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ANNUAL TECHNICAL REPORT NO. I

Agricultural Education
and Research 211(d) Project

submitted by

Council of U. S. Universities for
Rural Development in India

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ANNUAL TECHNICAL REPORT NO. I

AGRICULTURAL EDUCATION AND RESEARCH 211(d) PROJECT

submitted by

THE COUNCIL OF UNITED STATES UNIVERSITIES FOR RURAL DEVELOPMENT IN INDIA

The six grant proposals under this project were signed in late May of 1968, and the first annual technical report covering the activities at each of the Council Universities is contained herein.

THE FIRST YEAR

The individual technical reports covering the activities supported by the 211(d) grants at the six U. S. Universities constitutes the body of this report. Rather than repeat the detail of these reports, we have chosen to summarize here some of the more significant activities. When considered collectively, the range and scope of activity assumes a significant dimension.

The Faculty

Six faculty members, one at each of the Council Universities have been appointed to this project. One, at his own request, has been relieved of this responsibility but it is reported that a replacement is soon to be appointed.

The quality of this staff is excellent. Each of them has an enviable professional reputation. They have had a wide range of experience, some have served on developmental projects abroad, and all are recognized nationally and internationally in their respective disciplines. In the aggregate, they represent the best of the personnel resources of the Council Universities.

Collectively, they were quick to grasp the importance and significance of the need for strengthening the international dimension of agricultural education and research in the Land-Grant Colleges of Agriculture.

Each has gone about the development of a program of activities in his own way with vigor and enthusiasm. They recognize the importance of coordinating their work with the on-going contract programs in which their universities are engaged and mutually supportive programs are being evolved. While not a primary objective of the 211(d) program, it could very well be that the impact of this program on Indian Agricultural University development will be measured by an accomplishment which exceeds expectations when related to the magnitude of expenditures involved.

Undergraduate Education

The undergraduate educational programs in international agriculture at their respective institutions have been examined by the 211(d) faculty. Old courses have been revised to include a coverage of international aspects of the disciplines represented by the 211(d) professors. New courses dealing with international agriculture are being developed or have been developed. For example, a new interdisciplinary course on international food crops, insects and diseases

is being developed at the University of Illinois. An undergraduate seminar on international agriculture will be offered at the University of Missouri this fall semester. At The Ohio State University, courses entitled "Tropical and Subtropical Soils" and "Crop Production in Developing Countries" are now being taught. New offerings in the economics of development are being considered at the University of Tennessee.

The development of a profusion of international agriculture courses at the undergraduate level or a proliferation of study program options in this field is not to be expected. The primary objective at the undergraduate level is to provide a strong basic education which will be terminal for the majority of students but upon which graduate specializations can be structured by those students who wish to continue their education beyond the B.Sc. level. At the same time, the provision of limited opportunities to explore the area of international agricultural development during the undergraduate years may stimulate some uncommitted students to consider this field with a vocational interest. This philosophy is reflected in the reports from the 211(d) faculty.

The 211(d) international professors are teachers and each brings to his students, both graduate and undergraduate, a new dimension in the outlook for agricultural education and research.

Graduate Education

At the graduate level, students in the U. S. Universities have almost unlimited opportunities for specialization in study programs in which they prepare themselves for professional careers. Their study programs are individualized and opportunities are provided for a wide selection of specialized subjects covering a wide range of topics. These offerings may be in the form of regularly offered graduate courses or special seminars which are offered to meet the educational needs of smaller numbers of students.

The 211(d) faculty members have been quite active in the field of graduate education. A review of the reports from the universities they represent will reveal that they have participated in a number of seminars dealing with agricultural development during the past year and have planned others for future offering. A limited number of regular graduate courses is being planned.

A total of seven (7) graduate students have been assigned to the 211(d) projects and additional candidates are being considered. This response is a bit surprising since most 1968 graduating seniors had made commitments prior to the announcement of the available 211(d) opportunities. Shortages of eligible candidates for graduate study, particularly in certain specialized disciplines, have been reported.

The assignment of students to graduate research projects in India is moving ahead. There will be some graduate students in India before the end of 1969 if everything goes as planned.

Research

The development of projects dealing with problems of importance to Indian agricultural development and at the same time suitable for U. S. Graduate student research is not easy. Arrangements between the cooperating institutions in the U. S. and India and the cooperating faculty members in these institutions takes time and patience. The rapidity with which this program has moved ahead is

encouraging and in some instances nothing short of amazing. For example in the Missouri project in plant breeding, wheat crosses were made in India in January and February. The F¹ generation is now being grown in Missouri and the F² generation will be grown and studied at Bhubaneswar during the winter of 1969-70.

At the University of Illinois, some 400 samples of soybean seed grown in India are now being studied for seed-borne and seedling diseases.

With much of the background work already completed during the first year and the vigor and enthusiasm with which the research program is being developed by the 211(d) faculty, we have reason to anticipate significant developments in the year ahead.

Miscellaneous Activities

An impressive array of miscellaneous activities in support of the objectives of the 211(d) program are reported. These activities extend beyond the campuses of the Council Universities in several instances. Thus the image of Technical Assistance is broadened and strengthened both on- and off-campus.

The University of Tennessee held an agricultural progress show at three locations in the state in observance of their 175th Anniversary. One of the important features of this show was a major exhibit and series of talks focusing attention on the world food problem and U.T.'s agricultural assistance activity in India.

As a part of Ohio State University's Centennial, a five-week course in international agronomy will be staged in June-July, 1970.

Several of the 211(d) professors have participated in campus-wide programs related to international development.

Professor Poehlman has completed the proof-reading of a textbook entitled "Breeding Asian Field Crops" which he co-authored with Dr. Dhisenranath Borthakur, an Indian specialist in plant breeding.

The above are just a few of the many miscellaneous activities of the 211(d) faculty. A careful reading of the individual reports will reveal others of equal importance.

Coordinating Activities of the Council

The Council has had an abiding interest in this project from the time of its inception. The Council Universities have enthusiastically cooperated in the development of the program. They recognize the need for increasing their competence in the field of international development and welcomed the opportunity to participate in a program which provided the flexibility and opportunity for innovation needed to accomplish this objective. Consequently, they have been particularly alert to the need for coordinating this program in an inter-institutional effort to maximize the benefits. In addition, they have encouraged the coordination of 211(d) grant programs with existing contract programs in order that they may be mutually supportive. The excellent beginning is, in no small measure, due to the Council's support and continued interest.

In order to acquaint the faculty appointed to this project with the spirit and

philosophy of Section 211(d) of the Foreign Assistance Act of 1966, a meeting was arranged jointly by the Council and Agency officials in September, 1968. All of the 211(d) faculty were present at this meeting along with their respective department chairmen, AID officials, and Council members. Representatives of A.I.D., the Council, and 211(d) faculty participated in the presentations and discussions. This meeting was held before any of the 211(d) faculty had made their initial reconnaissance trips to India.

This meeting served a useful purpose by providing background information, establishing a philosophy of purpose and a discussion of the guidelines for operation. Possible ways in which this project might be coordinated with the on-going contract programs were considered and discussed.

This meeting also stimulated the development of an esprit de corps and initiated mutual relationships between the 211(d) faculty members which if nurtured and encouraged could lead to significant inter-university coordination of international programs.

A second meeting of the 211(d) faculty was planned by the Council and Agency officials following their return from their individual reconnaissance trips to India. This meeting was held in Washington on February 18, 1969. The purpose of this meeting was to provide an opportunity for the 211(d) faculty to exchange experiences, observations and ideas resulting from their first-hand review of the status of their respective disciplines in India. An exchange of ideas regarding the development of plans of work was an important part of this meeting.

A report of this meeting was assembled and distributed by the Council.

Subsequent to the February meeting, work plans were prepared by the 211(d) faculty. These were assembled by the Council and distributed to interested parties both in the U. S. and India. Later at the suggestion of the India Mission and the Field Operations Committee of the Council, a wider distribution was made which included the Indian Agricultural Universities and the Indian Council of Agricultural Research.

It is anticipated that these work plans will be modified or amended from time to time to respond to new ideas and innovations and accommodate the program to an ever widening sphere of useful activity.

When viewed in the broad context of Technical Assistance this 211(d) project has and will continue to have a salutary effect which extends beyond the immediate objective as briefly stated in the Foreign Assistance Act of 1966. It has charted a new course for U. S. University Development, and a new approach to Technical Assistance in Agricultural Development.

UNIVERSITY OF ILLINOIS

COLLEGE OF AGRICULTURE

DEPARTMENT OF PLANT PATHOLOGY

ANNUAL TECHNICAL REPORT OF 211(a) PROJECT

JUNE 1, 1968 to May 31, 1969

TECHNICAL REPORT

211(d) International Program

University of Illinois

This is the first Technical Report concerning the development within the University of Illinois specialized competency in the identification and cause and control of diseases of agronomic crops of India, and to establish this area of specialization as a legitimate and continuing function of the University.

As provided in the "Operation Plan" of the original proposal, a full-time faculty member was appointed by the University of Illinois on a regular tenure basis to fill a newly created position of Professor of Plant Pathology. The man selected to fill this position was Professor James B. Sinclair.

Phase I: Planning

To acquaint himself with the plant disease problems of India, Professor Sinclair visited 17 departments, offices, and other units in India during the Fall, 1968. Particular attention was given to personnel, laboratories, and library facilities involved in the research and teaching of plant pathology. Possibilities for interest in, cooperation with, and potential for the 211(d) program were explored with both Indian and American personnel in India. Informal agreements were made for collaboration with Indian plant scientists at Uttar Pradesh Agriculture University, J. Nehru Agricultural University, and the Indian Agricultural Research Institute.

Dr. Sinclair met with a number of American personnel who have had experience in India and other countries in order to obtain ideas for the development of graduate seminars and courses on international agriculture and plant pathology with special reference to India.

In consultation with Dr. W. M. Bever, Head of the Department of Plant Pathology, a project plan was written and submitted as part of the final step of Phase I.

In summary, the project plans include:

A. Research in the area of seed-borne and seedling diseases of leguminous field crops (soybean, pulses, cowpea, etc.) of Illinois and India. Among other things, the program includes studies on the effect of certain agricultural chemicals, such as herbicides and fungicides on the incidence and severity of seedling and root diseases of soybean. The effectiveness of various systemic fungicides as either seed and/or soil treatments for control of seedling diseases will be determined in field studies.

B. Proposed new courses and seminars included: (1) the redesigning of course presently offered to give it a more international dimension; (2) developing an advanced seminar on international agriculture, particularly as it pertains to India; and (3) developing a new interdisciplinary course on international food crops, insects, and diseases.

C. Other educational activities proposed are to consider sending undergraduate students to India in a "junior year abroad" program and sending post-doctorate students to India to do research and study. Recruitment of graduate students for the program was initiated.

D. Other activities to be initiated or expanded include: (1) becoming an active member of the American Phytopathological Society's committee on International Cooperation; (2) participation in the Southern Regional Research Project (S-72) on soybean seed quality; (3) collaborating with Indian plant pathologists on planning research work, graduate student examinations, etc.; (4) cooperating with other departments on the University of Illinois campuses; and (5) cooperating with the 211(d) professors and other members of the Council of U. S. Universities for the Rural Development of India.

Phase II: Implementation

Several activities set forth in the work plan have been initiated. These are:

A. The specific lines of research to be undertaken were summarized in the Project Plan and in the U. S. Department of Agriculture form AD 416. The latter was formally approved by the Head of the Department of Plant Pathology and the Director of the Agricultural Experiment Station at the University.

B. New courses and seminars include the teaching of a course in the Fall, 1969, on the epiphytology of plant diseases. This course will be revised and enlarged to include international considerations on a variety of crops. Dr. Sinclair will assist in the teaching of an interdisciplinary (horticulture, economic entomology, and plant pathology) course on international food crops, insects, and diseases in the Spring, 1970. This is a new course offering. Dr. Sinclair assisted in the initial planning and development of this course. He participated in and contributed to a graduate seminar during the Spring, 1969, dealing with special topics on international horticulture and presented formal talks several times on the 211(d) program.

C. Recruitment of graduate students into the 211(d) program has been disappointing. There is a nation-wide shortage of qualified students entering graduate school because of military demands and other uncertainties of the future. Every effort was made to advertise the 211(d) program in plant pathology, nationally, in the State of Illinois, and on the UI campus. Although several students from outside of the State have expressed interest in the project and made application, they were not qualified to enter into this rather specialized program.

Dr. Sinclair has a Ph.D. student from India working with him on soybean diseases. He is not on 211(d) funds, but is an A.I.D. participant.

A promising University of Illinois student, who is completing his Ph.D. in plant pathology within a year, has expressed interest in going to India as a post-doctorate candidate to do research in plant pathology. He has had some overseas experiences and will be considered.

D. New laboratory facilities, committed by the University, is nearing completion. Adequate office space for graduate students and the 211(d) Professor has been provided.

E. A visiting professor was sponsored using 211(d) funds. Dr. R. P. Moore, Professor of Research-Crop Stands, at North Carolina State University was brought to the campus to consult with various scientists about soybean seed quality. Specifically, he was brought to aid in the study of factors affecting the seed quality of approximately 400 soybean seed lots brought from India. He worked with Dr. C. M. Hittle (Agronomist), who is leaving for a 2-year assignment at Jabalpur, Indian students on the UI campus, and others interested in seed quality. He gave a seminar on chemical testing for seed quality.

BUDGET

Expenditures from the 211(d) grant funds for the University of Illinois from 1 July, 1968, through 31 May, 1969, are listed below. No stipends for graduate students were used, since recruitment did not provide qualified students. Travel expenditures are for the 211(d) Professor's trip to India, the consultant visit of Dr. Moore, and instate travel to experimental field plots. Equipment monies were used to supply the new laboratory with research equipment.

<u>CATEGORY</u>	<u>BUDGET</u>	<u>EXPENDITURES THRU 3/31/69</u>	<u>EXPENDITURES APRIL & MAY</u>	<u>EXT. EXPENDITURES THRU 5/31/69</u>
Salaries	\$130,000	\$12,354	\$3,300	\$15,654
Stipends	31,000	0	0	0
Travel	13,000	1,064	250	1,314
Equipment	<u>26,000</u>	<u>1,289</u>	<u>500</u>	<u>8,789</u>
Total	\$200,000	\$14,707	\$4,050	\$25,757

Executive Director's Note:

The following appendices to this report have been distributed to interested parties:

Appendices

1. Academic vita of James B. Sinclair
2. Report of J. B. Sinclair's visit to India
3. 211(d) Project Plan for the University of Illinois
4. Copy of Approved U.S.D.A. Form AD 416
5. Announcement of the International Graduate Research Assistantships.

KANSAS STATE UNIVERSITY

COLLEGE OF AGRICULTURE

DEPARTMENT OF GRAIN SCIENCE AND INDUSTRY

ANNUAL TECHNICAL REPORT OF 211(a) PROJECT

JUNE 1, 1968 to May 31, 1969

TECHNICAL REPORT

211(d) International Program

Kansas State University

Grant to Develop within Kansas State University Specialized
Competencies Associated with Grain Utilization in India
AID Title 2, Section 211(d) India

In accordance with the stipulated purposes of this grant, a preliminary visit to India was arranged by Professor J. A. Shellenberger in November, 1968, to study institutions and agencies where cooperation and physical facilities would permit undertaking research on certain aspects of grain utilization in India. On the basis of this investigation where staff competence, adequacy of laboratory space, staff cooperation, and satisfactory living conditions were evaluated, it was recommended that the following institutions should be considered when making the final decision regarding the location of the research projects:

1. The Indian Agricultural Research Institute, New Delhi
2. The Grain Storage and Training Center, Ministry of Food and Agriculture, Government of India, Hapur
3. Nutritional Research Institute, Hyderabad
4. Central Food Technological Research Institute, Mysore
5. University of Bombay, Bombay

Final decision will depend on such considerations as the specific details involving the research project on grain utilization, the graduate student's training, background, and interest, and obtaining project approval from the authorities in India.

GRADUATE STUDENTS

Two students have been accepted by the Graduate School and have agreed to conduct their thesis research at an Indian institution. Their programs of study at Kansas State University start with the beginning of the summer session, June 1, 1969. Both students will have completed their M.S. degrees and both have had experience in the Peace Corps.

1. Mr. Leonard M. Lockwood was born in Inuvil, Ceylon, of American parents and later attended grades one to twelve in Kodaikanal, South India. He obtained his B.A. degree, majoring in Zoology, from Oberlin College, Oberlin, Ohio, and spent two years teaching Chemistry in the Peace Corps in Sierra Leone, West Africa. He is now completing his M.S. degree, majoring in Entomology, at the University of Kansas.

Mr. Lockwood has indicated that in addition to majoring in the Department of Grain Science and Industry at Kansas State University, he will choose as his minor subjects Zoology and Biology. At the beginning of the summer session his graduate committee will be established to approve a tentative program and thesis title. It is assumed that Mr. Lockwood will spend at least one year in graduate study before consideration will be given to undertaking the thesis research in India.

Tentatively, his research program which will need to be developed in detail and receive official approval, will involve changes in processing operations and in nutritional value of wheat and rice when subjected to definite, controlled periods of infestation by insects commonly infesting stored grain in India, and the determination of the insecticide residuals remaining in processed wheat and rice when subjected to variations in cleaning and processing procedures.

It is anticipated that perhaps this work could best be undertaken at the Central Food Technological Research Institute at Mysore, Southern India.

2. Mr. Patrick L. Finney attended high school and Kansas State University in Manhattan, Kansas, and majored in Mathematics. He earned his M.S. degree, majoring in Philosophy and minoring in Mathematics, from the University of Kansas and is now enrolled at Pennsylvania State University.

Mr. Finney spent two years in the Peace Corps in Iran as an Instructor in English. He will enroll for the beginning of the summer term, majoring in the Department of Grain Science and Industry, Kansas State University, and will plan to minor in Philosophy. The tentative thesis problem area will involve a study of the physical, chemical, and biochemical tests for evaluating in India the quality characteristics of Indian vs. American wheat varieties, together with the philosophical aspects involved in the mutual understanding and cooperative efforts between peoples of different economic backgrounds when considering the characterization of wheat.

Mr. Finney has had several summer sessions of employment working with wheat quality appraisal procedures in the United States Department of Agriculture's Hard Winter Wheat Quality Laboratory and, thus, has a good background for the work to be undertaken in India. It is anticipated that the best location for this investigation would be the Central Food Technological Research Institute at Mysore, India. Under provisions of PL 480 the USDA has under consideration a grant for research at this Institute entitled "Study of the Interaction of Factors Such as Variety and Harvest Temperature or Other Environmental Conditions on the Composition and the Milling, Baking, and Rheological Varietal Properties of Wheat." If this proposal is approved by the Government of India, it is possible that there could develop some cooperative association between Mr. Finney's research and the objective of this project.

IMPLEMENTATION

Fellowship appointments effective June 1, 1969, have been made for Mr. Lockwood and Mr. Finney. Shortly, official approval will be sought from the Director of the Central Food Research Institute, Mysore, and through his office, from the Council of Scientific and Industrial Research, for permission for these two graduate students to conduct their thesis work in India.

SUPPLEMENTARY ACTIVITIES

Since the visit to India, communications with various institutions have continued which have involved an assortment of topics. Also, correspondence with cereal processing industrial concerns has increased. Thus, the over-all exchange of information between this institution and persons in India concerned with cereal processing has expanded.

There are a number of Indian graduate students in the department, and the 211(d) India program has tended to become a focal point for common interest and exchange of ideas between faculty and students. Thus, the exchange of knowledge regarding India has been enhanced.

The 211(d) program has brought this department into contact with the South Asiatic Center which was recently established on the campus, and mutual interest should expand these contacts in the future.

UNIVERSITY OF MISSOURI

COLLEGE OF AGRICULTURE

DEPARTMENT OF AGRONOMY

ANNUAL TECHNICAL REPORT OF 211(d) PROJECT

JUNE 1, 1968 to MAY 31, 1969

TECHNICAL REPORT

211(d) International Program

University of Missouri

Breeding Agronomic Crops of India

SUMMARY

Dr. J. M. Poehlman, Professor of Agronomy (Plant Breeding) was designated the 211(d) faculty member at the University of Missouri, effective July 1, 1968. John M. Yohe, (B.S. Agr., M.S. Nutrition) was appointed Graduate Assistant in Agronomy, effective February 1, 1969.

Professor Poehlman traveled to India (November 20, 1968 to January 26, 1969) to make institutional arrangements and select lines of research to pursue under this grant. Cooperative research has subsequently been started on the breeding of wheat and pulses with the Orissa University of Agriculture and Technology, Bhubaneswar, Orissa, India. Mr. Yohe started course work toward the Ph.D. degree in February, and will conduct thesis research on some phase of pulse breeding.

PROGRESS REPORT

1. Personnel

The 211(d) activities were initiated by designation of Dr. J. M. Poehlman, Professor of Agronomy (Plant Breeding), as the 211(d) professor. Recruitment of graduate students was started and one student, Mr. John M. Yohe, was appointed a graduate assistant from 211(d) grant funds on February 1, 1969. Mr. Yohe, who is interested in a career in international agriculture, has a strong background in biochemistry and nutrition, and is planning a thesis research problem related to breeding for improved nutritional qualities in the pulses.

2. Educational Activities

The 211(d) professor assisted with the teaching of Agronomy 425, "Advanced Crop Breeding," in the fall semester until his departure for India in November, and taught Agronomy 325, "Field Crops Breeding," in the winter semester. He participated in the following seminars during the winter semester:

Agronomy Department, University of Missouri, "Agricultural Development in India."

Plant Breeding Section Seminar, University of Missouri, "Status of Plant Breeding in India and Plans for the 211(d) Program."

American Society of Agronomy Science Lecture, Dana College, Blair, Nebraska, "The World Food Problem with Focus on India."

International Agricultural Development Seminar, Cornell University, "Agricultural Development and the Food Problem in India."

Plant Breeding Department Seminar, Cornell University, "Plant Breeding in India."

American Society of Agronomy Lecture, Centerville Community College, Centerville, Iowa, Arts and Science Week Panel Discussion, "Shall Man Prevail?"

Plans are being made for an undergraduate seminar on International Agriculture in the 1969-70 fall semester.

Mr. Yohe presented a seminar to the Plant Breeding Section, Department of Agronomy, University of Missouri on "An Introduction to the Pulse Crops."

3. Institutional Arrangements for Overseas Research

Arrangements were made for cooperative research with the Orissa University of Agriculture and Technology, Bhubaneswar, Orissa, India. No breeding research on wheat or pulses has been done previously in Orissa and we will assist the Department of Agricultural Botany, OUAT, (Dr. S. K. Sinha, Chairman) in development of wheat and pulse breeding projects. Graduate student research projects will be identified with and contribute to the breeding of these crops. Tentative outlines of cooperative research problems with these crops were developed.

A memo of understanding between OUAT and UMC was developed and signed by the Vice-Chancellor of OUAT and the 211(d) Grant Project Director. Procedural arrangements were worked out with the Registrar, OUAT, for enrollment of 211(d) graduate students in OUAT while they are in India conducting thesis research.

4. Research on UMC Campus

a. Wheat. Crosses were made in India (January and February, '69) between adapted Indian spring-type varieties and 1-gene, 2-gene and 3-gene dwarf, spring-type varieties of Mexican origin. The F_1 's from these crosses are being grown at Columbia, Missouri, (April through June, '69). The F_2 generation will be grown and studied at Bhubaneswar during the winter 1969-70. Crosses involving winter-type varieties adapted to Missouri and spring-type Mexican varieties are being made to use in the Missouri breeding program.

b. Pulses. Representative varieties of several species of pulses (chickpea, greengram, black gram, and lentils) are being grown at Columbia during the summer of 1969. Varieties grown in Orissa will be analyzed for protein and amino acids as a preliminary screening test.

5. Other Activities of 211(d) Professor

a. University of Missouri Committees: Dr. Pohlman has served as Chairman of the UMC campus committee on "International Studies." This committee has been instrumental in the establishment during the current year of a "Center for International Studies" on the UMC campus and serves as an advisory committee to the newly appointed Director. He also serves as the faculty representative from the Columbia campus on the executive committee of the University of Missouri (four campuses) Office of International Studies. As Chairman of a subcommittee on long-range planning, he assisted in the development of a "Long-Range Plan for International Studies on the UMC Campus."

b. Textbook Development. While in India (November, 1968, to January 1969) Dr. Poehlman completed proof-reading of a textbook Breeding Asian Field Crops in which he is co-author with Dr. Dhirendranath Borthakur, Rice Specialist, Assam, and former student participant in the UMC-AID contract program. The textbook, now in print, was written by Poehlman and Borthakur during a tour of Dr. Poehlman as Research-Adviser at OUAT and has been published by Oxford and IBH Publishing Company, Calcutta, with the assistance of the Joint Indian-American Standard Works Programme.

THE OHIO STATE UNIVERSITY

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

AGRONOMY DEPARTMENT

ANNUAL TECHNICAL REPORT OF 211(d) PROJECT

JUNE 1, 1968 to MAY 31, 1969

TECHNICAL REPORT

211(d) International Program

The Ohio State University

The 211(d) Professor of Ohio State University was appointed to the Program effective August 1, 1968.

In partial fulfillment of the objectives of the 211(d) program in the area of Soil-Plant-Water Relations, the following have been realized during the initial year of the program:

Teaching:

1. During the Fall Quarter, 1968, courses were taught in Soil Fertility and Fertilizers, Agronomy 670, (enrollment-40 students) and Tropical and Sub-tropical Soils, Agronomy 543 (enrollment-20 students).

The course titled Crop Production in Developing Countries, Agronomy 510 was taught by Dr. L. D. Baver during the Winter Quarter 1969, when the 211(d) professor was visiting India. Dr. Baver with his wide international experience was considered well qualified to teach this course and amply justified his selection in this regard.

Both Agronomy 543 and 510 are required courses in the new undergraduate International Agriculture program which is offered in the College of Agriculture and Home Economics and designed for those students interested in agriculture and agriculturally oriented businesses in foreign countries.

2. Plans are proceeding for the offering of a five-week course in international agronomy with emphasis on soil-plant-water relationships, in the summer (June-July) of 1970.

The objective of the course is to provide technical knowledge to graduate students and faculty about soil-water-plant problems in other countries. Emphasis will be placed on the development of effective methods for increasing food production. These methods will include altering the genetic makeup of the plant, control of nutrient concentration, and control of water content of soils.

There will be five visiting lecturers, one for each week of the five-week course. Each lecturer will present five technical lectures on the nature of international problems, on the technical information needed, and on successful methods of solving problems. In addition he will present one lecture for the general public and will schedule several informal discussions with students and faculty.

Participants in the course will include graduate students and faculty from

appropriate departments of all universities including those of the 211(d)* and C.I.C.** groups. Interested personnel from U.S.A.I.D. and contributing foundations will also be asked to attend. The lectures will be published as a special publication of the Department of Agronomy.

As of this date Professor E. Walter Russell, Dr. Richard Bradfield and Dr. E. J. Wellhausen have agreed to contribute to the course. Some seed money from 211(d) funds will be used to bring Dr. Russell to the campus and the Rockefeller Foundation has agreed to subsidize the participation of Drs. Bradfield and Wellhausen. Other sources of funds are being investigated to support the other two lecturers.

Beginning in the fall of 1969, the various institutions with an interest in the course and the 211(d) concept will be invited to attend. Later during 1970, reminders will be sent to the same institutions.

3. In order to publicize the 211(d) program talks have been given to various seminar groups relative to the aims and objectives of the program. A Seminar on tropical and subtropical soils and their management was presented on a university-wide basis and sponsored by the School of Natural Resources.

Research:

The following discussions relative to research during the initial year of the program includes those observations previously reported following the return of the 211(d) professor from his initial visit to India.

During the month of January, 1969, a survey was made of some of the agricultural universities and agencies in India. As a result of this survey three localities of those surveyed are now being considered as places where graduate students participating in the 211(d) program, in the soil-plant-water area, could undertake research work. These localities are: Punjab Agricultural University, Hissar; Uttar Pradesh Agricultural University, Pant Nagar; and University of Agricultural Sciences, Bangalore.

Each of these institutions possess capable faculty for directing graduate students and adequate facilities for field research towards the Ph.D. degree.

By virtue of their locations, each of the three is ideally suited for certain aspects of research in the soil-plant-water area. Thus, the Punjab Agricultural University, Hissar, is suited for research in problems pertaining to the irrigated soils and the crops associated with them; the Uttar Pradesh Agricultural University, located in the Tarai district of that state, provides several opportunities to study the nutritional aspects of soil fertility and the influence of different drainage regimes on crop growth and production.

*Includes, Tennessee, Illinois, Missouri, Penn State, Kansas State and OSU.

**Includes, Purdue, Indiana, Illinois, Iowa, Wisconsin, Michigan State, Michigan, Northwestern, Chicago, and OSU.

The University of Agricultural Sciences, Bangalore, is well suited for studies on several components of two of the major soil groups occurring in the tropics, the Latosols and the Vertisols. One important component, applicable to all areas of India, are soil surveys. Another will be the study of the fundamental characteristics of the soils themselves and of soil-plant relationships. A third component will be research in soil management.

Although possibilities for cooperative research projects have been established with administrative and technical personnel at all Indian universities and agencies, visited during January, 1969, no attempt is herein being made to detail the many research problems that offer opportunities for investigation. Each of the three universities mentioned above possess at least three, and sometimes several more, faculty members who have, and are demonstrating their ability to direct 211(d) graduate students. Furthermore, these faculty members have all expressed a keen desire to participate in joint direction of 211(d) students.

Several agronomic research problems exist which when investigated, will provide new knowledge in tropical and subtropical crop production while developing a manpower capability for future involvement in the international agriculture sector.

Although the broad areas for research investigation have been outlined above, the detailed projects still remain to be worked out between the 211(d) professor, his counterpart in India, and the graduate student.

Graduate Students:

Recruitment of graduate students for participation in the program has been actively continued during the last few months. At this time two participants have been committed to the program starting July 1, 1969. Their names are D. G. Alsdorf and G. T. Kaiser. Both will be obtaining their M.Sc. degrees during the Summer 1969, and will continue their studies toward the Ph.D. degree under the auspices of the 211(d) program.

One other candidate to be supported by the program is being sought. A brief resume of each candidate presently committed to the program is attached.

Other Activities:

1. Having been approached by a publishing house to collaborate with Dr. G. Donald Sherman of the University of Hawaii, plans were being finalized to write an advanced level book dealing with Tropical and Subtropical soils and their management.

Unfortunately, the original publishers have been taken over by another publishing house resulting in complete reorganization and a reluctance to undertake what they consider to be a book of such a specialized nature. Nevertheless, Dr. Sherman and I have resolved to continue our work on the manuscript feeling certain that it will fill a need that only intensifies with time.

2. Since returning from India in the early part of 1969, correspondence has been maintained with several Indian faculty members at the three univer-

sities which are considered for research participation when 211(d) students are in India.

3. Dr. H. G. Singh, Professor of Agronomy, University of Udaipur and Dr. G. S. Sekhon, Professor of Soils, Punjab Agricultural University will be spending time at Ohio State University under the auspices of USAID/OSU. contact arrangements. Arrangements have been made to further the objectives of our 211(d) program by exposing our staff and students to the knowledge and experience of these gentlemen.

4. The 211(d) professor often participates on examining and reading committees of Masters and Doctoral candidates especially when these students are from a developing country or have a desire to live and work in another country.

Publicity:

During the past ten months an effort has been made to further the objectives of the 211(d) concept. This has partially been accomplished by publicizing its objectives through press releases on a local and national basis. It is pleasing to report that the concept has been received with a great deal of enthusiasm on the part of the university community as well as the private sector.

The International Agronomy Committee of the American Society of Agronomy has been advised of the 211(d) program at The Ohio State University. We look forward to working closely with this committee in order to further the programs objectives.

D. G. ALSDORF -- born March 16, 1942, Union City, Pennsylvania. Parents, Mr. and Mrs. Charles Alsdorf, Union City, Pennsylvania. Raised on a dairy farm near Canadohta Lake, Pennsylvania. B.S. in Agronomy, 1964, The Pennsylvania State University. Working toward M.S. in Soil Chemistry and Fertility since June, 1967, and hopes to complete in the fall of 1969. Married; 2 sons.

GEORGE T. KAISER -- born March 21, 1941, Columbus, Ohio. Graduate of Worthington (Ohio) High School, 1959 Ohio State University, B.S. in Agriculture, Major in Agronomy, Soils, Minor; Chemistry, currently M.S. candidate in Agronomy with graduation planned for August, 1969. Married.

THE PENNSYLVANIA STATE UNIVERSITY

COLLEGE OF AGRICULTURE

DEPARTMENT OF AGRONOMY

JUNE 1, 1968 to MAY 31, 1969

TECHNICAL REPORT

211(d) International Program

The Pennsylvania State University

Major Accomplishments

This contract has not been in operation long enough to catalog any real major accomplishments. However the following actions have been taken:

1. Appointment of Dr. R. P. Pfeifer as 211(d) Professor on October 1, 1968 (Subsequently resigned February 28, 1969).
2. Appointment of Michael Colegrove as Graduate Assistant on September 15, 1968.
3. Appointment of Wayne Hoag as Graduate Assistant on June 15, 1969.
4. Arrangements are in progress to send Michael A. Colegrove to India to carry out part of his thesis research from September 15 through March 15, 1969.
5. A second candidate for the 211(d) professorship has been interviewed.
6. Arrangements have been made to study uptake and its effect on grain production under basic soils of India. Similar studies on acid to neutral soils in the United States are already underway. Laboratory experiments using the two soils, acid and basic to study plant response as well as physical and chemical processes in P fixation will be carried out in an attempt to develop fertilizer application recommendations which are most effective for sorghum grain production in Maharashtra, India and Pennsylvania.
7. A small library on Indian research in grain and seed production is being developed.
8. Planning is in progress on a program of instruction with an international aspect to be incorporated in Agronomy curricula.

Evaluation of Progress

No data has yet been collected for this project. However, experimental plantings of sorghum have been made in the field in Pennsylvania and in the miniature Jordan Soil Plots. Plantings are planned this year in June near Poona, Maharashtra, India. The first graduate student was expected to go to India in June but because of academic course conflicts he will delay his trip to India until September to gather his first data from there.

Recommendations and Conclusions

Continuation of the project is recommended with the first student going to India in 1969. Further, the newly appointed professor should be sent to India as early as possible after appointment to gain maximum information on production of food grain and seed crops to support the 211(d) program.

UNIVERSITY OF TENNESSEE

COLLEGE OF AGRICULTURE

DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY

JUNE 1, 1968 to MAY 31, 1969

TECHNICAL REPORT

211(d) International Program

University of Tennessee

Agricultural Economic Issues in India

By way of background, this grant was made to help strengthen teaching and research related to international development in the rural social sciences at the University of Tennessee (hereinafter called UT), with special emphasis on advanced preparation of students with career interests in development and on investigational work to reinforce the efforts of AID contract teams and Indian professionals to deal with crucial agricultural modernization and rural adjustment problems of India.

As an outgrowth of the grant, a new faculty position was established with the designation "International Professor of Agricultural Economics" to enable a person to give full-time attention to 211(d)-related activities. This position was filled, starting July 1, 1968, by Dr. David W. Brown, a former UT faculty member with subsequent international development experience.

However, the 211(d) work is not conceived as being the concern of Dr. Brown alone. Ideas and activities are being developed in close association with Dr. Merton Badenhop, former UT Party Chief who is teaching two core courses in international agricultural development and who devotes a large share of his time to counseling of international students. Problems of concern to the department's land economist and two rural sociologists relate closely to analytical needs in India. There is also frequent communication with, and involvement of, other departmental staff members: the Department Head (Dr. T. J. Whatley), the Director of International Agricultural Programs (Dr. Lewis H. Dickson), and the campus-wide Director of International Education (Dr. Nelson Robinson).

Major Activities since July, 1968

This period has been devoted largely to groundwork for teaching, research, and India backstopping support to be catalyzed with the help of the 211(d) grant. Activities of note (emphasizing those that Dr. Brown has been associated with) include the following:

1. Review of courses and curricula of special relevance to international rural development.

An inventory of development-related courses in agricultural economics and other fields suggests some subject matter gaps (especially at operational program evaluation and implementation levels) but, in general, the need does not seem to be so much for a profusion of new "international" courses as for curricular flexibility to meet the special needs of students with development interests. This is especially true for those who want to emphasize the "human" or "action organization" aspects of development.

A departmental committee, appointed by Dr. Whatley in early 1969, has recommended addition of a graduate concentration in agricultural development economics, as well as two courses to focus especially on analysis and implementation of development programs. These proposals will be considered as part of a special review of all dimensions of the department this coming fall.

Elsewhere on campus further steps have been taken this past year to strengthen the offerings available to agricultural economics students. In September, 1968, Dr. Walter C. Neale, who has a strong interest and experience in Indian rural development, joined the Economics Department and new seminar courses are now being offered in the development economics area. In Political Science a new series on the politics of development is being offered. Closer communication among faculty with special interest in Asia has been catalyzed through establishment of an Oriental Studies Committee. Both Dr. Badenhop and Dr. Brown have participated in its sessions.

2. Establishment of working relationships in India.

During October and November, Dr. Brown made a six-week visit to India to become better acquainted with emerging problems and activities, and to establish informal arrangements for 211(d) student research. It appears that the department can usefully relate to activities of agricultural economists at the Universities in Bangalore and Coimbatore. There are some problems (e.g., grain marketing, state-level agricultural projections, and characterization of isopotential areas) that might well be tackled in communication with professionals in other regions of India as well as with other CUSURDI members in the U.S. Dr. Brown is keeping in touch with several contacts in India; among others, these include the agricultural economics heads at UAS/Hebbal (Dr. Ramanna) and Coimbatore (Dr. M. Srinivasan), the A/D/C Visiting Professor at UAS/Hebbal (Dr. Donald Taylor), and the UT Party Chief in Bangalore (Dr. D. M. Thorpe).

Dr. Whatley was in India for three weeks in February, under invitational travel, to participate in the USAID/Delhi conference on long-range planning needs and to become acquainted with activities in southern India. This has resulted in further progress in identifying meaningful 211(d) activities, establishing closer relationships with Indian contacts, and encouraging departmental-wide understanding of international needs.

Dr. Badenhop has been in Coimbatore since April on a three-month assignment under the UT/AID contract to diagnose grain marketing and pricing problems. It is expected that this work will delineate some follow-through research areas that 211(d) students and AID participants at UT might usefully tackle.

3. Students receiving support under 211(d).

The first 211(d) fellowship was awarded in August, 1968, to a new Ph.D. candidate, Mr. Parker Cashdollar, who has experience in agricultural credit. In early 1969, following additional jelling of ideas about the best shape and form for UT's 211(d) work to take, announcements of the available fellowships were sent to other agricultural economics departments in the U.S. as well as to returning Peace Corps Volunteers through the Peace Corps "Greensheet." This has led to several inquiries, some of which are receiving consideration. (A 211(d) fellowship has been recently offered to a Peace Corps agricultural specialist who has an M.S. and who would be returning in 1970.) Also, one or two Ph.D.

candidates who are now in the department and who have keen development interests may be shifted to 211(d) for dissertation work in India. Rather than necessarily making the 211(d) study awards at an early date, the desire has been to reserve these for students whose international career potentials and interests seem especially strong.

4. Reference materials.

A special effort has been made this past year to build up the holdings of UT's agricultural library related to international development (using normal library funds). Also, a special collection of books, statistical materials, and study reports related to India has been started. This has received the active interest and help of the UT Vice Chancellor for Agriculture, the Director of International Agricultural Programs, the UT Party Chief in India, and the Agricultural Librarian.

While in India and with much help from UT's Party Chief, Dr. Brown arranged for shipment of a number of reference materials not readily available through normal library channels. Dr. Thorpe has taken the initiative in supplying the campus with additional materials since then. USAID/Delhi, AID/W, and Ford Foundation people, as well as professors in other U.S. universities, have also been very helpful in making recent situations and analytical reports available.

Within the department Dr. Whatley and Dr. Brown have been making a special effort to call the attention of other staff to internationally related readings and case examples of possible use in various undergraduate and graduate courses. A similar exchange of materials is taking place between Dr. Brown and interested faculty in other departments.

5. Teaching and student advisory work.

In addition to his previously existing senior level course on world agriculture and trade, Dr. Badenhop introduced a new graduate level course on the economics of agricultural development during the 1968-69 Winter term. Dr. Brown taught the graduate level policies this Spring. In this, the emphasis was shifted to approaches for dealing with a fairly wide spectrum of issues, with emphasis on problem-solving approaches and on applications to developing countries as well as the U.S.

Of the 56 graduate students in the department during the 1968-69 academic year, three have been from South India, two from Brazil, one from Venezuela, one from Iraq, one from Tunisia, and one from Taiwan. In addition, there are U.S. students with strong international development interests. The general pattern is for either Dr. Badenhop or Dr. Brown or both to serve on the advisory committee of such students.

6. Initial plans for India-related thesis topics.

Following his trip to India, Dr. Brown compiled a list of some research problems that seemed to be of special relevance to emerging problems in South India and, at the same time, feasible for 211(d) students or Indian participants at UT to undertake as thesis studies. These cluster into five broad groups: (1) farm-level production adjustments, (2) marketing structures and pricing, (3) change-agency program planning, (4) state-level overviews of emerging agricultural patterns and needs, and (5) implications of agricultural modernization for dis-

advantaged rural groups. With the limited number of students and faculty likely to be involved, it is not proposed necessarily to try to blanket all these areas; the idea would be to undertake modest "thrusts", each involving two or three students on related topics. The particular problems to receive attention over the five-year grant period would be kept flexible, depending on how emerging needs and interests in India blend with available capabilities at UT. It is also proposed to focus on state- and local-level problems in Mysore and Tamil Nadu states, with the hope that there will be findings and methodological offshoots of value to other States and the all-India level as well.

Shortly following Dr. Brown's trip to India, UT's Party Chief was in Knoxville for home leave. This opportunity was used to discuss further with departmental staff, students, and participants the possibilities for thesis studies and other activities related to UT's work in India. Although it will be late 1969 before any of these students are at the thesis stage, three have already done some preliminary analyses related to grain marketing and agricultural credit in India as part of term projects in courses taken this past year. Following Dr. Badenhop's return from India in July, the plan is to have during the remainder of the summer a series of workshop sessions for relevant faculty and students to conceptualize further proposed studies, with special attention to possible follow-throughs to Dr. Badenhop's work in the grain marketing/pricing area.

It is felt that some of the topics to be studied by 211(d) students and Indian participants in agricultural economics might well be linked to companion studies by participants in other agricultural fields at UT. Possible ways to encourage this have been discussed by Dr. Brown with interested administrators and faculty.

Thought has been given to problems of language, logistical support, and visas for the 211(d) students who would be doing thesis work in India. It appears that studies of a synthesizing nature may be more feasible than attempting to obtain raw data firsthand, and that in some cases (particularly for married students) stays of three or four months more suitable than placing a student in India for a year or longer. For Indian participants (as with many foreign students) identification of useful research topics that can be tackled in the U.S. without being able to do more field work at home poses some problem.

7. CUSURDI LRAAA Committee.

In addition to Dr. Whatley's participation in the Delhi long-range planning conference, Director Dickson and Dr. Brown have met with the committee established by CUSURDI in 1968 to explore possible ways for the six universities to coordinate campus backstopping activities aimed at achieving a better overview of agricultural patterns and potentials in the various states of India. This is proving to be a useful vehicle for keeping in touch with agricultural economics work related to India in these other universities and insuring that activities initiated by UT under 211(d) are as complementary as possible to research elsewhere.

8. Links to Tennessee-related activities.

Some elements in Tennessee's own agricultural modernization and rural adjustment are not unlike those in India and other developing countries. Since his return to UT, Dr. Brown has spent some time becoming acquainted with recent

developments in the region as well as with research, extension, and action programs that bear on its problems. It is felt that some of these experiences (e.g., problems of local agency coordination, short-cut techniques for predicting crop responses to new practices) could well be brought together, analyzed in terms of India-type needs, and written up for stimulation of thought in India. Also, use is being made of these Tennessee activities in courses and special activities for development students.

There are at least three U.S. oriented research projects on the UT campus beyond agriculture per se which may carry useful implications for India. One is an agricultural economics study in cooperation with the Atomic Energy Commission on strategies for insuring adequate food stocks in the U.S. during emergency situations (could provide useful concepts for buffer stock and food assistance approaches in India). A second is a cross-disciplinary set of projects on aerial reconnaissance remote sensing techniques (perhaps leading in break-throughs in resource evaluation and crop reporting methods). A third is a new and unique UT study of possible roles of the state government in stimulating development through accelerated channeling of scientific and technological information to both the private and public sectors.

9. Departmental seminars.

During the 1968-69 academic year, there were several seminars and staff meetings in the department that focused especially on the international dimension. These included:

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| October 10 | Dr. S. S. Johl, Head, Agricultural Economics, Punjab Agricultural University: Some Aspects of Development and Agricultural Economics in India |
| December 12 | Dr. D. M. Thorpe, Party Chief, Tenn./AID India Contract: Agricultural Development and the UT Program in South India |
| February 11 | Dr. D. W. Brown, UT: Report on the North Carolina Policy Institute Conference, "Agriculture and International Trade," Jan. 27-28, 1969 |
| February 27 | Dr. D. W. Brown, UT: Are Agricultural Economists Useful Creatures in Developing Countries? |
| February 28 | Discussion session with two Peace Corps returnees with recent experience in Latin America and Asia |
| April 10 | Mr. E. S. Kamulegeya, Principal Cooperatives Officer, Uganda: Some Aspects of Planning, Agricultural Development, and Cooperatives in Uganda |
| May 15 | Mr. Charles Farmer, UT: Role of Livestock in a Nuclear-Powered Agro-Industrial Complex in the Middle East |
| May 28 | Dr. D. W. Brown, UT: Report on recent concerns and innovations in the graduate education of foreign agricultural economics students at U.S. universities |

10. Agricultural Progress Shows.

In connection with observance of UT's 175th Anniversary, the Institute of Agriculture in June is holding a special progress show in three locations of the State to acquaint the Tennessee public with research developments and new educational activities. One of the major exhibits and series of talks focuses on the world food problem and UT's agricultural assistance activities in India. Some cultural aspects of Indian life are also included. This India presentation is attracting considerable interest and is helping the Tennessee public to understand better the nature of development problems and assistance work. Helping to prepare for this has involved a significant part of the 211(d) professor's time since early 1969. A by-product of the information assembled for the exhibit may be some educational materials for distribution for a wider Tennessee audience.

11. Other international activities involving agricultural economics staff and students during the past year include the following:

In the summer of 1968, Dr. Badenhop and one graduate student, in collaboration with a professor and student from Political Science, designed and led a survey of land tenure patterns in the Dominican Republic. This was under a small USAID research contract. Tabulation of the results is in progress on the UT campus.

Under the leadership of Dr. Keller and Dr. Whatley, one graduate student has been participating in an AEC/Oak Ridge pre-feasibility study of the use of atomic energy for water supply and electric power in the development of agro-industrial complexes in arid regions of the world. The UT component has focused on implications for livestock systems in the Near East. Other facets of this work relate to other parts of the world, including India, and it may be that the department will have further involvement along this line of investigation.

This year (January 13-17, 1969) the annual all-campus international Cultural Festival centered on India. Dr. Badenhop was involved in its planning as well as in one of the presentations.

During the Spring quarter break, arrangements were made by Dr. Brown and the TVA International Visitors Office for 13 foreign agricultural students from UT to visit nearby TVA projects and related agricultural activities. At other times during the year, special opportunities were worked out for participants from India to visit TVA installations, TVA rural development work near Muscle Shoals, and UT agricultural extension activities related to area development.

Since July, 1968, Dr. Brown has served as "Career Consultant" in agricultural economics for the Peace Corps, whereby returning Volunteers write for suggestions about graduate study possibilities at institutions in the U.S. A number of these have interest in continuing careers related to development. This counseling does not bear directly on UT's international activities, but it is felt to be consistent with the broader aims of the AID/211(d) program. At the same time, it has provided a direct pipeline to students with valuable experience who might be interested in coming to UT. One contact made through this route started M.S. degree work this Spring and others have submitted applications.

During the year Dr. Brown gave talks related to international development and assistance programs to four local groups -- the UT chapter of the American Society of Engineering Education, a local church group, a local Lions Club, and in-service training group of agricultural extension workers. In addition, he recorded a 15-minute "Faculty Platform" tape for distribution to 60+ radio stations throughout Tennessee.

Off campus, Dr. Brown was invited to participate in the May 8-10 Agricultural Development Council conference on U. S. graduate training for agricultural development. He also presented a seminar at Michigan State University on May 15, "Putting Rural Development Policies into Action." Both of these provided good opportunities to acquire new ideas for possible innovations in the department's international dimension at UT.

Forthcoming in the next issue of Tennessee Farm and Home Science is an article by Dr. Badenhop, "U.S. and Tennessee Farmers' Stake in World Agricultural Exports."

UT established this year a new "International House" as a center of both educational and social activities for foreign and interested U.S. students. The chairman of the planning committee for this endeavor is an agricultural economics graduate student, and Dr. Brown is serving as one of the faculty advisors. This could prove to be effective vehicle for cross-disciplinary seminars related to international concerns.

A Forward Look

For an overview of anticipated directions and emphases of the UT 211(d) work during the five-year grant period, attention is called to the tentative work plan that was submitted informally by Dr. Brown to AID/W through CUSURDI in March 1969.

Looking more specifically at plans for 1968-70, it is hoped that the recommendations for a graduate option in agricultural development and two new development-related courses can receive departmental, college, and university approval and be activated. If such approval is received, the 211(d) professor would teach both courses.

To the extent that applications from appropriate candidates are received, it is hoped that a year from now there would be four or five graduate students in the 211(d) fellowship stream. In addition, one or two part-time workshops may be offered to students with emerging development interests on a term-by-term basis. This would not only enable such students to become better acquainted with international development problems, but would also accelerate the assembly of data and other materials for use in the department's teaching and India backstopping activities.

During the latter part of 1969, the first 211(d) Fellow should be completing an M.S. degree study which bears conceptually on agricultural credit problems in southern India. This would serve as a point of departure for subsequent Ph.D. dissertation work in Coimbatore or Bangalore. It is anticipated that he would be conducting field work in India as early as summer 1970.

Starting summer 1969, a participant from India will begin work on a Ph.D. dissertation that relates to the grain marketing/pricing problems currently being studied in South India by Dr. Badenhop. A second participant will probably start his dissertation study by early 1970. This will probably focus on identification of iso-potential production areas in Mysore and efficient procedures for building up a fund of farming input-output data for extension and development planning purposes. (This relates closely to proposed Tennessee contributions to CUSURDI long-range planning work.)

It is possible that another Ph.D. candidate will be shifted to 211(d) for dissertation work in India in late 1969 or early 1970. If so, the topic will probably be one that contributes further to the marketing/pricing study mentioned above.

The 211(d) professor has no definite plans at this time for additional stays in India. His own emerging research focus is on change-agency planning as a problem of economic choice. During the coming year he hopes to develop some conceptual and educational materials which bear especially on program-design problems observed in South India. The expectation would be for Dr. Brown to accompany the first 211(d) Fellow to help him with his Ph.D. study. However, an earlier trip could be made if felt by others to be useful in connection with AID-supported activities, or toward reinforcing work of Indian agricultural economists.

Starting fall 1969, the department's teaching and research staff will be strengthened by two staff additions -- one, a recent Ph.D. from Minnesota in the area of resource development and regional analysis, and the second, a recent Ph.D. from Purdue in the areas of marketing and finance. It is anticipated that both will have involvements with internationally related activities of the department.

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SOME INFORMAL ITEMS PREPARED BY DAVID W. BROWN RELATED TO 211(d) ACTIVITIES
July 1, 1968 - May 31, 1969
(Available on request)

- 68-1 Rural Development Agencies as Decision Makers, 15 pp.
- 68-2 Some Courses and Seminars of Special Relevance to Rural and International Development, 2pp.
- 68-6 Some Initial Ideas about Thesis Possibilities Related to Tennessee's Work in Southern India, 6 pp.
- 68-7 Course Proposal: Planning and Implementation of Rural Development Programs (first draft), 2 pp.
- 68-10 Checklist of Possible Activities and Changes Related to 211(d) and Agricultural Development, 5 pp.
- 69-4 Report of Activities Related to the AID/Section 211(d) Grant, July 1, 1968-January 31, 1969, 5 pp.
- 69-8 Sketch of Plans for 211(d) Work from March 1969 to about July 1970, 3 pp.
- 69-12 Work Plan: 211(d) Grant Program in Agricultural Economics, 16 pp.
- 69-14 Needs and Activities Related to International Teaching and Research (prepared for UT Committee for Oriental Studies), 4 pp.
- 69-39 Putting Rural Development Plans into Action (summary of seminar presentation at Michigan State University), 6 pp.