

To: 1. Brandon Robinson, Chief, Analysis Division
REDSO/EA

2. AAO, USAID Mission
Kigali, Rwanda

3. Beverley A. Carlson, Chief, General Surveys Branch
ISPC, U.S. Bureau of Census

4. Kent Daniels, Survey Statistician
General Surveys Branch, ISPC
U.S. Bureau of Census

5. AID Reference Center
Agency for International Development
Washington, D.C. 20523

FROM: James L. Stallings, Agricultural Economics Department
Auburn University, Auburn, AL

Subject: Trip Report of Trip to Kigali, Rwanda
October 22 - November 2, 1979

Contract No. AID/afr-C-1607

Project No. 698-0135

Project Title: Collaborative Survey and Analysis of Agriculture

ROLE OF AGRICULTURAL ECONOMIST AS STATED IN CONTRACT

According to the contract, the Agricultural Economist will make three trips of approximately two weeks each to Rwanda in October 1979, January 1980, and July 1980, with possible brief stopovers in Nairobi and in Washington, D.C. General duties will include: "technical guidance, support, and assistance in the area of Agricultural Economics to the MOA of the GOR, the AAO in Rwanda, and the Chief of the Analysis Division in REDSO/EA with respect to the pilot design and project preparation stage of the Collaborative Survey and Analysis of Agriculture in Rwanda." (See contract for more detail).

GENERAL ACCOMPLISHMENTS OF THE TRIP

General accomplishments of the trip included:

1. Becoming acquainted with AID and Embassy personnel and MOA, GOR personnel with whom I will cooperate during the project.
2. Assessing the situation to this point, identification of problems, and making suggestions.
3. Participating in the drafting of the PID for the project, which took most of the time (see draft attached).
4. Start of the outline and parts of the anticipated P.P.

STAFFING OF THE NEW UNIT WITHIN MOA

From time to time during the week I, along with Brandon Robinson, Kent Daniels, and sometimes AID personnel, met with Mr. Delepierre, the Belgian expatriate with the MOA who has been in charge of the initiation of this project. The purpose was to assess progress to date, talk about problems with equipment, procedure, concepts, etc. of the pretesting taking place, and make plans for the future.

Mr. Delepierre had made considerable progress in designing questionnaires, or recording instruments, and had done some actual field testing of measuring devices which had been sent by U.S. BUCEN and that he had obtained himself in Belgium. Some of the equipment from the U.S. had not proven adequate because of various technical reasons, including not being in metrics, and Mr. Robinson made arrangements to send some of the equipment back.

Toward the end of the week, after I had become more acquainted with procedures, Mr. Delepierre was using, I became more and more concerned with some of the conceptual problems involved in a sample survey of agriculture in a predominately subsistence agriculture country such as Rwanda. Mr. Delepierre had done what I considered a good job conceptualizing most aspects of crop enumeration, but I felt he had not given enough thought to enumeration of livestock numbers (including poultry) and livestock products (eggs, milk, etc.). Some conceptual problems include:

1. How to measure areas of fields which are:
 - a. not rectangular
 - b. not planted as single crops
 - c. not planted in rows
 - d. not planted solid (unplanted areas within a field, boulders, etc.)
 - e. steeply sloping
2. The proper concept to use in measurement of areas of intercropping where crops are double, triple, and otherwise multi-cropped on the same area (i.e.--bananas, which shade coffee, and which have sweet potatoes under them, etc.). Should "typical" mixtures be identified and area enumerated as if it were one crop? Or, should the area of mixed cropping be allocated in some way to each of the crops in the mixture? If allocated, how?
3. The problem of obtaining production of crops and livestock, or livestock products, when a high percent is needed for home consumption and does not enter the money economy.
4. The problem of obtaining livestock numbers when herds may contain animals from several owners. Also, secretiveness in revealing owners and numbers because of taxes and other reasons.
5. The problem of enumeration on a certain date, of livestock numbers (or production) which are produced more than once per year (i.e.,--batches of chickens).

Mr. Delepierre, I felt, had done quite a good job of handling 1 and 2, above, but I felt that more work needed to be done on conceptualizing 3, 4, and 5.

Brandon Robinson and I talked about these problems at the end of the trip and we generally agreed that a so-called "State-of-the-Arts" paper might be appropriate at this point to search out what is already published or known about enumeration of crops and livestock in subsistence economies, especially addressing the problems of enumerating intercropping and livestock.

STAFFING OF THE NEW UNIT WITHIN MOA

A meeting was held with Mr. Gahamanyi, Secretary General, MOA to discuss setting up of the new unit within MOA. The discussion was generally directed by the AAO, with others of us contributing to the discussion and negotiations as appropriate. Present were Gene Chiavaroli, AAO; Terry Barker, Program Officer; Brandon Robinson; Mr. Delepierre; and myself.

As a technical person, it is not appropriate for me to comment on details of the negotiations with the MOA. This was done primarily by the AAO. However, I will offer one comment on the makeup of the new ASAU (Agricultural Statistics and Analysis Unit--the present suggested name). As it now stands (in the original proposal) the organization now calls for:

- 1 agronomist
- 1 agricultural economist
- 2 survey statisticians
- 1 mathematical statistician
- 1 senior systems analyst/computer programmer
- 1 junior computer programmer, and
- 5 Agronomes (A-2 level)

In talking to Mr. Delepierre and reflecting on the matter, I would strongly suggest inclusion of a livestock specialist in the organization. In my opinion, there are special problems associated with enumeration of livestock and livestock products in developing countries which justify someone specializing in the special concepts involved.

The thinking at this point was that a U.S. Agricultural Economist should be in residence here in Kigali for 2-4 years and that the informal recruiting should start immediately even before the project paper. As the MOA seems extremely cooperative at this point, agreeing to the recommendations above and to use of extension personnel already in the field, it was felt that we should not fall behind their efforts. It is my understanding that the agricultural economist would serve as a "project leader" or equivalent for the U.S. interests in the proposed project.

DRAFTING THE PID

From the first day of arrival, work was started in outlining and drafting the PID, as it was felt that timing was important in this case, as the MOA of the GOR appeared to be moving fast on this project and were wanting results to use in their next 5-year plan. Parts of the PID were written by Brandon Robinson, Gene Chiavaroli, and myself; and, by the end of the trip a first draft was written (see attached). The AAO agreed to take it over from that point, edit it, and otherwise get it ready for submission. By the time this trip report reaches the persons involved, there will, no doubt, be a new version. However, for the benefit of the record at the present, and Beverly Carlson and Kent Daniels, who have not seen it, the first rough draft is attached.

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START OF THE PROPOSED PP

The last two days of the two-week period, I devoted most of my time to outlining and starting a draft of the PP, which I brought home to Auburn with me in a loose-leaf notebook. At the same time, I was helping clean up parts of the PID and Brandon Robinson was writing a final part. It was felt that if we got a good start now on the PP it would be much easier to complete in the limited time available during future trips. Work on the PP consisted mostly of outlining the parts and insertion of parts of the PID and other materials, as presently available, in the appropriate sections of the loose-leaf notebook.

COMMENT ON THE SOP (State of the Arts Paper on Inter-Cropping and Livestock Enumeration)

Brandon Robinson and I talked and agreed verbally, the last day of the trip, that such a paper would be desirable and might substitute for one of my three trips. While this is not official as yet, and he said he would put it in writing, if O.K., I have started to think about it and have started a file of references, contacts, etc. on the subject. One aspect which might be appropriate has surfaced. One of my graduate students, who has considerable experience overseas in francophone countries, is interested in part or all of the paper as a possible M.S. thesis. If it could be divided into two parts, he would like to do the livestock aspect. While time might be a problem in doing a M.S. thesis, he might be willing to stop everything and do it now, or help me do it, if he could get a thesis out of it. Let me know your thoughts on this.

PLANS

My plans are as follows while awaiting word on the next trip to Kigali:

1. Submit this trip report.
2. Help recruit for the Agricultural Economist position.
3. Supply Brandon Robinson some material requested.
4. Do a minimum amount of further organization of the rough PP.
5. Start of a possible SOP (State of the Arts Paper) concerning enumeration of inter-cropping and livestock in a developing country. (Complete this if and when directed.)

First Rough Draft as of
3 NOV 1979

PROJECT IDENTIFICATION PAPER
(PID)

Contract No. AID/afr-C-1607
Project No. 698-0135

COLLABORATIVE SURVEY & ANALYSIS
OF AGRICULTURE

GENERAL OUTLINE

DESCRIPTION AND PURPOSE OF THE PROJECT

RELATIONSHIP OF THE PROJECT TO THE DAP AND HOST-COUNTRY PRIORITIES

DISCUSSION OF AID POLICY ISSUES

ESTIMATED PROJECT COSTS

PROJECT PREPARATION STRATEGY

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SELECTED ACRONYMS AND DEFINITIONS

USED IN THIS DOCUMENT

AAO = AID Affairs Officer

Agronome = a general term for an employee in the MOA which does not necessarily mean agronomist, but a worker in all aspects of agriculture

AID/W = Agency for International Development/Washington

ASAU = Agricultural Statistics and Analysis Unit

BUCEN = Bureau of the Census (U.S.)

Commune = an administrative sub-division of Rwanda which roughly approximates a U.S. county, further subdivided into "sectors" and "collines," and which is within a larger unit called a "prefecture"

DAP = Development Assistance Program

FED = Fonds Europeen de Developpement (European Development Fund)

FY = Fiscal Year

GOR = Government of Rwanda

IBRD = International Bank for Reconstruction and Development, otherwise known as the "World Bank"

MOA = Ministry of Agriculture

PDS = Project Development Support

PID = Project Identification Document

PP = Project Paper

REDSO/EA = Regional Economic Development Support Office/East Africa

RwF = Rwanda Francs = 91.5/\$ as of November 1, 1979

TDY = Temporary Duty

USAID = United States Agency for International Development

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DESCRIPTION AND PURPOSE OF THE PROJECT

The proposed collaborative survey and analysis of agriculture in Rwanda has two basic purposes: (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.

Rwanda began developing its governmental institutions as an independent nation comparatively recently. It has not yet carried out a national agricultural survey; it has not prepared a field staff of enumerators and interviewers; and it does not yet have a unit or division in the Ministry of Agriculture dedicated to the collection and analysis of needed data. The Ministry has recently decided to collaborate with A.I.D. in the design and execution of a project that would eliminate this deficiency. One of the first staffing measures to be taken would be the establishment of a seven-person Agricultural Statistics and Analysis Unit (ASAU) in the Ministry consisting of an agronomist (probably chief of the unit), an agricultural economist, a general survey manager, a field survey manager, a mathematical statistician, a computer science systems analyst, and a computer programmer. This new unit would constitute a central depository for all information of importance for the development of Rwandan agriculture; it would design and carry out surveys on a periodic basis; it would design and direct the tabulation and processing of the survey data; and would carry out comprehensive policy analyses based on survey results, as well as other relevant studies and information.

The other major organizational measure to be carried out by the GOR under the project would be the development of a field data collection staff to be directed by the ASAU field survey manager. The Ministry has decided that the major portion of this staff would be constituted by 141 A-2 Ministry of Agriculture agronomes assigned to the 141 communes. An additional 10 agronomes at the A-2 level would be hired as field data collection supervisors working from the 10 prefecture headquarters.

Since Rwanda is relatively inexperienced in data collection, tabulation and analysis, the project will provide considerable technical assistance, formal training and on-the-job training in these areas. To assure proper survey design, processing and analysis, together with adequate development of ASAU and the field data collection staff, the project will include a rather extensive pilot phase prior to the full-scale survey and analyses phase. Each phase consists of three stages to be carried out in accordance with the following schedule.

Phase I - The Pilot Phase

1. July 1979 - August 1980 : Pilot Design and Project Preparation
2. September 1980 - August 1981 : Pilot Data Collection Activities
3. September 1981 - February 1982 : Evaluation of Pilot Phase

Phase II - The National Agricultural Survey and Analysis

4. March 1982 - August 1982 : National Agricultural Survey Design and Preparation
5. September 1982 - August 1983 : National Agricultural Survey Data Collection
6. September 1983 - February 1984 : Policy Analysis of the Results of the National Survey and Other Studies

Technical guidance and on-the-job training will be provided by two resident advisors, the U.S. Bureau of Census and REDSO. One of the resident advisors will be a Belgian agronomist paid by the government of Belgium. He will be a counterpart to the ASAU agronomist. The other resident advisor will be a U.S. agricultural economist, a counterpart to the Rwandan agricultural economist in ASAU. The Bureau of Census will provide TDY consultant services during the life of the project in data collection, data processing, sample design, statistical and analytical procedures. During FY 80 around 12 person-months will be provided by the Bureau of Census, 1½ person-months by an agricultural economist under contract, and 2 person-months by REDSO.

Formal training in their respective specialities in the U.S. will be provided to ASAU members as follows:

<u>Position</u>	<u>Eng. Training</u>	<u>Subject</u>	<u>Date</u>
Agric. Economist	June-Sep 1980	Ag Economics	9/80-9/81
Gen. Survey Mgr.	June-Sep 1980	Survey Methods	10/80-7/81
Field Survey Mgr.	June-Sep 1980	Survey Methods	10/80-7/81
Math. Statistician	June-Sep 1980	Sampling Methods	10/80-7/81
Systems Analyst	June-Sep 1980	Computer Sciences	10/80-7/81
Programmer	June-Sep 1980	Computer Sciences	10/80-7/81

Provision of equipment and commodities under this project will consist of vehicles, equipment and materials needed for survey work (see illustrative budget in section below).

Project Background and Negotiations

The possibility of carrying out a collaborative survey and analysis of agriculture in Rwanda was first conceived in March 1979. Preparations of the agricultural education project paper was under way, and AAO and REDSO personnel had requested the Ministry of Agriculture for information and viewpoints concerning the need for agricultural technicians and the appropriate content of an agricultural education curriculum for rural students at the post-primary and secondary level.

In the course of developing the agricultural education project it had become apparent that there was a need to carry out an analysis of the existing education system. The data gathered by the Ministry of Education, when examined in the light of the El Salvador education sector analysis findings, indicate rather clearly that in the Rwandan education system structural defects are also impeding the flow of students through the grades and causing high rates of costly repetition. The Ministry of Education and AID agreed that a collaborative analysis of the access and efficiency of primary education was needed. Technical assistance to the 11-person planning office to identify the existing large-scale waste of resources, and the corresponding corrective measures for bringing about significant savings in costs, was therefore made a component of the agricultural education project.

Discussions in the Ministry of Agriculture that initially focused on the agricultural education project revealed that the fact that both the organization and informational bases for policy-making and planning are in much worse shape in the Ministry of Agriculture than in the Ministry of Education. The data on acreage, production and yields, published yearly by the Ministry of Agriculture is the main data source for the GOR Five-Year Plan. These data which are also the main information source for projects, and the principal numbers used in the so-called sector reviews or sector assessments of donors, are highly unreliable, and are more accurately characterized as "guesstimates" than as "estimates."

There is no statistics and planning unit in the Ministry of Agriculture which would be the equivalent of the existing 11-person unit in the Ministry of Education. Since past and present agricultural production levels and yields are not known, production targets under the five-year plan should be viewed as arbitrary and unverifiable. Moreover, without data and analysis, policies and investments for increasing production and yields must be based largely on the conventional wisdom that has so often proven wrong. Although there have been some interesting studies made by Belgian and French technicians, these have been small-scale studies and have provided very little in the way of generalizable findings. A large disaggregate fund of data is needed to measure variations in production and yield, analyze and explain these variations, and identify the policies and resource allocations which are more likely to bring about the increases needed to feed a fast-growing population.

General suggestions and broad exhortations concerning the need for obtaining such data have been made in the past by certain observers. In the last section of a recent 143-page report "Agricultural Production, Marketing and Crop Storage," W. H. M. Morris, an agricultural economist from Purdue University who has done considerable work for AID in Rwanda, states the following:

A socio-economic evaluation of the current farming systems in the different types of farming areas in Rwanda would point out some directions in which increased productivity might be sought. This would also provide useful information for researchers on research needs. It is rather unfortunate that in this sector which is so important for the future, there is so little data on which to build a plan. Past performance indicates that an increase in food crop production slightly faster than the rate of increase in population is possible but there is no indication of how long this can last and there are indications that before family planning has taken effect on the population, the population will exceed the land resources in several areas of the country.

Some discussion of an agricultural "census" (an impractical idea for many reasons) was initiated by FAO, but no significant action seems to have come of it. One of the more influential documents concerning agricultural policy in Rwanda, the 1977 World Bank Agricultural Sector Review, skirts the basic issue of reliable and comprehensive data, and host-country analysis and planning with the usual official dexterity.

The President of Rwanda has called for a major agricultural data collection effort and pointed to the 1978 population census as the basis for this effort. In response to this presidential concern, the GOR had a Belgian agricultural researcher, Gilbert Delepierre, who had been working for 21 years in ISAR, the GOR agricultural research organization, transferred to the Ministry of Agriculture as an advisor to the Secretary General. One of his responsibilities was to obtain a satisfactory data base that could be used for planning. AID discussion with Delepierre revealed the opportunity to combine various REDSO Analysis Division specialties including sector analysis design and implementation (an area in which AID has broken ground) together with the statistical, survey and computer expertise and related sector analysis experience of the AID/RSSA Bureau of Census personnel to help the Ministry design and implement a collaborative survey and analysis of agriculture.

In July 1979, both the Chief and a mathematical statistician of the General Surveys Branch, ISPC, Bureau of Census and REDSO's Analysis Division Chief worked for 2 weeks with the Ministry of Agriculture in the preparation of an "Outline of a Possible Collaborative Survey and Analysis of Agriculture in Rwanda." The document was translated into French, and the proposal discussed with the Secretary General, Leopold Gahamanyi, and the Director General of Agriculture, Mr. Nsabiimana. Agreement on the broad outlines of the possible project was subsequently confirmed by a written request. The main issue addressed at this meeting was the need for an extended institution-building pilot phase for organization, staff-

ing, training, design, the field testing of instruments and procedures-- a phase not to be completed until February 1982. This phase would be followed by the full-scale survey and analysis in March 1982. Ministry of Agriculture acceptance of the need for the extended pilot phase opened the way for further planning and discussion.

The Pilot Phase is composed of three stages. The first is the July 1970 - August 1980 Pilot Design and Project Preparation stage. During this stage TDY consultant services by REDSO, BUCEN and an agricultural economist, financed with PDS funds, and, possibly, some training in the U.S. has been and will be provided. The present document, the PID under review, was prepared during October 22 - November 3, 1979 by the AAO, REDSO's Analysis Division Chief, a BUCEN survey statistician, and the agricultural economist under contract. The AAO and the TDY team met with Mr. Gahamanyi, the Secretary General, and Mr. Delepierre to consider the major commitments involved in the proposed project. The main issues addressed at this meeting was the need to create and staff a 7-person statistics and analysis unit in the Ministry and to create 10 statistical or data collection supervisory positions in the 10 prefectures. The Secretary General promised immediate action on both fronts and requested, in turn, that the proposed U.S. agricultural economist resident advisor begin working in Kigali as soon as possible. The AAO explained that this advisor could not be provided prior to AID/W approval of the PP and the signing of a project agreement, but that the identification of possible candidates would begin at once. (See attached staffing, training and counterpart list.)

Positions*	Rwandan Named for Position by	Begins Working In ASAU by	Training in U.S.**			Comments
			English (if needed)	Subject & Dates	Counterparts	
1. Agronomist	November 1979	November 1979			Expat. TA (Belge)	
2. Agricultural Economist	December 1979	January 1980	June-Sept 1980	Agric. Economics Sept 80-Sept 81	Expat. TA (US)	U.S. resident-Agric. Econ/Sociologist
3. General Survey Manager	December 1979	January 1980	June-Sept 1980	Survey Methods Oct 80-July 81	United States Census Bureau staff in U.S. and short-term TDY visits to Rwanda	These persons will be sent for long-term training only if deemed necessary. If qualifications adequate, on-the-job training in Rwanda and U.S. (short-term) will be done
4. Field Survey Manager	March 1980	April 1980			"	
5. Mathematical Statistician	January 1980	January 1980	June-Sept 1980	Sampling Methods Oct 80-July 81	"	
6. Systems Analyst (Programmer)	March 1980	April 1980	June-Sept 1980	Computer Sciences Oct 80-July 81	"	On-the-job training with U.S. Census Bureau Surveys and Evaluation Unit included
7. Programmer	March 1980	April 1980	June-Sept 1980	Computer Sciences Oct 80-July 81	"	

*See attachment for general description of duties.

**All training at International Statistical Training Center of U.S. Bureau of Census, except that for Ag. Economics which will be at an appropriate U.S. university.

Position Qualifications

1. Agronomist - University graduate with some managerial experience.
2. Agric. Economist - University graduate, hopefully with some university economics training.
3. General Survey Manager University graduate.
4. Field Survey Manager - University graduate or some university experience.
5. Mathematical Statistician - IANSA graduate
6. Systems Analyst (Programmer) - Some university experience. Any computer related knowledge or experience would be helpful.
7. Programmer - Some university experience. Any computer related knowledge or experience would be helpful.

10 Field Data Collection Supervisors - (Agronomes in Field): One Min Ag data collection supervisor will be stationed in each of the 10 prefectures.

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Description of General Duties of Proposed Staff of Agricultural Sector
Analysis and Statistics Unit

A. Agronomist and Agricultural Economist:

To identify data information needs to help GOR officials in determining agriculture sector policy decisions. To detail tabulation plans and work with the other unit staff (survey managers and computer programmers) in preparing editing and tabulation plans for survey data, so that plans are realistic and coordinated, to work with other unit staff in designing appropriate collection techniques and instruments. To analyze and interpret findings. To serve as resident advisor to the MOA concerning the project.

B. General Survey Manager:

Acts as overall survey manager, with responsibility for coordination and timely completion of survey design, sample design, data collection, data processing and tabulation, and timely output of survey results. Works with other unit staff in designing questionnaires, detailing, collection techniques, and preparation of computer editing and tabulation specifications. Has specific responsibility for the detailed preparation of the general survey design.

C. Field Survey Manager:

Takes direct responsibility for managing the field data collection staff (agronomes and interviewers/field extension agents) and assuring accurate, complete and timely collection of data. Designs training for agronomes and interviewers (including manuals and other instructional material) as well as field editing and quality control systems. Works with other unit staff in designing questionnaires and preparing computer editing and tabulation specifications.

D. Mathematical Statistician

Works with analysts to identify data needs, levels of disaggregation and precision, and tabulation plans, and with survey managers regarding interviewer capabilities to design and select an appropriate and realistic sample. Reviews tabulation plans to assure reasonableness. Calculates variances and data file weights as appropriate. Works with agronomer and agricultural economist in analysis of results.

E. Computer Programmers (2)

Work with analysts and survey managers in designing appropriate questionnaires, edit plans and tabulation plans vis à vis computer

editing and tabulation. Prepare computer programs to edit and tabulate data files, and weight data files. Calculate variances as needed. Assure that data is keyed (keypunched) accurately, and data file is prepared as needed. Systems analyst is responsible for overall design of processing system and programs.

F. Agronomes (5)

Act as field supervisors for interviewer groups in specific geographic areas. Are responsible for training interviewers, assuring timely and accurate data collection, including: editing questionnaires, assuring quality levels, and delivering completed questionnaires to processing. Carrying out quality control operations (recheck, reinterviews).

The Role of Women

In Rwanda the wife is generally still subservient to the husband as characterized in an old tribal proverb which states: "The hen does not crow if the rooster is there." This is not to imply that there is not a modern, changing segment of the Rwanda people who are changing from the old ways, but the old ways are still predominant among the majority of the rural people who make up 97% of the Rwanda population.

As to work habits, while both men and women generally share in most farm tasks, food production on cultivated land is still traditionally the responsibility of the woman, even though her husband traditionally holds title to the land and often tells her what to cultivate. While nomadic cattle raising is not as prevalent as it once was, due to the increasing pressure on land for raising cultivated crops and the increasing population, the woman has increased responsibility as head of the household when the husband is away herding the family cattle, which is traditionally men's responsibility.

In education, the role of women in Rwanda has been strongly influenced by the Belgium Catholic tradition where sex differences are emphasized with separate schools for girls and boys, although the ratio of girls in secondary schools is about 45%. At higher education levels, however, the ratio is heavily weighed in favor of males. One reason for this is that, even among well educated Rwandans, a large family remains an ideal, and interferes with the higher education of women. As an example of this, a national survey in 1969 of primary school teachers revealed that over two-thirds wanted at least six children.

The implications for human development are summarized as follows, although it should be emphasized that these are based on "Western values." As long as traditional values prevail and the Rwanda fertility rate remains the highest in Africa, population will continue to press dangerously on the food supply of Rwanda and women will continue to have a subservient role to men--by Western values, an "inferior" role.

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The primary way that this project can contribute to the improvement of the lot of women (if, indeed, their lot is considered inferior) is to thoroughly document the situation as it exists in agriculture today. Documentation of the proposed information should include data about the rural family by age and sex, and their farm tasks performed, their years of schooling, and other factors. With such detailed documentation, the GOR will be better able to devise programs to improve the lot of women. There is value judgement involved here, however, and the policy decisions to change the role of women will have to be truly Rwandan policies.

Environmental Issues

Rwanda has one of the more dense population-to-land ratios of all the developing world, and the situation is worsening. Population pressure on the land base has led to nearly all the land suitable for agriculture being brought into use. Much land is presently under cultivation which soils experts would not normally recommend for cultivation. Much of the land under cultivation is considered too steep and practices are being used, such as cultivating up and down hills, which result in high soil losses per year through erosion.

Past attempts by Colonial authorities to introduce conservation practices has failed to lead to widespread adoption by the high percent of subsistence farmers in the country. Traditional practices are difficult to overcome and conservation practices usually come at a cost. One cost of erosion control, for instance, may involve not cultivating the soil on certain classes of land considered too steep. This reduction in intensive cultivation, then, would result in less total calories and protein being produced per acre. If the GOR decided to make payments as incentives to adopt certain conservation practices, this would result in a money cost to the government. Politically, and without authoritative and overwhelming documentation of the extent of the problem, it is easier to do little or nothing about the problem.

This project is designed to assist the GOR in developing an integrated information and analysis system for determining government policy decisions in agriculture. One aspect of this system will be to determine present cultural practices on the land and to assess their impact on the environment, especially the determination of the extent of soil erosion and other detrimental cultural practices. Further analysis will suggest alternatives to present practices, along with their physical and money costs of adoption. Authoritative documentation of the extent of the problem, and detailed analysis of the alternatives, should aid authorities in making sound short and long run policy decisions which they might simply ignore otherwise because of the lack of information on which to base their decisions.

Government policy decisions may be painful decisions politically. Any decision which involves a trade-off between a reduction of short-run production of food in favor of sustained long-run production has poli-

tical implications. Also, if the policy involves incentive payments to farmers to adopt certain practices, this will involve scarce government revenue. Only with authoritative, unquestionable information and analysis, which this project will provide, can such potentially important and politically sensitive policy issues be made.

RELATIONSHIP OF THE PROJECT TO THE DAP AND
HOST-COUNTRY PRIORITIES

The present DAP was completed in October 1977, just as the draft of GOR's Second Five-Year Plan for 1977-1981 was available, a World Bank Sector Review, Rwanda was completed dated June 30, 1977, and just after the GOR had sponsored a Donor Round Table Conference to discuss Rwanda's problems and plans for implementation of the Plan.

All of these sources present a bleak picture for Rwanda's population and food supply situation in the next 10 to 20 years. Rwanda is identified in the DAP as one of the five poorest nations in the world with over 95% of the population deriving its living from the rural sector; where the average per capita income level is approximately \$65 compared with \$80 nationwide and where two-thirds of the population is below the \$65 figure.

Pictured is a country where subsistence agriculture, with few exceptions, will continue for some time to be the only avenue for employment for as much as 95% of the people. Further, population pressures have led to very intensive land use with little improvement in cultural practices in recent years. This, in turn, has led to a deterioration in the quality of the soil, to increases in erosion, to decreases in crop yields and to lower nutritional standards.

The DAP quotes projections by several different sources which "... have determined independently 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 as the capacity of the land to support the steadily increasing population declines."

Constraints to Development

Given this bleak picture above, constraints to development are outlined in the DAP as follows:

1. Lack of Appropriate Technology and Its Application. Few farmers utilize improved seeds, soil improvement techniques, improved cultural practices, and improved livestock husbandry, even though the existing pool of knowledge indicates that as much as 100% increases in yields and production is possible in some cases.

2. Acceleration of Soil Depletion and the Low Nutrient Reserve Status of Many Soils. This constraint requires a technical solution which should be disseminated through the extension system. And, the need to correct this constraint is urgent as population pressure increases.
3. Lack of an Effective Extension Service and/or Educational Delivery System. There is a lack of effective dissemination of known technology for production and other information for the well-being of the family. There is an Extension Service in the MOA and Church missions which often sponsor demonstration farms. There are also rural training centers and MOA research stations. However, serious deficiencies exist in dissemination of known information.
4. Lack of Rural Infrastructure. Producer access to inputs and markets is not always good. Needed are more or improved cooperatives, rural service and processing enterprises, storage facilities, credit, farm to market roads, sources of agricultural inputs, and promotion of community organizations and regional development services.
5. Manpower Deficiencies. While there is a surplus of unskilled rural labor, severe shortages of trained and educated personnel exist to man senior, intermediate, and lower level civil service positions, both in the capital and in rural areas, especially in the Extension Service.
6. Inadequate Storage. While included under 4 above, this is a critical constraint which should be recognized separately. On-farm storage losses are estimated at 35% in some parts of Rwanda.
7. Inadequate Supplies of Quality Seed.
8. Excessive Deforestation Resulting from Overcutting of Trees for Firewood.
9. Inadequacy of Rural Health Facilities.
10. Lack of an Adequate Integrated Information System for Determining and Analyzing Information. While this is not specifically discussed in length as a constraint, it is implied in various places in the documents mentioned above. There have been intermittent surveys and studies and there are various units of the GOR collecting data on climate, soils and other aspects of the rural areas. However, there is lack of a central integrated unit which can systematically collect, assemble, and analyze these diverse kinds of information for solving Rwanda's rural problems and relieving the various constraints to development.

Goals and Priorities for Development

In order to remove the major constraints to development enumerated above, the following goals, priorities or strategies are summarized from the GOR's five-year plan and other sources:

1. to increase food production;
2. to improve nutritional levels;
3. to promote a more productive utilization of the work force;
4. to employ fully the available work force;
5. to improve rural infrastructure;
6. to establish an administrative framework for integrated rural development programs; and,
7. to improve the balance of trade.

The above 7 goals are general and do not separate sector goals. The DAP lists the following more specific goals for the agricultural sector:

1. intensification and diversification of food crops;
2. improvement of livestock productivity;
3. increased productions of cash and export crops;
4. improvement of storage and marketing facilities;
5. soil and water conservation;
6. general modernization of agriculture, including research, small-scale mechanization and credit;
7. development of complementary activities such as fisheries, bee-keeping, and poultry/livestock enterprises;
8. improvement of agricultural training and extension;
9. development of nutritious foods and nutrition education;
10. promotion of community organizations and regional development services;
11. increase the productivity of the rural workforce;
12. diversification of employment opportunities; and,
13. increase rural employment.

Priority of This Project Within Overall U.S. Strategy

In discussing the role of AID in Rwanda, it is stated in the DAP, "that agriculture, specifically food production and intensification of

all agricultural production, receive the highest priority in Rwanda." There is a further key statement that, "the U.S. should support the GOR's goals and plans in the agriculture sector, especially as they relate to food production and soil and water conservation." The DAP then goes on to discuss each goal and constraint more specifically.

Implied in all the discussions of the DAP, however, is that the situation as it now exists in rural areas will be known. Also implied is that information available will be analyzed and interpreted so that solutions to the various constraints to development will be known. Such is not the case, however. According to key MOA officials, "estimates of current production, acreage, and yields on which the food production target is based are not reliable." It is also alleged that "...existing variations in production, yields, inputs, technologies, cultural and marketing practices and, hence, many of the more important constraints to and means for increasing production, have yet to be identified and quantified."

Without this more detailed kind of information, it is unlikely that the MOA will be able to devise effective policy for meeting its goals and relieving the constraints to agricultural development. Generally speaking, formulation of agricultural policies has been excessively dependent upon reviews and assessments prepared within extremely brief periods by foreign advisors. There is currently no unit within the MOA responsible for coordination, collection, and analysis of information from various sources and suggesting alternative policy decisions. What is needed is a unit which is Rwandan, rather than expatriate oriented within the MOA which would have two fundamental objectives:

1. to obtain findings of immediate utility for policy; and,
2. to strengthen host-country capabilities in data collection, data processing, analytical interpretation, and the formulation of policy.

It would seem that such a unit as envisioned under this project would be absolutely essential for meeting U.S. and other donor strategy and aid to Rwanda.

Some Examples of Major Questions and Information Needs

In order to illustrate the need for an integrated unit for information collection and policy generation, the following examples are given. However, these are only general examples and it is anticipated that a subsequent Project Paper (PP) would enumerate information needs in more detail.

1. What are the present agricultural resources available for feeding the people? How are they presently used? What is the distribution of fallow, pasture and cropland by region and by farm size within and across regions? What accounts for the variations? What improvements

can be made in the use of land resources when these are viewed in terms of broad classes? To answer such questions, it will be necessary to review available data, identify data gaps, and obtain data concerning:

- a. the soil and its capabilities
 - b. water resources
 - c. weather and climate characteristics
 - d. area of each cultivated crop, production, and production per unit
 - e. areas of intercropping and double cropping
 - f. livestock and livestock product production
 - g. pasture lands by classes
 - h. forest lands by classes
 - i. idle lands
 - j. land in man-made lakes and ponds
 - k. generalized types of farming areas and/or ecological zones
 - l. actual and potential calorie and protein production
 - (1) for the nation
 - (2) per holding
 - (3) per person
 - m. analysis of alternative crop and livestock mixes for producing more calories and protein
2. How is agriculture presently organized to provide food for the nation? What is the present performance of the agricultural sector with respect to food production? What is the acreage devoted to each crop? The production? The yield? What are the totals and averages by ecological zone, prefecture and commune? What are the land/production and population/production ratios for each of these? What are the variations among these areas, and what accounts for these variations? What is the distribution of farm sizes? What are the variations in acreage, production and yields (APY) by farm size? On a national basis, and on a regionally disaggregate basis? What is the relation between production and parcelization? Between production and the distance between parcels and house? Land reform implications? Is more efficient organization of agricultural producing units possible? To answer such questions, it will be necessary to review available data, identify data gaps, and obtain data concerning:
- a. Size and production of present holdings
 - b. Fragmentation of parcels of present holdings
 - c. Nature of the management unit (family farm, corporation, etc.)
 - d. Number of individuals in the household by: age, sex, marital status, etc.)
 - e. Tenure arrangements (land owned, leased, others)
 - f. Off-farm work performed by members of the family
 - g. Hired labor, if any
 - h. Analysis of production and consumption of crops and livestock and products by size of farm, per person, etc.

- i. Analysis of alternative farm organizations by size and other characteristics
 - j. Sales of farm products off the farm and other farm income
 - k. Comparison of traditional farm organization with paysannats: variations in calorie and proteins and income and their statistical associations with the factors listed above.
3. To what extent is present farm organization and practices contributing to a deterioration of the nation's natural soil, water, forest, and other resources? What are the current practices that are reducing, maintaining and increasing soil and fertility? How extensive are each? Where are they taking place? What accounts for these practices? Is it possible to change present practices in order to do a better job of conserving the nation's resources for future generations? Can conservation practices be carried out without loss of food production as a trade-off with increased food production? What Government policies might provide incentives for adoption of conservation practices? Data needed for such analysis would include:
- a. present land use: row crops, pasture by classes, intercropping and double cropping practices, forest land by classes, idle land, other uses
 - b. soils of nation, their productivity, topography, susceptibility to erosion and other special problems of management
 - c. comparison of present land use by soil classifications to determine misuse
 - d. determination of present conservation practices in use by farmers
 - e. analysis of alternative Government Programs and Incentives for conservation practice adaption including direct payments, costs, etc.
4. How is present farm production used? Home consumption for food? Used for alcoholic beverages? Sold for cash? What amenities do farm families buy with cash farm income? What percent of cash income is saved? What are the implications of the relations among sales, income and production for agricultural policy? Is there evidence that an increase in sales, particularly the amount of food crops sold, has the effect of increasing production? If so, how can cash activity in the sector be increased? Savings institutions? Marketing cooperatives? Data needed for these questions include:
- a. production of individual crops and livestock on each holding broken down by "use for home consumption for food? for making alcohol? for livestock feed? other?"
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- b. amounts of each crop and livestock sold and amount of money received
 - c. amount of farm sales used for: purchase of food products, purchase of alcohol, inputs for agriculture, etc. (needs extensive design for these questions)
5. To what extent are the various farm inputs provided by the farm and the farm family and what kinds are purchased and their costs?
- a. an estimate of amount of unpaid family labor available on farm
 - b. hired labor, if any
 - c. seed source and cost if purchased
 - d. farm chemicals used (fertilizers, insecticides, herbicides, medicines for livestock, etc.) and amount and cost
 - e. other (needs design)
6. What are the differences in crop mix, cultural practices and technology by region and farm size within and across regions? What accounts for the variations? What are the relations of these variations in technology and cultural practices with production? What kinds of non-human power sources are used, if any (animal power, motorized power, etc.)? What are the differences in the yields of the different classes of farms and ISAR yields and what accounts for these differences? What are the variations in the use of seeds? Fertilizers? Implements? Use of animals? Manure? What are their relations to production? To costs and benefits? Which farmers use more productive practices? Why? What are the implications for extension? Where are intercropping patterns complementary? Where conflicting?
- a. check off questions to note ownership or use of different items of machinery, tools, equipment and animal traction and columns to list how many of each (needs design from experience and pretest)
7. Can the farmer efficiently market surplus crop and livestock products if they are available? What are the constraints to efficient marketing of products sold off the farm? What prices do farmers receive for their products? Are these prices high enough to produce an incentive to produce for sale off the farm? Do they cover cost of production?
- a. distance to market by major products sold off the farm
 - b. located on a well maintained road
 - c. computation of net prices received
 - d. synthesis of variable and fixed cash costs of production

DISCUSSION OF AID POLICY ISSUES

The collaborative survey and analysis project will not be an easy project to implement. It has been designed as an institution-building project that is aimed at establishing a process of continuous data collection and tabulation, and periodic comprehensive agricultural analyses in a country which has had very little experience in these areas. Consequently, there is a significant element of risk in the project, and a possibility that it may fail.

The large social benefits that would be derived from the execution of a successful project constitute the justification for taking the risk. The project would be an opportunity to solve two grave and complex Rwandan problems that have been brought about by population pressures on increasing scarce land: soil depletion and shortfalls in the production of the food needed to feed a fast-growing population.

Studies of Rwandan agriculture by consultants, including experts of the main multilateral organizations, have not been able to determine how to solve the two problems specified above and achieve the corresponding objectives of increasing food production and conserving the fertility of the soil. Indeed, it is believed (there is insufficient reliable data to warrant the generalization) that per capita food production and the general fertility of the overworked soil are decreasing fairly rapidly. At present there is no identified set of measures that can be taken to reverse this apparent trend, and it is highly unlikely that solutions can be found without additional information and analysis. Moreover, if the analyses are not carried out in Rwanda with the participation of Rwandan officials, it is highly unlikely that the more important analytical findings will be reflected in policy changes.

It is, of course, possible that without major social upheavals Rwanda will not solve its two major problems during the remainder of the century whatever the kinds of technical assistance projects and whatever the level of resource transfers provided by donors. But it is difficult to escape the conclusion that if there is, in fact, a solution to these problems, this solution involves or comprehends the kinds of activities that are described in this proposal. Since the prospects for the development of sectors outside the agricultural sector are rather bleak, the consequences of failing to establish a process for identifying the changes in agricultural policies that can help bring about sharp increases in production and yields without further soil depletion would appear to be rising levels of malnutrition in Rwanda or increasing shipments of donated food.¹ Clearly, the GOR needs to increase its understanding of its complex agricultural problems and the relation of these problems to its natural resources base. The existing information gaps and misconceptions in the Ministry of Agriculture (beginning with totally unreliable estimates of the production, acreage and yields of the principal food

¹According to the IBRD sector review, if present production levels are maintained, Rwanda will need to import around 1 million tons of food to feed its people in the year 2000.

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crops) cannot be compensated by transfer of resources for experimental activities that are based on hurried so-called sector reviews carried out by the wisest of visiting experts. And the possibility of solving problems which involve natural, agronomic, economic and socio-cultural factors, is also sharply reduced if the problem-solving process is not located in Rwanda.

The major issues for AID and the GOR concern the measures that are needed to increase the probability of the proposed project's success. One of these issues is staffing. It is something of an anomaly that the Ministry of Education in Rwanda has an 11-person planning office whereas at present no such unit exists in the Ministry of Agriculture. Consequently, the project is aimed at eliminating this deficiency by creating an 8-person statistics and analysis unit and following this measure immediately by a 1-year training program for 7 of these individuals. Admittedly, the permanence of any given professional in the Ministry of Agriculture cannot be confidently predicted, but the present availability of unemployed university graduates in agriculture and the relative scarcity of competing employment opportunities in Rwanda can be viewed as favorable signs.

More serious perhaps is the issue of recurring costs. There should be no doubts on this matter. Donors are presently meeting almost all of Rwanda's public investment costs and a significant portion of its recurrent costs. Rwanda is now heavily dependent on foreign assistance and it will be heavily dependent on donors for the foreseeable future. ASAU, the new survey and analytical unit, and the ten additional prefecture data collection supervisors will represent added expenses of, say \$200,000 per year--an increase of about 5% in the GOR recurrent cost budget. That the funds will continue to be provided after 1984 when the project will be completed appears to be a reasonable expectation. This expectation is based not only on GOR support, but on current and planned Belgian participation. The government of Belgium is providing the project with a resident agronomist who will act as a counterpart to the agronomist and probable chief of ASAU. If ASAU performs satisfactorily, financial and technical support from France, the World Bank and the FED can also be expected. After all, a successful ASAU would be the major information source for agricultural policy. Solving agricultural problems is at the heart of Rwandan development, and assistance to agriculture constitutes the major portion of foreign assistance to Rwanda.

Linkages

The new 7-person Agricultural Statistics and Analysis Unit (ASAU) in the Ministry of Agriculture would be responsible for both collecting and analyzing data in order to improve agricultural policy and resource allocations. Since changes in investment and policy must be reflected in the five-year plan prepared by the Ministry of Plan, close cooperation between ASAU and the Ministry of Plan will be necessary. Indeed, a major GOR purpose in establishing ASAU is to obtain reliable baseline

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estimates, feasible production targets and the policies and investments that will, in effect, bring about achievement of these targets under the 1982-86 plan. The Ministry of Agriculture recognizes that the needed information will not be available at the time of the plan's preparation; but it expects to make changes as the information becomes available during the plan period.

The distinction between ASAU's proposed surveys and the proposed analytical work of ASAU should be kept in mind. ASAU survey data would constitute important inputs into ASAU's periodic policy analyses of agriculture, but they would not, by any means, constitute the only inputs. All of the research, studies, surveys, etc. of relevance to agricultural policy would be gathered in ASAU, examined, analyzed, reflected upon, and related to other data sets and analytical findings in integrated and comprehensive analyses of agriculture. For example, the possibility not only of using the findings of a small-scale nutrition survey, but of visiting some of the same rural households under the survey in order to link production and consumption patterns, has been discussed with one of the two FAO resident advisors responsible for this study. Of greater importance will be a National Budget and Consumption Survey that the Ministry of Plan expects to carry out in 1981. Obviously, the results of this survey would constitute an extremely valuable input into the comprehensive sector analysis that would follow the national agricultural survey.

The ASAU will have developed the capabilities required to make maximum analytical utilization of available data at the time it carries out its first comprehensive sector analysis is, of course, open to doubt. This is precisely why the long-range institution-building nature of the project should not be lost from view. It appears reasonable to expect Agricultural Sector Analysis -1 to have various defects, Agricultural Sector Analysis -2 to be better than Analysis -1, Analysis -3 superior to its predecessor, and so on.

There are important potential linkages that should be made between the proposed Collaborative Survey and Analysis project and the ongoing Local Crop Storage project. The latter calls for 6 different kinds of research. Some of the activities (indigenous and on-farm storage, inventory of bean varieties, yields in pure stands and in association, and socio-economic studies--four of the six research activities listed for the project) along with relations of production, productivity and sales, and differences between planting and harvesting areas (estimates that should emerge from tabulations of the national agricultural survey) might also be considered for inclusion in the ASAU survey which would be aimed at providing data which will provide reliable generalizations for each of the 12 ecological zones. Information should flow in both directions. Experiences obtained and evaluations concluded under the Local Crop Storage project which is expected to have direct impacts on 175,000 farm families should, on the other hand, provide important information concerning cooperatives, the costs and benefits of commune crop storage, and the effectiveness of GREMARWA, the national marketing entity, for the comprehensive analyses that would be carried out by ASAU.

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The analytical findings obtained by ASAU would be of considerable value to activities carried out under the recently approved Agricultural Education project. The GOR has initiated a major educational reform which is focused on the rural areas and is aimed at providing widespread and relevant education that will contribute significantly to the increase of agricultural production. Determining what the classroom and practical work content or curriculum of that education should be is a difficult task. As well as providing certain general intellectual and agricultural skills, the curriculum should provide skills that are needed to solve Rwandan problems and satisfy Rwandan needs; and this curriculum should vary from region to region when regional problems and needs differ significantly. As ASAU carries out comprehensive analyses of agriculture and obtains analytical findings of utility for policy, the relevant findings should be utilized by the Ministry of Education in making the appropriate changes in curriculum.

Similar considerations can be made with respect to extension and research. It is often claimed that the extension service is extremely ineffective and that most of the personnel needs to be upgraded. As the surveys and analyses locate and identify specific agricultural problems it should be easier to determine precisely how to improve the extension service, and to determine precisely what kinds of new skills are needed by agents in any given region. In the case of agricultural research, the desirable linkages to analysis are so obvious they should not require elaboration. There is always a need to identify the priority problems on which the scarce scientific and financial resources for research should be concentrated. Such identification would be an important contribution of ASAU.

A three-way linkage or set of relations that also merits consideration here involves sector analysis, sector strategy, and coordination among donors. It is not a secret that in Rwanda, as in many other LDC's, donors tend to compete rather than cooperate in the design and initiation of projects. As a result, the LDC "sector strategy" fairly often tends to reflect a melange of donor preferences, and to be constituted by projects which were conceived and developed in relative isolation. As has often been pointed out, such a "strategy" may have undesirable effects on the use and development of scarce technical and managerial LDC talents.

Comprehensive analyses can begin to move Rwanda of these difficulties. As the GOR develops its data collection processing capabilities, and as it carries out increasingly comprehensive analyses, it will begin to develop its own sector strategy and will then have a much better basis for coordinating assistance among donors. Indeed, collaborative survey and analysis projects can be viewed as indications that USG foreign assistance programs are truly aimed at decreasing Third World dependence.

ESTIMATED PROJECT COSTS
(See Following Tables)

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Commodities	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	Total
4 jeeps for ASAU	\$10,000	\$20,000	\$10,000			\$ 40,000
20 motorcycles (10 for prefecture field supervisors, 10 for agronome-interviewers in 10 largest communes)		\$16,000				\$ 16,000
180 sets of survey equipment compasses, slope measurement service, hand transit, metal tapes, scales, etc. for 141 interviewers plus 39 spares	\$10,000	\$30,000				\$ 40,000
12 range finders	\$ 400	\$ 1,400				\$ 1,800
<u>Local Costs</u>						
Travel, per diem and transportation costs (buses, gasoline, etc.) for field supervisors and interviewers	\$10,000	\$60,000	\$20,000	\$160,000	\$30,000	\$280,000
Computer time		\$ 2,000	\$ 8,000	\$ 40,000	\$16,000	\$ 36,000
Miscellaneous supplies		\$ 2,000	\$ 3,000	\$ 4,000	\$ 4,000	\$ 13,000
Sub-total (10% contingency)	179,000	251,400	141,000	274,000	150,000	975,400
Inflation						97,500

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Illustrative Budget

Technical Assistance	FY 1980	FY 1981	FY 1982	FY 1983	FY 1983	FY 1984
Agricultural Economist/Rural Sociologist (U.S. resident advisor)		12 p-m \$100,000	12 p-m \$100,000	12 p-m \$100,000	12 p-m \$100,000	48 p-m \$400,000
BUCEN-TDY						
Consultant services in project design and implementation: design of sample and questionnaire, training of interviewers, data processing, etc.	12 p-m	16 p-m	10 p-m	20 p-m	10 p-m	68 p-m (AID centrally funded)
REDSO-TDY						
Assistance in project design, implementation and analytical methodologies	2 p-m	2 p-m	2 p-m	2 p-m	2 p-m	10 p-m (no cost to project)
Agricultural Economist for project design	1½ p-m \$ 15,600 (PDS-FY 79 fund)					\$ 15,600
U.S. training for ASAU personnel Agricultural Economist/Rural Sociologist	14 p-m \$ 25,000					
General Survey Manager	12 p-m \$ 21,600					
Field Survey Manager	12 p-m \$ 21,600					74 p-m
Mathematical Statistician	12 p-m \$ 21,600					\$133,000
Systems Analyst	12 p-m \$ 21,600					
Programmer	12 p-m \$ 21,600					

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PROJECT PREPARATION STRATEGY

Phase I: Pilot Design and Project Preparation

Phase I will involve the generation of ideas and possibilities for the pilot survey, planning the implementation of the pilot survey, and identifying and planning the training for the Rwandan staff. The work involved will be completed on a collaborative basis, involving USAID and REDSO staff, Rwandan counterparts, the Belgian resident advisor, and staff of the U.S. Bureau of the Census (International Statistical Programs Center).

A. November 1979 through February 1980

1. November-December 1979

- a. Rwandan Staff - agronomist identified and on-the-job Delepierre
(ASAU) - agricultural economist candidate and USAID/REDSO
general survey manager identified
- b. Testing of Measurement Technique - initial testing GOR Staff
of methods, questionnaires and equipment to measure Delepierre
land area, crop areas, intercropping and output BUCEN (In
(yield) (testing continues through February-March Rwanda &
1980) USA)
- c. Initial research regarding sample design and size BUCEN (In
for both pilot study and final survey (to continue USA)
as an ongoing activity
- d. Initiation of research into data needs and methods USAID/REDSO
of collection, including prioritizing data needs Delepierre
and identifying alternative data sources (continues GOR staff
into January-February 1980)
- e. BUCEN TDY - late January-early February 1980 BUCEN
2-4 persons: 2 survey statisticians
1 mathematical statistician
1 systems analyst

B. March through June 1980

1. March-April 1980

- a. Rwandan staff (ASAU) - field supervisor, systems MinAg - GOR
analyst candidate and programmer candidates identi-
fied by March and working in ASAU in April
- b. Final decisions regarding type of data to be MinAg - GOR
collected in pilot study, measurement technique USAID/REDSO
BUCEN

- | | |
|---|-------------------------------|
| c. Outline of interviewer training techniques (including quality control) | MinAg - GOR
BUCEN |
| d. Final decisions on sample design/size for pilot study (continuing into May) | BUCEN
MinAg - GOR |
| e. Final draft of <u>initial</u> questionnaire for pilot study completed | MinAg - GOR
BUCEN |
| f. Continuing research on sample design and size for final national survey (ongoing) | BUCEN
MinAg - Gor |
| g. <u>BUCEN TDY</u> - mid-April: 2 survey statisticians
1 math statistician | BUCEN/REDSO |
| 2. <u>May-June 1980</u> | |
| a. <u>Rwandan Staff</u> - candidates for long-term training to U.S. for intensive English training (as needed) | USAID/REDSO
MinAg - GOR |
| b. Interviewer's Manual Training guide drafted and in form | MinAg - GOR
BUCEN |
| c. Questionnaire design and layout completed for printing | MinAg - GOR
BUCEN |
| d. Initial sample for pilot study selected | BUCEN
MinAg - GOR |
| e. Data processing plans for pilot study outlined (clerical and computer) | BUCEN/REDSO |
| f. Tabulation plans for pilot study outlined | MinAg - GOR
BUCEN/REDSO |
| g. <u>Survey Design</u> for pilot survey complete, including data collection techniques, training methods, sample design, size of interviewing staff, processing and tabulation plans, etc. | BUCEN
USAID/REDSO |
| h. <u>BUCEN TDY</u> - June: 2 survey statisticians
1 math statistician | BUCEN |
| i. Supplemental data needs (questionnaire) identified for later stages of pilot study | MinAg
USAID/REDSO
BUCEN |
| j. 10 field data collection supervisors identified (one per prefecture) | MinAg - GOR |

C. July through September 1980

1. July-August 1980

- | | |
|---|-------------------------------|
| a. Interviewer's manual and training materials finalized and reproduced | MinAg - GOR
BUCEN |
| b. Data processing and tabulation plans for pilot study finalized | MinAg
BUCEN |
| c. Quality control plans for pilot study finalized | MinAg
BUCEN |
| d. Methodological Working Document (MWD) prepared on activities to date | USAID
MinAg
BUCEN/REDSO |
| e. U.S. resident advisor begins tour (Aug-Sep) | USAID |
| f. 10 field supervisors begin working | MinAg |

2. September 1980

- | | |
|---|----------------------|
| a. Training of field staff for pilot study | BUCEN
MinAg |
| b. Interviewing begins for pilot study | MinAg |
| c. Final decisions made regarding supplement on data collection for later part of pilot study | MinAg
USAID/REDSO |
| d. Rwandans in U.S. for training begin programs | -- |
| e. <u>BUCEN TDY</u> - 2 survey statisticians | BUCEN |
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¹/These selected sources are attached to this PID both as an indication of where some of the ideas for this document were obtained and as a starting point for drafters of the anticipated PP.

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