - 3) Increasing contacts with other donor organizations such as FAO, foundations, and the World Bank.

An average of one work month per year will be devoted to this activity.

## V. Information Capacity

The purpose of this activity is to increase the information base at Tuskegee in the area of international agriculture and development. The increased information is employed in courses, research and will be used to provide information for personnel involved in advisory and consultative services. The information capacity is being increased by such activities as:

- Acquisition of books, journals and other library materials.
- Acquisition of computer models and data bases.
- Publication of research reports and workshop proceedings.

The outputs for this activity are:

- Increased library holdings.
- Increased capability in computer analysis and projections.
- Increased use of international development materials in classes.

### C. Review of Critical Assumptions

The success of the 211-d grant is predicated on a number of important assumptions. The assumptions have been reviewed and remain as follows:

- I) That USAID/TA/AGR/ESP will work closely with Tuskegee Institute in carrying out the mutually agreed upon grant objectives. This will involve:
  - A) Gaining mission and host country clearances for conducting research in LDC's.

- B) Providing necessary introductions, etc. which will facilitate the use of Tuskegee personnel for advisory and consultative services.
  - C) Serving as a liaison between Tuskegee Institute and other parties in establishing linkages and networks on the international level.
  - D) Performing other tasks that will facilitate the carrying out of the project.
- II) The ability of Tuskegee to employ personnel for the new positions in agricultural economics and developmental anthropology.
  - III) The ability of Tuskegee to attract graduate and undergraduate students interested in international rural development.
  - IV) That USAID will provide adequate opportunities for Tuskegee personnel to be involved in advisory and consultative services.
  - V) That travel, per diem and logistical support will be provided to personnel involved in advisory and consultative services.
  - VI) That domestic institutions are willing to establish linkages with Tuskegee.
  - VII) That USAID and other agencies are willing to utilize the expertise developed at Tuskegee.

## II. PROJECT ACCOMPLISHMENTS

There was major progress made toward the achievement of the grant objectives during its third year of operation. This included making some administrative changes with the grant:

1. Dr. Willie Baber was appointed as Assistant Project Director. The primary purpose of this position is to maintain overall organization of the grant in the absence of the Project Director and to familiarize staff members with the operations of the grant. Unfortunately Dr. Baber left Tuskegee in August to accept another appointment. A replacement has yet to be named.

2. Ms. Ceola R. Baber was added to the grant staff as Project Co-ordinator. Ms. Laurie Walker replaced Ms. Baber in September. The responsibilities of this position include better co-ordination of grant staff and facilitation and administration of routine grant activities.

Both of these positions were created in response to the recommendations of the evaluation conducted by USAID at the end of the second year.

In addition, the Project has moved from the Sociology Department offices and is now autonomously housed. The USAID evaluation noted a lack of adequate furnishings for the new offices and recommended remedial steps. New furnishings have been purchased and installed. (A detailed account of the second year Evaluation Recommendations/Actions is found in Appendix A.)

In the area of research, a Tuskegee team successfully began a new research project for AID/Mali Mission. Progress was made in the realization of the Education and Training objectives with the continued offering of courses related to development, the support of graduate students and language training for faculty/staff members. The grant also sponsored a three day workshop entitled "The Role of U.S. Universities in International Rural and Agricultural Development." Furthermore, Tuskegee maintained old and created new linkages with other schools and organizations concerned with international development. These and other activities have enhanced the visibility of the grant, both within and outside of Tuskegee Institute. Although one member of the staff was able to provide Advisory and Consultative

Services during FY1980, the Project continued to experience problems in locating additional opportunities for the faculty and staff to become involved in these activities.

The grant still functions with an Advisory Committee.

The current members of the committee are:

Glenn Howze, Chair  
Director, 211-d Project  
Professor of Sociology

George Cooper, Dean  
School of Applied Sciences

Ronald Field, Chair  
Department of Agriculture

Edward T. Braye  
Professor of Veterinary Medicine  
Extension Veterinarian  
Human Resources Development Center

Thomas Simmons  
John Andrews Hospital  
Director, 122-d Project

John O'Sullivan  
Assistant Professor  
College of Arts and Sciences

The membership on the committee is designed to provide broad representation and to interface with other international programs at Tuskegee Institute.

Below is a detailed summary of the objectives/outputs achieved during the third year of the project (FY1980).

A. Objective/Output #1--Research (Expanded Knowledge Base)

Farm Management Model Workshop - Mali Summer 1980

In March 1980, the Center for Rural Development received a

cable from USAID/Bamako proposing a new research activity. A team consisting of Dr. John O'Sullivan, Dr. Willie Baber, Dr. Robin McIntyre and Mr. Charles Morgan (a french speaking graduate student with 4 years experience in Mali) was assembled to work on the proposed Farm Credit Model. As a part of the team preparation Dr. John O'Sullivan and Dr. Willie Baber attended the conference at Purdue University, May 18-22, 1980 where Bill Morris presented reports on agricultural development projects being done by Purdue in Mali, Upper Volta and Senegal.

The team received Mission clearance to commence work in Mali and departed Tuskegee on May 28 for that purpose. However, due to a delay in receiving GRM approval for the new activity, the trip was aborted in New York after receiving a cable request from USAID/Mali to delay the trip. Finally on June 17, the team received authorization. The new date precluded Dr. Baber's participation.

Dr. O'Sullivan and Mr. Morgan arrived in Bamako on June 23. In the first weeks of their stay in Mali, they defined the scope of work with the agricultural economists at the USAID/Mission, presented a report to mission personnel about the project and established contact with the Institut d'Economie Rurale.

From July 15 until July 30 the team travelled to Operation Mils Mopti, Action Riz-Sorgho Gao, and Operation Haute Valee with a collaborator from the IER. The goal of this trip was twofold: to explain the project to personnel of these Operations; and to see the actual condition of farms in the various regions of Mali.

On August 2, the team met with the Director of the IER to explain what had been done and what was planned for the workshop. A final meeting with USAID/Bamako was held on August 4 for the same purpose. While everyone agreed that the work was worthwhile and of interest, the program officer expressed the feeling that funding was not available from the mission for the second phase of the project - the workshop.

As it now stands, a manual is being written for a workshop with the agricultural economist and statisticians employed by USAID funded Operations. The workshop is tentatively scheduled for August 1981. A draft of the workshop manual should be completed by the end of December 1980. Copies of this will be sent to USAID/Bamako for their evaluation. As in the past the 211-d paid for travel to Mali. AID/Mali Mission paid expenses incurred in-country. Funding possibilities are currently being explored for the next phase of the project.

#### B. Objective/Output #2--Education and Training

There are four sub-objectives/outputs for the Education and Training component of the Tuskegee 211-d project:

##### Objective/Output #2a--Student Support

One of the major objectives of the 211-d was to support both graduate and undergraduate students. Four graduate and five undergraduate students were supported during FY1980. This represented an increase from the previous year.

Two of the graduate students, Claude Schoepf and Leroy Bertram, majored in agriculture and were supervised by Dr. T.R. McIntyre, the agricultural economist associated with the 211-d project. Both of these students are interested in careers in Agricultural Economics. However, the Agricultural Economics program planned was not as yet finalized at Tuskegee Institute. Subsequently, it proved difficult for them to continue to pursue an M.S. in Ag Economics at the Institute. Mr. Schoepf is continuing his coursework at Auburn University. Support for both of the students was terminated at the end of Spring Semester.

Another graduate student, Cheickna Singare, is a student in education and was actively involved in all stages of the first research study conducted in Mali. During FY80, he continued to offer a French language course for faculty, staff and students on campus during the regular academic year. Furthermore, he coordinated the Intensive French Language Training Program sponsored by the grant during the summer semester at Tuskegee Institute; he also taught the advanced class in the Program.

The fourth graduate student, Charles Morgan, was added to the grant during FY1980. He is majoring in agronomy and was assigned to work with Dr. Marvin Burns, Department of Agriculture. Mr. Morgan was a Peace Corps Volunteer in Mali and then worked two years in Mali under a USAID contract. Because of his experience and french speaking ability he was asked to join the summer Mali research team.

The undergraduate students were assigned to work with various 211-d staff members. Two of the undergraduates, Mamadou Keita and Andrew Tanjong, helped to develop and taught the beginning courses in the summer Intensive French Language Training Program.

All of the students participated in the International Conference.

Objective/Output #2b--Workshops and Seminars

The grant sponsored participation in professional meetings and workshops and seminars by faculty members. Faculty members were encouraged to attend professional meetings related to international development. The following participation was sponsored by the 211-d project (See Appendix B for Papers Presented and Trip Reports):

- John O'Sullivan attended the African Studies Association Meeting in Los Angeles.
- Dr. Edward Braye, Cooperative Extension Services Veterinarian, presented a paper, "Management and Health Aspects of Small Ruminant Production," at the XII Biennial Caribbean Veterinary Conference in Port-of-Spain, Trinidad-Tobago.
- John O'Sullivan chaired a panel on Agricultural Development in Sahel and presented a paper, "Agricultural Development in Mali," at the Arid Lands Conference in Albuquerque, New Mexico.
- Willie Baber, John O'Sullivan and Brooke Schoepf attended the Second Workshop on Sahelian Agriculture at Purdue University. Dr. Schoepf presented a discussion paper, "Macrosystem Factors in Farming Systems Systems Research: Some Theoretical and Methodological Considerations."

- Brooke Schoepf co-ordinated the Exchange Workshops, "On Using Tools," at the Forum held in conjunction with the UN Mid Decade Conference on Women and Development held in Copenhagen. She also served as convenor of two series workshops: Research and Policy: Making a Case for Women; and Developpement Rural Integre: Solutions Pratiques.
- Glenn Howze attended the 5th World Congress for Rural Sociology: Agrarian Problems, Peasants, and Development in Mexico City.

The 211-d project also sponsored a number of seminars at Tuskegee Institute during FY1980. A number of Institute faculty, as well as faculty from surrounding campuses participated in the seminars. These included:

Glenn Howze made a presentation on the impact of the 211-d on Tuskegee Institute. The grant objectives, accomplishments and directions were discussed.

Gregg Sullivan of Auburn University made a presentation on "Economic Discontinuities Affecting Cattle Production in Ghana, Tanzania, and Syria." He presented models of cattle production and marketing in the three countries. A comparison was made of external vs. internal markets.

Emmanuel Acquah of Virginia State University made a presentation regarding institutional constraints to development in Ghana. He argued that because of a lack of "hands on" experience in the field, upper level government administrators do not have realistic expectations or programs. Furthermore, government efforts to improve effectiveness have only worsened the problem by adding futher bureaucratic red tape.

Edward Braye, Cooperative Extension Services Veterinarian, presented a report on his paper, "Management and Health Aspects of Small Ruminant Production." He discussed various economic, disease and production problems of small animal ruminants. He indicated that while the problems have been recognized, little serious research has been done. Thus, although there is great potential for these animals, their value to mankind is not being exploited to any significant degree.

John O'Sullivan presented a paper on agricultural development efforts in Mali. He argued that the programs implemented through various Operations there are fraught with contradictions. These contradictions range from the USAID claim that it is helping the "poorest of the poor," to USAID assisted Operations which are leaning on Malian farmers to produce cheap foodstuffs for the benefit of Malian urban dwellers.

The Center for Rural Development (211-d), The Health Research and Demonstration Center (122-d), and The Center for Food and Nutrition Studies (Title XII) sponsored a three-day Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development." Dr. Brooke Schoepf, 211-d Anthropologist, convened the Conference. With its focus on Africa, the Conference theme brought attention to the evolving role of U.S. Universities (particularly the 1890 land grant institutions) in technical cooperation for development. (See Appendix C for Conference Program and Professional Participants)

#### Objective/Output #2c--Curriculum Modification

A large portion of the grant funds have been devoted to the area of curriculum modification. The original proposal called for the addition of new courses in the fields of agricultural economics and anthropology related to international development. Also, existing courses in relevant departments were to be enhanced by adding international dimensions. Much progress has already been made. New faculty, hired during FY1979 in agricultural economics and anthropology, have continued to develop and teach courses related to international development. A

summary of curriculum modifications during FY1980 is as follows:

- Dr. Glenn Howze used the Population Dynamics Computer Model to teach problems of development in his population course.
- Dr. T.R. McIntyre developed and taught grant related courses in agricultural economics, including "Economic Planning for Regional Resource Development," "Agricultural Policy in Planning in Developing Countries."
- Dr. Willie Baber developed and taught grant related courses in the Department of Sociology, including "The Political Economy of Development in the Caribbean."
- Dr. Brooke Schoepf developed and taught grant related courses in the Department of Sociology, including "Sociocultural Change in Africa," "Rural Sociology," and "Applied Anthropology."

#### Objective/Output #2d--Faculty Training

Recognizing the importance of foreign language in development activities, the Grant Proposal called for the training of faculty in languages. French was chosen as the target language because of its wide use in West Africa.

Cheickna Singare, a graduate student from Mali, conducted French classes for faculty, staff and students on campus during the regular academic year. An Intensive French Language Training Program was sponsored by 211-d at Tuskegee Institute during the summer semester. Several faculty, staff and student members participated in the Program (see Appendix D for the Program Report).

Dr. T.R. McIntyre attended the Program Design and Evaluation Seminar in Washington, D.C.

C. Objective/Output #3--Advisory and Consultative Services

During the first year of the grant, a twelve page brochure entitled "Tuskegee Institute and International Development" was published. A major revision of the brochure began in the summer of FY1980 and will be completed for republication by December 1980.

Project personnel continued to contact various AID officials to discuss the use of Tuskegee personnel for short-term assignments:

- Dr. Glenn Howze and Dr. John O'Sullivan scheduled a meeting with USAID/Bamako personnel in December 1980. However, due to scheduling conflicts, USAID/Mali Mission canceled the trip. Dr. Howze did meet with the USAID/Bamako Mission Director and reached tentative agreement for additional 211-d involvement in Mali.
- In February, Dr. Howze met with AID/Africa Bureau representatives to review Tuskegee Institute's capabilities and resources. Follow-up letters were sent to all personnel contacted at this meeting. (See Appendix E for a list of personnel contacted.)
- Dr. Brooke Schoepf travelled to Washington, D.C. to meet with USAID personnel for the purpose of exploring possibilities of short term involvement in Niger. It was thought that a trip to Niger had been arranged with the Mission Director, but complications arose with USAID and this attempted activity fell through.

Dr. Glenn Howze, a rural sociologist and Director of the grant, provided 2 1/2 work months of advisory services to the Mali Mission and one week of consultative services to the Fertility and Rural Development Project conducted by SECID in Upper Volta (see Appendix F for his reports).

The Advisory and consultative services component of the

grant needs increased attention during FY1981. The Project Director, with the help of the AID/DBS Project Manager, must continue to promote the use of Tuskegee faculty by AID Missions for short-term assignments.

D. Objective/Output #4--Linkages and Networks

Tuskegee continued to establish and maintain linkages and networks with other institutions involved in international development:

- Tuskegee strengthened its ties with other 1890 schools working in international development.
- Tuskegee continued to be an active participant in SECID.
- Representatives have been sent to BIFAD meetings. Dr. George Cooper, Dean of the School of Applied Sciences, has been named to the Joint Research Committee of BIFAD.
- Representatives have been sent to USAID/Washington meetings.
- The International Conference sponsored by 211-d, 122-d and Title XII grants at Tuskegee Institute involved a number of 1890 Land Grant Schools, other 211-d and Title XII Schools.

A number of meetings were held with African officials during FY1980. The 211-d staff met with the following:

- Visiting African Journalists from Francophone Africa.
- Mr. Bryte, Personnel Officer for The Gambia.
- Visiting African Economists Regional Economic Project for Francophone Africa, sponsored by the Institute of International Education.

- Officials of the African Bureau, including the Assistant Administrator for Africa.
- Mr. Bachir Amadou, Niger; Mr. Molende Tansia, Zaire; and Mr. Daniel Tsoukou-Mbaya, Congo, visiting economists sponsored by Operations Crossroads Africa, Inc., African Leaders Program.
- Mr. Amadou Bocoum, Chief, Europe and Americas Section, Ministry of Foreign Affairs and International Cooperation, Bamako, Mali.

F. Objective/Output #5--Information Capacity

Progress was made toward the achievement of this objective. Specifically, the following steps were taken:

1. The continued acquisition of relevant books and journals for the project and for the library. (See Appendix G for a list.)
2. The continued acquisition of computer data analysis programs, computer models and data bases related to international development.
3. The revision of the International Development brochure, to be published in December.
4. The editing of the Proceedings of the Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development."

III. IMPACT OF GRANT SUPPORTED ACTIVITIES IN ACHIEVING GRANT PURPOSE

The Purpose of the 211-d grant is to develop Tuskegee Institute's responsive capability to respond to the needs of LDCs in the general area of Comprehensive Planning for Rural Development. Each of the five major objectives of the grant were designed to contribute to the achievement of that purpose. After the completion of the first three years of the project, it

appears that significant progress has been made toward the achievement of the objectives of the grant.

The research activity has provided opportunities for a number of the Tuskegee faculty to be involved in significant projects in a LDC. The Malian activities have demonstrated that Tuskegee has the capability to work in a French-speaking LDC.

The education and training component have also contributed to the capacity of the Institute to respond to Mission needs for expertise in the area of rural development. New courses have been added. A curriculum in agricultural economics has been developed. A developmental anthropologist and an agricultural economist have been hired to teach courses related to international development. French language training has increased Tuskegee's capability for responding to requests from French speaking areas. Both graduate and undergraduate students have been involved in the project and engaged in activities related to international development. Faculty members have increased their participation in professional organizations related to international development.

The revision of the brochure--Tuskegee Institute and International Development will update and continue to enhance Tuskegee's visibility as a capable and interested development institution. To date, unfortunately, there has been little use made by the Agency of Institute faculty for advisory and consultative services. This is an area which demands attention during the remaining years of the project.

In order to establish linkages and networks, Tuskegee personnel have participated in a number of organizations working in the area of international development such as SECID, organizations of land-grant schools, BIFAD, and professional organizations. Also, Tuskegee personnel have routinely visited USAID offices in Washington and in LDCs.

The proceedings from the Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development," will provide a useful publication for the development field. The grant has allowed the Institute to increase its library and computer software holdings. Also, a number of research and other reports have been published.

#### IV. OTHER RESOURCES FOR GRANT-RELATED ACTIVITIES

The only significant support for grant-related activities totaled \$13,629. This was received from the Mali and Upper Volta Missions to pay in-country costs for advisory and consultative services and a research team.

#### V. UTILIZATION OF INSTITUTIONAL RESPONSE CAPABILITIES IN DEVELOPMENT PROGRAMS

Currently, Tuskegee is involved in several international programs. The Department of Agriculture has a contract with AID/Yemen to increase production in small fruits and vegetables. The Human Resource Development Center has an AID contract to develop adult education techniques in Jamaica. Tuskegee is a participant in the Title XII consortium working with small rumi-

nants. Tuskegee is receiving a Title XII grant in the area of nutrition. There is a 122-d grant from the Africa Bureau in the area of health care delivery. Also, Tuskegee has participated in several of the USAID funded activities contracted by SECID.

There were 395 foreign students enrolled at Tuskegee during the third fiscal year. A breakdown by country and classification is as follows:

<u>COUNTRY</u>	<u>UNDERGRADUATE</u>	<u>GRADUATE</u>
Antigua	0	1
Bahamas	19	1
Barbados	1	1
Belieze	1	0
Bermuda	5	0
Cameroon	1	0
Canada	2	0
Chad	0	1
China	4	3
Ethiopia	2	0
Gambia	2	0
Ghana	6	2
Grenada	1	0
Guyana	81	0
India	4	16
Iran	6	3
Iraq	3	1
Ivory Coast	0	1
Jamaica	60	14
Jordan	5	0
Kenya	2	1
Lebanon	1	0
Liberia	5	0
Mali	1	1
Micronesia	1	0
Nigeria	79	14
Oman	1	0
Pakistan	3	4
Saudia Arabia	0	1
Sierra Leone	1	0
South Africa	2	0
St. Kitts	4	0

St. Martin	1	0
St. Vincent	1	0
Swaziland	2	0
Tanzania	2	0
Tortola	2	0
Turks and Caicos	1	0
Trinidad	3	0
Uganda	1	0
Yemen	1	1
Zimbabwe		
<b>TOTAL</b>	<b>-----</b>	<b>-----</b>
	<b>330</b>	<b>65</b>

#### VI. NEXT YEAR'S PLAN OF WORK AND ANTICIPATED EXPENDITURES

A detailed plan of work was prepared during the first year of the grant. This work plan, following recommendations of the second year evaluation, has been revised to better reflect the projects' operation and can be found in its entirety in Appendix H. The total estimated costs for FY1981 is \$189,395 and includes a carry over of funds of \$37,424 from FY1980.

##### A. Research

It is anticipated that overseas research activities will be limited to Tuskegee's current involvement with Mali during the remainder of the grant. The Plan of Action for the current research activity appears below. It is expected that the farm management model developed by Tuskegee Institute will be presented at a workshop in Mali during the summer of 1981. Costs listed below are for FY1981 and do not reflect in-country costs projected to be absorbed by USAID/Mali.

## 1. Plan of Action

Investigators: Tuskegee Institute Team-- Dr. John O'Sullivan  
Mr. Charles Morgan

Technical Assistance Team-- Dr. Glenn Howze  
Dr. Robin McIntyre

Project: Farm Management Model Workshop Operation/Actions

Time Frame: June - August 1980	Data Collect and Establishment of Contact with Interested Personnel, Mali
August 1980-July 1981	Preparation of Farm Management Model, Tuskegee
July - August 1981	Presentation of Farm Management Workshop, Mali
September 1981	Evaluation

The Tuskegee Institute team trip to Mali in the summer of 1980 provided a good base for the 1981 activity. Close collaboration with the Institut d'Economie Rurale was established. The IER and other GRM personnel provided sufficient quantities of data as well as a researcher who travelled with the 211-d Team this summer. This IER Economist will collaborate with the team on the projected summer workshop. Good contact with USAID/Bamako Agricultural Development personnel also was achieved.

The 211-d Research Team will establish a simple to operate easily understood farm management model for the Operation Economists and Statisticians. This model will be a three step paradigm which will provide a framework for data collection and analysis. The steps to be followed are:

1. A Farming System Research Model
2. A Production Function Model which allows comparison of production on any Malian farm with or without any specific technological package.
3. A Cost and Benefits Analysis for the Malian farmer.

This will allow an understanding of the profitability of the technological package for the farmers and hence, will provide a basis for analysis of the credit implications for the Parastatals' credit programs.

A draft of the report, in the form of a workbook for the workshop, will be completed by December 1980. Copies will be sent to USAID/Bamako and the Parastatals for evaluation. Modifications suggested by them will then be incorporated in so far as possible, January - July 1981.

The Workshop will be held August 1981 over a 5-10 day period in which all aspects of the model will be covered. Recommendations for implementation of data collection and analysis, based on the results of the workshop, will be made with examples derived from data already on hand as well as field experience of IER and the Parastatal personnel.

It is hoped that 211-d will be requested to return to Mali during FY1982 to evaluate the results of FY1981 and to make further recommendations to improve the data collection and analysis units of the parastatals.

a. Personnel

1. Dr. John O'Sullivan
2. Dr. Glenn Howze

- 3. Dr. Robin McIntyre
- 4. International Ag Economist
- 5. graduate students

b. Cost FY81

Personnel-----	49,387
Travel-----	15,000
Supplies-----	1,000
TOTAL	\$65,387

B. Education and Training

1. Student Support

The 211-d project will continue to support both graduate and undergraduate students during FY1981. There are at least three slots available for graduate students and three slots available for undergraduate students. A selection committee is being organized in order to evaluate and select both undergraduate and graduate students for FY1981.

a. Personnel

	Student Slots	Graduate	Undergraduate
	Year 1	2	2
	year 2	4 (2 new)	4 (2new)
	year 3	4 (1 new)	5 (3 new)
FY1981	year 4	4 (2 new)	7 (4 new)
	year 5	2	2

b. Cost FY1981

Undergraduate students stipend-----	13,000
Graduate students stipend-----	22,000
TOTAL	\$35,000

2. Workshop and Seminars

A regular series of workshops and seminars dealing

with selected problems in international rural development is being planned. These will be designed to complement current research activity and will therefore, focus on the state-of-the-art research papers and current research activities in Mali. Workshops and seminars may include guest speakers from other institutions. In addition, faculty members will be supported to attend professional meetings.

a. Personnel

211-d Staff  
 Guest Speakers

b. Cost FY1981

Guest Speakers-----	3,000
Faculty Participation at Professional Workshops & Meetings-----	2,000
Supplies-----	500
 TOTAL-----	 \$5,500

3. Curriculum Modification

Courses related to economic development and 211-d will be offered on a rotational basis. There are no anticipated costs during FY81, other than supplies.

a. Personnel

211-d staff

b. Cost FY1981

Supplies-----	1,000
 TOTAL	 1,000

#### 4. Language Training (Faculty)

In order to upgrade faculty skills the project will support faculty training related to international development work. The major activity to be supported will be intensive training for faculty members, including an intensive French training program during the summer of FY1981.

##### a. Personnel

Release time for two faculty members to receive language training (Howze and McIntyre)

##### b. Cost FY1981

Personnel Release Time-----	3,000
French Instructor (summer salary)-----	2,000
Supplies-----	1,000
<b>TOTAL</b>	<b>\$6,000</b>

##### C. Linkages and Networks

Tuskegee Institute will continue to increase its linkages and networks in the area of international and rural development and agriculture both domestically and internationally. This is the primary responsibility of the project director.

##### a. Personnel

211-d Faculty

##### b. Cost FY1981

Domestic Travel-----	5,000
International Travel-----	5,000

TOTAL

\$10,000

D. Advisory and Consultation Services

Tuskegee will encourage faculty members to seek out advisory and consultation services through the project director and the project manager for the 211-d grant. In order to facilitate this activity, the 211-d grant will publish the revised Tuskegee Institute International Brochure and establish a file of current Tuskegee foreign service faculty. The grant will continue to make two work months of faculty time available.

a. Personnel

Tuskegee Institute Foreign Service Faculty

b. Cost FY1981

Travel-----2,000  
Printing-----1,000

TOTAL

\$3,000

E. Information Capacity

The principal activity will be the publication of the Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development." The evaluation, selection, and acquisition of books, journals, films and other materials relevant to international development for the Tuskegee Institute Library will continue.

a. Personnel

211-d faculty

b. Cost FY1981

Information Capacity Supplies  
& Printing Costs-----1,500

TOTAL

\$1,500

VII. INVOLVEMENT OF MINORITY PERSONNEL AND WOMEN

Tuskegee Institute is an historically black institution and has long advocated and implemented fair employment practices. During FY1980 fourteen faculty, staff and graduate students were funded through activities of the 211-d project (See Appendix H for resumes). Of that number five were white, and nine were black; six of the participants were women.

## APPENDICES

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TUSKEGEE INSTITUTE

CENTER FOR RURAL DEVELOPMENT (211-D)

2ND YEAR EVALUATION RECOMMENDATIONS/ACTIONS

An evaluation of the 211-d grant was conducted at the end of the second year of the five-year project. The evaluation team consisted of:

Mr. Quincy Benbow, AFR/DR/ARD  
Ms. Gayleatha B. Cobb, AA/AFR  
Dr. Kurt Anshel, University of Kentucky  
Ms. Kathy Boyd, Grant Project Officer, DS/AGR/ESP

Summary findings concluded that the project was making substantial progress toward the realization of grant objectives. The team also made a number of recommendations in their report to improve the grant's ability to meet its goals. These recommendations are enumerated below with the initiated project response/actions.

RECOMMENDATIONS

ACTIONS

1. The project should hire a full time secretary/administrative assistant to maintain files, provide typing services, file and maintain records of project activities and finances.

The position of Project Coordinator was created and has been filled since March 1980. The duties are managerial. A half-time secretary is still employed.

2. The plan of work for the project should be revised to better reflect accomplishments to date and to include a detailed plan for the cur-

The revised Work Plan was submitted as an Appendix to the Third Annual Report.

rent project year.

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3. Reduce Dr. McIntyre's responsibilities outside the project so that he may have an opportunity to work more closely with the project team in order to test his interest and capacity for international work. If this issue is resolved negatively, Dr. McIntyre should be considered for a position related to domestic agricultural economics.

Starting FY 1981 Dr. McIntyre's position was reduced to one half time and a full time position for an agricultural economist has been advertised.

---

4. Every effort should continue to be made to involve minority Americans in the activities of the project. As opportunities arise for foreign work, a criterion for selection of professional participants should be minority status.

Since the evaluation 3 Black Americans were added to the professional staff (2 of whom have since left). In process is a search to identify a Tuskegee Institute faculty member interested in working with the grant. Three minority graduate students have been added; one of whom participated as a member of the Mali Research Team FY80.

---

5. Proceed as rapidly as possible to obtain necessary office furniture and equipment.

Most office furniture and equipment has been installed.

---

6. Turnover in grant project officers should be reduced during the remaining life of the grant. It is important that if it is necessary to replace the AID Grant Project Officer that the new GPO be experienced in AID procedures and processes and able to facilitate the introduction of the Institute's capabilities to key personnel in the Regional Bureaus.

The fourth Project Officer who was part of the evaluation team was transferred in May 1980. Since that time two additional Project Officers have followed each other in covering Tuskegee's affairs with AID.

---

7. The University and DS/AGR undertake steps to familiarize key personnel in the Regional Bureaus with the facilities, personnel and services available through the grant. These individuals should include the Chief Agriculture and Rural Development Officer in each Bureau and selected Project Officers and Desk Officers. In conjunction with these ongoing efforts, a presentation should be made by the Grant Project Director and that of other 211-d institutions to office directors and other key personnel in AID.

Dr. Glenn Howze, Project Director, met with Africa Bureau personnel in February 1980 to acquaint them with Tuskegee Institute 211-d project capabilities. Follow-up letters were sent. Additional contacts were made with other key AID personnel.

---

8. DS/AGR - Regional Bureau coordination can be strengthened by the establishment of the Coordinating Committee called for in the PP. This Committee is to be composed of the AID Project Officer and representatives of each Regional Bureau.

To date, the grant has not been made aware of any steps taken by AID to conform with this recommendation.

---

9. In the future, the project manager and grant project officer should seek to avoid any delay in completion of project outputs.

All project outputs have since been timely, save the Summer 1980 Advisory & Consultative Reports which will be forthcoming.

---

10. With the assistance of the grant project officer and selected individuals in the regional bureaus, the project manager would seek out additional research activities.

A research team was sent to Mali, Summer 1980, to gather base line data for a Farm Management Workshop to be held in Summer 1981 (contingent on funding).

---

11. In the future, the grant officer should review any research scopes of work and implementation plans to assure that the proposed study can be carried out with the manpower and financial resources allocated to it and that appropriate and efficient methods have been incorporated into the plan.

The grant project officer reviewed the proposed Mali FY80 scope of work. The plan of action for the follow-up research activity will similarly be submitted.

---

12. The present project staff has substantial foreign experience and does not require substantial guidance in the field. However, the grant project officer should be prepared to accompany any Tuskegee team to the field to assist in initiation of new field work in a different project area and only depart once the study is organized and underway.

Thus far, the 211-d grant has been successful in generating its own project activities a broad. The Project Director is prepared to request assistance from the Project Officer when indicated.

---

13. The services of a researcher with substantial experience in LDC's should be considered to provide guidance and review to Tuskegee as it designs future studies for which it has had little prior experience.

This situation has not, as yet, occurred.

---

14. All research proposals entailing expenditure of 211-d funds should be submitted to the AID/W grant project officer for review and concurrence.

Since the evaluation, all research proposals have been handled in this manner.

---

15. Project staff should develop a more systematic and organized informational pro-

Six new work study positions have been filled with students from five different fields.

Appendix A -- continued

gram with a view towards generating broad campus interest in the international fields as well as project work study opportunities.

Plans have been made to organize a career day focusing on international fields.

---

16. The work component of the the undergraduate work-study program should be more systematically designed to provide meaningful educational experiences for the student rather than simply serve as a source of clerical assistance. Reinstitution of the practice of assigning each student to a specific staff member may facilitate this process.

All work study students are now assigned to work directly with a specific staff member and to submit monthly work progress reports.

---

17. The grant officer should assist Tuskegee in developing a linkage with IDI recruitment, especially for M.S. graduates with foreign language facility.

Tuskegee has requested assistance from the Project Officer and he has responded by making available IDI information.

---

18. The project staff should make a more concerned effort to organize seminars and workshops which will stimulate faculty and student interest in development. Possibly delegation of responsibility for organizing seminars to one of the project staff will facilitate the organization of more seminars.

Seminars are now held on a monthly basis under the direction of Dr. John O'Sullivan.

---

19. In order to stimulate faculty interest in development, consideration should be given to joint sponsoring of seminars with academic departments. The project might absorb the cost of developmentally related

The grant jointly sponsored a three day workshop on the role of U.S. Universities in International Development in March 1980. Joint sponsorship has also been planned for a Women in Development Conference this Spring.

seminars organized by selected departments.

---

20. The grant project officer should draw up a list of AID employees who would be appropriate seminar speakers.

To date this information has not been received by the 211-d grant.

---

21. Investigate the feasibility of faculty and student interest in an on-campus summer intensive French Language program. This may both reduce costs and make language training more accessible to the faculty.

This survey was done, Summer 1980, and an intensive French language program was offered during the Summer 1980 Semester.

---

22. With the assistance of the grant project officer, Tuskegee should again contact key individuals in the regional bureaus to make known the resources it has available for short-term advisory services.

Dr. Glenn Howze met with key personnel from the Africa Bureau February 1980. Follow-up letters were sent to everyone contacted.

---

23. Jointly with grant project officer, Tuskegee should set a realistic target in its work plan specifying the number of individuals to participate in overseas design and evaluation efforts in 1980 and 1981.

This has been included in the Revised Work Plan submitted as an Appendix to the Third Annual Report.

---

24. Establish a formalized mechanism to maintain contacts with foreign graduates. These graduates, many of whom are key government and university officials in their countries can provide assistance in establishing foreign linkages.

This has been done with graduates of the school of veterinary medicine. This office plans to use up-dated alumni lists through the Alumni Affairs Office to begin this activity.

---

25. Tuskegee Institute should establish a relationship with an LDC university for the exchange of faculty and students and the implementation of joint programs in both countries.

This has not yet been accomplished.

---

26. The evaluation team recommends that the grant project officer forward copies of pertinent guidelines on AID audit procedures to the Grant Management Office for its information.

This information has not to date been received by the Grants Management Office.

---

27. Increase information about available materials related to development establish linkages with such organizations as:

The Project Co-ordinator has been given the responsibility of increasing the information available about these organiza-

African Bibliographic Center  
Washington, D.C.  
Black Film Institute  
Univ. of District of Columbia  
Moorland Foundation  
Howard University  
Educational Clearinghouse  
AID  
Africana Section  
Library of Congress

tions.

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# TUSKEGEE INSTITUTE CENTER FOR RURAL DEVELOPMENT

HUNTINGTON HALL, ROOM 205  
TUSKEGEE INSTITUTE  
ALABAMA, 36088

INTERNATIONAL RURAL DEVELOPMENT  
GLENN HOWZE, DIRECTOR  
(205) 727-8412

January 14, 1980

TRAVEL MEMO: Glenn Howze and John O'Sullivan  
Trip to DC/AID  
Jan. 5 to Jan. 8, 1980

Purpose: to confer with Quincy Benbow and others in AID about our proposed research in Mali. This was a follow up on the situation which developed in late December when USAID/Eamako did not authorize our trip to Mali which had been planned to deal with our research this summer. Their cable of December 7th also indicated they wanted me to do another aspect of the CAA project immediately.

In discussion with AID/DC we wrote a cable indicating the options which seemed most logical to us in this situation.

We touched base with Myron Golden, Robert Ashley and others who are in our area of work.

I discussed research in methodology of ag sector studies with Jim Otley, Douglas Butchard, Rex Rhenburg and obtained some good information and leads on how to proceed. Both Dr. Howze and Kathy Boyd expressed interest in this research project if it can be arranged so that the 211-d gets credit for work.

TRIP REPORT FOR 211-d PROJECT

NAME: B.G. Schoepf

DEPARTMENT: Sociology

DATES OF TRIP: Feb 11-12, 1980

DESTINATION (S): Washington D.C.

PERSONS OR ORGANIZATIONS CONTACTED: in AID: Mr. Jay Johnson, Director, Niger Mission and a member of his staff.  
in D.C.: Dr. John Withers, Univ. of D.C.  
Dr. Alonzo Gaston, Director,  
Howard University 122-d project.

PURPOSE OF TRIP: As arranged by Mr. Quincy Beubow, I met with Mr. Johnson to discuss the possibility of a summer assignment for me with the Niger Mission. He suggested that I might review the status and organization of Niger's Agricultural extension Officers Training in relation to agricultural and rural development institutions and plan for expansion. This would require 2-3 months during the summer. He said that it would be some time before he would have the time to work on this, however, as he would be traveling extensively.

I also met with Mr. Beubow to seek his advice re: identification of AID and other participants for an conference. I was unable to reach the people by phone. The draft call was presented to Mr. Beubow, Dr. Withers, Dr. Skinner and Mr. Carrington, who read it and offered comments and suggestions.

I had lunch with Dr. Withers, our keynote speaker and dinner with Dr. Alonzo Gaston, a conference participant.

On Saturday, Feb 9th, I had lunch with Professor EP Skinner who will deliver the closing address and had dinner with Mr. Walter Carrington and Dr. Joyce Ladner. Mr. Carrington, who refused our invitation earlier, promised to try to clear his schedule so as to speak at one to the banquets. The New York trip was at my expense.

DATE REPORT FILED \_\_\_\_\_

SIGNITURE OF TRAVELER \_\_\_\_\_

John M. O'Sullivan  
April 28, 1980

Trip Report

Trip of John O'Sullivan to Arid Land Studies Conference - Western Social Science Association Meeting;

April 24-26 (Return Trip on April 27 due to inability to make connections on April 26)

I chaired a panel and presented a paper entitled "Ag Development in Mali- the view from the village". Dr. Matlock (University of Arizona Center for International Development Director) presented a paper on Arizona's project in Niger. Dr. Helen Henderson (University of Arizona, Anthropology, Center for Women Studies) discussed women and livestock development in northern Upper Volta.

The discussion which grew out of my presentation was very useful. Problems that U.S.A.I.D. is having in implementing projects were discussed, as were our linkages with U.S.A.I.D. It was felt that:

- 1) Rural Development is not a realistic U.S.A.I.D. goal and should be left for Peace Corps.
- 2) Peace Corps should get funding from U.S.A.I.D. for its work.
- 3) Program time frames should be extended to 10 years.
- 4) Host country nationals should not be brought to the U.S. for training, but rather;
- 5) U.S. Universities should develop linkages with African educational centers and American personnel should go to Africa to work out American "problem solving" approaches rather than technology transfer.

I also attended the business meeting of the A.A.L.S. and think that we will be able to participate more fully in the Association in the not too distant future.

JMO/lw

John M. O'Sullivan  
*John M. O'Sullivan*

TRIP REPORT FOR 211-d PROJECT

NAME: Brooke G. Schoepf

DEPARTMENT: 211-d Center for Rural Development

DATES OF TRIP: May 19 - 23 (travel 18 & 23)

DESTINATION (S): Purdue University

To attend 5-day workshop on farming Systems REsearch in the Francophone Sahel run by William Morris and Kelley White

PERSONS OR ORGANIZATIONS CONTACTED:

Numerous

PURPOSE OF TRIP:

-To hear research results from Sorghum/Millet project with new field research in the Sahel.

-Presented short discussion of relationship between macrosystem influences and micro level research strategies on May 22, at the invitation of the organizers.

DATE REPORT FILED May 26, 1980

SIGNATURE OF TRAVELER \_\_\_\_\_

## Trip Report

FR: John O'Sullivan

RE: Attendance at Sahelian Agriculture Conference at Purdue  
May 18-22

We have been asked to develop a model of farming systems in Mali for this summer's project (as explained in the USAID telegram). At the Purdue Conference were many people (Bingen, Lichte, Delgado, Niang, Morris, etc.) who have done such work. Abdul Niang for example, is working on a thesis of an LP Model of Mali agriculture. T. Kelly White, Wilfred Chandler also were there discussing model building. People such as Gilbert, J. L. Boutillier, Yozine Marzouk talked about the problems of getting quality data for such model building. All in all it was a very useful conference. John Lichte (MSU) has worked on a similar project in HV and will be going to Mali in October, was most helpful. Abdul Niang also spent considerable time with me talking about his work. Incidentally, he will be finishing in September and is looking for a job in the United States. I recommend that serious consideration be given to making him an offer. By the same token, Stan Cohen who is finishing an M.S. in Ag-Econ is also interested in working here. Hopefully, they will both contact Dr. Howze soon.

John M. O'Sullivan

May 23, 1980

TRIP REPORT FOR 211-d PROJECT

NAME: Willie L. Baber

DEPARTMENT: Sociology

DATES OF TRIP: May 18 to May 22, 1980

DESTINATION (S): Purdue University

PERSONS OR ORGANIZATIONS CONTACTED: Purdue University's workshop  
on Sahelian Agriculture, organized and directed by W.H.M. Morris.

PURPOSE OF TRIP: The purpose of this trip was to attend workshop sessions that were related to Tuskegee Institute's 211-d project and our pending research in Mali. A Tuskegee Institute research team (O'Sullivan, Baber and Morgan) are required to produce a "simple to use" model which will measure maximum farmer revenue with respect to varying technical packages. The purpose of the model is to determine the credit capacity of farmers. The Purdue workshops allowed us to consider the pros and cons of L.P. modelling as *an* approach to this problem. Of particular interest was Abdoulaye Niang's presentation on "L.P. Modelling of African Farmers: The Sahel Farm Model, Case Studies from Mali and Senegal." In addition, we were able to consult with several individuals who had prior experience in using L.P. Models with data from LDCs.

DATE REPORT FILED May 26, 1980

SIGNATURE OF TRAVELER Willie L. Baber

*the  
trip reports*

Project Report: John O'Sullivan

Farm Management Model Workshop - Mali Summer 1980

In March, 1980 the Center for Rural Development received a telegram from USAID/Bamako for project work (see appendix for copy). We assembled a team of Dr. John O'Sullivan, Dr. Willie Baber and Mr. Charles Morgan (graduate student, French speaking with 4 yrs experience in Mali) to work on this project.

As part of our preparation Dr. John O'Sullivan and Dr. Willie Baber attended the conference at Purdue University May 18-22, 1980 where Bill Morris presented reports on agricultural development projects being done by Purdue in Mali, Upper Volta and Senegal.

With permission of AID/DC based on cables from Bamako, Mali we departed Tuskegee May 26 (Morgan on May 26 to D.C. to obtain visas) (O'Sullivan and Baber May 28 to NYC). The evening of May 28 we were telephoned by Dr. Howze and asked to return to Tuskegee since a cable was received from USAID/Bamako asking us to hold off since authorization had not been received from GRM for our arrival. We returned to Tuskegee and waited.

Finally on June 17, we received authorization to go, though by this time it was too late for Dr. Baber, whose scheduled departure from Tuskegee was fast approaching. He left Tuskegee for a new position at Purdue in mid August.

Mr. Morgan and Dr. O'Sullivan arrived in Bamako June 23. In the first weeks of our stay in Mali, we defined the scope of work with the agricultural economists of the USAID/mission, presented a report to mission personnel about our project and established contact with the Institut d' Economie Rurale.

From July 15 until July 30 we travelled to Operation Mils Mopti, Action Riz Sorgho Gas and Operation Haute Vallee with a collaborateur from IRE. The goal of this trip was twofold, to explain our project to personnel of these Operations and to see for ourselves the actual condition of farms in the various regions of Mali.

On August 2 we met with the director of the IRE to explain what we had done and what we plan to do in our workshop. We had a final meeting with USAID/Bamako on August 4 for the same purpose. While everyone agreed that our work was worthwhile and of interest, the program officer expressed the feeling that funding was not available from the mission to the second phase of our project - the workshop.

As it now stands, we are writing up a manual for a workshop with the agricultural economists and statisticians of the above named Operations (and also Action Bli-Dire'). The workshop is tentatively scheduled for August, 1981. We are expecting to complete a draft of the workshop manual by the end of December, 1980. We will send copies of this to USAID/Bamako for their evaluation. As in the past the 211-d paid for travel to Mali. AID/Mali Mission paid expenses incurred in country. We are currently exploring funding possibilities for the next phase of the project.

TRIP REPORT FOR 211-d PROJECT

NAME: Dr. Brooke Schoepf

DEPARTMENT: Sociology

DATES OF TRIP: July 14-26

DESTINATION(S): Copenhagen, Denmark

PURPOSE OF TRIP: To conduct workshops at The Exchange, part of the Forum of non-governmental organizations held in conjunction with the United Nations Mid-Decade Conference on Women.

I was assigned the task of coordinating a series of workshops on Women and Development around the theme "On Using Tools". In addition to this administrative role, I served as convener for two of the workshops in this series. The workshop on "Research and Policy: Making a Case for Women" met for two afternoons; that on "Développement Rural Intégré" met for three afternoons. In addition I served as a resource person for the workshop on "Learning from Rural Women".

The workshop afforded an opportunity to work closely with several important African women leaders, advocates and researchers in a group effort to share information and educate others. A number of women from the official delegations were contacted with respect to research training and designed activities that might be undertaken by the Tuskegee Institute staff.

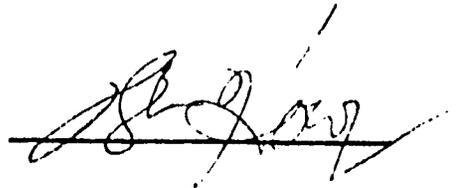
DATE REPORT FILED Sept 3, 1980

SIGNATURE OF TRAVELER Brooke J. Schoepf

August 15, 1980

TRIP REPORT--Glenn Howze

I attended the 5th World Congress for Rural Sociology held in Mexico City, Mexico, August 7-12. The general theme of the Congress was: Agrarian Problems, Peasants, and Development. The format for the meeting consisted of paper sessions, round tables, and workshops. The subjects included food production, rural change, status of rural women, agrarian reform, etc. Scholars from around the world presented papers and participated in the discussions. I also participated in a visit to the state of Puebla concerned with viewing peasant cooperatives. The meetings provided me with various and dissimilar perspectives on development.

A handwritten signature in black ink, appearing to read 'Glenn Howze', is written over a horizontal line. The signature is stylized and cursive.

**"Some Management and Health Aspects  
for Small Ruminant Production"**

**Presented at the**

**XII Biennial Conference**

**of the**

**Caribbean Veterinary Medical Association**

**Port of Spain, Trinidad and Tobago**

**January 27 - February 2, 1980**

**by**

**Edward T. Braye, D.V.M., M.S., M.P.H., A.C.V.I.M.  
Extension Veterinarian and Public Health Specialist  
Cooperative Extension Program  
Tuskegee Institute  
Tuskegee Institute, Alabama**

**"Some Management and Health Aspects  
for Small Ruminant Production"**

**Slide 1    Sheep in Street Scene - Addis Ababa, Ethiopia**

Goats and sheep number approximate 1.5 billion head. They support man by providing meat and milk for nutrition, wool, hair, hides and pelts for various forms of clothing and protection. For the small land holder and limited resource farmer they may be better suited as an economical unit than cattle. This is especially true where extremely arid climates are encountered or where terrain and space limit viable and profitable cattle production. Small ruminants may easily fit into diversified livestock programs. In recent years our program at Tuskegee Institute has been active in setting up small goat units in the target counties in which we work. In the time of falling prices for our feeder pig producers, we have witnessed a gradual increase in the demand and price for our producers' goats.

**Slide 2    Sheep and Goat Production Unit - Government Experiment Station - Accra, Ghana**

Two major management systems - intensive and extensive - are essentially used for small ruminant production. In most major sheep and goat producing areas, the traditional way of rearing is generally skewed toward a nomadic and extensive system - i.e. a lack of total confinement. However, research and modern studies are now being increased to measure and evaluate intensive systems.

Within this decade, we should begin to see large breeding and production units and feedlot operations developing in some of these traditional areas.

**Slide 3    Barbados Black Belly Sheep - Moblissa Area in Guyana**

This slide illustrates some of the modern trends. A new thrust is being attempted: land clearing in a remote area, introduction of a more meaty animal and raising in confinement.

**Slide 4    Angora Goats on Pasture - Near Johannesburg, South Africa**

This slide illustrates some basic requirements for animal production. Note the active grazing of the animals which indicates that good management and land improvement are in operation. Seeding and fertilization of pastures are vitally important for ideal production, but it is recognized that this cannot take place in many countries do to purely economical reasons. The fencing seen here would certainly be a luxury in many parts of the world.

Slide 5    Milking Goats - Saanen and Toggenburg Breeds

The role and value of the milking goat is yet to be exploited. In some countries sheep are also milked and various cheeses and dairy products are derived from this milk. High producing dairy goats of the breeds indicated have been known to give 4,000 - 5,000 lbs. of milk yielding up to 180 lbs. of butter fat. However, it is likely that the Anglo-Nubian of the dairy breeds is more adaptive to tropical and/or extremely arid climates. Their milk yield will fall approximately 10 - 20% below the European breeds, although butter fat is higher.

Slide 6    SRD (Sem - Raza - Definida) Breed - Northern Brazil

This animal illustrates the third value factor of small ruminants. The ability to serve as a potential source of meat. Size is important as we see in this breed. However, major improvements are needed to increase offtake and meat yield. In harsh climates such as may exist in NE Brazil sometimes survivability becomes more vital to a realistic existence. Herds are likely to be large and over crowding, over grazing and/or over browsing generally develop with time.

Slide 7    Problem Solving - Epidemiologic Approach

The application of the science of epidemiology is sound and practical in addressing most animal production problems. We should seek to answer the following questions:

- What is the problem?
- Where is the problem?
- Who has the problem?
- When did the problem occur?

Knowing these factors we are likely to understand why the problem is occurring and then we can set on a course to solve or prevent further occurrences.

Slide 8    Factors in Production

Essentially all animal production starts from a base of genetic heredity. However, one cannot overlook the important role of the environment on production. Its effect may be positive or negative upon the animal. Parasitism and/or disease may prevail or within the eco or environmental system the animal may develop resistance and immunity to disease. Constraints to animal production are numerous, but barring others poor management leads to more animal losses than any single factor.

**Slide 9 Water Scene - Eastern Mali - West Africa**

This scene depicts a traditional pattern that has existed for years. Animals move in large numbers to grazing areas and return at appointed times to drink. In this scene the water source seems quite adequate to accommodate a large number of animals. However, as livestock numbers increase or the water supply diminishes the chances of health problems developing increase. Always keep "the water hold" in mind as a potential source of trouble. This is the "fountain head" of many serious problems.

**Slide 10 Red Sahel Goat - Niono Station - Mali**

Intensive rearing system - animals are reasonably muscular. Note that horns are present. This may be practical if there is danger of screw worms. Fencing is adequate and shade trees abound. It is important to protect valuable trees from goats by boxing them off to prevent animals from stripping the bark.

**Slide 11 Dorpor Sheep - Sharp-Dome Research Unit - South Africa**

Parasite problems of sheep and goats constitute the most prevalent disease in small ruminants. Efforts to intensify and develop the drugs to counteract and/or treat parasitisms are vitally important.

**Slide 12 Aerial View of Agricultural Land**

Who raises small ruminants? There is little doubt that that farmers or producers on this land are well-to-do estate owners. Note the well laid out patterns and crop production.

**Slide 13 Small Land Holder (Limited Resource Producer) - Near Maseru, Lesotho**

This slide is a contrast of the previous one. It reveals a distinct bleak existence. Vegetation is sparse, environment factors are harsh and more than likely the education level of the producer is low. There is a great challenge here for the agricultural extension worker. This producer can be productive with proper technical assistance and moral support.

**Slide 14 Family Compound - Kwa-Zulu Homeland - South Africa**

As in the previous slide, there is a bleakness of existence. However, life does continue and strength and cooperation are generated within the family structure. The role of Cooperatives may have a positive effect in such situations as depicted in this slide.

**Slide 15** Grand Mosque - Mopti, Mali

Small ruminants play an important role in certain religious cultures.

**Slide 16** New Facilities - Interior of Guyana

The need for production of food, fiber, clothing and shelter may take on new dimensions and bring about a pioneering spirit. There is an attempt to essentially clear a jungle and open up a new area for livestock production.

**Slide 17** Horticulture Plots - Moblissa, Guyana

**Slide 18** Anglo-Nubian Goats - Tuskegee Institute

Some of the research animals at Tuskegee Institute. Note browsing area in rear.

**Slide 19** Husbandry - Kid Rearing

This illustrates one method of raising animals - The pen system. Note the small feed box and bedding.

**Slide 20** Husbandry - Kid Rearing

Multiple kids are being housed in this pen, but sizes are kept in reasonable balance. The producer frequently removes the soiled bedding and piles it on top of the kid unit until he can get a large load to spread out on the pasture. This sometimes creates an unnecessary source of flies to lay eggs.

**Slide 21** Husbandry - Feeder System

This bunker-type feeding arrangement is patterned after the large feed lot system - note the pipe railing which serves to prevent animals from climbing into the feeder unit.

**Slide 22** Husbandry - Separation of Male

In pastoral or extensive systems the male is generally allowed to remain with the herd. Where animals are used for commercial milking and dairy purposes it is imperative that the male be isolated and kept away to prevent the unpleasant odor from getting into the milk. However, this has a slightly negative factor in that breeding performance is highest when the doe can pick up the scent of the male. Bucks should be restrained by fences at least 5 ft high. You must also be aware that over growth of hooves is more likely to develop in the confined animal, especially where surfaces are soft and muddy.

**Slide 23 Husbandry - Example of Poor Feeding Practice**

Note that whole corn has been spread on the ground in this lot for animals to consume. Hay racks and feed boxes are simple to construct. Even in the absence of these, feed could be placed on some surface such as a slab or boards or a wide piece of tin sheeting.

**Slide 24 Husbandry - Rearing Yearlings**

The use of rotational plots is illustrated in this slide. Barb wire fencing or electrical fencing may be practical. Woven wire would be necessary where predators prevail. Note that the box feeders are situated to serve both areas. These should have a shelter over them which is not present in this slide.

**Slide 25 Kraal System - Africa**

The kraal is widely seen throughout Africa. Animals are enclosed at night. Very often the young are separated and kept in areas below the main kraal. Such a practice puts the developing young animals at the mercy of receiving all the effluent which washes from above. It is not uncommon to have 60 - 70% mortality rates in newborn and young animals where these practices prevail. Rainy seasons generally lead to very unsanitary conditions within the kraal.

**Slide 26 Loose Management - Arid Climate**

Sparse forage and rainfall in amounts of less than 5-10 inches per year create necessary changes in management and livestock stocking. The area we see in this slide is more ideally suited of goats. When compared to other meat producing species in the area, it is generally the goat that appears most thrifty.

**Slide 27 Sahel Drought - Mali - West Africa - 1977**

The major drought was supposedly ending when this picture was taken. You can see the effect on the land only dry sand and/or clay - no vegetation or forage. Remaining animals had to be driven many miles each day to obtain forage and water.

**Slide 28 Sahel Drought**

A close up of the land reveals the intensity - there is no organic matter to the soil. Several prominent scientist have speculated that much of this area will never return to productivity.

**Slide 29** Acacia Bush

This provides a bright spot for survival in the drought area. Note that there are missing leaves on the lower branches. Goats can be seen actively attacking and browsing these bushes.

**Slide 30** The value of water - Niono Experiment Station - Mali

Here in the heart of the drought area there is abundant greenery. This points out the value of irrigation as a vital link to productivity. Much of the water used to carry this unit is channeled from the Niger River which is 100 kilometers away to the south.

**Slide 31** Goat Farm - California, USA.

This slide illustrates some of the ideal prerequisites for profitable production: shelter, adequate space, fencing, feed storage and reasonably good environment.

**Slide 32** Chiquero - Northeastern Brazil

The raised housing system is practiced in many countries. It affords an enclosure for safety at night. Animals may rest under the house to avoid an extremely hot sun. Note that the fencing is entirely of cut trees, closely banded together in an upright line. Wild dogs, snakes, and tiger cats constitute ever present predators.

**Slide 33** Fighting animals

This is often a problem associated with confined animals, and it is not limited to males/rams or bucks. Hernias, rib fractures, head injuries and clostridial infections are the most frequent complications. Horned animals are most dangerous.

**Slide 34** Commercial Dairy - Laurelwood Acres Farm - Ripon, California

This illustrates a well organized and elaborate production unit. It makes use of large loafing pens with shelter for the milking herd. The pens are large enough for machinery to enter to keep them clean. A lane is provided to conveniently work the animals to the milking parlor. Hand feeding is practiced throughout. Bucks are kept in a distant area from the milking parlor.

**Slide 35** Husbandry - Resting Platform

Goats enjoy climbing - They will do better if raised sleeping and resting quarters are provided. Slatted platform structures are easy to erect and place in shelters.

**Slide 36 Feedlot System**

This large commercial unit is styled on patterns of the expansive cattle feedlots of the Western USA. Note the active consumption of the hay. Animals should receive supplemental minerals and  $\frac{1}{2}$ -2 lbs. of grain daily. The amount of grain can be greatly reduced if there is the availability of high quality hay such as the alfalfa being fed to these animals.

**Slide 37 Husbandry - Spraying System - Ghana, West Africa**

Most sheep and goats ultimately have external parasites. Problems become more intensified in winter in cool climates or where animals are raised under close or concentrated housing systems. The effect of external parasitism undoubtedly reaches extreme importance as we approach the zones where Haemopoetic diseases abound. It is imperative that some form of dipping or spraying of animals to control external parasitism be practiced in such zones. This has to be done on a regimented schedule throughout the year.

**Slide 38 Disease Prevention - Disinfecting**

We should learn to practice more of what we preach. How often is the veterinarian or animal scientist the culprit in the spread of disease? Disinfecting boots between farm visits should become a matter of automatic practice.

**Slide 39 Normal Goat Foot**

The goats and sheep have split hooves. Goats do not possess glands in the foot

**Slide 40 Elongated Hooves**

This slide illustrates an advanced case of overgrowth of the claws. Animals will tolerate this to a point, but this is an extreme case. Lameness and immobility soon become complicating factors. If animals have to range for food, weight loss becomes a factor due to their inability to keep up with the herd.

**Slide 41 Elongated Hooves - Hoof Trimming**

A sharp knife, nippers, secateur and rasp are basic tools for hoof trimming. The beginner often works in haste and literally complicates matters by cutting too deeply creating bleeding, pain and a potential portal for infectious agents.

**Slide 42 Elongated Hooves**

Showing contact surface of animal in Slide 41 - note tendency of lateral wall to roll under.

**Slide 43 Initial Trimming****Slide 44 Hoof Trimming Continued****Slide 45 Hoof Trimming Continued****Slide 46 Completed Foot****Slide 47 Illustration of proper Stance and Balance****Slide 48 Dehorning - Electric Dehorner**

Where dehorning is practiced it is advisable to do this at an early age when the horn buds can be first identified. The electrical dehorner is well suited for this operation. It essentially rings the area needed to be exercised. There is no bleeding associated with the operation. This lessens the chances of screw worms being a problem in such affected areas.

Other methods of removal include chemical or caustic cauterization, surgical excision by scalpel or excision by obstetrical wire or with gauge dehorner.

**Slide 49 Homemade Restraint Box for Dehorning****Slide 50 Restraint Box in Use**

Flooring can be adjusted to accommodate the animal to be dehorned.

**Slide 51 Horn Bud and skin after use of Electric Dehorner.****Slide 52 Horn Bud scur removed with nipper.****Slide 53 Gouge Dehorner**

This illustrates a lighter model of a gouge dehorner. We should remember to disinfect this instrument between dehornings. This adds some safeguards to preventing the spread of haemopoietic parasites and bacterial agents such as clostridia.

**Slide 54 Gouge Dehorner - Older Animal**

This instrument is much heavier than the previous model. Dehorning at this stage leaves a sizeable opening in the head exposing the frontal sinus.

**Slide 55** Horn and Head Region of Male (Buck)

This slide illustrates the location of the dominant musk or scent glands of the male. Unpleasant odor is no problem in the castrated male. Surgical removal or excision has to take place where the odor produced from the breeding animal is objectionable. Surgery can be avoided at the adult stage by early cauterizing of the site during dehorning. However, keep in mind that removal of the scent glands may make a male less attractive to the doe.

**Slide 56** Surgical Excision of scent glands**Slide 57** Emasculator (Burdizzo)

This lamb-calf size model will be valuable in the castration procedure especially in areas where tetanus, hemoparasites and screw worms abound. The cost of this instrument is around \$85.00 U.S.

**Slide 58** Elastrator

This is another fairly widely used method of castrating animals. Again, animals must be monitored for tetanus and screw worms when the elastrator method is used.

**Slide 59** Secateur or Training Shears

This instrument has practical use and application in hoof trimming operations.

**Slide 60** Dose Syringe

Useful for liquid medicines or deworming preparations. You shouldn't attempt to force large volumes of liquids to animals. Be sure that the tip of the nozzle is not sharp. Some models can be purchased with a bell or ball tip.

**Slide 61** Balling Gun

Practical for administration of capsules or pills. Pill or wire forceps may also be used. Very dry pills or boluses occasionally become lodged in the esophagus. Sometimes it is wise to lubricate or wet the bolus before administering.

**Slide 62** Dairy Characteristic - Toggenburg Doe

This is an excellent view of an animal illustrating enormous udder capacity. Milking goats are typically lean and angular and should show a high degree of refinement.

## Slide 63 Hermaphroditism

A high percent of goats illustrate hermaphroditism. These animals often have an enlarged clitoris and are genetically female, homozygous and polled. This slide also reveals the dark secretions from sebaceous glands around the anus. These glands are present in both sexes.

## Slide 64 Review of the Ruminant Digestive Tract

Esophagus, Rumen, Reticulum, Omasum, Abomasum, Small Intestine, Cecum, Large Intestine, Anus

## Slide 65 Chart on the Life History of Some Common Nematodes

Genus	Pathogenicity			Egg Laying Capacity			Life Cycle in Days		Average
	Low	Med	High	Low	Med	High	Eggs to Larva	Pre-Patent	
Haemonchus (Large Stomach Worm)			X			X	4	15-18	22
Ostertagia (Medium Stomach Worm)			X		X		4	18	22
Trichostrongylus (Hair Worm-Stomach Small Intestine)			X	X			4	-18	22
Bunostomum (Hook Worm-Small Intestine)			X		X		4	-60	-64
Cooperia (Small Intestine)			X	X			4	-15	19
Strongyloides (Thread Worm-Small Intestines)	X					X	5	- 5	10
Nematodirus (Thread-Neck Worm-Small Intestines)			X	X			4	21	25
Oenophotomany (Nodular Worm Large Intestine)	X				X		6	42	-48
Chabertia (Large Mouthed Bowel Worm)		X			X		4	48	-52

**Slide 66    The Dung Pat**

The feces, especially if thick or piled in heaps, affords an excellent environment for parasite eggs to survive. Essentially the dung pat serves as shelter, prison, incubator and reservoir for the parasite.

**Slide 67    Actions for Worm Control Programs**

- (a) Do Nothing
- (b) Treat Selectively
- (c) Treat Every Animal

**Slide 68    Thibenzole Wormer - Merck and Company**

One of many useful products. This one has a wide margin of safety. Levamisole injectable is useful against many parasites, but it is not recommended in lactating animals used for human markets. Levamisole may produce transient frothing, occasional straining and occasional temporary incoordination,

**Slide 69    Chart Illustrating the Effectiveness of Thibenzole Against Some Parasites in Cattle, Sheep and Swine**

Nematode Parasites of Sheep, Cattle and Swine  
Which Respond to Thiabendazole

**Sheep-Goats**

Trichostrongylus axei  
Trichostrongylus calubriformis  
Trichostrongylus vitrinus  
Haemonchus contortus  
Ostertagia circumcincta  
Cooperia curticei  
Cooperia onchophora  
Nematodirus spattuejer  
Bunostomum thigonocephalum  
Strongyloides papillosus  
Chabertia ovina  
Oesophagostimum columbianum  
Trichuris ovis

**Cattle**

Trichostrongylus spp.  
Haemonchus sp.  
Ostertagia sp.  
Nematodirus sp.  
Cooperia punctata  
Cooperia pectinata  
Cooperia onchophora  
Oesophagostimum radiatum  
Bunostomum phebatomum

**Swine**

Ascaris suum  
Oesophagostimum sp.  
Stephanurus dentatus (larva)

**Slide 70    Life Cycle of Haemonchus contortus**

Blood sucking parasites of the abomasum cause enormous losses in young lambs and kids. The barber pole worm, Haemonchus contortus, is a principal parasite.

Slide 71 Infection Due to Haemonchus

Note the extensive number of parasites in this animal.

Slide 72 Haemonchus and Trichostrongylus Species

Often parasite problems are caused by two or more agents. This slide close up clearly reveals the barber pole effect in Haemonchus. The smaller somewhat curled parasites are Trichostrongylus species.

Slide 73 Haemonchus contortus in Petri Dish

Note the size of the adult parasite.

Slide 74 Trichostrongylus species in Petri Dish

Compare small hair-like size with that of haemonchus.

Slide 75 Clinical Trichostrongylosis in Sheep

Note the smearing of the rear end. Affected animals usually have dark, watery stools.

Slide 76 Ostertagia Species in Petri Dish

Slide 77 Nodular Lesions in the Abomasum

This is a characteristic finding associated with ostertagia.

Slide 78 Cooperia Species

Note the small size when compared with the paper clip. These parasites can be readily missed upon an autopsy.

Slide 79 Mouth Part of Bunostomum

Take special note of the shark like mouth parts. These are notorious biters and blood suckers.

Slide 80 Adult Bunostomum

Slide 81 Oesophagostomum Nodules

This is often a troublesome problem. The parasite is somewhat protected from vermifuges by its encasement in the nodule. The veterinarian must be prepared to shift to more effective drugs when responses are not obtained from use of traditional vermifuges.

Slide 82 Round Worm Life Cycle

- (a) Eggs in feces
- (b) First stage larvae
- (c) Second stage larvae
- (d) Third stage larvae (only infective stage)

Slide 83 Sheep Fecal Balls Entwined Around an Ascarid

Ascariasis has intensified where sheep and swine share the same pastures.

Slide 84 Coccidiosis

This is often an overlooked problem of sheep and goats. Oocyst shedding is sometimes not observed when animals are in a crisis. These parasites invariably produce nodules, hemorrhage and bloody diarrhea in advanced cases. However, very young stock can reach a crisis stage of fever and shock before any diarrhea appears.

Slide 85 *Thysanosoma actinoides* (Fringed Tapeworm)

Tapeworms are more common in sheep than in goats. Heavily infected animals are usually thin and may have soft feces. An occasional animal may become jaundiced.

Slide 86 Tapeworms in Hepatic System

Slide 87 Tapeworm Segments in Fecal Mass

Slide 88 Snails

Snails are a problem on all continents and a troublesome source to eradicate. Many parasites and diseases of man and animals are directly or indirectly traceable to snails. Recently, I learned from Dr. Negron in Puerto Rico that the snail-fluke problem there was leading to production of a large number of false positive tuberculosis reactors in cattle.

Slide 89 Liver Fluke - Sheep

Slide 90 Liver Flukes in Sheep

Slide 91 Lung Worms in U. S. Livestock

Cattle - *Dictyocaulus viviparus*

Sheep-Goats-*Dictyocaulus filaris*-thread lung worm

*Muellerius capillaries*-hair lung worm

*Protostrongylus rufescens*-red-lung worm

Swine-*Metastrongylus elongatus*

*Metastrongylus pudendotectus*

*Metastrongylus salmi*

Horse-*Dictyocaulus arnfeldi*

Slide 92 Life Cycle of *Dictyocaulus* Species

Adults in bronchi      larvated eggs in bronchial  
mucus      first stage larvae in feces      infective  
Third stage sheathed larva (in feces, on vegetation damp surfaces or moist walls) - ingested by animal  
via lymphatics to lung alveoli - develop to adults.  
Cycle may be completed in 4-5 weeks under favorable conditions.

**Slide 93 Dictocaulus in the Bronchi**

Note the large number of parasites. This produces a clogging effect of the air pathway.

**Slide 94 Lung Nodule - Muellerius capillaris**

This parasite invades the lung parenchyma and results in the development of nodular lesions.

**Slide 95 Differential feature of Muellerius**

Muellerius can be readily differentiated from Dictyocaulus species by possessing a hooked or spiked projection at the ventral rear.

**Slide 96 Phenothiazine Deworming**

Note all reddish discoloration of the wool resulting from deworming. Buyers frown on this in many areas.

**Slide 97 Phenothiazine Photosensitization**

This is not the most ideal preparation to use where sunny days prevail. Loss of wool or sloughing of ear tips or tails are side effects to be seen.

**Slide 98 Sheep Scab**

Loss of heavy patches of wool in sheep may be indicative of several problems: This is sheep scab, but it could have been scrapie phenothiazine photosensitization, lousiness or some debilitating nutritional deficiency. Employ your diagnostic skills before jumping to conclusions.

**Slide 99 Facial and Nasal Lesions - Elaeophora schneideri**

I have included five slides of clinical cases and pathology associated with this parasite to illustrate several points.

- (a) Nematodes are destructive and may be invasive to tissues
- (b) Some parasites have the ability to transfer across species lines
- (c) Therapy for some clinical forms is difficult or next to impossible
- (d) Control is complicated due to unknown reservoirs

**Slide 100 Elaeophora in a Sheep - Lower Leg Lesions**

**Slide 101 Elaeophora- Adults in Petri Dish**

**Slide 102 A Sheep with Facial Lesion**

**Slide 103 Elaeophora in the Carotid Artery of an Elk**

**Slide 104** Demodectic Mange in a Goat

Nodular lesions are produced. These usually contain a thick grayish pus from which the parasite can be isolated.

**Slide 105** Cobalt Deficiency - Two Animals - Same Age

Lamb on the left received an adequate diet and weighed 90 lbs. Animal on the right was fed a deficient diet and weight only 48 lbs.

**Slide 106** Enzootic Ataxia - (Sway Back) - Copper Deficiency

Slide illustrates an effect of low copper.

**Slide 107** Wool Discoloration

Brownish-red discoloration of wool may be associated with animals maintained on diets low in copper or sometimes this represents a marginal diet copper but excess intake of molybdenum. Scours may be a problem in the latter case.

**Slide 108** Bowing of the Front Legs

This is an osteoporosis sometimes referred to as "Bowie" and due to a deficiency of copper.

**Slide 109** Goiter

This is an example of iodine deficiency in a newborn lamb.

**Slide 110** Iodine Toxicity

This is characterized in a chronic form by browning of the wool and loss of wool about the eyes and lips. Acute iodine toxicity is often associated with diarrhea and scurfiness. This may follow therapy where too much iodine has been used.

**Slide 111** Iodine Toxicity

An effect of iodine excess may lead to sarcomas of the thyroid gland.

**Slide 112** White Muscle Disease in a Lamb

This disease is related to low selenium (Se) in the ration and/or low intake of Vitamin E.

**Slide 113** Carcass - White Muscle Disease**Slide 114** Heart Lesion - White Muscle Disease

Transverse section of the heart showing areas of extensive calcification.

**Slide 115**      Zinc Deficiency - Two Lambs

Lamb on right received a ration with 100 ppm Zn - lamb on left received a ration with only 3 ppm Zn. The weight difference is remarkable.

**Slide 116**      Thiamine Deficiency in a Lamb

The effect in this animal is entirely neurological in clinical manifestation. This could be confused with louping ill or possibly severe bacterial meningitis.

**Slide 117**      Selenium Toxicity - Two Lambs

These animals have developed clubbed and crooked feet. Toxicity may also be manifested by symptoms referable to parenchymatous organs.

**Slide 118**      Copper Toxicity

This sheep had marked congestion of the kidneys.

**Slide 119**      Caseous Lymphadenitis (Cheesy Gland) - Goat

This is a frequently encountered bacterial problem in goats and sheep. The causal agent is *Corynebacterium ovis* (pseudotuberculosis). It is troublesome and difficult to eliminate. Multiple abscesses are usually encountered. Ruptured lesions allow for frequent spreading.

**Slide 120**      Louping Ill - Standing Animal

This viral infection has not been encountered in the Western hemisphere. It is a tick-borne encephalitic disease of sheep characterized by twitching, spasms, a peculiar gait and usually associated with high mortality.

**Slide 121**      Louping Ill - Recumbent Animal

There is no recovery at this stage. Death will ensue in a few days.

**Slide 122**      Contagious Ecthyma (Orf)

This is a fairly common problem wherever sheep and goats are raised. This slide illustrates some early lip and nasal lesions. Lesions may also appear on the legs, belly, thighs, udder and scrotum. The course from initial fever and early lesions to final sloughing of scabs runs about 28 days. Any heavy mortality is generally due to secondary infection and/or screw worms.

Vaccination should be instituted to prevent illness.

Slide 123 Contagious Ecthyma - Advanced Case

Illustration of severe pathology of nasal and oral region. Lesions are basically proliferative. Extensive scabbing.

Slide 124 Contagious Ecthyma - Human Case

Care must be taken by Veterinarian and producers in handling and vaccinating animals. Mortality is not a factor at the human level, but lesions are annoying and painful.

Slide 125 Sheep Pox - Lesion Above Eyelid

This is the most severe of the animal poxes. It is common only to parts of North Africa and the Middle East. High mortality is often associated with outbreaks. Many cases in goats which are called pox are actually bacterial infections due to streptococci or staphylococci.

Slide 126 Sheep Pox - Ventral Abdominal Wall Lesion

Pox in sheep may be generalized with systemic effect.

Slide 127 Sheep Pox

Vulva lesions. Scab stage. Pox sequence is always:

1. Papule
2. Vesicle
3. Pustule
4. Scab

Slide 128 *Culicoides varipennis* - Vector of Bluetongue

Bluetongue has been a recurring problem in the USA. It is now firmly established that the disease also occurs in cattle. The principal vector in sheep has been the small gnat, Culicoides varipennis.

Slide 129 Bluetongue - Early Stage

Note the bluish, cyanotic coloration around the lip and nasal areas. Also the heavy sero-mucoid nasal discharge. This animal would exhibit fever.

Slide 130 Bluetongue - Erythema

Sheep will exhibit erythema of the skin especially in the lower extremities.

Slide 131 Bluetongue - Advanced Case

This animal exhibits extreme buccal, nasal and tongue erosions. Some encrustation is observed. Cattle may also show severe oral lesions. A neurological pattern is also reported for the bovine. Skin and teat lesions suggestive of photosensitization may actually turn out to be due to bluetongue.

**Slide 132** Suffolk Breed of Sheep

This slide is added as a reference to scrapie. The Suffolk has been the dominant breed to possess this disease in the USA. All breeds of sheep are susceptible and some transfer studies have taken place in the goat. Advances in Scrapie research may unlock the door for many unknown etiologies of neuropathys in man.

**Slide 133** Anthrax - Human Cellulitis

This illustrates an early stage of cutaneous anthrax. Largely an occupational disease in man, it is widely spread and enzootic to epizootic in many species of animals.

**Slide 134** Distribution of Anthrax in the USA by Source of Origin - Human

Animal hair, wool, soil, edible products from diseased animals, laboratory infection and vaccination anthrax.

**Slide 135** Comparison of Industrial and Agricultural Anthrax - USA - 1916-1970 - Human

The slide illustrates the sliding decline of both sources. Occasional point epidemic years are seen.

**Slide 136** Clinical Patterns of Anthrax

- (a) Cutaneous - Skin
- (b) Inhalation - Pulmonic
- (c) Gastrointestinal

**Slide 137** Epidemiology of Human Anthrax - Sources

Industrial (wool, skins, goat hair, animal products);  
Agricultural (animal contact, soil, vaccination anthrax).

**Slide 138** Prevention and Treatment of Human Anthrax

Prevention: Vaccine for persons at high risk, animal  
vaccination, hygiene  
Treatment: Penicillin-Broad Spectrum Antibiotics

## Slide 139 Brucellosis - Common Reservoirs

It should be drilled clearly that the initial isolate of Brucella was traced to goats. Brucella melitensis produces the most severest form of the disease in humans.

## Common Reservoirs of Brucella Species

<u>Species</u>	<u>Biotype</u>	<u>Animal Reservoir</u>	<u>Invasions in Man</u>
B. melitensis	All	Sheep-Goat	+++
B. abortus	All	Cattle	+
B. suis	1,3	Pigs,	++
	2	Pigs, Hares	?
	4	Reindeer	+++
B. neotome		Wood Rat	-
B. ovis		Sheep	-
B. canis		Dogs	±

## Slide 140 Carilbean Sunset

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**AGRICULTURAL DEVELOPMENT IN MALI:  
Observations from the Village**

**John M. O'Sullivan  
Tuskegee Institute  
March 20, 1980**

**as presented at the: Conference of Acid Land Studies  
Albuquerque, N.M.  
April 26, 1980**

## AGRICULTURAL DEVELOPMENT IN MALI

### INTRODUCTION

In the past decade world interest and international development expertise have focused on the Sahelian countries of West Africa. This occurred because of the traumatic impact on world opinion of the 1972 drought and also because the international community has recognized a certain responsibility to the Sahelian countries, since they are among the poorest of the world.

The drought and especially the international press presentation of the drought stimulated interest in the Sahel like nothing else has done. Much of the reporting was hype however, and it will take years of careful observation to understand the cycles of the Sahelian ecosystem and the limits of human exploitation of the region that such cycles enjoin.

This paper proposes to focus on one country - Mali, in order to assess the direction of present development efforts in the Sahel region. The tentative conclusions arrived at here indicate that short run solutions, political expediency and im-

mediate profits are consistently being chosen over more long term, ecologically sound, socially desirable solutions. This trend is particularly disturbing, since so much commitment has been made to aiding "the poorest of the poor" and to "integrated rural development."

Jeune Afrique (a weekly French language magazine focusing on Africa) in a special report on agricultural development in Africa reported:

...one no longer speaks just of the increase in agricultural production but of integrated rural development and of the participation of the populations in the process of development.... The directors (of the World Bank) with Mr. McNamara in the lead, insist that the well being of the rural populations has become one of their principal criterion in assessing aid for agriculture. 1

And as William Foote Whyte wrote:

Robert McNamara, president of the World Bank has pointed out repeatedly that, in many countries in the developing world, the poorest segment of the population (some 40% of the lower income levels) has not improved its income despite very satisfactory percentage increases in total GNP from year to year.

The McNamara doctrine is now so well established that it is the official policy of the Agency for International Development to limit its projects for rural and agricultural development to those that are designed to have a favorable impact on the small farmer. 2

Thus there is a commitment, at least at the general policy level. For the purposes of discussion, we shall assume that what is said is meant. A debate about the sincerity and real commitment to the significant social revolution which

would occur if those goals were attained lie outside the scope of this work.

Mali is a country of central West Africa famous for its historical empires and cities. It is the site of the ancient empires of Ghana, Mali and Songhai. The great cities of Timbuktu, Djenne and Segou are found within its borders, on the great waterway which is the lifeline of Mali, the Niger River. It is a landlocked country, 1200 kilometers from the ocean and has three broad climatic zones; soudanic, Sahelian and Saharian. Population is estimated a 6.3 million inhabitants. It is 85% rural and 68% Muslim. "Mali is one of the poorest countries of the world and the poorest in Africa after Rwanda."<sup>3</sup> Per capita income is estimated at \$110 per year.<sup>4</sup> Such information indicates clearly that the Republic of Mali fits the criteria indicated above in terms of the levels of poverty. The impact and orientation of international development projects in Mali will be instructive in light of the above noted commitment to aide the "poorest of the poor."

Mali's recent history has not favored agricultural development. Following independence in 1960, Mali launched onto a socialist path under President Modibo Keita. During his regime,

the commercial sector of the economy was nationalized, farmers were expected to participate in collectivized agriculture and a Marxist-Leninist Cadre was imposed with the aide of the USSR.<sup>5</sup>

Scant attention was paid to the ecological constraints imposed on Mali; for without mineral resources, or any other productive base, vast development plans were written in the capital city, Bamako, to transform the Malian economy and make it modern. For example, in the Four Year Plan of 1960-61 a compound growth rate of 11.2% was projected and even this inflated figure was revised upward to meet the demands of the politicians in the capital city.<sup>6</sup> Such pie-in-the-sky approaches to economic planning coupled with gross errors of implementation alienated the people and brought the Malian economy to a standstill. Finally on November 23, 1968 in a bloodless coup the Malian military, under Moussa Traore, seized power. The military remained totally in control of the government until June 19, 1979, when elections were held to bring civilians back into the government.

The drought, which burned across the Sahel in the early 1970's, wreaked havoc on the Malian agricultural sector, but the drought did arouse international development interest in

the Sahel. The U.S. Agency for International Development (USAID) has committed millions of dollars to development projects in the Sahelian belt and will continue to do so in the immediate future. The U.S. is not alone in this as there are presently Soviet, Chinese, Korean (North), Swiss, Canadian, German, French and U.N. missions working in Mali on various agricultural and agriculturally related projects.

In the light of past failures and future expectations, it is worthwhile to take stock of the present situation. Information for this article grew out of a survey of Malian farmers, which I conducted as a member of a Tuskegee Institute team. We were engaged in a project to provide data for a GRM/USAID project to renovate and modernize the physical facilities of the Malian Centres d'Apprentissage Agricole (Agricultural Extension Officers' Training Centers). This data will be used when the curriculum at the schools is redesigned to make the training more relevant for the Malian agricultural extension officers. The findings and recommendations contained in the original report have been presented to the Malian ministry of Rural Development and the USAID project authorities.<sup>7</sup>

I did a survey of some Malian farmers who are in contact with the agricultural extension officers now in the field. I visited thirty villages in three major areas of Mali with a Malian counterpart, and we conducted interviews in twenty-four of the villages. Ten of those villages were in the immediate vicinity of Mopti and had fields of principally millet and also adjacent flood plains in rice cultivation. It was in these villages where the problem of development impact on farmers was first brought home to me.

While our interviews focussed principally on subjects relating to the training of the agricultural extension officers, farmers frequently digressed and mentioned other topics. This was entirely understandable as many of these topics were problems the farmers have with the government; as it turns out the principal government agent with whom the farmers have to deal is the agricultural extension agent.

### The Context of Malian Agricultural Development

Mali has no resources that are economically exploitable under present world conditions. It has no oil and no minerals.

It does have agriculture (including cattle, horse, camel and small animal ruminants) and fishing. Its exports are derived from these sectors, and it is self-sufficient in meeting its own domestic needs.

Cotton is the principal export earner for the country. According to Jeune Afrique Special Report, Mali produced 113,761 tons of cotton in 1977-78, and cotton represented in that year 34% of Malian export receipts. This is followed by peanuts. Approximately 105,000 tons of peanuts were produced in Mali but only 5,536 tons of shelled peanuts were exported legally - due to a parallel market situation which developed because of the low price offered by the Malian government buying agency (OPAM).<sup>8</sup> Farmers moved their own peanuts over to Upper Volta, Ivory Coast and Senegal to take advantage of the higher prices offered there.

Principal grain production is sorghum, millet and fonio (700,000+ tons); rice (90,000 tons); and corn (60,000 tons). The ten year old 1969 annual report is probably still accurate, when it notes that 80% of the population is occupied with growing millet and sorghum; practically the entire crop is consumed locally.<sup>9</sup> As noted, Mali is self-sufficient in food production.

Malian government priorities seem to have two goals: first, to maintain and increase export crop production - which means essentially cotton; and secondarily, to increase food crop production and to do so at a price which will not overburden the urban workers - whose salaries ordinarily come from government sources anyway. It is obvious that both these goals depend on the farmer, since nowhere have state farms been successful. This is especially true of the famous Office du Niger which has never been anything but a very expensive drain of funds and has never grown crops cheaper than the traditional Malian farmer.

In order to bring "development" to the farmers, the government of Mali has created various parastatal companies called Operations. The most successful of these is the CMDT which was founded in 1952 as a French colonial cotton producing enterprise.<sup>10</sup> Ten other Operations have been founded more recently, such as the Operation Haute Vallée, Operation Mils Mopti and Operation Riz Mopti. These parastatals are responsible for the organization of the full production cycle of cash crops (cotton, millet and rice) and the commercialization of those crops as well as agricultural extension, literacy and other aspects of rural development within their areas of activi-

ty. As noted in a recent CILSS/AID report, "Most of the Operations which used to be crop specific are now responsible for integrated rural development in their regions."<sup>11</sup>

Most of the Operations provide extension services for both cash crops and food crops. They also undertake a variety of rural development activities which range from building feeder roads to functional literacy programs. To accomplish these goals the Operations have large staffs. For example, Operations Mils Mopti had the following administrative staff in 1976:

7	<u>ingenieur agricole</u>
1	<u>ingenieur genie civile</u>
11	<u>ingenieur des travaux agricoles</u>
11	<u>conducteur des travaux agricoles</u>
63	<u>moniteurs</u>
111	<u>encadreurs</u> 12

Such a superstructure, just like the entire government system itself, is supported by the farmers - aside from the deficit which is picked up by France and other international donors. Unfortunately, it is not at all clear if any of the Operations will ever be economically self-sustaining. Besides

the cost of the superstructure, the costs of necessary agricultural inputs - fertilizers, plows, etc. - continues to rise dramatically, while the price of crops purchased OPAM is kept so low as to push farmers toward a parallel market.

This problem, of course, calls into question the whole effort at development through the Operation system, since they may never be economically self-supporting. Without foreign aid the Operations would not be able to meet their basic costs. The Malians are aware of this and other problems which have arisen within the Operation system. Some Malians have suggested that the whole system may be scrapped someday because of these problems. It is obvious that USAID or any other foreign donors should not become too closely identified with the Operation system and their problems or they may suffer the consequences.

Unfortunately, even if the Operations did not have their own economic problems, their impact on the Malian farmers raises serious questions for the observer. The questions that I have been sidestepping all along must be raised: What "development" is being brought to the farmer and is he benefitting from the development package offered by the Operations? Obviously,

these are very complicated questions not easily answered, but my own limited experience and some of the information I have obtained from other observers certainly leads one to think that all is not well in the rural development of Mali.

Before I present the evidence for these remarks, let me emphasize the point that Malian farmers, in so far as the twenty-four village interviews I did allow me to judge, are not "ignorant" or that stereotypic passive fatalistic "peasant" foisted on the unwary by certain over zealous anthropologists. There are elements of truth in the writings of these authors, but they present gross generalizations which can lead astray the researcher who is not aware of the vastly dynamic world of the modern Malian farmer. Everything from radio to travel to modern cities like Abidjan or Dakar, to military service, to sons and daughters studying in Indiana or Kiev all have their impact on Malian villages. Stereotypic Fulani cattlekeepers, Malinké farmers and Senoufo farmers probably exist as do stereotypic Montana cowboys, California land barons and Iowa farmers, but even the truth of these stereotypes is lost, if we do not delve into such characteristics for the insights they too could provide.

How then did the farmers surveyed perceive the develop-

ment efforts of the Operations? In our discussions at least eight areas of concern to the farmers surfaced. These were: 1) input costs rising much faster and more significantly than prices they were being paid; 2) being forced to bear all the risk of credit for inputs and this credit system being very short term; 3) the Operations running what is in effect forced labor; 4) some Operations were expropriating land from farmers if it was not being used according to Operations guidelines; 5) forced selling of the crops, (commercialisation); 6) increased work burden for all family members (not just for the men but notably and especially for the women and children); 7) continuing exodus from the villages; 8) degeneration of the environment based on forced monoculture and deforestation.

Two other problems should be added to that list; 1) increased class differentiation and antagonism developing in villages, and 2) questionable emphasis on plowing and animal traction in the face of insufficient data about the impact of such practices on soil and long term productivity.

During an interview not too far from Mopti, some of the elder farmers said that the Operations are out to help themselves and not the poor farmers. They stated that with a bad season coming the agents of the Operations will come and take

away even the little bit which does succeed in growing. Sale of the crop is forced and the moniteurs arrive and take a quantity that they want no matter what. This, inspite of the fact that rainfall in the region (averaging less than 600 mm a year) makes any one year's harvest an "iffy" sort of thing.

This problem is compounded by the credit system. Here the moniteur provides Operation credit to the farmer for his agricultural inputs. Major purchases, such as plows and oxen, must be paid off within two years. While I did not ask about the interest rate or specifics of the credit arrangements, the time limit imposed seemed to have been a major worry to the farmers, since it necessitated two or in some cases three good harvests in a row.

In light of present price movement, particularly of petroleum and its derivatives as well as the general inflationary trend in the developed world, the farmer is seeing his own input costs rising sharply. At the same time, the government marketing company, OPAM, has only moderately raised prices for the crops produced by the farmers. They see themselves caught in a price scissors forced on them by Operation policy in all these problems tied to the commercialization aspect of their

of their relationship to the Operations.

Farmers say that as a result they are forced to sell in a parallel market - exporting their crops illegally to CFA zones. Furthermore, the lack of economic incentive in the rural areas exacerbates the problem of the flight of the youth, since rural emigration is the only alternative to working with the Operation for the farmers.

Certain researchers, such as John V.D. Lewis, have argued that the critical problem in Malian agriculture is labor bottlenecks.<sup>13</sup> This has been recognized by the farmers who have created a complex social structure of family, age groups, village and religious ties so that throughout the agricultural year labor usage can be maximized.

Here again the implication of Operation development policies directly contradict the stated goals of improving rural life. By keeping prices so low as to drive away the youth, development is destroying the fabric of rural life and the communal organizations of the extended family and village.

In areas producing rice farmers found themselves in a particularly difficult situation. The Operations responsible for rice cultivation required that the farmers grow rice according to strict policies set up by the Operations. If farmers do not cooperate, then they may be hauled into court by the police, their land confiscated and the rich in Mopti benefit by buying the land. This problem was mentioned in three separate villages near Sevaré on the broad flood plain, where dikes have been set up for years for paddy rice production.

Such pressure on the farmers, perhaps logical in terms of rice production, seems unconscionable in light of the above referred to goals of integrated rural development. Expropriation of farmers' land strikes right at the heart of traditional rural life. What then can be expected of these farmers deprived of their best land. The creation of landless peasantry or rural proletariat is not a progressive step in any direction.

This last remark brings up a significant point fraught with implications and that is - the increasing class differentiation and antagonism in villages. Class struggle is part

of the Malian rural scene as throughout the whole world. Traditional villages are scenes of significant exploitation, particularly of the younger people by elders and of women by men.<sup>14</sup> Such antagonisms, however, are significantly exacerbated with the impact of development.

With greater emphasis on cash crops and agricultural production for the Operations, traditional production organization breaks down. Labor bottlenecks become worse as everyone is growing more and more of specified crops. Harvest time is more difficult to stagger and coordinate through non-monetized work activity. The more wealthy can buy labor when they need it, while the farmer who sells his labor is less able to maintain his own fields and hence his economic independence.

Thus within the village, the contradictions of a kulak class and a rural proletariat are increased as the development process of the Operations continues. Agricultural production increases have been achieved generally by increasing the area under cultivation. Animal traction and plows have been adopted on a widespread pattern by farmers to obtain larger harvests and cashflows. In five of the villages visited, farmers remarked that they had to rent animals and plows from more well

to do farmers in the villages who had their own equipment. This implies two significant trends; 1) Relations in the village which had been communal are being monetized and the relative homogeneity of the village (at least in terms of overt economic power) is disaggregating into antagonistic classes - the kulaks who have capital to manipulate in terms of production and the less well to do who have only their labor, and 2) Given the fact that land use in Mali is ordinarily based on traditional communal systems of usufruct and that in the Mopti region farmers are being expropriated who are not cooperating with the Operation, such a trend bodes ill indeed for the overall rural structure of Mali today. Will increased rural class differentiation and a rising kulak class universalize this process of expropriation? Such a trend might well lead to a revolutionary situation in the countryside - or worse - to the degeneration of the Malian social structure into the pattern of the Latin American latifundia.

This point about animal traction brings up another problem. Such works as Rene Dumont's classic, False Start in Africa, argue that the next step in improving African agricultural productivity should be animal traction and certainly not

mechanized traction. Sleeper's thesis indicates that only in rare circumstances is animal traction economically feasible because of the high capital costs (relative to rural incomes) of animals, plows and access to large enough fields to make the effort worthwhile.<sup>15</sup> It would seem logical to do some long term research to decide which point of view is more accurate.

In a personal communication, John Lewis asked a further question. He indicated that he felt that not enough long term research has been done to assess the impact of plowing on fragile Sahelian soils over a ten or fifteen year period.<sup>16</sup> Throughout West Africa have developed vast stretches of bowal or sterile land useless for agriculture from man's over burdening and destroying fragile soils.<sup>17</sup>

This last point needs to be put in a larger perspective, since it too was referred to by the farmers. They remarked on the deterioration of the environment under the pressure of modern population and agricultural pressures. They talked of the extensive destruction of the trees in the region as people cultivated more land and as people cut the trees for firewood,

Secondarily must be asked a question about increasing concentration on fewer and fewer crops - those that are economically interesting for the Operations. Senegal's agriculture is suffering drastically from the past century's exclusive concentration on peanut production. Is this the path the regional development approach is opening for Mali?

### CONCLUSION

It seems to me, if the villages I visited and the points that were raised were representative of the farmers' problems and concerns in Sahelian Mali today, then serious questions should be raised about the present direction of development efforts. Overall, in spite of the rhetoric, political expediency is shaping the program not "integrated rural development" or the "well being of the rural population." Maximum output of cash crops and food crops, at no matter what social costs to the Malian farmer, seems to be the goal. Low food prices for the urban population and high receipts for the government budget are the true objectives of development planning.

Are there any alternatives to this situation? The first answer is that much more research needs to be done and it should be begun now. This research should not be one shot research by

visiting "experts" but on a massive scale to build up a serious data base about the environment and man's impact there. Research could test the tentative remarks made in this paper and many other questions about soil, costs, fertilizers, plowing energy costs, hybrid seeds, irrigation. All of that will cost a lot of money - a resource Mali does not have much of.

I wonder why American aid is trying at all to help the small farmer. American agriculture has witnessed the disappearance of the American small farmer - the relegation of the small farmer to economic backwaters. American agriculture - the most productive in the world - has been built on low cost energy, high energy inputs, hybrid crops, massive use of chemicals, irrigation and other high capital cost inputs. We cannot do anything for the small farmer in Alabama. What can we offer the Malian farmer?

The tentative conclusion of this paper is that the Malian farmer himself would be better off if he were left alone. Are there areas where American technology can have a positive impact? There might well be. Such areas could be created with dams, tse-tse fly eradication, range management, removal of transportation bottlenecks, but here again the cost will be massive and

definitely involve long term commitments. Furthermore, such efforts might well be politically impossible from the point of view of the host country, since they threaten by their scale and degree of economic planning national sovereignty.

In any case, let us not fool ourselves or be led to accept the high falluting rhetoric of politicians for economic and social reality.

NOTES

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2. William Foote Whyte, Organizing for Agricultural Development, transition Books, 1975 p. 4.
3. Annuaire, Jeune Afrique, 1979, p. 446.
4. World Bank, Annual Report 1979, p. 38. Attention is drawn especially to footnote 2, where it is stated, "...there is about the same relative difference between the gross national product (GNP) per capita of Mali and Ivory Coast, on the one hand and between Ivory Coast and the United Kingdom on the other hand, the ratio being approximately 1:7."
5. Klaus Ernst, Tradition and Progress in the African Village: Non-capitalist Transformation of Rural Communities in Mali, St. Martins Press: New York, 1976.
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8. Jeune Afrique, 9 May 1979, 957, p. 34.
9. Annuaire, Jeune Afrique, 1969, p. 426.
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12. Operation Mils Mopti, "Apercu sur la campagne agricole," October, 1976, p. 6.

13. John V.D. Lewis, "Descendants and Crops: Two Poles of Production in a Malian Peasant Village," unpublished dissertation, Yale University, 1979.
14. For a discussion of such problems see Claude Meillassoux, Esclavage en Afrique precoloniale, Maspero: Paris, 1975, especially Jean Bazin's article, "Guerre et Servitude a Segu;" John M. O'Sullivan, "Developments in the Social Stratification of Northwest Ivory Coast during the Eighteenth and Nineteenth Centuries," unpublished dissertation, U.C.L.A., 1976; and David Seddon, Relations of Production; Marxist Approaches to Economic Anthropology, Frank Cass: Totowa, New Jersey, 1968.
15. Rene Dumont, False Start in Africa, Praeger: New York, 1969; and Joseph a. Sleeper, "An Economic Analysis of the Role of Ox-Plowing and Cattle Feeding in the Stratification of West African Livestock Production," unpublished Master's thesis, University of Maryland, 1978. The potential benefits and problems are noted in very general terms in Uma Lele's important work, The Design of Rural Development, Lessons from Africa, Johns Hopkins: Baltimore, 1975, pp. 36-38.
16. Jean Lewis, author of "Descendants and Crops," in personal communication at the African Studies Association meeting, Los Angeles, November 1, 1979.
17. William Morgan and J.C. Pugh, West Africa, Methuen: London, 1969, p. 193; and Jacques Richard-Molard, Afrique Occidentale francaise, Berger Levrault: Paris, 1951, p. 15.

APPENDIX A

AGRICULTURAL SURVEY METHODS IN LESS DEVELOPED COUNTRIES  
and  
Recommendations for the Agricultural Census Project of  
Rwanda, sponsored by USAID

John M. O'Sullivan  
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Department of Ag Econ/ Auburn University  
Center for Rural Dev./ Tuskegee Institute

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## I. THE PROBLEM

The Agency for International Development (AID) has been asked by the Government of Rwanda to assist its Ministry of Agriculture in setting up an Agricultural Statistics and Analysis Unit. AID has agreed to participate in this project and has developed it as the Collaborative Survey and Analysis of Agriculture Project, #698-0135. The Project Identification Paper (PID) was written in November, 1979 and the project is scheduled to run from 1979 until 1984. There are two phases of the project; the pilot phase lasting through February, 1982 and the complete implementation phase scheduled to run from March, 1982 until February, 1984. The goals of the project are:

- 1) "to provide findings of immediate utility for the formulation of policy;"
- 2) "to strengthen the capabilities of the Ministry of Agriculture in data collection, data processing and analytical interpretation as a basis for the formulation of policy" (PID:1).

Rwanda does not now collect information about agriculture in any systematic way and data used in planning and decision making is based on rough "guesstimates". There is no reliable data on acreage, production yields or even types of crops. The lack of data base obviously makes it impossible to evaluate development projects (or even to plan them intelligently). This problem compounds an already critical situation since Rwanda, one of the poorest countries in Africa, also has the highest population density in Africa with 173 people per Km<sup>2</sup> or 340 people per Km<sup>2</sup> of cultivable land (Annuaire Jeune Afrique, 1979 - 479). Fed by subsistence agriculture, this population pressure on the rugged terrain of Rwanda has led agriculture experts to conclude that "...if current trends in population growth and deterioration of Rwanda's land base are not retarded, a full scale food crisis will occur no later than 1990..." (PID:10, See Appendix I for some information on this problem).

The solution to the problem at hand might seem obvious at first glance. Rwanda has only to administer an agricultural census patterned on that which is carried out periodically in the United States, for example. Such a gathering of data from the entire population (Bailey: 72; definition of a census) would then provide the base of systematized quantitative data against which specific projects could then be measured.

As is so often the case, however, the obvious solution is not feasible in practice. Budgetary constraints (both in terms of data collection and analysis) make a Rwandan census an impossible task. The problems of data collection alone (about which more will be said later) lead to the realization that the census would contain more errors than a well thought out sample survey.

With the above idea in mind, it would be easy to pick up off the shelf such excellent guides to survey design as Bailey (1978), Miller (1977), or such hands-on work as the U.S. Bureau of Census Agricultural Census Enumerators Handbook. These works provide the theoretically sound framework for sample design based on the random selection of participants in the survey, permitting the application of the laws of probability to the study.

Since conditions are so different, much of the information contained in the studies focusing on the situation here in the U.S. is irrelevant to such countries as Rwanda. Neither mail nor telephone sampling methods could be used there because there is no general mail delivery or telephone service. In addition, with a population which is over 75% illiterate, important sources of information such as written farm records are non-existent.

Thus only survey methods based on actual interviews and enumeration by the surveyor himself will provide any data at all, and methods of such data collection must be tailored to the environment of LDC's (Lesser Developed Countries). Since analysis of the data is only as good as the data collected at best, the bottom line in this project is the development of sound procedures which assure good data collection. Otherwise we are back at the guesstimate stage (because of the "garbage in-garbage out" principle).

If the problems indicated above were the only ones then sound planning and careful survey design could minimize them. Unfortunately, this is not the case. Data collection and agricultural enumeration in LDC's involve a series of problems--socio-economic, historical, definitional, measuremental--which have so far defied solution throughout the world. Crops are intercropped, multicropped, sequence cropped, planted around irregular fields, planted and not harvested, and harvested and consumed by the farmers. Livestock are frequently herded in common and numbers of animals are not even divulged within the farm family. Small animals like goats and chickens wander around scavenging for themselves.

Dr. Stallings has identified the following areas of concern in enumeration in Rwanda:

- 1) How to measure fields which are not rectangular, not planted in single crops, nor in rows, nor solidly throughout the field or which happen to be on steeply sloping land.
- 2) How to evaluate crops which are multicropped (including bananas, coffee, sweet potatoes, etc.). Should typical mixtures be identified? Should each crop be allocated an area? How can fields cultivated in common be measured?
- 3) How to enumerate livestock when herds are held in common and when livestock products are consumed on the farm and do not enter the money economy.

- 4) How to enumerate on a certain date for animals and crops which are produced throughout the year (Stallings, Trip report: 3).

Beyond the above enumeration problems, there are socio-economic factors to be considered as well. Rwanda experienced half a century of colonial government with its frequently heavy-handed rule and hence Rwandans view any government interest in them and their possessions with suspicion. Furthermore, agricultural activities in Rwanda are divided by sex. Food production is largely in the hands of the women. While interest in food production is of major concern to planners, it might not be possible to obtain information from the women (particularly if male surveyors are the only data collectors). My own experience in West Africa confirms this problem. In all probability, without women enumerators, information cannot be collected from women.

It is a fact that such problems are not unique to Rwanda; they plague data collection throughout the lesser developed world. Since this is the case, it is important to consider what is being done elsewhere. AID, FAO, the UN, other donor countries, LDC's, and the International Agriculture Research Centers (CIAT, IITA, ICRISAT and IRRI) have all had to face these issues and propose solutions. Frequently these solutions are ad-hoc and turn out to be less than adequate, but on the other hand, there is no need to re-invent the wheel. If adequate procedures have been developed in a particular country, then it might be applicable elsewhere--if communications linkages can be established so that we learn from the experience(s) of others.

The purpose of this paper is to begin to explore these linkages. Literature searches, computer data bases and personal communications have all been explored as much as possible within the time constraints of my work schedule. The establishment of these linkages is a laborious process. Everyone involved in international development and economic analysis of LDC's recognizes the problem and can give examples of the problem, but few people have answers to offer.

It would seem logical to pursue the problem of data collection not only comparatively (in the sense of seeing what is being done elsewhere), but also longitudinally (in the sense of building on what the Belgian colonial administration did). I do not have access to such material and can only recommend that they be consulted.

The Bulletin Agricole du Congo Belge has been recommended to me as a valuable source of such material and that the "Rapport de la Mission Anti-Erosive" by M. Philippe Leurquin be consulted in particular. Projects which have been implemented in Rwanda by AID, World Bank and other donor agencies should be surveyed for information and methodological insights. Obviously this can only be done in Kigali.

By the same token, recommendations must be made on a realistic level. Budgetary constraints, manpower limitations, computer systems and goals

of the government set the basic operational framework within which work can be done. People directly connected with the project can most accurately assess this aspect of the problem and can tailor recommendations to the working context.

## II. PROJECT OBJECTIVES

While the PID identifies various goals of the project--the two most specific of which I quoted earlier, I think it worthwhile to develop a conceptual framework and objectives in that framework for this paper. As I shall argue, I think that the development of the ASAU system of Rwanda should be done within the paradigm of what is presently known as farming systems research. Within that overall frame of reference, I recommend that the goals of the work be as follows:

- 1) To understand the land, climate and socio-economic environment;
- 2) To evaluate existing farming systems and to improve understanding of the farmer;
- 3) To improve problem identification (target areas, bottlenecks, etc.);
- 4) To enhance the capacity of research to design new systems and/or to improve existing ones; and,
- 5) To tie together:
  - a) Base Data Analysis
  - b) On-Farm Studies
  - c) Research Station Studies (Farm Systems Research, 1978: 21-24).

If project personnel could keep in mind these very broad objectives while working on specific aspects of the problem, then it would come together. Quantification without a purpose is meaningless and will only serve to further alienate the farmers.

Not only should those goals be kept in mind but some of the broader questions of development might also be raised with profit. So often it seems that AID personnel get trapped into the details of project implementation while university types wax eloquent on theoretical issues and ignore political and economic reality. I think that cross-fertilization would be useful for both.

## III. AGRICULTURAL DEVELOPMENT: THE BROADER THEMES

I have personally found the following four books to be very thought-provoking in their analysis of agriculture in Africa and recommend that

they be part of any AID Mission Library (if they are not already there). They are:

- 1) The Design of Rural Development: Lessons from Africa (Uma lele).
- b) Agricultural Development in Tropical Africa (John de Wilde).
- c) Farming Systems in the Tropics (Hans Ruthenburg).
- d) Small Farm Development (Richard Harwood).

Any efforts at agricultural development must have assumptions and theoretical underpinnings even when they are not explicit. But if the assumptions are not made overt there are serious potential dangers; not just of incoherency, but of irrelevance. It is striking that most African countries have been independent for approximately two decades and millions of dollars have been spent on so-called development projects by dozens of donor countries and organizations. But what is to show for these efforts? The countrysides are littered with rusting carcasses of broken down Soviet and American heavy equipment. Concrete and steel feeder lot corrals stand buried in weeds because they were never economically feasible. Farmers are seen as being obstinate obstacles to development. It reminds one of the "Wizard of Oz" if only the farmers would put on the green-colored sunglasses, then they too could see Emerald City.

Fortunately there is an awareness of the problem and people now recognize that mega projects and showpiece modern state farms are not going to solve the problem. As Jeune Afrique (the weekly French language magazine focusing on Africa) reported in a special presentation on African Agriculture:

"...one no longer speaks of the increase in agricultural production, but of intergrated rural development and of the participation of the population in the process of development...The directors (of the World Bank) with Mr. McNamara in the lead, insist that the well-being of the rural populations has become one of their principal criterion in assessing aid for agriculture" (J.S., May 79:33).

And as William Foote Whyte wrote:

"Robert McNamara, president of the World Bank, has pointed out that in many countries in the developing world, the poorest segment of the population (some 40% of the lower income levels) has not improved its income despite very satisfactory percentage increases in total GEP from year to year.

"The McNamara doctrine is now so well established that it is the official policy of AID to limit its projects for rural

and agricultural development to those which are designed to have a favorable impact on the small farmer" (Whyte, 1975:4).

The books referred to above recognize that development has to be built on the cooperation of the farmer and must take a view from the bottom up if it is to stimulate change. Since valid data can be collected only with the full cooperation of the farmers--both men and women, a major component of the Ag Census Project should be educational. Radio time, posters, meetings led by personnel who are not seen in any way as having police functions should be arranged and the viewpoint of the farmers should be taken into consideration in the implementation of the project. Uma Lele, Harwood and de Wilde deal with these issues in very thought provoking ways; Lele's and de Wilde's are classics in the field.

Ruthenberg's book is the best study of farm classification in the tropics. With it as a base, the project can fit its efforts into the international data collection base while tailoring its survey data collection methods to the Rwandese situation. Research such as my own clearly indicates the pressing need for data and research methods which are comparable and have some consistency.

#### IV. DATA BASE DEVELOPMENT - FARMING SYSTEMS RESEARCH

A survey of the literature on research methodology of agricultural systems in LDC's (the unifying objective of this paper) reveals the consensus that a broad holistic approach known as Farming Systems Research (FSR) is the most useful paradigm presently available. FSR is being actively pursued by AID, the international agricultural research centers such as Centro Agronomico Tropical de Investigacion y Ensenanza (CATIE), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), International Maize and Wheat Improvement Center (CIMMY), and the Food and Agriculture Organization (FAO).

FSR is a multidisciplinary research activity. It involves ecological, agronomic and socioeconomic analysis and includes all of the factors relevant to agricultural production and consumption. AID has funded a project, "Farming Systems R&D Methodology" (130-254) to review the literature about FSR and produce relevant publications. This project is being handled by the Office of Agriculture, Technical Assistance Bureau and Dr. Willis Shaner of Colorado State University at Fort Collins is coordinating the research and distribution of results. The International Agricultural Research Centers held a conference in May, 1978 in Nairobi. "Farming Systems Research at the International Agricultural Research Centers" is a published proceedings of the meeting.

In "Farming Systems Research," a farming system is defined as:

"...a collection of distinct functional units such as crop, livestock, processing, investment and marketing activities

which interact because of the joint use of inputs they receive from the environment which delivers their outputs to the environment and which have the common objective of satisfying the farmers' (decision makers) aims" (Ruthenberg:333).

The AID project paper on farming systems research states:

"The small farm household firm system is the farm family with its values and aspirations, its supply of human resources, its stock of other resources (land and non-land) and its variety of activities (economic farm, economic non-farm and non economic)..."

"Within the household firm as a system, there is a production system...(this is) the principal dependent variable.

"The production system is defined as that part of the household-firm combining land, capital, technology, and the human resource (labor and management) for the purpose of producing crop and animal products for home use and sale..." (AID PP "Farming Systems R&D Methodology": 5).

These extended quotes fit well within the definition supplied by the FAO for the 1980 world census. This is important since it has been decided that the project in Rwanda fits within those guidelines. The FAO asks that data be collected around the basic unit of the holding. "A holding, for agricultural census purposes, is a technoeconomic unit of agricultural production comprising all livestock kept and all land used wholly or partly for agricultural purposes and operated under the management of one person or more, without regard to title, legal form size or location" (FAO: 16).

Thus, the emphasis in present data collection is neither on crops nor livestock but rather a wholistic farming systems one. The farm unit is viewed within its environment (interacting with it and its socio-economic situation. The approach is a systems approach and requires a multidisciplinary input and analysis in order to understand the various component elements.

Each farming unit is a microcosm linked with other similar units in its milieu. Some are more successful (though for such value words we must carefully inquire the meaning in the local context), others less so. Some are better endowed in terms of natural resources, others have made farm management decisions which have brought larger harvests. The danger in the recognition of this situation is a methodological one. How can one generalize to relevant scale, and on the other hand, how detailed and microscopic must one's data be in order to accurately inform the analyst?

The work done by M. P. Collinson gives some answers. His book, Farm Management and his several articles deal with farm management in East Africa. The methodological problems of agricultural census and surveying in LDC's are vast in scope; the answers come from in-depth knowledge of the local context.

K. E. Hunt's Agricultural Statistics for Developing Countries has been on the scene for quite a while, but is still useful since it too was written by someone deeply aware of the problems with a wide experience of the attempted answers. He points out the many problems of data collection, field measurement, computation of production (when the crop could be consumed before the final stages of marketing), and timing estimation. He refers to the multicropping problem and such things as the cassava problem where a crop is planted which will only be harvested if there is need, otherwise it will be ignored and left in the ground. Other problems of costs of research, prices on non-marketed inputs and outputs are all indicated. He has several appendices giving sample frame and means of measurements.

Hunt's book is a good example of the attempt to apply standard data collection methods to the developing world. When all is said and done, those methods are too expensive, too threatening to the farmers or do not provide relevant data. It is for these reasons that scientists are looking for new and useful approaches to agricultural statistics. Obviously, an agricultural census is not possible in the Rwandan situation. What then is a research methodology which could be used to collect data?

Since there are adequate aerial maps made recently of Rwanda, they could provide a good starting point. A grid could then be created and numbered, and then randomly selected. This would provide the base for statistical analysis.

I would suggest that approximately seventy-five (75) grid units be chosen since we are talking about one hundred and forty-one (141) enumerators. I would insist that these grids be drawn up without any correlation with political boundaries (to avoid political pressure and to reassure the farmer that the data collected is not being used for police and/or tax purposes). As underscored above, farmer cooperation is essential to this kind of work. By limiting the grid units to approximately 75, then half the enumerators can be women who would focus on the feminine agricultural sector.

Within the grid, the transect methodology mentioned in the Farming Systems R&D PP (21) should be considered as a way of making the whole problem manageable. Transect sampling is a specialized sampling technique used in range management and other ecological sciences. It provides a sampling frame which permits a limited number of observations.

To begin, the researcher might lay out transect lines which diagonally cut across the random chosen grid zones (randomly, this should provide

manageable quantities of data across the main ecological zones of climate, attitude, soil and social organization).

"The transect methodology is especially relevant in an R&D process that aims to include the farm and the farmer. Since it involves a straight line that cuts across variations, it can mark the boundaries where the variable changes. With a small number of transects to provide the second dimension, it is relatively easy to locate or identify an area homogeneous for an important variable. It is also relatively easy to identify and measure non-contiguous areas having the same characteristics, a factor quite important in transferability of technology. Further, since the transect operates from straight lines, a great deal of information on the area can be produced from a relatively very small number of observations compared to other types of sampling. When the number of observations needed is significantly reduced, resources are freed to observe more variables or the same variables over a range of time. All of the above pertains to the complete range of data in which the farming system is interested, and it pertains equally to data generated autonomously on the site or to data generated by purposive experimentation" (Farming Systems: 27).

See Appendix II for a suggested list of sample topics used by ICRISAT in their farming systems research (Farming Systems Research at the International Agricultural Research Centers: annex 4). Such a list or others like it, are useful for focusing on the types of data one could collect. Since Data collection resources are limited, information collection must be selective and useful.

#### V. SUBSYSTEMS IN FSR

Within FSR and the ecological data base approach which I have recommended above, obviously agricultural productivity (both crops and livestock) are of main concern to development planners. With that in mind, the two principle production systems are considered here as subsystems of FSR. The fact that they are subsystems of farming systems must be underscored. The integrated approach is the only one which ties together the whole system as it is in reality. Harwood, for example, notes the contributions of animals to mixed systems.

#### AGRICULTURE - CROPS

In tropical areas over much of the world, farmers have developed complex cropping patterns rather than the agricultural patterns familiar to European-style agriculture of regular fields of monoculture. While these cropping systems more efficiently meet the environmental constraints of the tropics, they are an enumerator's nightmare. Crops are interplanted, tiered, broad-strewn around trees and boulders in irregular patterns in

irregular fields. Other crops are planted in mounds which have been created throughout the fields.

Furthermore, many of the crops--particularly food crops, are consumed on the farm after being stored in on-farm granaries. Thus there is no easy access point nor is it easy to generalize even if one goes to the trouble of measuring any given field or its yield.

Dana Dalrymple tried to deal with this problem in his well-known study for the USDA, Survey of Multiple Cropping in Lesser Developed Nations, but he defined away the problem by only treating regular sequences of pure stands of crops. He excluded the whole intercropping problem (though he did emphasize the point that production may take place throughout the year and include different crops throughout that cycle--a further problem for the unwary researcher).

See Appendix 3 for the International Agricultural Research Center's report definitions of the various configurations that intercropping can take. By adapting these terms, some standardized analysis of the problem could begin to take place.

Bill Morris made a very interesting point when he compared Rwandese agriculture to gardening. He noted the small size of the average farm--normally about 2 hectares farmed year around, at least in the Masalea paysannat perimeter for which there is data (Morris: 40). In another paysannat the family averaged 6.6 people (Morris: 34). See Appendix 4 for the annual calendar of farm work following Leurquin cited by Morris (114).

The reason I stress the above is because a further area of research focus is relevant here. This is the research being done by such people as John Jeavons at Ecology Action of the Mid-Peninsula, Palo Alto, California and Alan Chadwick (Mother Earth News, 62:16-22). These people are studying intensive "biodynamic" gardening. This involves deep digging, organic fertilizers, companion planting, interplanting and the like. Jeavons is looking for self sufficiency in 2,800 sq. ft. with this approach.

These people are on the track that Rwandese agricultural research should pursue. For much of Rwanda, the problem is intensifying the gardening system that is a component part of the farm system. Jeavons is a systems analyst who has been pursuing scientific investigation of improved inexpensive gardening. Such gardening systems research could play a very important part in improving Rwandese agricultural productivity without technological inputs.

Richard Harwood's book Small Farm Development is of special interest on this point as well, because of its focus on small farms. He has a chapter which discusses the farm yard as a center of production that is particularly good. He writes there: "A well developed farmyard planting essentially mimics the tropical forest ecosystem, replacing the native plant types with economically useful species" (Harwood: 102). Farming systems research which pursues this logic and the above gardening systems

research could be of real use to Rwanda. Morris suggests that such research is being done on two small farms (fermettes) near the Rubona station of the Rwandan Institute of Agricultural Research (ISAR) (Morris: 97). While such work is a beginning, it must be pursued on-farm, as argued by Richard Goldman, since valid research must include "...the farmer's decision making environment" (Goldman, 1979: 3).

Some of the reports I read had to deal with these problems in gathering data. Christopher Delgado studied farming systems in West Africa and completed a dissertation entitled Livestock vs Foodgrain Production in Southeast Upper Volta: A Resource Allocation Analysis. He approached the problem following Norman (1973) and Collinson (esp. pp. 278-283). Enumerators were issued standardized metal bowls to measure grain. They also had standardized baskets (3 sizes: small, medium, large) to measure harvested but unwinnowed crops. Some grain was obtained from farmers randomly, dried and weighed to obtain conversion factors.

The problem of field measurement was one of the most difficult Delgado faced. He tried tape measures and scale drawings, but found this to be too time consuming and settled for pacing the fields (pp. 55-60).

It is obvious that the combination of multicropping and field irregularity (both in terms of shape and internal characteristics) make this a major problem. A very useful book on many of the topics considered in this paper is the Agricultural Development Council's Field Data Collection in the Social Sciences: Experiences in Africa and the Middle East. They note that there are many problems; even such basic ones as field identification and field changes due to shifting agriculture. Furthermore, farmers are frequently reluctant to indicate how many fields they have and do not know acre or hectare size. The conclusion drawn in this report is that there are few alternatives to direct measurement.

Thus the problems of intercropping, field measurement and yield measurement are very nuts-and-bolts questions about which there is no consensus except that they are very difficult questions to deal with. Direct measurement seems to be the only sure method of data collection, though it is the most expensive approach. Because of problems of intercropping, local weights and shifting agriculture, it may not provide definitive data. Repeated contact by the enumerators might keep the Census Unit up to date on the scope of the problem so that decisions can be made as the project develops. On site information (based on pretesting) will indicate the best approaches for Rwanda.

There are other types of data which need to be collected in the agricultural subsystem as well. These include farm management, socio-economic aspects of production, types of inputs available to the farmer and types of inputs used. Furthermore, farmer goals need to be understood and government policy about food and cash crops have to be included.

In evaluating these problems, even more complex difficulties surface. As the ADC report notes, "managerial ability is an input for which no

satisfactory way of measurement has been discovered" (p. 113). Richard Harwood wrote: "Because so many small farmers operate entirely outside the commercial sector, or very nearly so, the standards commonly applied to evaluate farm management--income, return on investment, cash flow and the like--are inappropriate or misleading" (p. 27).

John Lewis has written a very interesting dissertation about village farmer agricultural production in Mali and argues therein that the production focus is the long term maintenance of the village's ability to grow food. Village kinship ties, institutions and customs bind the village together as a productive force. Thus this decision level as well as that of the farming unit must be taken into consideration in order to understand why farmers act as they do.

While rural Rwanda is not organized in villages, careful consideration of ethnograph factors must be accounted for. For example, certain fields are farmed communally and cattle and other livestock are held for certain reasons which are important to the local farmers, but which might be dismissed by the researcher. The researcher does so at great peril to his effort.

#### AGRICULTURE - LIVESTOCK

The other major subsector of the farming system is the livestock system. While there might well be the confusion found in ag sector analysis (in terms of definitions of activities, holdings and other aspects of livestock systems), there seems to be less literature available and less conceptualization. In agriculture, intercropping problems have generated a significant body of literature (but where is the comparable literature about the livestock component of mixed farming systems?).

The literature seems to address questions relevant to national issues such as meat exports, offtake rates, herd size change, etc. There is literature on ranching problems and the Fulani-type cattle herding systems but there seems to be little which is relevant to Rwanda.

Here again, it would be useful for me to visit Rwanda in order to understand the problem and it is noteworthy that Bill Morris' report does not mention animals at all except in reference to the most recent Five Year Plan which proposes increasing goat and sheep production (2.5% per year), beef production (4.4% per year) and very large increases in poultry and rabbit production (32.0% per year) (Morris: 103). Historically, cattlekeeping in Rwanda has been tied to the ruling Tutsi although because of the Revolution at Independence, that situation has been put into question. It seems to me that no meaningful understanding of animal holdings can be achieved without an ethnographic study of how animals are owned and managed in Rwanda today.

This point was emphasized at a recent conference held in Harpers Ferry; the workshop on Pastoralism and African Livestock Development where a major conclusion drawn was, "...development intervention in the livestock sector

should be a) small-scale, and b) based on existing cultural-ecological systems" (Horwitz, "Report of the Workshop," 1980: 6).

However, as Harwood notes: "...commercial sector of the animal industry is the focus of most research and development efforts" (Harwood: 93). Yet most often this aspect of the animal industry is not that of the rural farmer. Thus, just as in the ag sector of FSR, close coordination and consultation with the animal owners is needed to develop the data base and see directions for planned improvements.

I have gone through literature on livestock production in West Africa from Theodore Monod's Pastoralism in Tropical Africa to D. S. Ferguson's "A Conceptual Framework for the Evaluation of Livestock Production Development Projects and Programs in Sub-Saharan West Africa" (CRED, no date), John Staatz' "The Economics of Cattle and Meat Marketing in Ivory Coast" (CRED, 1979: 589 pages), Jeremy Swift's "West African Pastoral Production Systems" (CRED, 1979: 110 pages) and Christopher Wardle's "Promoting Cattle Fattening Amongst Peasants in Niger" (CRED, 1979: 42 pages). None of the above seemed to address questions relevant to Rwanda.

While there are ways to count cattle (in migration, at watering points, etc.), previous government programs to "destock" in Rwanda will be a major stumbling block. Furthermore, as is noted in the Workshop Report: "Existing data, about the present and past, are almost totally useless. Unless some (prior) attempt is made to consider the relative importance and incident of trend, cycle, seasonality and random variation, the knowledge that the cattle population was X thousand on 1-1-30 and 3X thousand on 6-6-60 should lead to absolutely no conclusion at all" (Horowitz: 5).

Goats and sheep, chickens and eggs present similar problems though it seems as though even less information is available. There has been some theoretical interest in small ruminants. I have a Winrock Report: "Proceedings of a Workshop on the Role of Sheep and Goats in Agricultural Development" (Winrock, 1976: 43 pages), and AID is funding Title XII research with small ruminants. It is evident that data collection about these animals will have to be done within the FSR context outlined above.

Involved in the livestock subsector of agriculture is not only the animals themselves, but also information about food for these animals and their disease problems. Frank Abercrombie has written a useful introduction to these problems in his "Range Development and Management in Africa" (1974: 59 pages). This booklet provides suggestions about data collection methodologies in these areas of interest.

These problems in livestock production abound. Animal data is not standardized and efforts elsewhere in this problem do not seem relevant to the Rwanda situation. Overall, a FSR approach is the most logical one and should be useful in Rwanda.

## VI. LITERATURE SEARCH METHODS

I have tried to cover a lot of territory in this paper; parts of it are weaker than others. I tried to follow up on the latest methods of data collection in developing countries by contacting people in AID and various people at universities around the country. I also contacted people at the Bureau of Census involved in this project. People were very helpful and provided me with fresh leads and documents.

I also used bibliographies and references to books and articles in the holdings of the Ralph Brown Draughon Library at Auburn University. While this is a fine library with over one million volumes, it is not (nor does it claim to be) particularly strong in international and especially African material.

I did one computer search on the AGRICOLA data base, but time did not permit me to use this resource adequately. I had hoped to look at ERIC and CAB as well, but was not able to get to them. A thorough search of the computer data bases is a logical next step. Dr. Willis Shaner at Colorado State has done this for FSR and should have a publication on this subject in late summer.

## VII. CONCLUSIONS - SURVEY DESIGN

There are two major types of surveys possible to collect the data needed for the agricultural census bureau of Rwanda: one-shot surveys and multiple visit (longitudinal) surveys. For reasons we have seen throughout this study, one-shot surveys are ordinarily not useful for serious data collection. If the data collection is to be done within the guidelines of FSR then multiple visits will be necessary.

As already argued, all data collection must be done with the full cooperation of the producers, both men and women. The key link in the system will be the enumerators; a point confirmed by the ADC report Field Data Collection (Kearl: 115-130), as well as from my own experience. Delgado worked by hiring five enumerators after a ten day training program with nine candidates at the Centre Voltaique de Recherche Scientifique (Delgado: 61).

The project paper reveals a concern for this aspect of the problem in the project preparation strategy, but I stress my concern with the lack of female enumerators and the potential political problems the 141 assigned enumerators may provide (especially if the surveys are done within administrative units).

Since the approach taken is the FSR one, David Norman's "Methodology and Problems of Farm Management Investigations: Experiences from Northern Nigeria" (Michigan State University: 1975) is a very useful document.

Thus, I see the following needs:

- 1) Carefully screened enumerators;
- 2) Carefully chosen non-administrative unit sample areas;
- 3) Education, contact and cooperative design of survey instruments with the farmers--both men and women;
- 4) Multidisciplinary farming systems research;
- 5) Farmer decisions included as part of the situation; and,
- 6) On-farm gardening systems research.

APPENDIX B

PERSONS CONTACTED\*

Bureau of the Census; Ms. Barbara Carlsen

Purdue University, Department of Ag Econ; Office of Bill Morris

SUNY, Binghamton; Office of Dr. Michael Horowitz

Computer Data Center, Auburn Library; Ms. Jassman

Colorado State University; Dr. Willis Shaner

AID/Washington; Mr. Quincy Benbow

AID/Washington; Dr. Douglas Boutchard

AID/Washington; Dr. Rex Rehnberg

Alabama Crop and Livestock Reporting Service

U.S. Bureau of Census, Outlying Units; Ken Norell

Delta Research Service (formerly Bureau of Census), Coral Gables, Florida;  
Richard Storm

\* For both the main paper and the O'Sullivan paper.

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Macrosystem Factors in Farming Systems Research: Some Theoretical and  
Methodological Considerations<sup>1</sup>

Brooke G. Schoepf  
Associate Professor of Anthropology  
Tuskegee Institute

This necessarily brief discussion of some of the infrastructural factors which affect farming systems research--factors which Professor Norman's model lumps as "exogenous" elements (Norman 1980: 4)--will focus on a few methodological considerations involving the relationship between microlevel studies and macrolevel analysis which have bearing on development policy and particularly on the role that agriculture plays in development. Professor Abalu in his paper, points to some methodological problems that arise due to the fact that farming systems research often "lacks clean-cut objectives" and fails to "control and limit biases" (Abalu 1980: 8). To me, this suggests the need for overarching theory to guide research methodology in what have emerged as essentially anti-theoretical disciplines. I will return to this.

Professor Abalu also notes that "farmers are often treated as resources rather than as users of resources;" they appear as labor input, as means, rather than ends. The real objective in this methodological strategy, then, is increased agricultural production, despite many fine words about integrated rural development to meet the basic human needs of poor rural cultivators. I'll return to cultivators-as-labor, too.

Two other related methodological questions concern the entry into the research field and the use of field enumerators or interviewers to collect basic quantitative data.

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<sup>1</sup>Remarks prepared for the Second Workshop on Sahelian Agriculture, Purdue University School of Agriculture, Department of Agricultural Economics, Panel on Infrastructural Factors in Farming Systems, May 22, 1980. Revised June 8, 1980. The ideas presented in this paper are the sole responsibility of the author.

Another of Professor Abalu's points raises a question of ethics. He writes: An effort is usually made to convince the farmers about the fact that the study would have no adverse effect on them. In some cases, they are assured that the results of the study would be used to improve their condition. (ibid: 7)

Can any researcher assure the people studied of either of these conditions? We worked in Shaba province and are having difficulty trying to resolve problems of the first order. We never made any claims about helping the villagers to improve their lot and few were so naive as to assume that mere knowledge about their farming systems and the impact of new maize-growing technology would lead to positive change for them. Still they were willing to work with us and to help train Zairian students. Events in Zaire were somewhat unusual, but the general situation of the cultivators is not really atypical.

In fact, cultivators everywhere often have quite sound reasons for not divulging the full scope of their activities, and neither we, nor the host country nationals with whom we work, can provide safeguards to individuals or communities. The problem of research ethics is not open to easy, rule-of-thumb solutions and can only be honestly approached in collaboration with the cultivators themselves, who must have their input into the planning process.

Turning now to the macrosystem level, we expatriate researchers often tend to engage in the same sort of blame-shifting at this level that we do at the local level with respect to those pesky peasants. We have heard many disparaging comments about African governments, their corruption and lack of management capability, and the grasping acquisitiveness of African elites. Reflection suggests that the most important methodological strategy is a comparative one. In his Tristes Tropiques (1958), Professor Claude Lévi-Strauss

reminds us that the most important benefit of field research in an "exotic" setting is the opportunity afforded the researcher who experiences profound dépaysement to return to his own society and view it with new eyes. Is it not unrealistic to expect the new nations of Africa struggling to rid themselves of the burdens of colonialism and dependency to be free of processes so well entrenched in our own societies? Would it not be more fruitful to approach the problems of development planning and implementation with fewer blind spots regarding the structure and functioning of western models?

Some lessons of comparative agricultural history are in order, as we attempt to transform the production systems of the African continent to make them more intensive and yet to assure that the benefits of agricultural development accrue to the mass of rural producers. As Professor René Dumont (1973) points out, the agricultural landscape of Europe was created by centuries of human effort. People organized into social systems extremely exploitative of human labor and existing at subsistence levels were harnessed to creating productive capital from which they were then evicted to become a massive labor reserve for Europe's industrialization. The labor of European peasants and the labor and natural resources of Africa, the Americas and Asia fueled the motor of that development. The newer social systems of the Soviet Union and China, each in different ways have also harnessed the rural population to provide capital for industrial development.

What we witness now, in many areas of Africa, is the refusal of rural cultivators to become more tightly harnessed on increasingly unfavorable terms to the global economic system. As we learn from microlevel studies in many areas, rural cultivators must now produce four times as much exchangeable surplus over

that required in 1960 to pay taxes and procure imports such as salt, clothing and agricultural implements which they formerly produced at home, but which-- as a result of colonial agricultural policy--they no longer do. The unfavorable terms of trade work against rural and agricultural development. Thus, they constitute a factor which cannot be neglected in the analysis of farming systems. Just as we have learned the need to consider risk as an important element in the success or failure of agricultural innovation, so also must we consider the labor of the entire cultivating unit and the returns which accrue thereto.

In many areas, the peasants perceive that they are being used as a source of cheap labor to feed the urban populations and furnish export crops which generate foreign exchange. They are aware that local traders and multinational firms reap profits which they do not share. Continuity with the colonial past in this respect is clear to many peasants who consider that they have been excluded from the benefits of Independence. Also continuing are many of the methods by which agricultural change is brought to the villagers. Imposed from outside by agents with little understanding of either new or existing methods, the peasants often resist measures which necessarily lead to intensification of the double alienation of their labor. This is the significance of treating the farmers as a labor resource--as a means of production--rather than as users of resources. It betrays the bias of economic models derived from our western industrial socioeconomic system but does violence to the transitional systems in which most African cultivators are enmeshed and upon which they must rely to survive.

Because these are socio-economic systems transitional between subsistence cultivation and peasant farming within complex capitalist societies, we cannot

afford to neglect social science theory, particularly mode of production theory, which has become increasingly sophisticated over the past two decades, benefiting not only from the work of economic historians and anthropologists, but political scientists and agricultural economists, as well, and which has found many applications in the study of development. Professor Reynaut's work is a case in point (cf. Reynaut 1975).

Peasants have shown themselves to be risk-averse, as many participants stress. However, it would appear that in the case of the Sahel, as in many other parts of the world (Harris 1964) they have not been risk-averse enough. In some cases, peasants have allowed themselves to be seduced by agricultural innovations which have added to their burdens rather than the reverse. In many other instances, they were unable to repel the demands made upon them to enter the world-system on unfavorable terms. Agricultural change in the Sahel thus far, has added to the effects of ecological adversity with devastating results for the peoples of the region (Copans et. al. 1975) and particularly for the herders (Franke and Chassin 1980) about whom little has been said here. There is little doubt that the traditional systems can no longer meet demands for continuing increases in production, yet we do not have the technology to transfer to small peasant holdings to improve their productivity in the present context.

As several participants have noted, there is no methodological justification for employing a model of family farm when the spread of the actual units is vast. This procedure can only mask the process of social differentiation which results from cash crop cultivation in the systems we are considering. Development agencies have declared their concern for the "poorest-of-the-poor" and these are the people forced out of small farms; the marginals, the rural and migrant proletarians. Poverty is not merely a state of material want, but a social

condition in which some are reduced to penury as a result of the same processes that allow others to prosper.

I am not proposing a return to subsistence cultivation, merely emphasizing what peasants have been telling researchers in the decades since Independence, for this is the existential context of many conflicts between village cultivators, the state and its bureaucrats, which so often emerge in refusal to cooperate in research and development efforts.

All of these questions relate microlevel research quite directly to the global political economy and the historic and continuing role of Africa's rural peoples in this world system. Within this context, development organizations have their own specific roles and goals which are not necessarily those which they publicly declare. The same is true of top level planners, international lending agencies, governments and their bureaucracies. In fact, all of these institutions and groups have their roles in the world system.

One question that has not arisen during the discussions here is the relationship of rural and agricultural development among small farmers to regional development schemes. Some of us are coming to suspect that rural development projects are almost incidental to the main theme, thrown in as a political caveat to infrastructure development or capital projects, particularly for the mining and metallurgical industries. This is certainly true in Shaba, now as it was during the colonial period, and seems to be what Meillasoux (1980) is suggesting in the Senegal River Basin. The main purpose of the dams is the development of hydroelectric power and navigation, and irrigated rice cultivation may benefit traders rather than cultivators--many of whom may actually be harmed, as was mentioned here.

Let's go back to the farm for a moment, to consider a methodological problem mentioned earlier. Many studies find that the farm-level data generated

by enumerators in the field are generally unreliable and national aggregate statistics even more so. Thus, the sophisticated statistical treatment of data and the elaborate models constructed for agricultural development planning have little basis in empirical reality. As researchers, we tend to blame the enumerators and low-level government workers who often replace the African cultivators as the object of our epithets: it is now they whom we term "shiftless, lazy and stupid." However, just as peasants have reasons for doing what they do--reasons that inhere in the dialectics of social life--so there are social structural reasons for the enumerators giving less-than-optimal performance. Similarly, there are good reasons for the bureaucrats to do what they do, whether it is inflating the production statistics they report up the line or taxing the cultivators at every opportunity above and beyond the official rates.

Because of these constraints, accurate farm, household and village-level data can only come from direct observation and recording by experienced researchers using samples selected according to the needs of the particular study and informed by knowledge of social structure and cultural patterns at the local, regional and national levels. These considerations dictate the need for transdisciplinary research, which builds in training and career incentives for lower level people in the research teams. Here as in so many other aspects of Farming Systems Research, exogenous factors penetrate quite directly to the local level, influencing on-the-ground behavior and results.

Professor Norman (1980a, b) has given us an assessment of the potential of Farming Systems Research in the design and evaluation of agricultural development experiments, and eventually in improving the agricultural potential of small farmers. He stresses that this is a long-term payoff, and that fur-

thermore, if it is to bring results we must recognize that the farmers possess certain kinds of knowledge which the professional researchers do not. Thus, the cultivators "should be involved all along in the research, testing and evaluation" (Norman, 1980b). Norman further notes that funding agencies have a short-term continuity in associative interdisciplinary research, testing and evaluation. I am not too optimistic about this, for planners and researchers as well as policy makers respond first of all, to macrosystem imperatives. In my interviews over the past five years, I discern a decided trend toward the large-farm option. The large-farm or "modern" capitalist sector holds many attractions. It promises to provide rapid solutions to the problems of increasing agricultural production; its exports can generate tax revenues and foreign exchange; its profits will accrue to politically important firms and persons; it can provide employment for young men fleeing the family who otherwise constitute a floating mass of politically dangerous under and unemployed.

In his introduction to the problems of Sahelian agriculture, Professor Morris notes that agricultural developers have discovered that when technology is applied to relax one constraint, others come to the fore. This has provided an entry point for agricultural economists into agricultural international research institutes. Despite some unabashed claims to the contrary, the weight of evaluative research shows that western-design technology adapted to meet the needs of small farmers still does not exist. Thus, anthropologists and sociologists, who study not only agricultural systems, but community patterns and the articulation of small communities with larger scale units such as nation-states and the global system, are being invited in. While welcoming this opening, I wonder what types of research anthropologists will be asked to

carry out, and who will be defining the problems to be studied.

These considerations lead back to Professor Morris' opening remarks concerning the need for humility. As we experiment with peoples' life support systems in an effort to increase production, we must work to create safeguards so that those whom we study and about whose destinies we advise are not the ones to suffer from our lack of expertise.

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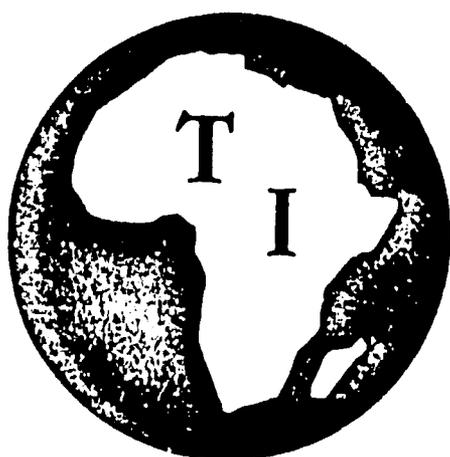
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**APPENDIX C**

**CONFERENCE: "The Role of U.S. Universities in International  
Rural and Agricultural Development"**

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# The Role of U. S. Universities in International Rural and Agricultural Development



**CONFERENCE**

**TUSKEGEE INSTITUTE**

*April 16 - 18, 1980*

Program

TUSKEGEE INSTITUTE CONFERENCE  
APRIL 16-18, 1980

THE ROLE OF U.S. UNIVERSITIES IN INTERNATIONAL RURAL  
AND AGRICULTURAL DEVELOPMENT

Sponsored by the Center for Rural Development, the  
Health Research and Demonstration Center and  
the Center for Food and Nutrition Studies

Wednesday, April 16

8:45 a.m.

TUSKEGEE INSTITUTE WELCOME -- Dr. George Cooper, Dean  
(Tuskegee Institute Chapel) School of Applied Sciences  
Tuskegee Institute

9:00 a.m.

I. KEYNOTE ADDRESS: "Making the Vision Come True"  
(Tuskegee Institute Chapel)

Dr. John L. Withers  
University of the District  
of Columbia  
Washington, D.C.

10:00 a.m.

II. DEVELOPMENT POLICY: RESOURCE ALLOCATION AND OUTCOMES  
(Tuskegee Institute Chapel)

Dr. Willard Johnson  
Mass. Institute of Technology  
Cambridge, Massachusetts

Dr. Pearl Robinson  
Center for International Studies  
Princeton University  
Princeton, New Jersey

Dr. Robert H. Bates  
Cal. Institute of Technology  
Pasadena, California

Moderators: Ms. Anita R. Goodman, School of Business,  
Mr. Cheickna Singare, Center for Rural Development  
Tuskegee Institute

1:15 p.m.

III. FARMING SYSTEMS IN SMALL FARMER AGRICULTURE  
(School of Veterinary Medicine Learning Center)

Dr. Kenneth Shapiro  
CRED  
Univ. of Michigan  
Ann Arbor, Michigan

Dr. Richard Robbins  
North Carolina A&T  
Greensboro, North Carolina

Dr. T.L. Mukenge  
Morris Brown College  
Atlanta, Georgia

Dr. Michael Horowitz  
State University of New York  
Binghamton, New York

Ms. Diana Putman  
Bryn Mawr College  
Bryn Mawr, Pennsylvania

Dr. Elon Gilbert  
University of Florida  
Gainesville, Florida

Moderator: Dr. John O'Sullivan, Center for Rural Development  
Tuskegee Institute

IV. ECOLOGY OF DISEASE, HEALTH SYSTEMS AND RURAL DEVELOPMENT  
(John A. Andrews Health Center Auditorium)

Donald Hopkins, M.D.  
Center for Communicable  
Diseases  
Atlanta, Georgia

Dr. Oscar Gish  
School of Public Health  
University of Michigan  
Ann Arbor, Michigan

Dr. Philomena Steady  
Wesleyan University  
Middletown, Connecticut

Dr. Wilma Porter  
Howard University School of  
Medicine  
Washington, D.C.

Moderators: Dean Walter T. Bowie, School of Veterinary Medicine  
Dr. Christopher Kirya, John A. Andrews Health Center  
Tuskegee Institute

3:45 p.m.

V. AGRICULTURAL RESEARCH: PROBLEMS OF TECHNOLOGY TRANSFER  
(School of Veterinary Medicine Learning Center)

Dr. Vernon Johnson  
Former Dept. Asst. Sec. of  
State for Africa

Dr. Donald Ferguson  
USDA  
Washington D.C.

Dr. Michael Joshua  
BERD  
Virginia State University  
Petersburg, Virginia

Ms. Gayla Cook  
African American Institute  
New York, New York

Ms. Grace Hennings  
Yale University  
New Haven, Connecticut

Dr. Peter B. Hammond  
World Bank  
Washington, D.C.

Moderator: Dr. Booker T. Whatley, Department of Agriculture  
Tuskegee Institute

Wednesday, April 16

VI. EDUCATION FOR DEVELOPMENT: TECHNICAL AND SOCIAL ASPECTS  
OF PARTICIPANT TRAINING

(John A. Andrew Health Center Auditorium)

Dr. Emmanuel Acquah  
Virginia State Univ.  
Petersburg, Virginia

Prof. Ida Rousseau-Mukenge  
Morehouse College  
Atlanta, Georgia

Dr. William Levine  
SECID  
Washington, D.C.

Dr. Shelby Lewis  
Atlanta University  
Atlanta, Georgia

M. Jean-Yves Gapihan  
New Haven, Connecticut

Moderators: Dr. Arthur Henry, Human Resources Development Center  
Dr. Alva Bailey, School of Education  
Tuskegee Institute

7:30 p.m.

VII. DINNER (Holiday Inn)

Address: "Challenges of the 1980's"

Mr. Walter Carrington  
African American Institute  
New York, New York

Hostess: Dr. Velma Blackwell, Vice President for Development  
Tuskegee Institute

Thursday, April 17

8:45 a.m.

VIII. SOCIAL STRUCTURE, PROJECT DEVELOPMENT AND IMPLEMENTATION  
(Tuskegee Institute Chapel)

Dr. Leith Mullings  
Hastings Center and  
Columbia University

Dr. John Lewis  
Howard University  
Washington, D.C.

Dr. Simeon Chilungu  
State University of New York  
Buffalo, New York

Dr. Chengetai Zvobgo  
University of Tennessee  
Knoxville, Tennessee

Moderator: Dr. Willie L. Baber, Assistant Director, Center for  
Rural Development, Tuskegee Institute

Thursday, April 17

11:00 a.m.

- IX. ADDRESS: "An Update on the Struggle for Southern Africa"  
(Tuskegee Institute Chapel)  
Dr. Bernard Magubane  
University of Connecticut  
Storrs, Connecticut

Moderator: Mr. Frank Toland, Head, History Department and Director,  
Black Studies Program, Tuskegee Institute

1:15 p.m.

X. ANIMAL HEALTH AND LIVESTOCK PRODUCTION SYSTEMS  
(School of Veterinary Medicine Learning Center)

Dr. Cleveland J. Allen  
FAO, Rome  
Rome, Italy

Dr. Martin E. Hugh-Jones  
Louisiana State University  
Baton Rouge, Louisiana

Mr. John Sutter  
Cornell University  
Ithaca, New York

Ms. Muneera Salem-Murdock  
State University of New York  
Binghamton, New York

Moderators: Dr. Edward T. Braye, Cooperative Extension Service  
Dr. Doris Oliviera, Director, Small Ruminant Program  
Tuskegee Institute

XI. PROJECT PLANNING AND IMPLEMENTATION WITH HOST COUNTRY  
NATIONALS (Tuskegee Institute Chapel)

Dr. Joseph Kennedy  
Africare  
Washington, D.C.

Mr. Quincy Benbow  
USAID  
Washington, D.C.

Mr. Ntungamulongo Tshibanda  
University of Pittsburgh  
Pittsburgh, Pennsylvania

Dr. Nancie Fairley  
University of Cincinnati  
Cincinnati, Ohio

Dr. Rukudza Murapa  
University of Rhodesia  
Republic of Zimbabwe

Moderators: Ms. Elizabeth Woods, Behavioral Sciences Research  
Dr. Linus C. Okere, Department of Sociology  
Tuskegee Institute

3:15 p.m.

Centennial Era Coffee Break (Dorothy Hall)

Thursday, April 17

3:45 p.m.

XII. SUMMARY OF ISSUES (Tuskegee Institute Chapel)

Dr. Brooke G. Schoepf  
Center for Rural Development  
Tuskegee Institute, Alabama

Moderator: Dean George Cooper, School of Applied Sciences,  
Tuskegee Institute

5:00 p.m.

XIII. CLOSING ADDRESS (Tuskegee Institute Chapel)

"The Global Economic Order and the Poor Villages: The Issue of  
Mediating Structures"

Dr. Elliott Skinner  
Franz Boas Professor of Anthropology  
Columbia University  
New York, N.Y.

Moderator: Dr. William L. Lester, Assistant Provost  
Tuskegee Institute

7:30 p.m.

XIV. DINNER (Holiday Inn)

Address: Dr. Marie Gadsen, Vice President and  
Director for International Programs  
Phelps-Stokes Fund  
Washington, D.C.

Host: Dr. B.D. Mayberry, Director of International Programs  
Tuskegee Institute

POST CONFERENCE SESSION

FRIDAY, APRIL 18

8:45 a.m.

XV. ROUND TABLE: WOMEN AND DEVELOPMENT IN THE 1980'S  
(Tuskegee Institute Chapel)

XVI. WORKSHOP: SMALL FARM AGRICULTURAL RESEARCH  
(School of Veterinary Medicine Learning Center)  
Coordinators: Dr. James Allen and Dr. Kingston Mendisodza  
Department of Agricultural Sciences, Tuskegee  
Institute

XVII. WORKSHOP: RURAL HEALTH CARE SYSTEMS  
(John A. Andrews Health Center Auditorium)  
Coordinators: Dr. Eugene W. Adams and Dr. Tsegaye Habtemariam  
School of Veterinary Medicine, Tuskegee Institute

11:00 a.m.

XVIII. DROUGHT, FAMINE AND DEVELOPMENT IN THE SAHEL  
(Slide-illustrated presentation)  
(John A. Andrews Health Center Auditorium)  
Dr. Richard W. Franke and Dr. Barbara H. Chassin  
Department of Sociology  
Montclair State College  
Upper Montclair, New Jersey

Moderators: Dr. Eloise Carter, Head, Department of Home Economics  
Dr. Eliezer Molokwu, School of Veterinary Medicine  
Tuskegee Institute

1:15 p.m.

XIX. Round Table: AFRICAN MODES OF PRODUCTION: PRE-COLONIAL BASE-  
LINES AND THEIR TRANSFORMATIONS (Tuskegee Institute Chapel)

4:00 p.m.

XX. Round Table: THE RELATIONSHIP OF DEVELOPMENT PROJECTS TO  
DEVELOPMENT AND UNDERDEVELOPMENT (Tuskegee Institute Chapel)

7:30 p.m.

XXI. POT-LUCK SUPPER AND DANCING (Center for Rural Development)  
Hosts: Sociology Department, Tuskegee Institute, Mr. Avery Webber,  
Head

Saturday, April 19

9:30 a.m.

XXII. Round Table: ZAIRE'S ECONOMY: HARBINGER, EPIPHENOMENON OR  
MODEL (Center for Rural Development)

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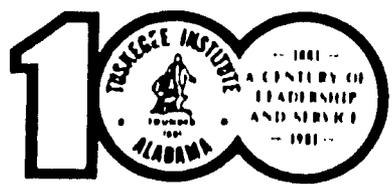
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CENTER FOR RURAL DEVELOPMENT  
Wilcox B - (205) 727-8129  
Tuskegee Institute, Alabama 36088

DEVELOPMENT POLICY AND RESEARCH ARE AT A TURNING POINT  
NEW STRATEGIES ARE REQUIRED TO MAKE DEVELOPMENT  
A REALITY AND TO REVERSE THE TIDE OF  
DEEPENING POVERTY  
WHAT THESE NEW DIRECTIONS SHOULD BE, HOW TO RESPOND TO  
THE CHALLENGES OF THE 1980'S, ARE THE  
ISSUES OF THE TUSKEGEE INSTITUTE  
CONFERENCE ON

"THE ROLE OF U.S. UNIVERSITIES IN INTERNATIONAL RURAL  
AND AGRICULTURAL DEVELOPMENT"

APRIL 16-18, 1980  
TUSKEGEE INSTITUTE  
Alabama 36088

A CENTENNIAL ERA EVENT



MAILING ADDRESSES OF CONFERENCE PARTICIPANTS

Dr. Emmanuel Acquah (804) 520-5613  
BERD  
Virginia State University  
Petersburg, VA 23803

Dr. Cleveland J. Allen and Mrs. Allen (305) 869-7955  
Animal Production Officer  
405 Fox Valley Drive  
Longwood, FL 32750

Dr. Robert Bates (213) 795-6811  
California Institute of Technology  
Division of the Humanities & Social Sciences 228-77  
Pasadena, CA 91125

Mr. Quincy Benbow (202) 632-0567  
Agricultural Development Officer  
Africa Bureau AFR/DR/AID  
Department of State  
Rm. 2941  
Washington, D.C. 20520

Dr. William Boone (404) 524-2068  
Dept. of Political Science  
Atlanta University  
Atlanta, GA 30314

Mr. Walter Carrington (212) 949-5717  
Executive Vice President  
African American Institute  
833 UN Plaza  
New York, NY 10017

Dr. Barbara Chassin (201) 893-4000  
Dept. of Sociology  
Montclair State College  
Upper Montclair, NJ 07043

Dr. Simeon Chilungu (716) 878-6730  
Dept. of Anthropology  
State University College at Buffalo  
Buffalo, NY 14222

Dr. Lewis Clark (207) 581-2723  
Director of International Programs  
University of Maine  
1 Winslow Hall  
Orono, Maine 04469

Dr. Sheila Cosminsky (609) 757-6013  
Head, Department of Sociology-Anthropology  
Rutgers University, Camden  
Camden, NJ 08120

Conference Mailing List

Dr. Johannes Delphendahl, Chairman (207) 581-2723  
Dept. of Agricultural Resource Economics  
University of Maine  
1 Winslow Hall  
Orono, Maine 04469

Ms. Carol Engle  
Dept. of Agricultural Economics  
Auburn University  
Auburn, AL

Ms. Denise Fairchild-Griffin  
Dept. of Community Medicine  
Charles R. Drew Post-graduate Medical School  
1621 East 20th Street  
Los Angeles, CA 90059

Dr. Nancie Fairley (513) 475-1185  
Dept. of Afro-American Studies  
University of Cincinnati  
Cincinnati, Ohio 45211

Dr. Arthur Felix  
Department of Animal Science  
Alabama A&M University  
Normal, AL

Dr. Donald Ferguson (703) 235-2298  
Program Leader, USDA/OICD/TA/LA  
U.S. Department of Agriculture  
Office of International Cooperation & Development  
Washington, D.C. 20520

Ms. Mary L. Foster  
Dept. of Community Medicine  
Program of International Health  
Charles R. Drew Post-graduate Medical School  
1621 East 20th Street  
Los Angeles, CA 90059

Dr. Richard Franke (201) 893-4000  
Dept. of Sociology  
Montclair State College  
Upper Montclair, NJ 07043

Dr. Marie Gadsden (202) 638-7066  
Vice President & Director, International Programs  
Phelps-Stokes Fund Suite 1100  
1029 Vermont Avenue, NW  
Washington, D.C. 20005

M. Jean-Yves Gapihan (203) 624-8883  
Rural Development Specialist  
44 Ashmun Street  
New Haven, CT 06511

Conference Mailing List

Dr. Alonzo Gaston (202) 636-6160  
Program Director  
Health & Farming Practice  
Howard University  
Washington, D.C. 20059

Dr. Elon Gilbert (904) 392-2111  
Visiting Professor  
Dept. of Food & Resource Economics  
University of Florida  
Gainesville, FL 32601

Dr. Oscar Gish (313) 763-5568  
Dept. of Health Planning & Administration  
School of Public Health  
University of Michigan  
Ann Arbor, Michigan 48109

Ms. Jonellen Goddard (916) 752-2075  
Office of Dean of International Programs  
University of California, Davis  
Davis, CA 95616

Dr. Douglass Gross (919) 737-2718  
Dept. of Crop Sciences  
North Carolina State University  
Box 5847  
Raleigh, NC 27650

Ms. Carol Gundlach  
SEASHA Inc.  
P.O. Drawer 1080  
Tuskegee Institute, AL 36088

Dr. Peter B. Hammond (202) 477-4222  
Agriculture & Rural Development Department  
The World Bank  
1818 H Street, NW  
Washington, D.C. 20433

Ms. Grace Hemmings (203) 624-8883  
Development Anthropologist  
Department of Anthropology  
Yale University  
New Haven, CT 06511

Dr. Donald Hopkins (404) 329-3530  
Asst. Director for International Health  
Center for Disease Control  
Atlanta, GA 30333

Dr. Michael Horowitz (607) 772-6244  
Professor of Anthropology  
State University of New York  
Binghamton, NY 13901

Conference Mailing List

Dr. Martin Hugh-Jones (504) 346-3347  
School of Veterinary Medicine  
Louisiana State University  
Baton Rouge, LA 70803

Ms. Njeri Jackson  
Department of Political Science  
Atlanta University  
Atlanta, GA 30314

Dr. Vernon Johnson (301) 585-8607  
1202 Burton Street  
Silver Springs, MD 20910

Dr. Willard Johnson (617) 253-2952  
Professor of Political Science  
Massachusetts Institute of Technology  
Cambridge, MA 02122

Dr. Shelby Lewis (404) 524-2068  
Department of Political Science  
Atlanta University  
Atlanta, GA 30314

Dr. Bernard Magubane (203) 486-4512  
Department of Anthropology  
University of Connecticut  
Storrs, CT 06268

Dr. P. Howard Massey, Jr.  
Associate Dean and Director, International Agriculture  
College of Agricultural and Life Sciences  
Virginia Polytechnic Institute and State University  
Blacksburg, VA 24061

Mr. Donald R. Mitchell (202) 632-3877  
Senior Agricultural Officer  
Office of Personnel Management  
Rm. 200/SA2 AID  
Washington, D.C. 20520

Dr. T.L. Mukenge, Chairman (404) 577-8038  
Dept. of Social Relations  
Morris Brown College  
Atlanta, GA 30314

Dr. Leith Mullings (914) 678-0500  
The Hastings Center  
360 Broadway  
Hastings-on-Hudson  
New York, NY 10706

Dr. Charles Panton (919) 379-7965  
Department of Plant Sciences  
North Carolina A&T State University  
Greensboro, NC 27411

Conference Mailing List

Mr. Earl Picard (404) 524-2068  
Department of Political Science  
Atlanta University  
Atlanta, GA 30314

Dr. Wilma Jean Porter (202) 636-6160  
Dept. of Community Health & Family Practice  
Howard University School of Medicine  
515 1/2 W Street, NW  
Washington, D.C. 20059

Ms. Diana Putman (215) 525-4841  
614 Lancaster Avenue  
Bryn Mawr, PA 19010

Dr. Rex Rehnberg (703) 235-8946  
Economics & Sector Planning Division  
Office of Agriculture  
Technical Assistance Bureau AID  
Department of State  
Washington, D.C. 20523

Dr. Pearl Robinson (609) 452-3000  
Center for International Studies  
Corwin Hall  
Princeton University  
Princeton, NJ 08544

Ms. Muneera Salem-Murdock (607) 772-6244  
Dept. of Anthropology  
State University of New York  
Binghamton, NY 13901

Dr. Kenneth Shapiro (313) 764-9490  
Center for Research in Economic Development  
University of Michigan  
Ann Arbor, Michigan 48109

Dr. Elliott Skinner (212) 280-4555  
Franz Boas Professor of Anthropology  
Columbia University  
116th Street & Broadway  
New York, NY 10027

Dr. William Spencer  
School of Education  
Auburn University  
Auburn, AL

Dr. James L. Stallings  
Dept. of Agricultural Economics  
Auburn University  
Auburn, AL

Mr. William Sugrue  
LAT/DR/RD  
USAID  
Washington, D.C. 20520

Conference Mailing List

Dr. Gregory Sullivan  
Dept. of Agricultural Economics  
Auburn University  
Auburn, AL

Mr. John Sutter  
2537 Benvenue, 301  
Berkeley, CA 94704

(413) 843-9276

Mr. Ntungamulongo Tshibanda  
Graduate School of Public & International Affairs  
University of Pittsburgh  
Forbes Triangle - 230 Bouquet Street  
Pittsburgh, PA 15260

(412) 624-4762

Ms. Stella Williams  
Dept. of Fisheries  
Auburn University  
Auburn, AL

Dr. Thomas T. Williams, Director  
International Economic Development Program  
Southern University  
P.O. Box 9846  
Baton Rouge, LA 70813

Dr. John Withers, Director  
International Affairs  
Office of Institutional Advancement  
University of the District of Columbia  
4200 Connecticut Avenue, NW  
Washington, D.C. 20008

(202) 282-7568

Dr. Chengetai Zvobgo  
Department of African-American Studies  
University of Tennessee  
802 Volunteer Blvd.  
Knoxville, TN 37916

(615) 974-5052

Tuskegee Institute Participants

Dr. Eugene Adams Asst. Dean, School of Veterinary Medicine	(205) 727-8465
Dr. James Allen Department of Agricultural Sciences	(205) 727-8454
Dr. Alva Bailey School of Education	(205) 727-8134
Dr. Velma Blackwell Vice-President for Development	(205) 727-8335
Dr. Walter C. Bowie Dean, School of Veterinary Medicine	(205) 727-8465
Dr. Edward T. Braye Cooperative Extension Services	(205) 727-8814
Ms. Hortense Calhoun Behavioral Sciences Research	(205) 727-8575
Dr. Eloise Carter Head, Department of Home Economics	(205) 727-8331
Ms. Elizabeth Chibuzo John A. Andrews Health Center	(205) 727-8145
Dr. George Cooper Dean, School of Applied Sciences	(205) 727-8157
Mrs. George Cooper	
Ms. Winifred Davis Behavioral Sciences Research	(205) 727-8575
Dr. George Dowdy Chairman, Division of Social Sciences	(205) 727-8541
Ms. Abenaa Gharthey-Tagoe Behavioral Sciences Research	(205) 727-8575
Ms. Anita Goodman School of Business	(205) 727-8710
Dr. Tsogaye Habtemariam School of Veterinary Medicine	(205) 727-8461
Dr. Richard Hawk Human Resources Development Center	(205) 727-8773
Mr. Warren Henderson John A. Andrews Health Center	

Conference Mailing List

Dr. Arthur Henry (205) 727-8764  
Acting Director  
Human Resources Development Center

Ms. Elaine Hume (205) 727-8694  
John A. Andrews Health Center

Chaplain Andrew L. Johnson (205) 727-8322  
Tuskegee Institute Chapel

Ms. Rhoda Johnson (205) 727-8415  
Department of Sociology

Dr. Christopher Kirya  
John A. Andrews Health Center

Dr. William L. Lester (205) 727-8425  
Assistant Provost

Ms. Gladys Lyles (205) 727-8202  
Department of Sociology

Dr. Kingston Mandisodza (205) 727-8447  
Department of Agriculture

Dr. B.D. Mayberry (205) 727-8701  
Director of International Programs

Dr. Solona McDonald (205) 727-8331  
Department of Home Economics

Dr. Eliezer Molokwu (205) 727-8472  
School of Veterinary Medicine

Dr. Linus Okere (205) 727-8413  
Department of Sociology

Dr. Doris Oliviera (205) 727-8161  
Director, Small Ruminant Program

Dr. A.M. Rao (205) 727-8575  
Behavioral Sciences Research

Mr. Thomas W. Simmons (205) 727-8862  
Acting Director, 122-d Project  
John A. Andrews Health Center

Mrs. Thomas W. Simmons

Ms. Donna Smith (205) 727-8575  
Behavioral Sciences Research

Mr. Frank Toland (205) 727-8543  
Head, History Department

Dr. Paul Wall (205) 727-8575  
Director, Behavioral Sciences Research

Conference Mailing List

Mr. Avery Webber  
Head, Sociology Department

(205) 727-8412

Mrs. Avery Webber

Dr. Booker T. Whatley  
Department of Agriculture

(205) 727-8435

Ms. Elizabeth Wood  
Behavioral Sciences Research

(205) 727-8575

**INTRODUCTION:**

The Tuskegee Institute Conference on "The Role of U.S. Universities in International Rural and Agricultural Development" took place April 16-19. Concentrating its focus on Africa, the theme brought attention to bear on the evolving role of U.S. Universities and particularly of the 1890 land grant institutions, in technical cooperation for development. Scholars, planners, diplomats and students in the field came to exchange views and debate issues they considered crucial to the 1980's.

The Conference themes and format were developed by a committee of persons drawn from several areas of Tuskegee Institute, including the School of Applied Sciences, the College of Arts and Sciences, the School of Veterinary Medicine, John A. Andrews Health Center and the Human Resources Development Center. The committee suggested topics, panelists and speakers to invite. Many members of this committee then served as moderators for the panel sessions.

Funding for the conference was provided by three strengthening grants awarded to Tuskegee Institute by USAID. These are the 211-d grant, Comprehensive Planning for Rural Development (\$10,000); the 122-d grant, Integrated Rural Development and Health (\$10,000), and the Title XII grant in Food and Nutrition (\$2,500). Staff members of several units within Tuskegee Institute, including the Behavioral Sciences Research unit, contributed their time and expertise to organizing the conference. Students from the Departments of Sociology and Agriculture were involved in supporting activities. The major responsibility was borne by the 122-d project staff and Dr. Brooke Schoepf, served as the convenor.

One hundred and eleven participants registered for the conference, while numerous students and faculty members from Tuskegee Institute, Atlanta University and Auburn University attended without registering. The interdisciplinary nature of the conference was reflected in both the list of speakers and in the approaches adopted in their contributions, as well as in the discussions and workshops. Disciplines represented include:

- Adult and vocational education
- Agricultural Economics
- Agricultural Extension
- Agricultural Sciences
- Anthropology
- Business Engineering
- History
- Livestock Production
- Medicine and Health Care
- Medical Economics

## Conference Summary

- Nutrition Sciences
- Planning and Policy Sciences
- Political Science
- Social Psychology
- Sociology
- Veterinary Medicine

In addition to university-based development specialists, there were representatives from the U.S. Agency for International Development, the U.S. Department of Agriculture, the U.S. Department of Health and Human Sciences, the United Nations Food and Agriculture Organization, the World Bank, the Phelps-Stokes Fund and the African-American Institute.

### ISSUES ADDRESSED:

Designated a centennial event by Tuskegee Institute's President, Dr. Luther H. Foster, many of the participants contributed reflections upon the unique experiences of the historically Black universities and to their potential for a special--and especially valuable--contribution to the field of international development. The role of Afro-American and Afrocentric researchers, public administrators and diplomats was discussed in relation to the goal of reaching out to Africa's poor and predominantly rural populations in collaborative efforts to improve their lives and ensure their health and well-being. The principal question addressed in all of the panel and workshop sessions was:

- What must be done to plan and implement development policy capable of effectively reversing the tide of deepening poverty and human suffering now threatening to engulf many nations of Africa and lesser developed nations, generally?

Related to this theme, several participants attempted to define an Afrocentric perspective on development and to assess the potential of Pan-Africanism as a mobilizing strategy for positive change. Specific program areas addressed by the panel on Development Policy were considered in the sessions that followed:

Specific program areas addressed were:

- Types of resource allocation in relation to various development strategies and their respective outcomes as far as development programs are concerned; the history of development policies in the colonial and post-independence periods in several areas of Africa, as they relate to the poor.

## Conference Summary

- Methodologies for gathering baseline data about agricultural and social systems and their importance in adapting technological innovations selected for application in programs of planned change; the assumptions involved in the attempt to transfer technologies of developed countries to developing nations; past errors and ways to avoid them and particularly the tasks of research organizations within African nations, and of collaborating U.S. institutions and researchers.
- The role of health and nutrition health services delivery and their relationship in terms of ecology, illness and rural development; the interrelationships between human and animal health and livestock production systems relevant to rural development were considered in four sessions.
- The changing roles of women in African societies and the implications of various change strategies with respect to their impact upon the status of women and the welfare of children. Women and development issues were considered in each of the panels and also signalled out for special consideration in one workshop devoted solely to this topic.
- The cross-cutting cleavages of class and ethnicity were considered in relation to development programs and resource allocation, with attention to the impact of development projects upon social structure and conversely, the role of social structure in the choice of development strategies.
- The already existing strategies for local self-help that might be further strengthened to mobilize broadly based efforts for social change and barriers to such mobilization.
- What kinds of practical technical assistance can be offered that help the poorest-of-the-poor control their own destinies and ensure that development works for them?
- Types of education for development that have been attempted at various levels and assessment of their efficacy and shortcomings in an effort to arriving at collaborative, participatory models.

### CONCLUSIONS:

In the concluding session three groups of participants met together to arrive at recommendations for policy, planning and research. The results of these deliberations may be summarized as follows:

## Conference Summary

1. The need for further research in all areas, in order to provide baseline data on extant agricultural and agropastoral systems at the local level, on political and administrative systems and policies at local and national levels and on aspects of international relations which affect development policy. System blackages need to be more fully identified.

2. The need to design and implement agricultural and technological research appropriate to the solution of the problems involved in increasing the productivity of small farmers and in providing non-farm rural populations with income-earning opportunities so that both groups can benefit from development. Existing technology continues to benefit mainly large scale highly capitalized agricultural enterprises and the larger farmers.

3. The need to design educational systems that promote rural development and encourage people at all levels to use theory to integrate experience and experimentation. Formal education systems need to be made more flexible and adapted to local needs; non-formal education needs to be extended; opportunities for continuous upgrading of skills, literacy creative problem-solving should be built into development programs.

4. High priority must be given to programs which improve the nutrition and health of the poor viewed as the basic infrastructure of development. Conditions which undermine the health status of high-risk groups should be singled out for special attention within the context of community and family health. The adverse consequences of many cash cropping strategies on health and development must be considered.

5. Many studies show that program effectiveness depends upon the involvement of the people toward whom the programs are directed. This requires early consultation and continuing collaboration during all phases of research, design, implementation and evaluation. All groups stressed the need for university contributions in this crucial area.

6. Other preconditions for effective programs include:

- A. Demonstrated commitment on the part of the host country government in promoting rural development, in removing obstacles and in rewarding individuals and communities for their efforts.
- B. Integration of Administrative structures sufficient to enable agencies to implement their assigned responsibilities.
- C. Accountability at all levels of planning and implementation, not only to hierarchical superiors but particularly to designated beneficiaries of development

projects.

7. In addition to the role of U.S. universities as a source of research and training expertise, the crucial function of universities in stimulating the development of critical perspectives was stressed by many participants. While critical research is not always congenial to development agencies, it must nevertheless be included in funding allocations as a condition of progress in the field.

8. The historically Black universities, with their experience in efforts to effect the economic, social and political advancement of poor and disadvantaged communities, and with their traditional links to the struggle for African independence are a resource that is not fully mobilized in international development work. Funding for Afro-American scholars and institutions should be increased so that their particular sensitivities can be drawn into the effort to create models of technical cooperation which link Africans and Americans in research, planning and implementation collaboration.

9. Several speakers called attention to the comparatively low level of funding for development work in African south of the Sahara. This situation presents an obstacle to the implementation of general development goals in the region and should be remedied.

To: Dr. Howze, Glen, 211-D Project Director  
Dean Cooper, George, School of Applied Sciences  
Dr. Baber, Willie, 211-D Assistant Project Director  
Dr. O'Sullivan, John, 211-D Project  
Dr. Schoepf, Brooke, 211-D Project  
Mrs. Baber, Ceola, 211-D Project Coordinator

From: Cheickna M. Singare, 211-D Language Coordinator

1980 Summer French Training Program (June-July) 1980

The 211-D Project organized an intensive French training program in the 1980 summer. The program lasted eight (8) weeks, from June to July. Its main purpose was to increase Tuskegee Institute's capacity to assist in International Rural and Agricultural development programs which require French-speaking participants, since most of the projects concern French-speaking African nations in the Sahel area. The program was located at Wilcox B.

The following sections will compose this report:

- the teacher training workshop
- the language training program
- the pretest and posttest interviews
- the recommendations for future programs

### 1. The Teacher Training Workshop

We projected that many people would be interested in the French program. We also anticipated that a significant diversity in the levels would lead to the opening of at least, one advanced class, one intermediate class and one beginning class, all functioning simultaneously every day, Monday through Friday. So we felt that two more instructors would be needed. Andrew Tanjong and Mamadou Keita both students respectively from Cameroon and Mali, on workstudy with the project were selected.

But since they were not familiar with the FSI teaching method, though they both had a teaching experience in their respective countries, we took two weeks in May (second half) to familiarize them with the drill-method, before the program itself started in June.

### 2. The Language Training Program

So three classes were meeting simultaneously every day, Monday through Friday:

- advanced class: 9:30-11:30 a.m.
- intermediate class: 12:00-2:00 p.m.
- beginning class: 2:00-4:00

The advanced class focused mostly on discussing topics covering any area that interested the trainees. The materials consisted of articles from Jeune Afrique mostly, some from US News and World Report, some texts were also excerpted from either L'Echelle, by Politzer, Hagiwara and Carduner, or Le Moulin a Paroles, by Benamou and Carduner. Though the discussions dealt with international problems, most of them were related to Africa.

As for the grammar and drill portion, we used the French Basic Course (vol.2), by the Foreign Service Institute (FSI) of the Department of State, along with Le Francais Essentiel Pour l'Afrique Francophone, by Peace Corps.

The intermediate class used French Basic Course, L'Echelle, Le Francais Essentiel Pour l'Afrique Francophone, and Continuons a Parler: A Workbook, by Hagiwara and Politzer. It is worth noting that the intermediate and the advanced classes used basically the same grammar and drill books.

In fact the advanced trainees are supposed to have a good **command** of the language to conduct conversations on sophisticated topics. As for the intermediate people, they need more drill practice and more grammar than the advanced trainees.

The beginners, on the other hand, used only Le Francais Essentiel Pour l'Afrique Francophone, which was designed for them: drills, most of the time, a few very short texts at the end of each lesson.

A list of the participants in each class will be given in the next section, along with the test scores and proficiency levels.

#### The Pretest and Posttest Interviews

The participants were assigned to either the beginning class or the intermediate or the advanced level, in accordance with their respective pretest scores. The pretest examination is simply an interview conducted in French. And according to his or her (a) pronunciation, (b) grammatical accuracy, (c) vocabulary, (d) fluency, and (e) listening comprehension the interviewee is given a score. However, the language proficiency interview is unlike most tests in that it does not yield a numerical score based on the number of questions answered correctly. Rather, the results of the interview are reported on the basis of discrete categories of overall oral performance; characteristics of these are as follows:

- Category 1: Able to satisfy routine travel needs and minimum courtesy requirements.
- Category 2: Able to satisfy routine social demands and limited work requirements.
- Category 3: Able to speak the language with sufficient structural accuracy and vocabulary to participate in most formal and informal conversations on the practical, social, and professional topics.
- Category 4: Able to use the language fluently and accurately on all levels normally pertinent to professional needs.
- Category 5: Speaking proficiency equivalent to that of an educated native speaker.

On the other hand, the scores range from 16 points to 99 points. The following is the correspondence between the scores, the levels and the categories:

<u>Scores</u>	<u>Levels</u>	<u>Categories</u>
16-25	0+	1
26-32	1	2
33-42	1+	
43-52	2	3
53-62	2+	
63-72	3	4
73-82	3+	
83-92	4	5
93-99	4+	

The same way a pretest interview was administered to assign the participants to the classes, a posttest examination evaluated the language acquisition of the trainees. It is worth mentioning that some participants were pretested but not posttested, since they joined the program after the beginning of the class sessions. Some were not interviewed at all, while a 4th group was pretested and posttested as well.

The following is a list of the participants with their classes, test scores, levels, categories and instructors:

APPENDIX D

<u>Participants</u>	<u>Class</u>	<u>Pretest</u>			<u>Posttest</u>			<u>Instructors</u>
		Score	Category	Level	Score	Category	Level	
Tina Brown	beginner	not tested			not tested			Mamadou Keita and Andrew Tanjong
Janie Carlyle	"	40	2	1+	42	2	1+	
Robin McIntyre	"	not tested			not tested			
Waswa Semafuko	"	not tested			30	2	1	
Ronald Field	intermediate	42	2	1+	38	2	1+	Cheickna Singare
Jackie Ford	"	not tested			53	3	2+	
Richard Hawk	"	34	2	1+	not tested			
Laurie Walker	"	44	3	2	51	3	2	
Ceola Baber	advanced	not tested			61	3	2+	Cheickna Singare
Willie Baber	"	not tested			54	3	2+	
Christina Barnes	"	60	3	2+	54	3	2+	
Judy Harmon	"	66	4	3	72	4	3	
Art Koons	"	76	4	3+	82	4	3+	
Charles Morgan	"	not tested			not tested			
Doris Oliveira	"	30	2	1	44	3	2	
Rita O'Sullivan	"	not tested			not tested			

As it appears on the table, most of the people stayed at the same level, but they scored higher on the posttest than on the pretest interview; only 2 trainees scored higher on the pretest than on the posttest.

Though the training program went fairly well, a few recommendations need to be made for future language training programs.

### Recommendations

1. Any language testing being subjective, it would be better for future programs to have a qualified outsider to conduct the testing. A Certified Tester from FSI would probably be ideal. This, of course does not mean that the language coordinator is not qualified for it; it simply means that an outsider who does not know the trainees and comes to the training site only for the purpose of testing would be less biased.

2. One may, on the other hand, conclude that many people at the Institute seem to be interested in learning French and in getting involved in international programs. The overall number of participants in this program is eloquent enough in that sense. Therefore, for the Center for Rural Development to meet the demands, it would be logical to organize a training program, not for the trainees, but rather for the trainers. Considering the language coordinator's experience with the FSI method, he would have a workshop with francophone students on campus in order to familiarize them with this teaching method. He would at the same time develop some more materials tailored to the needs of the participants at Tuskegee Institute.

3. As far as the training site is concerned, it might be suitable to fix the area upstairs in Wilcox B to accommodate one or two more classrooms.

4. The selection of the participants: it would certainly be better if the Center for Rural Development could decide on who should be included in the program. As a matter of fact, that would avoid having the language coordinator omit or forget to mention the language program to some people involved in international projects.

5. It would also be more logical to have people in other projects write to the 211-d Project Director asking to take advantage of the resources available through his grant. For organizational and administrative reasons, this would make things much easier for everybody.

APPENDIX E

USAID Africa Bureau Personnel Contacted

Mr. Warren Wolf, Division Chief  
IDCA/Southern Africa Project

Mr. John Koehring  
IDCA/Africa/DR

Mr. Glenn Slocum, Division Chief  
IDCA/Sahel & Francophone Africa

Mr. Quincy Benbow  
IDCA/Africa/DR

Mr. Larry Heilman  
IDCA

Mr. Larry Bond  
IDCA/Central and  
Anglophone West Africa

Mr. Sheldon Cole, Division Chief  
IDCA/East African Project

Ms. Golder Butcher, Assistant  
Administrator, IDCA/Africa  
Bureau

Mr. Henry Smith  
IDCA/Africa Bureau

Mr. Henry North  
Deputy Assistant Administrator  
for Africa

Dr. Glenn Howze, Professor of Sociology, Tuskegee Institute, visited USAID/Ouagadougou March 12-19, 1980 as a consultant with the Rural Development and Fertility Project. This project is a SECID activity funded through Research Triangle Institute by USAID/Washington.

The project was designed to examine the impact of various types of rural development projects on fertility in LDC's. What effects do projects manifestly designed to improve agricultural production, health delivery systems, levels of nutrition, systems of transportation and communication, etc. have on fertility variables - family size, birth control practices, etc. This is an important question because in almost every developing country, excessive population growth is canceling out advances made in economic development. If various development activities have, as a latent function, beneficial consequences for population growth, then supporting data should be included in any cost/benefit analysis of the specific development activity.

The initial phase of the SECID project was concerned with the production of seven "state-of-the-art" papers on the subject.<sup>1</sup> SECID assembled a group of scholars from member universities to conduct a comprehensive and exhaustive review of the current status of knowledge on the subject. The seven papers each represented a sub-topic: the role of women, education, migration, the cost and value of children, the function of land, income and health and nutrition. Each paper contained an annotated bibliography, a summary of the relevant findings on the subject and a set of researchable hypotheses. All pointed to the conclusion that a wide range of development activities impact in various and important ways on fertility and fertility control.

The second phase of the SECID project is concerned with conducting case studies of selected AID development projects in various LDC's. The case studies are designed to document the impact of specific AID projects on fertility and related variables. Using survey techniques, the case studies can provide baseline data prior to the implementation of a project and then monitor changes as they occur. After the completion of a project, the case study can provide a statement of impact.

Dr. Howze's visit to AID/Ouagadougou was to assist in the design of one such case study. SECID is currently the contractor for the Agricultural Human Resources Development Project in Upper Volta. The five year AgHRD contract requires a social impact study. Dr. S.K. Reddy, the SECID Project Team Leader in Ouagadougou, is in the process of designing a study to assess project impact. Dr. Howze assisted in the development of a fertility component to the study which will both address the requirements of the AgHRD project and provide a case study for the Rural Development and Fertility Project.

## The Agricultural Human Resources Development Project

The goal of AgHRD is to improve agricultural education in Upper Volta by expanding and improving physical facilities and by upgrading the quality of training for both agricultural technicians and extension agents. The thrust of the project is to move the focus of the training away from its traditionally classroom and theoretical orientation to more practical, field-oriented, problem solving experiences in agriculture. The project inputs are funds for buildings, books and journals, equipment, etc., technical assistance in the form of teachers to replace Voltaic participants being trained in the U.S. and assistance with curriculum development. The stated outputs are increased numbers of better trained agricultural scientists and extension workers being produced in Upper Volta over the coming years.

Since the project output - trained agricultural personnel - will be dispersed nationally it is extremely difficult, if not impossible, to assess the project's overall social impact, or more specifically, its impact on fertility. Its impact is intertwined with all other development projects and awaits an analysis of the total impact of development activities in Upper Volta on fertility.

### The School Farm at Gampela

While the overall AgHRD project does not lend itself to social impact studies, especially those dealing with fertility, individual components and activities do. There are aspects of the AgHRD project on fertility over the five-year life of the project.

The AgHRD project is constructing a central school farm/research station at the village of Gampela in the region of Ouagadougou and three field stations specializing in various agricultural activities and located in the diverse regions of the country. These stations/farms are being designed to be used for both instruction and research, as well as to serve production units. Both students being trained as scientists and extension agents will utilize the facilities. Each station will be located in or near a village and the facility is expected to impact significantly on the village. The very presence of the facility will represent development - buildings, roads, trained personnel, etc. Also, the students, as part of their practical education, will be asked to extend what they have learned in the classroom to the village farmers. In a sense, each village will be a laboratory in which the villages should be coming in contact with appropriate agricultural technologies from the agricultural college. Under ideal circumstances, each village should become a model village, employing the practical knowledge from the university and experiencing economic development.

Therefore, these villages should be ideal targets for case studies of the impact of a development project on fertility. Each will move rather quickly from a situation of little or no development activity to one where the GOUV, through the AgHRD

project, is devoting a great deal of attention.

### Proposed Research Program

In counsel with Dr. Sanath K. Reddy, SECID Team Leader in Ouagadougou, it was determined that the best strategy to follow would be to concentrate the initial phase of the research on the village of Gampela because the infrastructure for the school farm/research station has already been (or soon will be) established and classes would commence there at the beginning of next term. The village of Gampela would soon feel the impact of the intervention. On the other hand, the other sites are yet to be developed. As they are, perhaps it will be possible to collect data at these sites. Given the importance of the training school at Matourkou, Dr. Reddy anticipates that he will be able to collect data at one or two villages which are used for the training practicum.

Gampela is a village of approximately 1000 people grouped into 75-100 households. It is about 30 kilometers from Ouagadougou and well off of the highway. The village is totally agricultural and appears to be largely concerned with grain production for auto-consumption. There appears to be much land in the area of the village which is not currently being exploited. It appears that the village has not been significantly touched by development efforts.

The school's farm/research station is now in place. It consists of research labs and other facilities necessary for research and trials dealing with both crops and animals. A demonstration garden for teaching purposes has been established. Approximately four hectares of land will soon be cleared for grain production. Three wells have been dug. Small demonstration herds of cattle and small ruminants will be established. Flocks of both layers and broilers will be maintained. For purposes of transportation, a new all-weather road from the highway to the village is being built. These are all new facilities and the teaching and research programs will be all new.

Therefore, it should be fairly easy to measure the impact of the facility on the village. It is proposed that the survey be quite general in nature and include components on agricultural practices, health, education, nutrition, etc., as well as a component on fertility. It is proposed that the villagers be surveyed prior to the commencement of the new term.

Dr. Reddy concurs with the judgement that village women, as well as the male heads of households, should be interviewed. Thus, what is envisioned is two surveys, one of male heads of households and the other of adult females in each household.

In consultation with Dr. Boone Turchi, Dr. Edward Vickery and Ms. Elsa Liner at the SECID/Chapel Hill and Dr. Sanath K. Reddy in Ouagadougou, Dr. Howze developed the fertility components for the survey. For purposes of comparison, an attempt was made to include major segments of the questionnaire of the World Fertility Survey. However, additional units were added. Of special concern was to include a set of questions concerning the role of women in agriculture. This subject is of importance since at the present time in Upper Volta, women play an extremely important role in agriculture and development activities could have a major effect on them. Copies of the Fertility components are found in Appendices A and B. Mr. Cheickna Singare, who is a professor of English in Bamako, Mali, worked with me on the translation of the World Fertility Survey questions into French and also provided counsel concerning the appropriateness of the questions to the village situation in West Africa. (Note: Mr. Singare is currently studying at Tuskegee Institute. In the past, he has worked with Tuskegee survey teams in West Africa.)

The proposed fertility component to the Head of Household Questionnaire is found in Appendix A. It contains:

1. A section from the WFS which is designed to obtain basic demographic information on every member of the household.
2. A section designed to obtain information concerning crops produced. A major subsection is concerned with the roles of various family members in the production and commercialization of crops.
3. A section dealing with livestock production with a subsection on the roles of various family members in the production and commercialization of animals.
4. A section designed to provide information concerning the division of labor in the household.

These questions will be integrated into the overall survey instrument that Dr. Reddy is preparing for Heads of Households.

The proposed Fertility component to the Women's Questionnaire is found in Appendix B. It contains:

1. A set of background questions concerning age, age at marriage, education, ethnicity, etc.
2. A set of questions from the WFS designed to provide a birth history for the woman.
3. A set of questions from the WFS concerning knowledge and use of birth control techniques. A column was also added to determine the source of information about the particular birth control techniques.
4. Some attitudinal questions concerning family size.
5. The same division of labor questions found in the Head of Household questionnaire (Items 2, 3, and 4 above). These are asked of the women for purposes of comparison.

It is currently proposed that the questionnaires be pre-tested during the month of April. Dr. Howze will stop by Ouagadougou in May and help Dr. Reddy evaluate the questionnaire on the basis of the pre-test. Dr. Howze will share the results with SECID/Chapel Hill.

Once the final questionnaires are finished, they will be administered in the village of Gampela. This would probably occur during this summer. At some future point, after the AgHRD project is better established, a survey would be conducted at one or two villages near the Matourkou training site. After appropriate data analysis, this would complete the pre-intervention stage of the study. The survey would produce baseline data to serve as a reference for future study.

Ideally, during the last year of the AgHRD project, the village of Gampela and those near Matourkou would be surveyed again. Comparisons with baseline data would point to any changes in fertility patterns. Of course, one would not expect dramatic changes in actual fertility rates in such a short period. However, one might expect both a shift in attitudes about number of children and increased knowledge and acceptance of birth control techniques. One would expect an age differential with respect to these changes with younger women being more receptive to fertility control.

The AgHRD project in Upper Volta provides an excellent opportunity for a case study for the Rural Development and Fertility project. The data collected can be utilized by the AgHRD project as well as the Fertility project.

### Field Trips

Two field trips were made during Dr. Howze's visit to Upper Volta. The first was to the school farm at Gampela. A tour was made of all of the facilities. The trip was in conjunction with an inspection site visit by USAID/Ouagadougou personnel.

The second field trip was to Dori, the site of one of the sub-stations for research/instruction. A research farm for animal production will be established there. The visit was in conjunction with an agricultural fair being held in Dori. The visit provided an opportunity to visit one of the dryer regions in the country.

## Persons Contacted

Dr. Howze met a number of persons connected with SECID/Ouagadougou, Institut Supérieur Polytechnique, AID/Ouagadougou and other contractors. The following persons provided particularly useful information and help:

1. Dr. Sanath K. Reddy, Team Leader, SECID/Ouagadougou
2. Dr. Suchet Louis, SECID/Ouagadougou
3. Dr. Kam Singh, Team Leader, Purdue/SAFGRAD
4. Mr. Richard Meyer, Mission Director, AID/Ouagadougou
5. Mr. Howard Thomas, AID/Ouagadougou
6. Mr. John Hope, AID/Ouagadougou

## Notes

<sup>1</sup> A summary of the seven states-of-the-art papers is contained in Rural Development Programs and Their Impact on Fertility: States of the Art: Summary Report.

<sup>2</sup> World Fertility Survey: Basic Documentation (Case Questionnaire), 1975.

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Books and Journals

<u>Title</u>	<u>Author</u>
Africa Astir	University of Indiana
Aid As Obstacle	Institute for Food & Development Policy
Agricultural Statistics: A Handbook for Developing Countries	Pergamon Press, Inc.
Alternate Developing Strategies and Appropriate Technology	Pergamon Press, Inc.
The Ancient Africans	University of Indiana
Annual Festival of the Dead	University of Indiana
Aristocrats Facing Change	Azarya
Barred From School	Thomas J. Cottle
Black Child Care	J. Comer M.D. and A. Poussaint M.D.
Black Power/White Resistance	Fred Powledge
Bureaucrative Corruption and Underdevelopment in the Third World: The Case of Zaire	Pergamon Press, Inc.
China and the World Food System	Publishing Co. The U.S. & World Overseas Development Council, Development Agenda "79"
Cows of Dolo Eken Paye	Publishing Co. Indiana University Film Rental
Critical Food Issues of the Eighties	Pergamon Press, Inc.
The Culture of Poverty	Edited by: Eleanor B. Leacock
Daily Life of the Bozo People on the River Niger	University of Indiana

<u>Title</u>	<u>Author</u>
The Design of Rural Development	Uma Lele
Demo Graphics (version Basic) additional texts: Users Manual	Conduit
The Development of Indigenous Trade and Markets in W. Africa	Claude Meillassoux
Dialogue for a New Order Food and Agriculture in Flobal Perspective: Discussions in the Committee of the Whole of the U.S. Nations	Pergamon Press, Inc.
Directory of Financial Aid in Higher Education for Africans and for Americans Studying about Africa	Gail Von Hakman
Drawers of Water	White and Bradley
The Economy of Africa	University of Indiana
Econ. Analysis of Agricultural Projects	Gittinger
The Education Dilemma	Pergamon Press, Inc.
Efficiency & Modernization in African Agriculture	Kenneth Shapiro
Emergent Africa	By "Scipio" Revised by P. Mosley
Farm Budgets	M. Brown
Farming Systems in the Tropics	Hans. Ruthenburg 2nd edition
First World Festivals of Negro Arts	University of Indiana
Food Data Collection in the Social Science	Agricultural Development Council Inc.
Food First, Resources Guide	Institute for Food & Develop- ment Policy
Food Projects: Planning and Management	Pergamon Press, Inc.
The Forest People	Colin M. Turnbull

<u>Title</u>	<u>Author</u>
Freedom in Fulani Social Life	Riesman
Global Action for Appropriate Technology	Pergamon Press, Inc.
Global Planning & Resource Management	Pergamon Press, Inc.
The Global Z&o Report to the Pres. of the U.S.	Pergamon Press, Inc.
Growing Up Black	Jay David
1973 Handbook of Social and Cultural Anthropology	John J. Honigman
A Heritage of Her Own Won	edited by: Cott
Integration of Science & Technology for Development	Pergamon Press, Inc.
IRAT Research on Cereal Production Technology in Senegal and Upper Volta	Sargent M.
The Jaguar	University of Indiana
Lame Deer, Seeker of Visions	J. Deer & R. Erodes
The Lonely African	Colin M. Turnbull
Management of Developing Projects	Pergamon Press, Inc.
Measuring the Conditions of the World's Poor: The Physical Quality of Life Index	Pergamon Press, Inc.
Measuring the Condition of the World's Poor: The Physical Quality of Life Index	The U.S. & World Overseas Development Council Development Agenda "79"
Meeting the Basic Needs of the Rural Poor	Pergamon Press, Inc.
The Mind of Africa	Abraham
Mobilizing Technology for World Development	The U.S. & World Overseas Development Council Development Agenda "79"
Model of Agricultural Household	Barnom

<u>Title</u>	<u>Author</u>
Mortal Lessons	Richard Seltzer M.D.
Mothers and Wives	Sarah Levine
The Movement	Lorraine Hansberry
Mwamufiya, Mbuki	University Microfilms International
Multinational Cooperation for Development in W. Africa	Pergamon Press, Inc.
The Negro Revolution in America	W. Brinks & L. Harris
New York Times (1yr subscription)	
Ntalaja, Kalonji	University Microfilms International
The Obstacles to the New International Economic Order	Pergamon Press, Inc.
Our Bodies, Our Selves	Boston Womens Health
Out of Africa	Louise D. Hutchinson
Pastoralism in Tropical Africa	Theodore Monod
Perrault, Paul Thomas	University Microfilms International
Zaire: The Political Economy of Under-Development	Guy Grahm & Galen Hull
Production & Reproduction a Comparative Study of the Domestic Domain	Cambridge Univ. Press.
Project Planning and Management	Pergamon Press, Inc.
1974 Research Design in Anthropology	John A. Brim
Report from Black America	Peter Goldman
Risk, Uncertainly, and Agricultural Development	J. Roumasset, ed.
Rutaiwa, Francis W.	University Microfilms International

<u>Title</u>	<u>Author</u>
Science Technology for Development	Pergamon Press, Inc.
Shapiro, Kenneth Howard	University Microfilms International
The Socioeconomic Position of Women in Addis Ababa	Dirasse, La Ketch
Soils of Tropical Dry and Wet Climate Areas of W. Africa	Chaneau, C.
Some Key Issues for the World Periphery	Pergamon Press, Inc.
Small Farm Development	Harwood
SPSS Primer	McGraw Hill Book Co.
SPSS, Second Edition (soft cover)	McGraw Hill Book Co.
SPSS-11	McGraw Hill Book Co.
Stewart Bonnie Ann	University Microfilms International
African Report (subscription)	Transaction Periodicals Consortium
Subscription to Newsletter and Membership ARC	Anthropology Resource Center, Inc.
Subscription to African News (1yr)	
Subscription to International Goat and Sheep Research (1yr)	
Technology, Employment and Basic Needs in Food Processing in Developing Countries	Pergamon Press, Inc.
Temu, Peter Eliezer	University Microfilms International
Towards a New Strategy for Fvelopment	Pergamon Press, Inc.
The Twilight of Capitalism	Michael Harrington
Uncle Tom's Campus	Ann Jones

<u>Title</u>	<u>Author</u>
Uses and Abuses of Political Power	Owusu
The Uses of Anthropology Teaching Medical Anthropology	Walter Goldschmidt H.F. Todd & J.L. Ruffni
The Vast	Michael Harrington
Wilcock, David Carrington	University Microfilms Inter- national
Women & Their Health: Research Implications for a New Era	National Technical Information Service
Working Mothers	Jean Curtin
World Population and Development	The U.S. & World Overseas Development Agenda "79"
World Hunger	Institute for Food & Develop- ment Policy

## REVISED WORK PLAN

REVISED WORK PLAN  
FOR 211-D PROJECT-TUSKEGEE INSTITUTE

## I. Introduction

The focus of Tuskegee's 211-d Project, Comprehensive Planning for Rural Development, meshes well with the traditional and continuing concern of Tuskegee Institute for involvement with limited resource agricultural populations. In the early years of Tuskegee Institute, the rural Black poor constituted Tuskegee's chief clientele. Today a commitment to the disadvantaged stands as a major focus for Tuskegee Institute. With this commitment, Tuskegee has developed a capability in dealing with the problems of the poor.

This capability was built not only in the United States, but also with major outreach activities in foreign countries --in Africa, South America, Asia and the Caribbean. Historically, Tuskegee Institute has been involved in, and committed to rural development. It is significant to note the parallelism which exists between the priorities of USAID and the comprehensive (educational, research and extension) objectives of Tuskegee Institute. Both by design and by demand, Tuskegee Institute's objectives have concentrated on the human resource and community development needs of disadvantaged people.

The purpose of this grant is to develop Tuskegee Institute's responsive capability and multidisciplinary capacity to assist IDC's in the general area of Comprehensive Planning for Rural Development. The 211-d grant will enable Tuskegee Institute to

## REVISED WORK PLAN, continued

provide technical assistance to LDC's with an emphasis on small scale agricultural technology and technology transfer. One of the major deterrents to development efforts in LDC's is the development of appropriate methodologies for the transference of technology to poorly educated traditional producers in varying social and cultural contexts.

The major thrust of Tuskegee Institute's 211-d project is in the area of agricultural economics, economics, rural sociology, anthropology and extension. The grant proposal outlines four sub-areas of "comprehensive planning for rural development," to emphasize: farming systems, community organization, marketing and new lands development. Tuskegee Institute recruited faculty from agriculture, rural sociology, anthropology, IRDC, and veterinary medicine to be involved in the project and to address these problems.

In order to achieve an enhanced capability in the area of comprehensive planning for rural development, the project has focused on five activities/outputs: (1) Research, (2) Education and Training, (3) Advisory and Consultative Services, (4) Linkages and Networks, and (5) Information Capacity. These activities were designed to prepare the Institute and its personnel to be able to respond to LDC's needs in the broad areas of project identification design, analysis, implementation and evaluation.

The first three years of the project have produced good results in terms of developing and co-ordinating Tuskegee's capabilities in international rural development. However, the

## REVISED WORK PLAN, continued

multi-disciplinary focus of the project and its international orientation have resulted in some modification of the proposed 211-d project work plan.

The purpose of this revised work plan is to: (1) document the accomplishments of the 211-d project thus far, and (2) provide a framework which will allow a flexible but workable plan during the ensuing years of the grant.

### II. Principal Accomplishments of Grant for FY 78 and 79

#### A. Narrative Summary FY 1978

During the first year of its 211-d grant, Tuskegee Institute was able to make substantial progress toward the realization of grant objectives. Shortly after the grant was awarded it was moved administratively to the Tuskegee Institute Center for Rural Development in the School of Applied Sciences. An Advisory Council for the grant was appointed with representatives from across campus. The principal accomplishment during the first year of the grant can best be summarized as outputs under the five activities of the grant:

#### 1. Research (Expanded Knowledge Base)

- (a) Tuskegee team identified appropriate research activity in Mali and negotiated a supplemental research contract with USAID/Mali. The research was titled: Study of Extension in Mali.
- (b) Tuskegee team provided 5 work days in Mali conducting the first phase of the study.

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2. Education and Training

There are 4 subcategories for this objective:

a. Student Support

Two undergraduate and four graduate students were supported during the first year of the grant. Students were involved in a development seminar and were assigned to work with project staff.

b. Workshops and Seminars

Several workshops and seminars were attended and/or sponsored during FY 1978.

--- The 211-d project organized a session at the Annual Meeting of the Society for Applied Anthropology titled: Social Science Education for Regional Development attended by William Vickers and Glenn Howze in Merida, Mexico.

--- Willie Baber conducted a seminar on campus titled: Economy, Society, and Change: Morne Paysan (Martinique) Twenty Years Later.

--- Suchet Louis attended the International Nutrition Workshop at Massachusetts Institute of Technology.

--- David Libby and John O'Sullivan attended the Arid Lands Conference in Denver, Colorado.

--- William Vickers attended the Symposium on Development in the Tropics.

--- Glenn Howze attended the Population and Food Policy Conference in Washington, D.C.

c. Curriculum Modification

--- Two existing courses were revised to include more international development content related to development.

--- Five new courses in anthropology related to development were approved by the Institute.

## REVISED WORK PLAN, continued

- Two new faculty members, an anthropologist and an agricultural economist were added to the staff.

### d. Faculty Training

- During FY 1979 one faculty member, Doris Oliviera, started French Language Training at the Foreign Service Institute in Washington, D.C. Another, Glenn Howze, was approved for training.
- Glenn Howze, William Vickers and John O'Sullivan completed the Design and Evaluation Workshop conducted by USAID/W.
- Doris Oliviera, attended the Agricultural Science in Africa Workshop in Ibadan, Africa.

### 3. Advisory and Consultative Services

- The project published a brochure, Tuskegee Institute and International Development which outlines the Institute's experience and interest in international programs.
- Two work months of faculty release time were made available for advisory and consultative services.
- Contact was made with the missions in Jamaica, Guyana, the Gambia, and Senegal concerning possible involvement of Tuskegee personnel in advisory and consultative roles. Contact was made with AID/Washington personnel in all major Bureaus concerning possible Tuskegee involvement.
- Tuskegee faculty member served as project design officer on USAID project design team to Upper Volta. Dr. Suchet Louis represented Tuskegee on a SECID team for 1.5 work months.

REVISED WORK PLAN, continued

4. Linkages and Networks

a. Domestic Linkages

Domestic Linkages were fostered by:

- Supporting participation in BIFAD meetings.
- Supporting participation in meetings of 1890 Land Grant Schools.
- Supporting contact with other 211-d schools.
- Supporting participation in relevant professional organizations.
- Supporting participation in SECID meetings.

b. International Linkages

--International linkages were fostered by supporting site visits to Jamaica, Guyana, the Gambia, Mali and Senegal to explore possible Tuskegee involvement in Mission activities.

5. Information Capacity

Information capacity was increased by:

- The acquisition of relevant books and journals for the library.
- The acquisition of computer data analysis programs, computer models and data bases related to international development.
- Publication of the Proceedings of the Symposium on Social Science in Regional Development and the brochures: Tuskegee Institute and International Development.

B. Narrative Summary Fy 1979

During the second year of the 211-d grant, Tuskegee Institute continued to make substantial progress toward the realization of the grant objectives. There was one major administrative

## REVISED WORK PLAN, continued

change affecting the project. Dr. B. D. Mayberry retired as Dean of the School of Applied Sciences and was appointed as Director of a newly created Office of International Agriculture. As such, he will continue to offer advice and counsel to the project staff. Dr. George Cooper was appointed Dean of the School of Applied Sciences and has assumed a major administrative role with the grant. Dr. Cooper has had major involvement with international development programs for several years and has as one of his major objectives the strengthening of international programs at Tuskegee Institute.

The principal accomplishments during the second year of the grant can be summarized as outputs under the five principal objectives of the grant:

### 1. Research (Expanded Knowledge Base)

The second year of the grant was spent completing the research initiated in Mali during the first year of the grant. The research activity consisted of background studies to be utilized by the Agricultural Officers Training Project.

- a. The data from the First Phase of the project was analyzed and English and French versions of a report were produced.
- b. The academic year at Tuskegee was spent reviewing the literature concerning Malian agriculture and extension education.
- c. The Tuskegee Team spent 10 work months in Mali completing the data collection task and producing necessary reports. Four additional research reports were produced with both French and English versions.
- d. Final Conferences were held with Malian and AID/Mali officials and the terms of the contract were successfully completed.

## REVISED WORK PLAN, continued

- e. At Tuskegee, final copies of all reports were produced and sent to appropriate officials in the Malian government, AID/Mali, and AID/Washington.

### 2. Education and Training

There are four activities associated with the education and training component of the grant.

#### a. Student Support

Three graduate and two undergraduate students were supported with grant funds during the second year of the grant.

--- Two graduate students were in the field of agriculture and one was in education. Two graduate students were assigned to work with the agricultural economist associated with the grant. The other student was to teach French and work with the Malian research project.

--- The undergraduates were assigned to work with various faculty participants on various aspects of the grant.

#### b. Workshops and Seminars

The grant supported faculty participation in several workshops and seminars during FY1979.

--- John O'Sullivan and Brooke Schoepf attended the annual meeting of the African Studies Association which met in Baltimore in October, 1978.

--- Brooke Schoepf attended the annual meeting of the American Anthropological Association in Los Angeles in November, 1978.

--- Brooke Schcepf presented two papers at the International Congress of American in Kinshasa, Zaire in December, 1978.

--- Susan Thomson presented a paper titled: "Rural Development, Women's Roles and Demographic Change" at the Population Association meetings in Philadelphia in April, 1979.

## REVISED WORK PLAN, continued

- Mohammed Sarhan attended the National Association of State Universities and Land Grant Colleges to participate in the sessions devoted to international programs.

### c. Curriculum Modification

- Dr. Brooke Schoepf, a development anthropologist, was hired to develop and teach grant related courses in the Department of Sociology.
- Dr. Mohammed Sarhan was hired to develop grant related courses in agricultural economics. When Dr. Sarhan resigned in August, 1979, Dr. Robin McIntyre was hired to fulfill these responsibilities.
- Dr. Sarhan developed a grant related course in agricultural economics. The curriculum has been presented to the administration and hopefully will be approved in the near future.

### d. Faculty Training

- Two faculty members, Glenn Howze and Doris Oliviera, completed French language training at the Foreign Service Institute during FY1979. Both received ratings of 2.2 from the Institute
- Several faculty members participated in French language training at Tuskegee Institute. The class was taught by Cheickna Singare, a graduate student from Mali.

## 3. Advisory and Consultative Services

- Two work months of faculty release time were made available for advisory and consultative services.
- Contact was made with the missions in Ghana and Niger and REDSO in Ivory Coast to discuss the use of Institute personnel for advisory and consultative services. The Niger Mission indicated an interest in using Dr. Brooke Schoepf for a short term assignment.

## REVISED WORK PLAN, continued

- Dr. Arthur Henry served as a team member on a project design team in Nepal.

### 4. Linkages and Networks

#### a. Domestic Linkages

Domestic linkages were fostered during FY1979 in several ways.

- Dr. George Cooper and Dr. B.D. Mayberry participated in BIFAD meetings.
- Various faculty members participated in meetings for 1890 and 1862 schools.
- Various faculty members and administrators participated in Secid meetings.
- Contact was established with various organizations involved in international development.
- The grant sponsored participation in professional organizations by faculty members.

#### b. International Linkages

International Linkages were fostered by:

- Participation in international organizations.
- Visits with AID officials in Washington and REDSO.
- Development of contacts with Malian officials during the course of completing a research activity in Mali.

### 5. Information Capacity

Information capacity was increased by:

- The acquisition of relevant books and journals for the project and for the library.
- The acquisition of computer models and other computer based materials.
- The publication of research reports.

C. Narrative Summary FY 1980

There was major progress made toward the achievement of the grant objectives during its third year of operation. In the area of research, a Tuskegee team successfully negotiated a new contract with AID/Mali Mission. Also, progress was made toward the realization of the Education and Training objectives with the continued offering of developmental courses, the support of graduate students and language training for faculty/staff members. Furthermore, Tuskegee maintained old and created new linkages with other schools and organizations concerned with international development.

The principal accomplishments during the third year of the grant can be summarized as outputs under the five principal objectives of the grant:

1. Research

---A Tuskegee Team identified appropriate research activities in Mali. AID/Mali requested the grant to develop a Model for Credit Risk to be utilized by AID-funded agricultural projects in delivering credit to small farmers.

---A Tuskegee Team spent 2 work months in Mali conducting the first phase of the project. They identified parameters for a Farm Management Workshop to be held Summer 1981

---Final conferences were held with Institut d'Economie Rurale and AID/Mali officials and agreement was reached as to the need for the proposed workshop.

2. Education and Training

a. Student Support

---Five undergraduate and four graduate students were supported by the grant during its third year. The students were involved in the International

## REVISED WORK PLAN, continued

Conference and were assigned to work with project staff.

---Three of the students, one graduate and two undergraduates, developed and were instructors in the summer French Language Training Program sponsored by the grant at Tuskegee Institute.

---The new graduate student was in the field of agronomy and was assigned to work with the Cooperative Extension Services Agronomist; he was also assigned to work with the Mali Research Team during the summer. The other graduate students continued their studies in agriculture and education.

---Fourteen additional students from various departments on campus were hired to work during the International Conference sponsored by the grant.

### b. Workshops and Seminars

---John O'Sullivan attended the African Studies Association Meeting in Los Angeles.

---Gregg Sullivan of Auburn University made a presentation on "Economic Discontinuities Affecting Cattle Production in Ghana, Tanzania and Syria," at a seminar sponsored by 211-d.

---Emmanuel Acquah of Virginia State University made a presentation regarding institutional constraints to development in Ghana, at a seminar sponsored by 211-d.

---Ed Braye, Cooperative Extension Services Veterinarian, presented a paper, "Management and Health Aspects of Small Ruminant Production", at the XII Biennial Caribbean Veterinary Conference in Port-of-Spain, Trinidad-Tobago. Dr. Braye later presented a report on his paper at a seminar sponsored by 211-d.

---John O'Sullivan presented a paper on agricultural development efforts in Mali at a seminar sponsored by 211-d.

---Comprehensive Planning for Rural Development (211-d), the Health Research and Demonstration Center (122-d) and the Center for Food and Nutrition Studies (Title XII) sponsored a three-day Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development."

## REVISED WORK PLAN, continued

---Willie Baber, John O'Sullivan and Brooke Schoepf attended the Second Workshop on Sahelian Agriculture at Purdue University. Dr. Schoepf presented a discussion paper regarding the relationship between macrosystem influences and micro-level research strategies.

---Brooke Schoepf attended workshops at the Exchange, part of the Forum of non-governmental organizations held in conjunction with the United Nations Mid-Decade Conference on Women. Dr. Schoepf coordinated a series of workshops on Women and Development, serving as convener for two of them.

---Glenn Howze attended the 5th World Congress for Rural Sociology: Agrarian Problems, Peasants, and Development in Mexico City.

### c. Curriculum Modification

---Glenn Howze used the Population Dynamics Computer Model to teach problems of development in his population course.

---Robin McIntyre developed and taught grant related courses in agricultural economics, including: "Economic Planning for Regional Resource Development," "Agricultural Policy in Planning in Developing Countries."

---Willie Baber developed and taught grant related courses in the Department of Sociology, including: "The Political Economy of Development in the Caribbean."

---Brooke Schoepf developed and taught grant related courses in the Department of Sociology, including: "Sociocultural Change in Africa," "Rural Sociology" and "Applied Anthropology."

### d. Faculty/Staff Training

---The 211-d grant sponsored French Language classes during the academic year.

---The 211-d grant sponsored an intensive French Language Training Program at Tuskegee Institute during the summer semester.

---Faculty and staff from various departments on campus participated in the Language Program: Willie Baber, Ceola Baber, Robin McIntyre, Janie Carlisle, Olga Brown, Laurie Walker (211-d staff); Waswa

## REVISED WORK PLAN, continued

Senafuko (Vet Medicine); Ron Field, Marvin Burns (Applied Sciences); Larry Koons (Chemistry); Judy Harmon (English). There were also a few community people who participated in the program.

---Robin McIntyre attended the Program Design and Evaluation Seminar in July, in Washington, D.C.

### 3. Advisory and Consultative Services

---Glenn Howze provided two and one-half work months of advisory services to the Mali Mission. He concluded a study of the utilization of extension agents by the various agricultural services in that country.

---Glenn Howze provided one week of consultative services to the Fertility and Rural Development project conducted by SECID in Upper Volta.

---Revision of brochure, "Tuskegee Institute and International Development" (for December 1980 publication).

### 4. Linkages and Networks

#### a. Domestic

---Sponsoring International Conference (involving 1890 Land Grant Schools, Title XII Schools and other 211-d Schools).

---Supporting participation in relevant professional organizations.

---Supporting participation in BIFAD meetings.

---Supporting participation in SECID meetings.

#### b. International

---Meeting with visiting African Journalists from Francophone Africa.

---Meeting with Mr. Bryte, Personnel Officer for the Gambia.

---Meeting with visiting African Economists, Regional Economic Project for Francophone Africa, (sponsored by the Institute for International Education).

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---Meeting with officials of the African Bureau, including the Assistant Administrator for Africa.

---Meeting with Mr. Amadou Bachir, Niger; Mr. Molende Tansia, Zaire; and Mr. Daniel Tsoukou-Mbaya, Congo, visiting economists sponsored by Crossroads Africa, Inc., African Leaders Program.

---Meeting with Dr. Amadou Bocoum, Chief, Europe and Americas Section, Ministry of Foreign Affairs and International Cooperation, Bamako, Mali.

### 5. Information Capacity

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---Editing of "Proceedings of Tuskegee Institute's Conference on the Role of U.S. Universities in International Rural and Agricultural Development."

---Continued acquisition of relevant books, journals and other library materials.

---Continued acquisition of computer models and other computer based materials.

### III. Project Evaluation and Critical Assumptions

An evaluation of the 211-d grant was conducted at the end of the 2nd year of the five-year project. The evaluation team consisted of:

Mr. Quincy Benbow, AFR/DR/ARD  
Ms. Gayleatha B. Cobb, AA/AFR  
Dr. Kurt Anshel, University of Kentucky  
Ms. Kathy Boyd, Grant Project Officer DS/AGR/ESP

Overall, it was the consensus of the evaluation team that the 211-d project is very well managed.

#### A. Recommendations

The evaluation team's review of 211-d outputs in all areas (research, education and training, workshops and seminars, curriculum modification, faculty training, and advisory and consultative services) were favorable.

## REVISED WORK PLAN, continued

However, the experiences provided by activity in the above areas have lead to the identification of a few problem areas where logistics are concerned.

As a result of this numerous recommendations were made by the AID evaluation team and some of these reccomendations appear to document important management guidelines which should help assure Tuskegee Institute's involvement in AID related research activity.

### B. Critical Assumption

The evaluation of the 211-d project and subsequent recommendation's have been carefully considered by the 211-d staff. The continued success and improvement of the grant, in light of the evaluation, would appear to continue to rest on the critical assumptions which are pertinent to the strengthening of international development capacity at Tuskegee Institute. These assumptions are:

1. That the faculty, staff and administration at Tuskegee Institute remain committed to the institutionalization of international development work during and beyond the life of the grant.
2. There exists a pool of professionals, economists, and other required social scientists who would consider employment at Tuskegee Institute and would seriously pursue teaching and research on problems in developing countries.
3. Graduate and undergraduate students can be recruited who are interested in pursuing studies in international economic development.
4. AID will assist Tuskegee Institute in developing linkages with LDC institutions and in identifying opportunities for the utilization of faculty

## REVISED WORK PLAN, continued

members in advisory consulting activities.

5. Research problems can be identified and researched within LDC's.
6. Domestic and international institutions are interested in developing linkages with Tuskegee Institute.

### IV. Work Plan FY1981

The following work plan is based on constraints listed under critical assumptions, experiences gained with respect to these assumptions during the life of the grant, and contingent upon the present administrative structure for the grant.

#### A. Administrative Changes

Before providing a summary of proposed procedures and outputs for the ensuing years of the grant, it is useful to describe administrative changes made in the current project year. In January of 1980 an assistant project director was added to the 211-d staff. The primary purpose of this position is to maintain overall organization of the project in the absence of the project director, and to familiarize staff members with the operations of the grant. Later in the FY1980 year, a project co-ordinator was also added to the project staff. The purpose of this position is to provide better co-ordination of the project staff, better maintenance of project files and to administer routine office management. These positions were added in response to recommendations of the second year AID evaluation and in order to enhance the project.

REVISED WORK PLAN, continued

Figure 1 illustrates the present administrative structure of the grant:

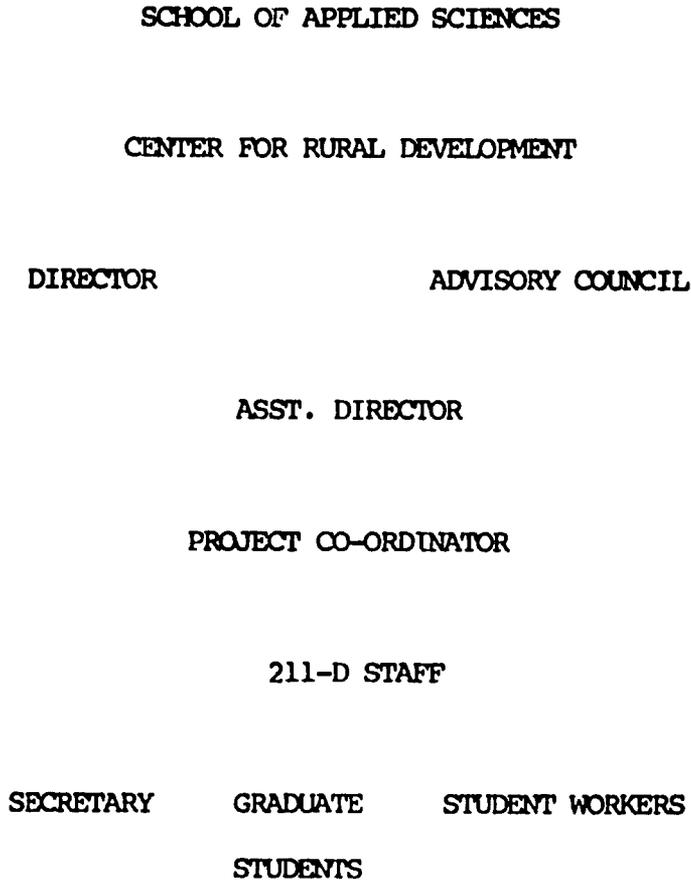


FIGURE 1

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B. Narrative FY 1981:

1. Conceptualization of Research Related Activity

The 211-d research program emphasized a multi-disciplinary approach to economic development with inputs from key academic disciplines including anthropology, sociology agricultural eco-

## REVISED WORK PLAN, continued

nomics, agriculture, and economics. Rather than emphasizing one aspect of the development problem, this strategy allows for comprehensive planning in rural development. The approach provides greater flexibility for the 211-d staff with their varying areas of interest. At the present time, major research areas include farming systems, agricultural extension, marketing, women and development as well as economic development and health care.

Research activities are divided into two general areas in order to maximize outputs:

- 1) The project staff will generate research papers, reports, and/or literature reviews related to their current areas of interest.
- 2) The project staff, in conjunction with AID/Washington, the Missions and host countries will develop and carry out selected research projects in LDCs.

With respect to the latter, multidisciplinary research teams composed of Tuskegee Institute faculty, students and other required experts will be used in organizing research projects.

Where possible research papers and literature reviews will reflect pending or potential research activities in host countries. Research activity conceived and carried out on these two levels will help insure valuable outputs by the project staff.

### a. Local Level Research Activity FY1981

Dr. John O'Sullivan and Dr. Brooke Schoepf will continue their research activities on campus. A search for an Agricultural Economist with international development experience is currently underway; a slot exists for an additional Tuskegee Insti-

## REVISED WORK PLAN, continued

tute faculty member to join the 211-d staff. It is expected that these people will also contribute to the research effort.

### b. Host-Country Research Activity FY1981

The Center for Rural Development (211-d) has developed research relationships with Malian and AID officials (cf. research results FY79 and 80). Based on past performance, AID Mali has requested further research services from Tuskegee Institute contingent on available funding. Dr. O'Sullivan, in concert with the 211-d staff, plans to develop a Farm Management Model for presentation at a workshop to be held in Mali, August 1981.

## 2. Education and Training

There are four activities associated with the education and training component of the grant: Student support, workshops and seminars, curriculum modification and faculty language training.

### a. Student Support

---Four graduate students and five undergraduate students were supported with grant funds during FY80-81. Currently, there are four graduate students and seven undergraduate students receiving support from the grant.

---Work performed by undergraduate students is managed by the project co-ordinator. Ordinarily, students are assigned to work directly with a faculty member. All students are required to submit work reports (to the project co-ordinator and the assistant director of the grant) periodically. The purpose of the assignments and work reports is to monitor the activities of the students in order to assure meaningful work experiences for

## REVISED WORK PLAN, continued

students and also to maintain co-ordination of office and grant activities.

### b. Workshops and Seminars

---The grant provided support for faculty members who participated in several workshops and seminars during FY 80-81. Request for participation in conferences related to 211-d are made through the assistant director (or director) and the project co-ordinator. Each faculty member must submit a trip request form and upon approval of the request, prepare to submit a trip report. The trip report summarizes the activities of the faculty member and the relevance this activity has to the 211-d project. In order to encourage the presentation of relevant papers at conferences, the 211-d faculty have agreed to limit conference travel to one per academic year unless a paper (related to the project) is to be presented.

---Seminars sponsored by the 211-d grant are organized by Dr. John O'Sullivan, with assistance from the project co-ordinator. Several seminars were presented during FY1981. Workshops and seminars for the next academic year are under consideration at this time.

---Women and Development is the subject of a Tuskegee Institute Conference planned for March 1981. The 211-d project will share in the sponsorship of the conference by funding portions of the program relevant to the grant's interests.

### c. Curriculum Modification

Curriculum Modification has taken two different directions:

- 1) The 211-d faculty and the Tuskegee Institute administrations have attempted to create a major in agricultural economics with concentrations in international development; or some other M.A. level major related to the grant. This is necessary in order to attract quality students, with interests in international development, to Tuskegee Institute. The program has not been approved as yet.
- 2) Courses have been added or modified in Agricultural Economics, Sociology and Anthropology.

## REVISED WORK PLAN, continued

### d. Language Training

During FY1980 French Language training was sponsored by the 211-d project. Both regular semester courses and an intensive summer French training program were offered. Mr. Cheickna Singare, a trained French instructor and a graduate student funded by the grant, was responsible for the program. French training will continue in the same manner for FY1981 due to our involvement in Mali.

### 3. Advisory and Consultative Services

The development of advisory and consultative services is the responsibility of the director of the grant who must work closely with AID Washington and any other agencies requesting short term assistance from Tuskegee Institute and the 211-d project. During FY1980 the project director met with USAID Africa Bureau personnel, two project faculty attempted to meet with USAID/Bamako Mission, and Dr. Schoepf went to Washington, D.C. in order to discuss possible Advisory and Consultative Services delivery. Glenn Howze provided two and one-half work months of advisory services to the Mali Mission (March-May) and one week of consultative services to the Fertility and Rural Development project conducted by SECID in Upper Volta. Despite the previously mentioned efforts, no other Advisory and Consultative Services were requested of the Tuskegee 211-d Project.

During FY1981, the project co-ordinator will be responsible for developing and maintaining a current file of Tuskegee Institute's foreign service faculty. All faculty at Tuskegee wishing to become involved in advisory or consultative services will be encouraged to submit a vitae. This information will be used to match requests for advisory and consultative services with re-

## REVISED WORK PLAN, continued

source persons at Tuskegee Institute. Preference for consultative and advisory work will be given to 211-d faculty. The project co-ordinator will also supervise revision and publication of the "Tuskegee Institute and International Development" brochure.

Continued outputs in the area of advisory and consultative services will depend on (1) the opportunities made available to Tuskegee Institute and the 211-d project and (2) the extent to which short term assignments can be filled by Tuskegee Institute's foreign service faculty. The Project Director will continue to explore possibilities for Advisory and Consultative Services. With this in mind, the project staff will begin preparation of a USAID Indefinite Quantity Contract proposal.

### 4. Linkages and Networks

The development of linkages and networks for the 211-d project and Tuskegee Institute is the responsibility of the Project Director. Linkages and Networks are conceptualized in terms of two levels: Domestic and international.

#### a. Domestic Linkages

The 211-d project with some assistance from the Center for Food and Nutrition Studies and the Health Research and Demonstration Center, sponsored an international conference on rural and agricultural development. Also, the 211-d project supported faculty participation in relevant professional meetings, including BIFAD and SECID.

#### b. International Linkages

International linkages occurring during FY80-81 include meetings with (1) visiting African Journalists (Regional Journalism Project for Francophone Africa) sponsored by the Institute of International Education; (2) visiting African Economists (Regional Economic Project for Francophone Africa)

## REVISED WORK PLAN, continued

sponsored by the Institute of International Education; (3) officials of the African Bureau, including the Asst. Administrator for Africa; and (4) the Personnel Officer for the Gambia.

The 211-d project will continue to increase its linkages and networks in the area of international and rural development both domestically and internationally.

### 5. Information Capacity

The 211-d project has continued to allow the acquisition of books, journals and other library materials relevant to the grant, including the acquisition of relevant computer models and other computer based reference materials. In addition to continuing this effort, during FY1981 the grant will publish the proceedings from the Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development".

### V. Anticipated Expenditures FY81

#### A. Research

It is anticipated that Host Country research activities will be limited to Tuskegee's current involvement with Mali during the remainder of the grant. The Plan of Action for the current research activity appears below. It is expected that the farm management model developed by Tuskegee Institute will be presented at a workshop in Mali during the summer of 1981. Costs listed below are for FY1981 and do not reflect in-country costs projected to be absorbed by

REVISED WORK PLAN, continued

USAID/Mali.

1. Plan of Action

Investigators: Tuskegee Institute Team-- Dr. John O'Sullivan  
Mr. Charles Morgan

Technical Assistance Team-- Dr. Glenn Howze  
Dr. Robin McIntyre

Project: Farm Management Model Workshop Operation/Actions

Time Frame: June - August 1980	Data Collect and Establishment of Contact with Interested Personnel, Mali
August 1980-July 1981	Preparation of Farm Management Model,
July - August 1981	Presentation of Farm Management Workshop, Mali
September 1981	Evaluation

Summary of Activity

The Tuskegee Institute team trip to Mali in the summer of 1980 provided a good base for the 1981 activity. Close collaboration with the Institut d'Economie Rurale was established. The IER and other GRM personnel provided sufficient quantities of data as well as a researcher who travelled with the 211-d Team this summer. This IER Economist will collaborate with the team on the projected summer workshop. Good contact with USAID/Bamako Agricultural Development personnel also was achieved.

The 211-d Research Team will establish a simple to operate easily understood farm management model for the Operation Economists and Statisticians. This model will be a three step paradigm which will provide a framework for data collection and

analysis. The steps to be followed are:

1. A Farming System Research Model
2. A Production Function Model which allows comparison of production on any Malian farm with or without any specific technological package.
3. A Cost and Benefits Analysis for the Malian farmer.

This will allow an understanding of the profitability of the technological package for the farmers and hence, will provide a basis for analysis of the credit implications for the Parastatals' credit programs.

A draft of the report, in the form of a workbook for the workshop, will be completed by December 1980. Copies will be sent to USAID/Bamako and the Parastatals for evaluation. Modifications suggested by them will then be incorporated in so far as possible, January - July 1981.

The Workshop will be held August 1981 over a 5-10 day period in which all aspects of the model will be covered. Recommendations for implementation of data collection and analysis, based on the results of the workshop, will be made with examples derived from data already on hand as well as field experience of IER and the Parastatal personnel.

It is hoped that 211-d will be requested to return to Mali during FY1982 to evaluate the results of FY1981 and to make further recommendations to improve the data collection and analysis units of the parantatals.

REVISED WORK PLAN, continued

a. Personnel

1. Dr. John O'Sullivan
2. Dr. Glenn Howze
3. Dr. Robin McIntyre
4. International Ag Economist
5. graduate students

b. Cost FY81

Personnel-----	49,387
Travel-----	15,000
Supplies-----	1,000
 TOTAL-----	 65,387

B. Education and Training

1. Student Support

The 211-d project will continue to support both graduate and undergraduate students during FY1981. There are at least three slots available for graduate students and three slots available for undergraduate students. A selection committee is being organized in order to evaluate and select both undergraduate and graduate students for FY1981.

a. Personnel

Student Slots	Graduate	Undergraduate
Year 1	2	2
year 2	4 (2 new)	4 (2 new)
year 3	4 (1 new)	5 (3 new)
FY1981 year 4	4 (2 new)	7 (4 new)
year 5	2	2

b. Cost FY1981

Undergraduate students stipend	13,000
Graduate students stipend	22,000
 TOTAL	 35,000

2. Workshop and Seminars

A regular series of workshops and seminars dealing with selected problems in international rural development is being planned. These will be designed to complement current research activity and will therefore, focus on the state-of-the-art research papers and current research activities in Mali. Workshops and seminars

REVISED WORK PLAN, continued

may include guest speakers from other institutions. In addition, faculty members will be supported to attend professional meetings.

a. Personnel

211-d Staff  
Guest Speakers

b. Cost FY1981

Guest Speakers-----	3,000
Faculty Participation at Professional Workshops & Meetings-----	2,000
Supplies-----	500
TOTAL	5,500

3. Curriculum Modification

Courses related to economic development and 211-d will be offered on a rotational basis. There are no anticipated costs during FY81, other than supplies.

a. Personnel

211-d staff

b. Cost FY1981

Supplies-----	1,000
TOTAL	1,000

4. Language Training (Faculty)

In order to upgrade faculty skills the project will support faculty training related to international development work. The major activity to be supported will be intensive training for faculty members, including an intensive French training program during the summer of FY1981.

a. Personnel

Release time for two faculty members to receive language training (Howze and McIntyre)

REVISED WORK PLAN, continued

b. Cost FY1981

Personnel Release Time-----	3,000
French Instructor (summer salary)-----	2,000
Supplies-----	1,000
TOTAL	6,000

C. Linkages and Networks

Tuskegee Institute will continue to increase its linkages and networks in the area of international and rural development and agriculture both domestically and internationally. This is the primary responsibility of the project director.

a. Personnel

211-d Faculty

b. Cost FY1981

Domestic Travel-----	5,000
International Travel-----	5,000
TOTAL	10,000

D. Advisory and Consultation Services

Tuskegee will encourage faculty members to seek out advisory and consultation services through the project director and the project manager for the 211-d grant. In order to facilitate this activity, the 211-d grant will publish the revised Tuskegee Institute International Brochure and establish a file of current Tuskegee foreign service faculty. The grant will continue to make two work months of faculty time available.

a. Personnel

Tuskegee Institute Foreign Service Faculty

b. Cost FY1981

Travel-----	2,000
Printing-----	1,000
TOTAL	3,000

REVISED WORK PLAN, continued

E. Information Capacity

The principal activity will be the publication of the Tuskegee Institute Conference, "The Role of U.S. Universities in International Rural and Agricultural Development. The evaluation, selection, and acquisition of books, journals, films and other materials relevant to international development for the Tuskegee Institute Library will continue.

a. Personnel

211-d faculty

b. Cost FY1981

Information Capacity Supplies & Printing Costs-----	1,500
TOTAL	1,500

APPENDIX I

Curriculum Vitaes: 211-d Staff

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1. BABER, CEOLA R.	221
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Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Ceola Ross Baber  
Name

PERSONAL INFORMATION

Address: 112 Reed Avenue Phone: (Home) (205) 727-3491  
Tuskegee Inst., AL 36088 (Office) (205) 727-8129

Birthplace:

Birthdate:

Marital Status:

SS#:

EDUCATION

Institution	From/To	Degree/Major Field
California State Univ.	1968-72	B.A. History, English
Stanford University	1973-75	M.S. Education

PRESENT POSITION

Project Coordinator, 211-d Project (through Aug. 31, 1980)

ADMINISTRATIVE EXPERIENCE

Curriculum Developer, ESEA Title IV Liason to Macon  
County Dept. of Education (for Tuskegee Laboratory  
and Learning Center)

Research Associate, Project Coordinator for 211-d  
Comprehensive Planning for Rural Development

Coordinator, CORE Program, San Carlos High School,  
Redwood City, California.

GED Tester, Grant Adult School, Sacramento, Calif.

TEACHING EXPERIENCE (Include institution, course taught)

Tuskegee Laboratory and  
Learning Center:                    Grades 4-8  
    Reading Teacher

Alexander City State Junior  
College (Tuskegee, AL)    Intro to Sociology

Tuskegee Institute:                The Family  
    Social Problems

Sequoia Union H.S. District  
(Redwood City, Calif.)    Reading Teacher  
    English Teacher (Intern)

PROFESSIONAL REPORTS

"Improving Elementary Arithmetic Achievement by Enhancing  
Student/Teacher Communication of Each Student's Problem Solving  
Stragety," Proposal submitted to N.I.E. by Rita G. O'Sullivan  
and Ceola R. Baber, Investigators (1/80).

"Strategies in Teaching Educationally Disadvantaged Students,"  
End of the Year Report submitted to Educational Services  
Division, Sequoia Union High School District (6/78).

Evaluation of Special Summer Program #2 submitted to the De-  
partment of Human Relations, SUHSD (8/75).

WORKSHOPS & SEMINARS (attended within last 3 years)

Southern Sociological Society Convention, Atlanta, GA (1979)

FOREIGN EXPERIENCE

Anthropological Research Assistant in Martinique, French West Indies (1976-77)

Travel in Western Europe (Greece, Italy and Germany)

PROFESSIONAL & OTHER ORGANIZATIONS

Southern Sociological Society  
Black Educators of SUHSD (1977-78)

HONORS

Outstanding Achievement Award, Dept. Human Relations (1978)  
PTA President, Tuskegee Lab and Learning Center (1978-79)

Turkegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Willie L. Baber  
Name

PERSONAL INFORMATION

Address: 112 Reed Ave. Phone: (Home) 205/727-3491  
Tuskegee Inst., AL 36088 (Office) 205/727-8644

Birthplace: Hollysprings, Miss, Birthdate: !

Marital Status:

SS#:  
6

EDUCATION

Institution	From/To	Degree/Major Field
Univ. of Calif., Davis	1968 1973	B.A. Afro-American Studies
Stanford University	1973-1976	M.A. Anthropology
Stanford University	1976-1977	Ph.D., Anthropology

PRESENT POSITION

Assistant Professor of Anthropology  
Assistant Director, 211-d Project

RESEARCH EXPERIENCE (Include in-progress research)

--12 months of anthropological field research in Martinique,  
French West Indies (for Ph.D.)

TEACHING EXPERIENCE (Include institution, course taught)

Stanford University: Introduction to Anthropology  
Tuskegee Institute: Introduction to Anthropology  
Social Change  
The Family  
The Political Economy of Development in the  
Caribbean  
Social Theory  
Introduction to Sociology

PUBLICATIONS (Include thesis)

Baber, Willie Society, Economy and Change; A Historical  
Analysis of Morne-Vert. Ph.D. dissertation  
  
Baber, Willie Simple, Bandswitching Receiver Design, QST,  
December 1979

PROFESSIONAL PAPERS

Costs and Benefits: The Social Balances of Entrepreneurial  
Activity in a Plantation Economy (presented at the annual  
Mid-South Sociological Association Meeting, Memphis Tennessee,  
November 1979)

Research Results and Research Potential in the Caribbean Area.  
Department of Sociology and Anthropology, and Africana Studies,  
Purdue University, March 1980.

WORKSHOPS & SEMINARS (Attended within last 3 years)

American Anthropological Association Meeting, Cincinnati, Ohio,  
November 1979

American Anthropological Association Meeting, Cincinnati, Ohio,  
November 1979

Attended the Second Workshop on Sahelian Agriculture at Purdue  
University, May 1980

Southern Sociological Society Meeting, Atlanta, Ga., 1978  
(chaired the Race and Ethnic Minorities Session)

Mid-South Sociology Association Meeting, Memphis, 1979

FOREIGN EXPERIENCE (Include work and travel)

Anthropological field research in Martinique, FWI  
Travel to Puerto Rico

LANGUAGES

French

PROFESSIONAL & OTHER ORGANIZATIONS

Association of Black Anthropologists  
Southern Sociological Society

HONORS

Stanford University Fellow, 1974-76  
Fulbright-Hays Research Fellow, 1966-67

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Edward Tildon Braye, Sr.  
Name

PERSONAL INFORMATION

Phone: (Office) - 8814  
Birthplace: Tuskegee, Alabama      Birthdate:

Marital Status:      SS#:

EDUCATION

Institution	From/To	Degree/Major Field
Tuskegee Institute	May 1952	DVM Veterinary Education
Michigan State Univ.	1958-59	M.S. Dept. of Medicine and Surgery
Univ. of Michigan	1968-69	M.P.H. Dept. Epidemi- ology

PRESENT POSITION

Extension Veterinarian & Public Health Specialist, Cooperative  
Extension Service - Tuskegee Inst. June 1978

**MISSING PAGE**  
**NO.** 228

RESEARCH EXPERIENCE (Include in-progress research)

-Establishment of Economical and Viable Goat and Swine Units Among Limited Resource Farmers in Alabama

-Evaluation of the Role of Livestock Program Assistants in Twelve Black Belt Counties of Alabama

-The Role of the Cooperative Extension Program, at Tuskegee in Health Promotion Among the Rural Poor

TEACHING EXPERIENCE (Include institution, course taught)

Tuskegee Institute: Small Animal Infectious Diseases  
Large Animal Diseases - Non Infectious  
Large Animal Diseases - Infectious  
Veterinary Diagnostics  
Large Animal Surgery  
Large Animal Operative Surgery  
Public Health  
Veterinary Clinics  
Clinical Epidemiology  
Foreign Animal Diseases

PUBLICATIONS (Include thesis)

"Swine Disease on the Uprise" Tuskegee Veterinarian, May 1957

"Studies of Bovine Peritoneal Fluid" Tuskegee Veterinarian, May 1958

Protolytic Enzymes in Equine Practice, J. AVMA 136: No.3, pp.73-74

Preparation of Anti-Serum to Enteroviruses in Large Animals  
The Journal of Immunology 95: No. 5, pp.895-908

Foods of the Future - Department of Environmental Health Public School of Public Health - The University of Michigan

The Report of the Tuskegee Institute Task Force on its Visit to Republic of South Africa - Sept. 25, 1974

WORKSHOPS & SEMINARS (Attended within last 3 years)

Annual Tuskegee Veterinary Symposium - 1978, 1979, 1980  
Mid-American Veterinary Conference - 1979  
Biennial Caribbean Veterinary Conference - 1980  
Seminar on Foreign Animal Diseases - 1980  
Annual Meeting - American Rural Health Association - 1979, 1980  
Meeting Alabama Rural Health Association - 1979, 1980

LANGUAGES

French - with difficulty

PROFESSIONAL & OTHER ORGANIZATIONS

American Veterinary Medical Association  
American Public Health Association  
United States Animal Health Association  
American Association of Veterinary Clinicians  
National Society of Phi Zeta  
Beta Kappa Chi  
American Association of Bovine Practitioners  
American College of Veterinary Internal Medicine

COMMITTEE APPOINTMENTS

Presiding Chairman -211-d Consortium Symposium presentation to  
Government of Guyana - March 1-4, 1976  
-211-d Livestock Consortium

Member: Dean's Advisory Council  
Student Faculty Committee  
Faculty-Rank Tenure Committee  
Recruitment Committee  
Athletic Committee  
Nominations Committee  
Analytic Studies Committee  
Advisory Committee to Cooperative Extension Program  
Tuskegee Task Force to South Africa  
Committee on Animal Diseases

HONORS

First President - Tuskegee Institute Veterinary Alumni Association 1961-1963

OTHER INFORMATION (include skills, interests, etc.)

Areas of Special Interest:   Epidemiology  
  Internal Medicine  
  Tropical Livestock

AREAS OF INTEREST IN INTERNATIONAL ACTIVITIES

Developing diversified and economical livestock programs for the emerging nations

Assessment and development of plans and mechanism to strengthen the Extension Service in developing countries

Increasing the use of small ruminants as an alternative source of protein

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

George Fverett Cooper  
Name

PERSONAL INFORMATION

EDUCATION

Institution	From/To	Degree/Major Field
Univ. of Illinois	1969/72	Ph.D., Animal Nutrition
Tuskegee Institute	1967/69	M.S., Animal Science
Florida A & M Univ.	1963/67	B.S., Animal Husbandry

PRESENT POSITION

Dean, School of Applied Sciences, Tuskegee Institute  
Training Coordinator for Upper Volta Livestock Project  
(funded by USAID, coordinated by SECID)

RESEARCH EXPERIENCE (Include in-progress research)

- 1967 Aquatic Entomology (Florida A & M Univ.)  
1977 Dairy Goats in Agricultural Development

POSITIONS HELD (Include year, position held)

- 1972-77 Coordinator of International Programs in Agriculture  
Coordinator of the USAID/211-d Grant on Tropical  
Livestock Production  
1977-79 Chairman, USAID/211-d Consortium on Tropical Livestock  
Production (Tuskegee Inst., Purdue Univ., Texas  
A & M Univ. and Univ. of Florida - Gainesville).  
1979-81 Chairman, Tuskegee Inst. Analytical Studies Group  
Training Coordinator, Upper Volta Livestock Project.  
Co-Chairman, Assoc. of 1980 Deans and Directors of  
Resident Instruction.  
Member, Joint Research Committee of the Board for  
International Food and Agriculture Development.

TEACHING EXPERIENCE (Include Institution, course taught)

- Tuskegee Institute:           Animal Nutrition  
                                  Introduction to Animal Science  
                                  Beef Cattle Production

PROFESSIONAL PAPERS

- Cooper, G.E., F.C. Hinds and J.M. Lewis. The Nutritive Value of  
Sheep Feces. J. Animal Sci., 1972. 34:359 (Abst.)  
Cooper, George E. and Glenn R. Howze. A Survey of Livestock  
Producers in Guyana (1975). Conducted in cooperation with the  
Guyana Ministry of Agriculture and USAID.  
Cooper, George E. Livestock Breeding Herds for Small Producers.  
1976. Presented at the Workshop on Livestock Smallholders and  
Small Pastoralists. June 14-17, 1976. Winrock International.  
Glimp, H.A., H.A. Fitzhugh, R.O. Wheeler, T.D. Nguyen, A.  
Martinez, G.E. Cooper and R.D. Child. 1977. The Role of Sheep  
and Goats in Agricultural Development - A State of the Arts  
Study. Report of a Study conducted by Winrock International  
and co-sponsored by USAID/TAB Livestock.

THESIS TITLES

Ph.D. Thesis Title: The Nutritive Value of Sheep Feces  
M.S. Thesis Title: Degradation, Metabolism and Disappearance  
of Diuron in the Rumen

FOREIGN EXPERIENCE (Include work and travel)

AFRICA Senegal, Mali, Chad, Cameroon, Nigeria,  
Tanzania, Botswana, Swaziland, Kenya,  
Upper Volta

SOUTH AMERICA: Guyana

CENTRAL AMERICA: Mexico

PROFESSIONAL & OTHER ORGANIZATIONS

American Society of Animal Science  
Optimist International

HONORS

Outstanding Educators of America (1975)  
Gamma Sigma Delta  
Sigma Xi

AREAS OF SPECIAL INTEREST

University Instruction, Research and Administration, International Agricultural Development, Laboratory Evaluation of Forages, Utilization of Non-Competitive Feed Resources, Dairy Goat Production and Management, and the Role of Small Farmers in U.S. Agriculture.

RESUME--HOWZENAME: Glenn Ray HowzeCURRENT POSITION: Professor of Sociology  
Director, Tuskegee's 211-d ProjectEDUCATION:

<u>School</u>	<u>Dates</u>	<u>Degree</u>	<u>Major</u>	<u>Minor</u>
Schreiner Institute	56 - 58	A.A.	Liberal Arts	--
North Texas State Univ.	58 - 60	B.A.	Sociology	Psychology
McCormick Theological Seminary	60 - 61	--	Theology	--
Southern Methodist Univ.	61 - 63	B.D.	Theology	--
North Texas State Univ.	61 - 63	M.A.	Sociology	Economics
Washington State Univ.	64 - 69	Ph.D.	Sociology	History

TEACHING EXPERIENCE:

<u>Institution</u>	<u>Dates</u>	<u>Position</u>
Tuskegee Institute	67 - Present	Professor
Washington State Univ.	64 - 65	Teaching Assistant
Lamar State College of Technology (Texas)	63 - 64	Instructor
North Texas State Univ.	61 - 63	Part-time Instructor

COURSES TAUGHT: Introductory Sociology, Social Problems, Statistics  
Research Methods, Population, Criminology, Juvenile  
Delinquency and Society and TechnologyPREFERRED TEACHING AREAS: Statistics, Population and Human Ecology

RESEARCH AND RELATED EXPERIENCE:

1. Tuskegee Institute

Present: Director, Comprehensive Planning for Rural Development, a 211-d project funded by USAID. The project began in 1977 and terminates in 1983. Thus far, the major output from the study has been a five part study of extension training in Mali. Reports were published in both French and English.

1974-76: Served as the rural sociologist on an interinstitutional and interdisciplinary team concerned with the development of livestock production in tropical areas of the world. The team was part of a 211-d project funded by USAID. The team worked primarily in Guyana, South America. I was involved in a socioeconomic survey of livestock producers in Guyana.

1975 Served as the rural sociologist on a team evaluating several range management programs previously funded by USAID in Northern Nigeria. The purpose of the evaluation was to determine what had happened to the projects after USAID terminated support. The results were to be used in the design of range management programs in other West African countries.

1971-76 Director of Tuskegee's College Science (Social Science) Improvement Project. The project was funded by the National Science Foundation and was designed to improve instruction in the social sciences at Tuskegee.

1971-73 Principal Investigator of a study of Black forest land owners. Project was funded by USDA/Forest Service.

1968-70 Co-principal investigator of a study of career problems of Black social scientists. The project was funded by the Russell Sage Foundation.

1967-68 Director of the Tuskegee Area Study. This involved supervising senior students in a two semester research practicum. The TAS was patterned after the Detroit Area Study at the University of Michigan.

1967-68 Conducted an evaluation of a federally sponsored program designed to relocate unemployed persons to areas with employment opportunities. Project was funded by the Department of Labor.

1967-68 Analyzed data from the Southern Regional Research Project concerning participation of rural poor Blacks in Alabama and Mississippi in USDA programs

2. Washington State University

1966-67: Served as a major participant in social psychological study of seasonally employed agricultural workers in the state of Washington. I was in charge of interview design, data collection and analysis of data. Project was funded by NIMH.

3. North Texas State University

1961-63 Served as a research assistant on several projects in the Department of Sociology including a study of problems related to admission to homes for the aged.

ADMINISTRATIVE EXPERIENCE:

1977-Present: Director, Tuskegee Institute's 211-d Project entitled "Comprehensive Planning for Rural Development" funded by USAID.

1971-79: Chair, Department of Sociology, Tuskegee Institute.

HONORS:

1. Phi Theta Kappa, National Honor Society
2. Alpha Kappa Delta, National Honor Society for Sociology
3. NIMH Fellow at Washington State University--1965-67.
4. Post-doctoral fellow at the Moton Center for Independent Studies, August, 1976 - May, 1977.

SPECIAL SKILLS:

1. Statistics and Data Analysis
2. Survey Research
3. Computer Programming--BASIC and FORTRAN
4. Operation of Computers, Computer Peripherals, and other Data Processing Equipment.
5. French Language--FSI rated 2-R, 2-S

MANUSCRIPTS:

1. "Involvement in Admission to Two Homes for the Aged," unpublished Master's thesis, Department of Economics and Sociology, North Texas State University, Denton, Texas, 1963.
2. "Frequency and Per Cent Distributions of Items from Study of Rural Poverty of Selected Alabama Counties," conducted by the Southern Rural Research Project, Summer, 1967. Mimeographed and distributed by the Division of Behavioral Science Research, Tuskegee Institute, Tuskegee Institute, Alabama, March 1968.

3. "Attitudes toward Integration and Black Consciousness: Southern Negro High School Students and Their Mothers," Phylon (1970), XXXI, no. 2, 104-113. Paper was coauthored with Eric R. Krystall, Neil Friedman and Edgar G. Epps. Paper was presented at the 1968 meeting of the Southern Sociological Society.
4. Felt Deprivation and Alienation: A Study of Seasonally Employed Farm Workers. Ph.D. dissertation, Washington State University, Pullman, Washington, 1969.
5. "Report of the Study of the Relocates from the 1965-66 and 1966-67 Labor Mobility Demonstration Projects," submitted to the U. S. Department of Labor. Mimeographed and distributed by the Division of Behavioral Science Research, Tuskegee Institute, November, 1968. Coauthored with Kathleen M. Newby.
6. "The Black and the U.S.D.A.", Proceedings of the Association of Southern Agricultural Workers, 1970.
7. "The Status of Black Americans in the Field of Sociology," presented at the 66th Annual Meeting of the American Sociological Association, Denver, 1971. Coauthored with Edgar G. Epps.
8. Survey of Black Social Scientists, Manuscript submitted to Russell Sage Foundation, 1971. Coauthored with Edgar G. Epps.
9. Survey of Black Forest Landowners, submitted to U.S.D.A./ Forest Service, 1973.
10. "The Use of Computer Timesharing to Individualize a Course in Elementary Statistics," Social Science Information, XII (December, 1973). Paper read at the Annual Meeting of the Southern Sociological Society, 1973.
11. "The Generality of Social Area Indexes: A Replication," Symposium on Sociological Research, Spring, 1975. Co-authored with Pradip Ghosh
12. "After the Traditional Methods Fail--Then What?", Hewlett-Packard Educational Users Newsletter, V, n. 7 (May, 1975), 154-155.
13. Survey of Livestock Producers in Guyana, Conducted in cooperation with the Guyanese Ministry of Agriculture and National Development and presented at a workshop on livestock production conducted in Georgetown, Guyana, 1976. Co-authored with George E. Cooper. Research was funded by USAID. Proceedings from the workshop were published.

Spring 1980

14. A Review of U.S.A.I.D. Projects in Four Major Livestock Producing States in Nigeria: An Assessment of Range Management, Research Triangle Institute, North Carolina, May, 1975. Prepared for USAID. Co-authored with James Bates, Frank Abercrombie and Henry Van Blake.
15. "An Interactive Software System for Computer-Assisted Testing", AEDS Journal, XI (Winter, 1978), 31-37. Presented at the Annual Meeting of the Association of Educational Data Systems, Ft. Worth, 1977. Also published in the proceedings of the meeting.
16. Survey of Malian Agricultural Moniteurs, February, 1979. French version is entitled: Enquete sur les moniteurs d'agriculture au Mali, Fevrier 1979. Coauthored with Suchet Louis, John O'Sullivan and Cheickna Singare. Presented to National Department of Training and Extension (DNFAR) of the Ministry of Rural Development, Government of the Republic of Mali and USAID/Mali.
17. Survey of Second-Year Students at the Three Centres d-Apprentissage Agricole, June 1979. French version is entitled: Enquete des eleves de 2e annee des centres d'apprentissage agricole au Mali, Juine 1979. Coauthored with Cheickna Singare. Presented to the National Department of Training and Extension (DNFAR) of the Ministry of Rural Development, Government of the Republic of Mali and USAID/Mali.
18. Junior-Level Extension Training in Mali: The Third Year, July, 1979. French version is entitled: Le stage de 3e annee des futurs agents de vulgarisation agricole au Mali, juillet 1979. Coauthored with Cheickna Singare. Presented to the National Department of Training and Extension (DNFAR) of the Ministry of Rural Development, Government of the Republic of Mali and USAID/Mali.

FOREIGN EXPERIENCE:

1. Guyana, South America. Several visits to country between 1974-76. Visited all regions. Conducted survey of livestock producers in the country.
2. Nigeria, West Africa. Six weeks in 1975. Participated in evaluation of range management projects in Northern Nigeria.
3. Guatamala, Central America. Two week seminar, Summer 1976.
4. Mali, Africa, Several visits between 1977 and 1979. Longest was for 4 months. Conducted background studies for upgrading extension training in Mali. Additional visit planned for Spring 1980.
5. Other West African countries visited: Gambia, Senegal and Ivory Coast. Purpose of visits was to consult with USAID personnel.

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Thomas R. McIntyre  
Name

PERSONAL INFORMATION

EDUCATION

<u>Institution</u>	<u>From/To</u>	<u>Degree/Major Field</u>
Auburn Univ.	June 1976	Ph.D. Forestry and Agricultural Economics Minor: Animal Science
Auburn Univ.	March 1972	M.S., Agricultural Economics - Farm Management Minor: Wood Technology
Auburn Univ.	March 1971	B.S. Wood Technology

PRESENT POSITION

Assistant Professor, Agriculture Department  
Agricultural Economist, Center for Rural Development

RESEARCH EXPERIENCE (Include in-progress research)

Increased utilization of small impoundments (in progress)  
Equitable worker compensation for logging industry (In progress)  
Wood Technology and Forest Pathology (1974-1976)  
Internal parasites of sheep  
Fire ant eradication in pastures

TEACHING EXPERIENCE (Include institution, course taught)

Teaching senior and graduate level courses in the areas of production economics, public policy, and marketing in relation to forestry.

PUBLICATIONS (Include thesis)

McIntyre, T.R., and Sidney C. Bell. Lease and Sale Transfers of Cotton Allotment in Selected Alabama Counties. Auburn University Experiment Station Circular No. 203, 1973.

Beals, H.O., Davis, T.C., Livingston, K.W., and T.R. McIntyre, Fence Post Service Tests at Auburn University, a 25 year report, 1976.

McIntyre, T.R. Red Pine on a Hardwood Site, Proceeding of the Upper Peninsula of Michigan and Wisconsin Chapter of the Society of American Foresters. In press.

WORKSHOPS & SEMINARS (Attended within last 3 years)

Project Design and Evaluation Seminar, USAID/Washington, July 1980

FOREIGN EXPERIENCE (Include work and travel)

Viet Nam, 1967-69, Armed Services

PROFESSIONAL & OTHER ORGANIZATIONS

Phi Kappa Phi Honor Society  
Gamma Sigma Delta  
Xi Sigma Pi  
Agricultural Honor Fraternity  
Senior Forestry Honorary Fraternity

HONORS

E.A. Hauss Doctoral Fellowship in Forestry  
Commandant's Award, ROTC

OTHER INFORMATION (INCLUDE SKILLS, INTERESTS, ETS.)

Computer Programming  
Greenhouse Design and Construction

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Charles Morgan  
Name

PERSONAL INFORMATION

EDUCATION

Institution	From/To	Degree/Major Field
Warren Wilson College Swannanoa, N.C.	8/70-12/74	B.A.; Sociology
Tuskegee Institute	1/80-Present	M.A. (in progress); Plant Science

PRESENT POSITION

Student - Agricultural Science

RESEARCH EXPERIENCE (Include in-progress research)

Assisting in Breeding Program for Rabbiteye Blueberries  
Tuskegee Institute, Dept. of Agricultural Sciences

Preliminary Survey Farm Management Planning Workshop  
Mali, Summer 1980

WORKSHOPS & SEMINARS (Attended within last 3 years)

Role of U.S. Universities in International Rural and Agricultural  
Development. April 1980, Tuskegee Institute

Project Design and Evaluation Seminar, USAID/Washington,  
September 1980

FOREIGN EXPERIENCE (Include work and travel)

Peace Corps/Mali, 1975-77, Animal Health  
USAID/Mali, 1978-79, On Site Project Analyst for a rice and  
sorghum project in Gao  
AID Short Term Project, Mali, 1980

LANGUAGES

French, Songhai

PROFESSIONAL & OTHER ORGANIZATIONS

Association for Arid Land Studies  
African Studies Association  
George Washington Carver Plant-Soil Science Club (T. I.)

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

John M. O'Sullivan  
Name

PERSONAL INFORMATION

EDUCATION

Institution	From/To	Degree/Major Field
Auburn University	1979-Present	M.S. (in progress); Agricultural Economics
U.C.L.A.	1972-1976	Ph.D.; African History
U.C.L.A.	1970-1972	M.A.; African Studies
Stanford University	1966-1968	B.A.; History
St. John's Seminary	1964-1966	

Present Position

Assistant Professor, History Department  
Associate Researcher, Center for Rural Development

RESEARCH EXPERIENCE (Include in-progress research)

Farm Management Model Project - Mali (in progress)  
Ag Extension Officer Training Project - Mali (1978-79)

TEACHING EXPERIENCE (Include institution, course taught)

Tuskegee Institute: World History  
African History

California State Polytechnical University:  
African History  
Afro-American History  
American History

PUBLICATIONS (Include thesis)

Development in the Social Stratification of Northwest Ivory Coast during the 18th and 19th Centuries. Ph.D. Thesis (1976).

Slavery in Pre-Colonial Northwest Ivory Coast. International Journal of African History (forthcoming).

Ivory Coast. Atlas of Africa (England: Elsevier House, forthcoming).

The U.P.C. in Cameroun. Ufahamu, 3, 1, pp. 53-72, 1972.

The Franco-Baoule War 1891-1911. Journal of African Studies, 5, 3, pp. 329-456, Fall 1978.

PROFESSIONAL PAPERS

The Dyula Revolution. To be presented at African Studies Association Conference, October 1980

Agricultural Development in Mali. Presented at Arid Land Studies Conference, April 1980.

Survey of Malian Farmers. USAID/Bamako, July 1979.

Survey of Malian Agricultural Monitors. USAID/Bamako, 1978 (In collaboration).

WORKSHOPS & SEMINARS (Attended within last 3 years)

Conference on Institutions and AID, Tuskegee, April 1980.  
(Chaired panel on farming systems.)

African Studies Association 1979,78,77.

Arid Land Studies Conference 1979,77. (Chaired panel, 1979)

Conference on Slavery, Univ. of Waterloo, Ontario, Canada, 1978.

FOREIGN EXPERIENCE (Include work and travel)

Peace Corps/Ivory Coast, 1968-70

Dissertation Research, Ivory Coast, 1973-75

AID Short Term Projects, Mali, 1978,79,80

Extensive travel in Africa, South America, Europe

LANGUAGES

French, Bambara

PROFESSIONAL & OTHER ORGANIZATIONS

African Studies Association

Royal African Society

Southern Association of Agricultural Economists

Association for the Study of Arid Lands

Southern Association of Africanists

American Agricultural Economics Association

HONORS

Fulbright-Hayes Fellow for Dissertation Research, 1974

STATEMENT OF INTEREST IN INTERNATIONAL ACTIVITIES

My area of interest is French speaking West Africa and the development problems there. My interests focus on village level activities, farming systems analysis and economic study of agricultural activities in these areas.

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Laurie Patrice Walker  
Name

PERSONAL INFORMATION

EDUCATION

Institution	From/To	Degree/Major Field
Warren Wilson College	1973-1977	B.A., Sociology

PRESENT POSITION

Project Coordinator, 211-d

WORKSHOPS & SEMINARS (Attended within last 3 years)

Role of U.S. Universities in International Rural And Agricultural Development. April, 1980; Tuskegee Institute

FOREIGN EXPERIENCE (Include work and travel)

Mali, summer 1978  
Romania, spring, 1974

LANGUAGES

French, English

PROFESSIONAL & OTHER ORGANIZATIONS

Business and Professional Women's Club

OTHER INFORMATION (INCLUDE SKILLS, INTERESTS, ETS.)

Participated in Intensive French Language Program, Summer 1980; Tuskegee Institute

Currently Pursuing an M.S. degree in Personnel Administration

Tuskegee Institute  
Program for International Development  
Tuskegee Institute, Alabama 36088

BIO-DATA PROFILE

September 1980  
Date

Cheickna M. Singare  
Name

PERSONAL INFORMATION

EDUCATION

Institution	From/To	Degree/Major Field
Lycee Askia Mohamed Bamako, Mali	1960-68	Baccalauretret
Ecole Normale Superieure Bamako, Mali	1968-72	Diplome de Sortie de l'E.N. Sup.
Tuskegee Institute	1978-to present	M.A./Language Arts, Education

PRESENT POSITION

French Language Instructor/Coordinator, 211-d Project  
Graduate Student - Education

RESEARCH EXPERIENCE

Research informant for numerous U.S. scholars in Mali, 1970-76  
Participant in 211-d Summer surveys in Mali, 1978

TEACHING EXPERIENCE (Include institution, course taught)

1978-present French Language Instructor (Advanced, Intermediate  
and Beginning), 211-d Project

1972-78 TEFL Teacher: Lycee Bouillagui Fadiga, Bamako, Mali

1972-78 Peace Corps/Mali Language (French & Bambara) Instructor

1976-77 Peace Corps/Mali Language Coordinator

WORKSHOPS & SEMINARS (Attended within last 3 years)

April 1980: Role of American Universities in International  
Rural Development (moderator of session:  
Development Policy & Outcomes: Resource Allocation)

April 1977 TEFL Workshop organized by Peace Corps, Bamako, Mali

April 1977 Peace Corps/Senegal Workshop to train new language  
Instructors, Dakar, Senegal

FOREIGN EXPERIENCE (Include work and travel)

Extensive Travel in Mali & Senegal.

LANGUAGES

French, English, Bambara, Wolof (fluently)  
Latin, Greek, German (with difficulty)

OTHER INFORMATION

Skilled in translating and interpreting French-English,  
English-French.

## CURRICULUM VITAE

BROOKE GRUNDFEST SCHOEPF, PH.D.

**Present Position:** Associate Professor of Anthropology  
 Department of Sociology and  
 Center for International Rural Development  
 Tuskegee Institute, Alabama 36088

**Bio-Data:**


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**Education:**

Bronx High School of Science, Bronx, N.Y.	1946-1949
Brooklyn College, Brooklyn N.Y.	1949-1953
Columbia University, N.Y.	B.A.-1953
	1954-1955
	1963-1964
	Ph.D 1969
London School of Economics	1956

**Languages Spoken:** French, Swahili

**Experience:**

1974-1978 Associate Professor of Anthropology  
 Departement de Sociologie et d'Anthropologie  
 Université Nationale du Zaïre, Lubumbashi  
 (Rockefeller Foundation Field Staff 1974-76;  
 Fulbright Professor 1976-1978)

1976-1978 Overseas Associate  
 Fernand Braudel Center  
 State University of New York at Binghamton

1972-1974 Assistant Professor, Department of Community Medicine  
 and Department of Anthropology; Program Coordinator,  
 Doctoral Program in Social Science and Health Services  
 University of Connecticut

1970-1972 Senior Research Scientist, New York State Department  
 of Mental Hygiene, New York University, New York

1969-1970 Assistant Professor, Department of Preventive Medicine  
 Tufts University School of Medicine  
 Boston, Massachusetts

1966-1968 Research Associate  
 New York University School of Medicine  
 New York, NY

- Spring 1966 Lecturer, Department of Anthropology  
Brooklyn College, Brooklyn, New York
- 1962-1963 Fellow, Social Research Laboratory  
City College of New York, New York, NY
- 1957-1958 Field Research, Var, France (rural community study)  
Bollingen Foundation Fellow.
- Spring 1956 Research Assistant, Department of Sociology  
University of Exeter, Devonshire, England  
(rural community study)

Publications:

- 1963 Translation (with Claire Jacobson) of Claude Lévi-Strauss,  
Structural Anthropology. New York: Basic Books.
- 1970 "Ethics and the Politics of Anthropology," invited  
commentary, Human Organization 33 (Spring):105-107.
- 1974 "Sex Differences, Genuine and Spurious," Reviews in  
Anthropology 1:102-109.
- 1975a "Human Relations versus Social Relations in Medical Care"  
In Topias and Utopias in Health: Policy Studies,  
Stanley R. Ingman and Anthony E. Thomas, eds.  
Netherlands, The Hague: Mouton, pp. 99-120.
- 1975b "The Politics of Theory: Participant-Observation in  
Women's Liberation," (with Amelia M. Mariotti) In  
Cross Cultural Perspectives on the Women's Movement,  
Ruby Leavitt, ed. Netherlands, The Hague: Mouton,  
pp. 389-419.
- 1976 "Recherches en Anthropologie Médicale: Théorie et  
Perspectives Méthodologiques," Bulletin d'Anthropologie  
Médicale, 1:2 (Aout): 20-36.
- 1980 "Santé, Médecines et Dépendance: Quelques Reflections"  
In Proceedings of the IV International Congress of  
African Studies, V.Y. Mudimbe, ed. Paris: Berger-Levrault.
- In Press: "Breaking Through the Looking Glass: the View from Below"  
In the Politics of Anthropology, Bruce Mannheim, ed.  
Netherlands, The Hague: Mouton.
- "Macrosystem Factors in Farming Systems Research: Some  
Theoretical and Methodological Considerations" In  
Proceedings of the Second Workshop on Sahelian Agriculture,  
Purdue University School of Agriculture, May 1980.

**In Preparation:**

"Planned Change and Cultural Sensitivity: An Anthropological Approach," keynote address for conference: "Developing Nations: Challenges Involving Women." Texas Tech University, Lubbock, November 1980.

"Miracle Maize in Shaba: Impact on Small Farm Development" (with Claude Schoepf).

Proceedings of the Tuskegee Institute Conference on "The Role of U.S. Universities in International Rural and Agricultural Development," Editor. December 1980.

**Dissertation:**

1959 "Doctor-Patient Communication and the Medical Social System" Columbia University, Department of Anthropology

**Reports:**

1967 "Facial Disfigurement, Culture and Reconstructive Surgery," research report, Department of Plastic Surgery, New York University School of Medicine, November.

1968 "The Hospital and Social Unrest," report to the Trustees of University Hospital, New York, June.

"The Psycho-Social Consequences of Plastic Surgical Treatment of Facial Disfigurement," study prepared for the Social Resources Administration, Department of Health, Education and Welfare, November.

1970 "Structured Conflict in Neighborhood Health Centers," report presented to the Governing Board of the Medical Committee for Human Rights, New Orleans, January

1973 "The Charlotte Hungerford Hospital: the Community's Image of and Knowledge About its Services, Operation and Administration," with John Glasgow and Thomas Hagymasi. Study prepared for the Community Relations Committee of Charlotte Hungerford Hospital, Torrington, Connecticut. September.

1972 "Education for Development: Social Science Teaching at the National University of Zaire 1974-1978," report to the Council for International Exchange of Scholars, Washington, D.C. November.

1979 "Enquête Auprès des Professeurs des Centres d'Apprentissage Agricole." Phase 3 of the Study of Agricultural extension agent in training in the Republic of Mali. Submitted to Ministry of Rural Development of the Republic of Mali and USAID. Also English version. June.

## Papers Presented (partial list):

Schoepf, Brooke G.

- 1969 "Medical Neglect," paper presented at the Symposium "Going Hungry: Hunger and Other Social Problems," 68th Annual Meeting of the American Anthropological Association, New Orleans, Louisiana. November.
- 1970 "Neighborhood Health Centers: Polarization of Issues" with Richard M. Hessler, Phyllis Y. Bagwell, Seymour S. Bellin and Peter K.M. New; paper presented at the symposium "Perspectives on the Delivery of Health Care by Providers and Consumers: Some Relevant Issues," at the Society for Applied Anthropology Meetings, Boulder, Colorado. April.
- 1971 "Cultural Implications of Biological Sex Differences, A Reexamination of the Evidence," paper presented at the Symposium "Anthropologists Look at the Study of Women": 70th Annual Meeting of the American Anthropological Association, New York, November.
- 1972 "Women Run this Community: A Report from the Suburbs" paper presented at the 71st Annual Meeting of the American Anthropological Association, Toronto. November.
- 1973 "Female Subordination: Harbinger, Epiphenomenon or What?" with Amelia Mariotti. Paper presented at the 72nd Annual Meeting of the American Anthropological Association, New Orleans, November.
- 1975 "Zaire's Rural Development: History, Problems and Prospects Continuity and Discontinuity in Perspectives," paper presented at session "Peasants and Bureaucracy: Joint Meeting of the U.S. and Netherlands Societies for Applied Anthropology, Amsterdam, April.
- "Développement Rurale et Système Social: Critique Méthodologique," paper presented at the First Annual Meeting of the Association des Sociologues et Anthropologues du Zaïre, Lubumbashi, April.
- 1976 "Uneven Development and the Status of Women in Zaire" Colloquium, Women's Anthropology Caucus, New York, October.
- 1977 "Underdevelopment in Zaire: Structure and Conjuncture" Institute for Development Studies, University of Nairobi, September.
- 1978 "Une Perspective sur l'Organisation de la Profession Médicale et la Formation des Médecins" paper presented at Colloque sur l'Anthropologie Médicale, UNAZA Lubumbashi April.
- "Women in the Informal Economy in Lubumbashi, Zaire," paper prepared for symposium "The Informal Economy in the Capitalist Periphery." X World Congress of Anthropologists and Ethnologists, Delhi, India. December.

Schoepf, Brooke G.

Membership in Professional Societies:

Fellow, American Anthropological Association

Fellow, Society for Applied Anthropology

Society for Medical Anthropology, Charter Member

Association des Sociologues et Anthropologues du Zaïre,  
Charter Member

American Anthropological Association: Symposium Convenor and  
Chairperson

- 1971 "Anthropologists Look at the Study of Women"  
70th Annual Meeting, New York.
- 1972 "Racism, Sexism and Other Deadly Games"  
71st Annual Meeting, Toronto.
- 1973 "Dialectical Perspectives on Women and Men"  
72nd Annual Meeting, New Orleans.
- 1975 "Sex Roles in Medical Education"  
74th Annual Meeting, San Francisco.
- 1980 "Global Environment of Health Planning and Training"  
79th Annual Meeting, Washington, D.C.

Workshops and Seminars:

- 1975 "Développement Rural et Développement Inégal" Colloquium  
Faculte des Lettres, Lubumbashi. February.
- 1977 Contributor, "Symposium on Primary Health Care in  
Developing Countries", at the Fifth International  
Conference on Social Science and Medicine, Nairobi,  
August.  
  
"Traditional Practitioners and Modern Health Care"  
Presentation on <<Manbo Leo>>, Voice of Kenya Television,  
August.  
  
"Traditional Medicine and Community Health," Workshop  
for Family Health Educators' Training Program,  
Kikuyu College, Kenya. August.
- 1978 "Noires et Blanches aux Etats-Unis" Centre Culturel  
Americain, Lubumbashi, April; also presented as dinner  
address, Table Ronde, Lubumbashi, May.  
  
"Santé, Médecines et Dépendance en Afrique: Quatre Leçons  
d'Anthropologie Médicale." Delivered at the Faculté de  
Médecine Humaine, UNAZA Kinshasa, May-June.

Schoepf, Brooke G.

"L'Articulation de la Médecine Traditionnelle et le Système Biomédicale." Round Table organized for the Centre Culturel Américain Kinshasa, June.

1980 Convenor and Program Chairperson, Tuskegee Institute Conference on "The Role of U.S. Universities in International Rural and Agricultural Development." April.

Coordinator, Workshop Series "On Using Tools" for The Exchange, Mid-Decade Women's Forum, Copenhagen.  
 Convenor, two Workshops on "Research and Policy: Making a Case for Women." Convenor, three workshops on "Développement Rural Intégré: Solutions Pratiques," July 14-26.

Moderator-Discussant, Panel on "Black Return Migrants," Tuskegee Institute Conference on Rural Development. September.

## Curriculum Development:

Community Ecology: Contemporary Social Issues. Graduate Seminar, 1970 with NYU Community Psychology Program Staff.

Intergroup Relations in Cross-Cultural Perspective. Graduate Seminar, NYU, 1971 (team taught).

Health and Social Change: OEO Program Undergraduate Training Seminar, Lehman College, C.U.N.Y., 1971.

Psychology of Women, Graduate Seminar, NYU, 1972 (team taught)

Devils, Drugs, and Doctors, Medical Anthropology for Medical and Dental Students, University of Connecticut Health Center, 1973 (team taught)

Women in Evolutionary Perspective, 2-year sequence, University of Connecticut Graduate Program in Anthropology, 1972-1974.

Rural Sociology Undergraduate cycle developed at UHAZA, 1974-1978:

Economie et Sociologie des Sociétés Paysannes;  
 Ecologie et Systèmes Agraires;  
 Anthropologie Economique;  
 Théorie et Méthodes de Recherche en Sociologie Rurale;  
 Anthropologie Médicale.

2 year Graduate Seminar sequence, Université Nationale du Zaïre, Sociologie et Anthropologie du Développement, 1975-1976.

Schoepf, Brooke G.

## Additional Courses Taught:

## University of Connecticut:

Introduction to Clinical Medicine (team taught)  
 Health Manpower (team taught)  
 Human Sexuality (team taught)  
 Medical Anthropology (graduate and undergraduate)  
 Women in Cross-Cultural Perspective (undergraduate)  
 Social Science and Medicine Graduate Seminar (team taught)

## Tuskegee Institute:

Rural Sociology and Economics  
 Sociology of Health Care  
 Sociocultural Change in Africa  
 Applied Anthropology

## Consultant Work:

- 1969 Management Consultant, Computer Intelligence Corporation, New York, N.Y.
- 1970-71 Organization Development Consultant, Leadership Training and Human Relations, Todd Hill Civic Association.
- 1973-74 Organization Development Consultant, Mount Sinai Hospital Hartford, Connecticut.
- 1979 USAID/Mali-Strategies for Improving the Training of Agricultural Extension Agents (with Tuskegee Institute team).

## Research Administration:

- 1975-1978 Chief, Rural Sociology Research Section, Centre d'Etudes Politiques en Afrique Centrale (CEPAC) Lubumbashi.

Director, Medical Anthropology Research Group, Centre Internationale de Semiologie (CIS), Lubumbashi.

## Editor:

- 1976-1978 Bulletin d'Anthropologie Médicale, CIS, Lubumbashi.