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TOWARD A DESIGN FOR THE
SOCIO-ECONOMIC COMPONENT
FOR PROJECT 0052

by

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The opinions stated in this report are the author's
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Introduction

The Core Team and the On-Campus components will require considerable knowledge about the Yemen Arab Republic if Project 0052 is to be successful. The Design Team Baseline Field Study Report, the Social Soundness Analysis, and some of the Individual Team Member Reports reflected initial efforts to generate the socio-economic data and analyses required for Project 0052. This draft is part of a continuing effort to summarize the information which is available and to identify the socio-economic information systems and analyses which will be helpful in justifying, designing, operating, evaluating, and continuously redesigning an Agricultural Development Support Program for the Yemen Arab Republic. The primary objective was to identify a broad range of types of information and analyses. Hopefully, this draft will provoke those who follow to check the research design for completeness and to help identify any remaining gaps.

Additional data and analyses are valuable because they facilitate rational decisionmaking. If data and analysis were free, it would presumably be desirable to collect and analyze every conceivable bit of information which could be used. Information, however, is rarely free, and thus we are forced to consider whether any particular level of data collection is warranted as well as to identify least cost procedures for collecting any particular bit of information. While these statements may appear so obvious as to be platitudinous, they have clear implications for research decisions. Every suggestion for research is by necessity a budget matter and researchers' proposals should be evaluated by the same standards as are proposals for such action proposals as plant breeding experiments or direct extension assistance to farmers. It is not enough to say that a particular database is "needed" or that a special study would be "useful". If resources are to be allocated rationally, researchers must compete against

all possible activities for their funds and must be held responsible for finding the least cost way of obtaining a particular data set.

Reasons for a Socio-Economic Program Component

Some possible reasons for engaging in socio-economic analysis for the Yemen Arab Republic are to:

1. Identify changes in economic, environmental, and social conditions which alter existing planning assumptions.
2. Carry out special studies to fill gaps in socio-economic information of critical importance to programming agricultural assistance.
3. Obtain the information and analyses required for the effective design of proposed subprojects and measure changes in socio-economic conditions as an input into the process of monitoring and evaluating program performance.
4. Prepare periodic agricultural sector assessments and other analyses which USAID/Yemen requires.

Some High Priority Research Tasks

Task 1:

Monitor published economic data, collaborate with knowledgeable observers of Yemeni economic conditions, and observe carefully while in the field to identify changes in economic variables which alter existing planning assumptions.

Problem:

The Baseline Field Study Report identified a set of constraints which restrict development of the Yemeni agricultural sector. After identifying the efforts of other donors and USAID priorities, the Baseline Report offered a strategy for relaxing certain key constraints. Underlying the

constraints and the strategy were a set of planning assumptions. If conditions should change so that the assumptions underlying the Program are not relevant, it would be necessary to redesign the Program.

Objective of Research Task:

Identify, on a timely basis, changes which could alter existing planning assumptions and initiate program reevaluation.

Scope of Work for the Researchers:

Regularly monitor:

- a. Labor migration and remittance patterns which may have implications for future wage rates and availability of investment funds.
- b. Wage rates and employment conditions which may have implications for agricultural production costs.
- c. Balance of payments and foreign exchange reserve changes which may have implications for availability of imported inputs and markets for agricultural products.
- d. Government revenue potential and expenditure plans which may have implications for the ability of the YARG to finance local cost components of the Program and eventually to assume responsibility for the entire Program.
- e. Changes in the structure of economic activity (such as discovery of oil) which may have implications for the planning assumption that agriculture will remain an important activity in rural Yemen.
- f. Changes in farm size, land ownership, farm mechanization, farming techniques and cropping and livestock production patterns, and other changes in agricultural technology which may have implications for the design of direct assistance to farmers.

- g. Public and private expenditure patterns which indicate the extent to which increased income is being used for improvements in the quality of life.
- h. Planned levels and composition of assistance from other donors which have implications for USAID allocations.
- i. Changes in private and public investment patterns which affect the agricultural sector and changes in the capacity of the credit system to finance investment.
- j. Changes in domestic consumption patterns for foods and fibers which alter planning assumptions about markets for products of Yemeni farms.
- k. Distribution of population between rural and urban locations which may have implications for assistance to rural areas.
- l. Changes in the age, sex, and occupational composition of the rural population and changes in rural income distribution which may have implications for the design of agricultural assistance.
- m. Rates of population increase which may alter basic assumptions about future labor markets, per capita income, and national food and fiber consumption.

If substantial alterations in planning assumptions are detected, the researchers should initiate the process of redesigning Program activities.

Resources Required:

If an agricultural economist is assigned to the Core Team, this person could be given responsibility for these tasks. Because of many opportunities to combine these research activities with other assignments, the agricultural economist could accomplish these with two person weeks per year devoted to data collection and analyses with another person week required for report preparation. If no one on the Core Team is qualified

to carry out these tasks, it will be necessary to bring to Yemen a TDY specialist. In that case five person weeks of TDY time would be required for data collection, analysis, and report preparation.

Work Schedule:

Reports should be prepared in advance of the Annual Program Review. Depending on the data of the Annual Program Review, it may be necessary to update the reports in preparation for the agricultural sector assessment, which is to be completed by October 1981.

Task 2:

Project for ten years into the future the supply and demand for trained personnel and identify gaps between supply and demand.

Problem:

One of the major constraints to Yemeni development identified in the Baseline Field Study Report was the shortage of trained personnel at all levels. As a result, the Core Subproject contains substantial resources for U.S. and in-country training. The Ibb Agricultural Training Center Subproject and the projected Surdud, Sana'a Livestock and Faculty of Agriculture Subprojects are designed to provide substantial in-country training. Staffing requirements for Yemeni agricultural institutions are constantly changing. One problem is to determine whether projected training matches requirements for trained personnel. A second problem is to identify whether (or when) trained Yemeni personnel will be available to staff subprojects and end-of-subproject life.

Objective:

Quantify the gaps between the projected supply and demand for trained

personnel over the next ten years and apply the results to program training allocations and to subproject counterpart requirements.

Scope of Work for the Researchers:

- a. Identify the number of Yemeni students studying in educational institutions at all levels. Where possible, identify the names, specializations, and expected graduation dates for all Yemeni beyond the high school level and make this information available to all 0052 subprojects.
- b. Summarize current staffing patterns in Yemeni agricultural institutions together with training levels, years of experience of existing personnel, and incentives for attracting and retaining skilled personnel.
- c. Project personnel requirements for all Yemeni agricultural institutions, including MOA, extension services, agricultural credit institutions, research stations, special projects, and teaching staff at agricultural schools.
- d. Project the likely supply of students flowing into and out of educational institutions, taking into account the number able to meet admission requirements, the number of educational positions available in-country, and the plans of other donors to provide training opportunities outside Yemen.
- e. Identify the gaps between projected supply and demand, taking into account plausible attrition rates for trained personnel in Yemeni agricultural institutions.
- f. Identify the numbers of Yemeni personnel required to staff 0052 subprojects at end-of-subproject life and determine the likelihood that these personnel will be available.

- g. Track the post training careers of 0052 participant trainees and agricultural secondary school students to determine their contributions to agricultural development in Yemen.

Resources Required:

The Core Team agricultural education specialist is ideally placed to collect data on students in the education pipeline. Since this information is routinely compiled by the Ministry of Education, this effort would require no more than two person days per year. The specialist could also easily obtain projections of the supply of students flowing into and out of educational institutions. This activity might require three person days per year. Summarizing current staffing patterns and projecting the demand for trained personnel requires detailed knowledge of the personnel requirements of Yemeni agricultural institutions. This information could be obtained by synthesizing information obtained from the Baseline Field Study Report, from the UNDP Final Report on Project No. YEM/73/005, from Task 6 of the May 80-June 81 Core Subproject Workplan, from the CPO manpower unit, and by consulting with MOA and CPO Planning Officials as they prepare the Second Five-Year Plan for the period beginning January 1982. Efforts to summarize current staffing patterns and to project demand for trained personnel could consume up to five person weeks of time. Quantifying the gap, determining the availability of Yemeni personnel to staff subprojects, and report preparation would require another two person weeks of effort. These tasks could be done most efficiently by a member of the Core Team. Two days per year of Core Team time are needed to track the careers of 0052 participant trainees and agricultural secondary school students into the post training period.

Work Schedule:

Reports should be prepared in advance of the Annual Program Review and, if necessary, updated in preparation for the agricultural sector assessment due by October 1981.

Task 3:

Assess the condition of terrace maintenance and determine the feasibility of incentives for terrace repair and restoration.

Problem:

Casual observation in the Yemeni countryside reveals a large number of terraces which are apparently abandoned. Many of these abandoned terraces, as well as other terraces in current use, are being eroded due to a lack of maintenance. Rising wages may well have led to land abandonment, lack of maintenance, and the gradual destruction of a formerly valuable capital asset, terraced lands. There is fear that the breaching of high level terraces will lead to accelerating erosion which will eventually destroy productive terraces at the lower level, erode waterways, and perhaps even irreparably damage the system of spate irrigation in the lower wadi reaches. As a consequence, the potential benefits from a program of terrace repair and restoration are unusually large.

The costs of a program of terrace repair and restoration are also potentially large. Abandonment and lack of repair are prima facie evidence that private maintenance efforts are not profitable. While the public benefits which accrue to maintenance exceed the private benefits to the extent of potential downstream damage, the absence of private incentives for efficient decisionmaking makes public funding necessary. Because optimal allocation of funds for repair and restoration depends heavily

on the particular rainfall and runoff characteristics of individual mountain slopes, the administrative requirements of a repair and restoration program are likely to be large and to contain the potential for widespread corruption. In addition, public assistance for repair and restoration may reduce the level of private efforts. As a consequence, the subsidies required to stimulate appropriate levels of repair and restoration are potentially very large.

Objective in Phase One:

Determine for limited areas of Yemen whether destruction of valuable land resources is imminent.

Scope of Work for the Researchers in Phase One:

- a. From personal observation, assess the extent of terrace erosion.
- b. From personal observation and interviews, assess the rate at which damaged terraces are being repaired.
- c. Compile a photographic and written record of a sample of locations to be used as a baseline for future damage assessment.
- d. Submit a written report to the Country Program Director.

Resources Required for Phase One:

These tasks can be accomplished by the Design Team Watershed Management Specialist. By integrating these tasks with his other efforts, the specialist could accomplish the work with perhaps two additional days for report preparation.

Work Schedule:

Tasks a-d will be completed before the Design Team Watershed Management Specialist leaves Yemen, probably sometime in September or October 1980.

Disposition:

The Country Program Director will determine if and when to initiate Phase Two.

Objective in Phase Two:

Conduct a preliminary feasibility study on terrace repair, including developing estimates of costs and benefits.

Scope of Work for the Researchers:

- a. For representative target areas, estimate costs for restoration or repair of damaged terraces; also project costs of maintaining restored terraces for a ten year period.
- b. Use results from other Project 0052 (see Task 4) research efforts to estimate the direct economic benefits over at least a ten year period, from use of restored or repaired terraces for agricultural production.
- c. Estimate the economic benefits occurring downstream from restored or repaired terraces for at least a ten year period.
- d. Compare the economic costs and benefits of a program of terrace repair and restoration, and present the results in a written report to the Country Program Director.

Resources Required for Phase Two:

The services of an agricultural engineer or watershed management specialist will be required for two weeks to accomplish Task a. Tasks b, c, and d will require no more than one week of the time of an agricultural economist, provided that data described in Task 4 on the viability of small plot agriculture is available.

Work Schedule:

Task a can be completed anytime between November 1980 and November 1981. (The timing may well depend on when a specialist may be in Yemen to perform other tasks.) If Tasks b, c, and d are to utilize as inputs the results from Task 4, they cannot be initiated before November 1981 when the preliminary results of Task 4 are expected to be available. (Note that acceleration of this schedule will require that substantially larger amounts of resources be devoted to the data collection efforts described in Task 4.)

Disposition:

The Country Program Director will determine if and when to initiate Phase Three.

Objective in Phase Three:

Carry out a large scale survey of terrace damage, do a detailed feasibility study and design a subproject for terrace repair and restoration.

Task 4:

Collect and analyze data reflecting decisionmaking of individual farming units.

Problem 4a:

If subprojects offering direct assistance to Yemeni farmers are to fulfill the stated purposes at minimum cost, considerable effort needs to be devoted to designing the subprojects, to continual monitoring to ensure that underlying conditions have not changed and that inputs and outputs are on schedule, and to end-of-project evaluation. These efforts will require considerable data for individual farming units.

Problem 4b:

Over the last eight years Yemeni farmers have experienced radical changes in relative factor costs and in demand patterns due to the availability of foreign exchange to finance food imports and expanding markets for new crops. In addition, Yemeni farmers received their first introduction to modern agricultural techniques. In the face of such radical changes it is not clear where Yemeni comparative advantage in agricultural production lies. In particular, one cannot necessarily assume that the crops and animals now being produced reflect comparative advantage. One cannot even assume that some cultivated land, particularly the smaller and more remote terraces, are economically viable in the long run.

Problem 4c:

Countrywide figures on imports of tractors, other agricultural equipment and irrigation pumps, and other data on tubewells provide information about the rate at which Yemeni farmers are accumulating real capital. Aggregate data on fertilizer and pesticide imports provide some indication of working capital requirements. Records of the Agricultural Credit Fund and the Agricultural Credit Bank indicate the volume of investment financed by public credit institutions. Thus, data sources are available to provide information on how important components of agricultural credit and investment have changed in the recent past. Unfortunately, this is not very useful in allowing analysts to predict how agricultural investment will respond to greater credit availability or to reduced remittance flows.

Objective 4a:

Collect and analyze data which will permit efficient design, monitoring, and evaluation of all subprojects which provide direct assistance to farmers.

Objective 4b:

Obtain data on actual costs of production and net returns on different agricultural products and make projections based on labor costs, cropping and animal husbandry patterns, and technologies which will reasonably be available within five years. It is important to pay particularly close attention to the viability of small plot agriculture and to the special characteristics of the livestock-feedgrains-forage subsystem.

Objective 4c:

Collect farm level data which will allow analysts to make inferences about the effects of changes in credit availability and remittance flows on agricultural investments.

Alternative Strategies for Accomplishing the Research Objectives:

A rational data collection program must consist not just of objectives as set out above, but also consider costs of data collection, communalities between data collection efforts and other Project 0052 activities, financial constraints, and alternative qualities of data collected. Consider a series of issues relevant to research design.

Issue 4a: Timing of Research and Action Activities.

It is conventional to say that collection of baseline data ought to precede action programs. While the position is familiar, it is often difficult to determine whether this position is based on the assumption that there are no economies to be achieved from simultaneous data collection and action programs or whether this is an assertion that proper research design requires that baseline data not be contaminated by the effects of the programs to be evaluated and that this principle must be

maintained at any price. If for some reason data collected side by side with an action program is of higher quality and/or is less expensive, there exist clear tradeoffs between efficiency of data collection and good evaluation methodology.

Issue 4b: Must Data Collection and Action Activities be Carried Out by Different Persons?

Project proposals often specify that field research is to be carried out by social scientists and that direct assistance efforts are to be staffed by agronomists and extension and water management specialists. The dictum of Adam Smith that "specialization is limited by the extent of the market" seems to be relevant here. If the work load is sufficiently large that specialists are fully occupied with affairs of their own specialty, it may indeed be efficient to staff a project with specialists. If the task is of smaller size, it may be extremely expensive to employ specialists. An alternative is to hire generalists who are capable of performing in more than one capacity. Or, the nature of the tasks may dictate that a generalist can more efficiently carry out more than one function. For example, it may be possible to consult with farmers about their water management problems and simultaneously inquire about field size. (Indeed, the farmer might provide a more accurate measure of field size if he thought that the information was somehow associated with his water management problem.) Of course, it may turn out that the person selected is poorly suited for carrying out more than one task or perhaps more interested in one task than the other. These, however, are problems which perhaps can be resolved by appropriate personnel selection, training, and motivation. When substantial potential economies exist, it would seem

wise to attempt first to select, train, and motivate personnel to be generalists rather than to conclude that rigid specialization of tasks is the route to be taken.

Issue 4c: Organization of Project 0052 Socio-Economic Research Efforts.

It is presumably noncontroversial to suggest that the Core Team should be responsible for the research efforts described above in Tasks 1, 2, and 3. More controversial is whether database development for the purpose of design, monitoring, and evaluation of subprojects should be specified by subproject designers, funded by subproject papers, and controlled by subproject leaders, or whether all these functions should be assigned to the Core Subproject and controlled by the Country Program Director. The principal argument for attaching these activities to individual subprojects is that AID/W insists that efforts to collect baseline data and data for project evaluation be included in and be funded by the relevant subproject documents. The principal argument for attaching these functions to the Core is one of efficiency. As the statement of Task 4 implies, one basic data set for individual farm units has many potential uses. It is likely to be applicable not just for monitoring and evaluating a particular subproject but also for designing and monitoring the entire agricultural sector program. Data from one subproject may, for example, be extremely useful to designers of other subprojects. Core Team personnel are more likely to be cognizant of these interdependencies and motivated to carry out data collection efforts which do not duplicate efforts or otherwise waste resources. As the number of subprojects expands, the potential economies from centralized data collection efforts grow. Centralization of efforts also holds the possibility of permitting

much larger and more sophisticated data collection efforts than could ever be justified for individual subprojects. While it is not impossible that coordination among semiautonomous subproject data collection efforts could result in similar economies, experience teaches that it is certainly less likely.

A Cost Effective Approach to Collection of Baseline Data for the Subsistence Farms Development and Management Subproject:

The most pressing data collection problems facing Project 0052 are the twin needs to generate the information required to select cooperator farmers and to establish a baseline for the Subsistence Farms Development and Management Subproject. The practical problems of generating data for this subproject, scheduled for activation in October 1980, must be solved as soon as possible. The goal of the research design proposed in this section is to offer a cost effective approach to data collection which simultaneously satisfies the subproject's data requirements, contributes substantially to the database required for overall 0052 design and monitoring, and establishes a precedent for subproject data collection which is appropriate for the larger 0052 program now beginning to emerge. This proposed research design is based on assumptions about the cost of data collection, the value of additional information, the practical problems of data collection in Yemen, tradeoffs between different objectives for data collection, and the advantages of a centralized socio-economic research function. Hopefully, the exact character of these assumptions will be transparent to the reader. It is understandable that others who make different assumptions will produce different research designs (which hopefully are cost effective, i.e., result in the lowest possible cost for a given level of data quality and timeliness).

There are three purposes for data collection for the Subsistence Farms Development and Management Subproject, selection of cooperator farmers for the subproject, collection of baseline data to be used in monitoring and evaluation of the subproject, and a contribution to Project 0052 database requirements. The timing of these payoffs differ sufficiently to create distinct tradeoffs between the objectives. Project managers require information on the identity of farmers willing to cooperate with team extension specialists and, if the number of these potential cooperators exceed the number which can be assisted, sufficient information on those farmers to allow a choice to be made among them. Principal criteria for choice include the farmer's ability and willingness to adopt improved agricultural practices, the likelihood that his participation will maximize "spread" effects, and whether he meets the target group description as a "subsistence farmer". During the initial stages of the subproject the priority problem will be to identify at least four farmers in each target area who are willing to cooperate. If more than four are available, the second priority is most likely to be identification of those who will maximize initial spread effects. As the activity becomes established (i.e., no longer threatened by the risk of total rejection by Yemeni farmers), first priority should shift to ensuring that cooperator farmers are indeed members of the target group. This top priority may well emerge in the second year of subproject life.

Data is also valuable as a baseline to be used in monitoring and evaluating the subproject. Ideally, baseline data should be collected early enough in the life of the activity that it is not "contaminated" by the effects of the activity. (Assuming that the effects of the activity are indeed beneficial, the difficulty with using contaminated data is that

the benefits of the activity are underestimated. Data collected at an earlier stage of the project would reveal a lower level of agricultural performance and hence attribute to the project larger benefits.) Conflicting with this reason for early data collection is the reluctance of the typical Yemeni farmer to reveal any information about farm size, profits, or assets. Researchers familiar with the problems of data collection from rural residents suggest that outsiders are likely to be refused such data, or, if offered, the data supplied is likely to be inaccurate. The most attractive technique for overcoming this understandable reluctance on the part of Yemeni farmers to provide information is to first gain the confidence of farmers in the ability of team members to assist them and then convince the farmers that the team's ability to help them solve water management problems, for instance, is contingent upon knowing such things as the size of the field to be irrigated and last year's yields. Such an approach necessarily takes time and risks the possibility that data on farm inputs and outputs will be contaminated by earlier contact with the team.

To satisfy, in a cost effective way, the data requirements and practical constraints set out above, the author proposes particular data collection procedures. The essence of the proposal is that during the first year of project life, data collection will be integrated with direct extension assistance to farmers and will be carried out by full-time team members with minimal TDY assistance. The key ingredients for success of this approach are that some team members be generalists, that team members fully understand and appreciate the importance of carefully collecting and recording the prescribed data, and that someone on the Core Team regularly monitor the data collection process and have available the resources to correct quickly any emerging problems.

The first task of the team should be to identify cooperator farmers. Team members should have available to them a preliminary profile of desirable cooperator farmer traits. This could be prepared in the United States by an experienced short-term consultant in one-half day, or, alternatively, it could be prepared by a team member, at least one of whom will surely be an experienced extension specialist already knowledgeable about the principles of identifying cooperator farmers. Conversations between team members and local Yemeni extension agents or other informants is the most likely way to obtain names of potential cooperators with an interest in using the assistance of the team and who are most likely to maximize spread effects within the community. Following initial direct contacts with potential cooperators, team members will use the predetermined profiles to select cooperators. It is possible that this process will be repeated and improved upon throughout the first year as team members adjust to the emerging relationship between the subproject and Yemeni farmers.

Once a preliminary set of cooperator farmers have been selected, the process of systematic data collection will begin. In preparation for this occasion a specialist in data collection and use will have spent perhaps one day refining, prioritizing, and establishing recording procedures for the data categories contained in Appendix D of the Subsistence Farms Subproject Paper. (These inputs need not necessarily be prepared in Yemen.) Armed with prepared forms and other written instructions prepared by the specialist and prepped by perhaps a half-day orientation session, these team members will begin a trial and error process of identifying the most effective technique for obtaining information from farmers.

It is essential that the team leader or another Core Team member regularly monitor the data collection process and be prepared to take

action to correct any shortcomings of the evolving system. Corrective actions might range from brief discussions with team members to calling in a TDY social scientist to work with the team for whatever time is needed to assure adequate data collection.

The hallmarks of this approach are its initial commitment to low cost data collection and the monitoring efforts needed to identify problems. If problems with the approach do indeed develop, resources will be available for bringing in whatever expertise appears to be warranted. At best, the approach should produce at lower cost the same information identified in Appendix D and, at worst, it will succeed in generating at the same cost the results forthcoming from the procedures outlined there. These results are most likely to be accomplished if the Country Program Director is entrusted with the authority and the resources needed to monitor and, if necessary, intervene in the data collection process. Thus the success of the approach is highly dependent upon the assumption that the Core Team is able to function in the manner envisaged in the Core Subproject Paper.

Further into the life of the project it will become increasingly valuable to obtain data on noncooperating farmers. This need may arise from concern that available cooperator farmers are not members of the target group, or it might be deemed important to have data which permits comparisons between the performance of cooperator and noncooperator farmers. Other possible reasons for obtaining information on farmers not cooperating with the Subsistence Farms Subproject is its use in designing other subprojects or to ensure that the total data set is appropriate for objectives b and c identified on page 13. At this point it will be necessary for the Core Team to develop a proposal for the most efficient

methods for additional data collection. This proposal, together with a revised workplan for the socio-economic research effort, should be available no later than November 1981.

Analysis of Farm Unit Data:

- a. Conduct a review of secondary sources for data on production costs and net returns in Yemeni agriculture. Sources to be searched include previous studies by IBRD agricultural missions, other donors, research station data, and the MOA and CPO statistical studies groups.
- b. Where possible, update existing studies by adjusting factor costs and market prices.
- c. Use data collected from cooperator farmers to calculate production costs for important farm products and net returns to farming.
- d. Project farm costs and farm prices into the future using different scenarios on labor costs, demand patterns, and rates of adoption of improved technologies. Compute net returns for each scenario and reach conclusions about the viability of different types of agriculture, paying particular attention to small plot agriculture and the livestock-feedgrains-forage subsystem.
- e. Analyze sample data on net wealth of farming units, access to credit sources, availability of nonfarm sources of income such as remittances, farm size, and tenancy conditions to determine the effects of credit availability, nonfarm income, and tenancy patterns on agricultural investment.
- f. Identify remaining gaps in data on farm units.

Resources Required:

Task a will require the efforts of a documents researcher for two

person weeks. Tasks b, c, d, e, and f will require six person weeks of the time of an agricultural economist and an additional person week for report preparation.

Work Schedule:

The report of the documents researcher should be available by September 1981. The report of the agricultural economist should be completed by November 1981.

Task 5:

Assess the state-of-knowledge on the role of Yemeni women in agricultural production.

Problem:

The already large role of women in traditional Yemeni agricultural production has expanded as a consequence of increased job opportunities for males in the Arabian Peninsula. Because of social restrictions on communication with Yemeni women, any program of direct assistance to Yemeni farmers must be based on reliable information about the role of Yemeni women in agricultural production. Also needed are recommendations for practical procedures for offering technical assistance to women as agricultural producers.

Objective:

Assess the adequacy of data available on the role of women in agricultural production, identify any additional data needs, and identify practical procedures for offering technical assistance to women as agricultural producers.

Scope of Work for the Researchers:

- a. Survey the literature on the role of Yemeni women as agricultural producers and identify any remaining data gaps.
- b. Prepare a research design for obtaining any additional data which is cost justified.
- c. Identify practical procedures for offering appropriate technical assistance to women as agricultural producers. Recommended procedures should be consistent with the purposes of existing and planned sub-projects for direct assistance to Yemeni farmers and should be compatible with the overall budget constraints imposed upon those activities.

Resources Required:

Tasks a, b, and c would be best performed by a female agriculturalist with practical experience in the problems of communicating with women in Middle Eastern cultures. These tasks will require three person weeks of library and field research with another person week required for report preparation.

Work Schedule:

A report should be available by June 1981.

Budget for Tasks 1-5

<u>Task</u>	<u>Personnel Inputs</u>	<u>Total Cost</u>
Task 1	3 person weeks of Core staff time* or 5 person weeks of TDY time**	\$ 11,745 16,368
Task 2	8 person weeks of Core staff time	31,320
Task 3 Phase 1	2 days of Design Team time	743
Task 3 Phase 2	2 person weeks of TDY time by agricultural engineer	8,570
	2 person weeks of TDY time by agricultural economist	8,570
Task 4 Data Collection Low Cost Option	1 1/2 person days of U.S. based specialist time	336
	2 person weeks of field staff time	7,830
	1 person week of Core staff time	3,915
Task 4 Data Collection Maximum Cost	2 person months of TDY time by social scientist	25,280
	1 person week of Core staff time	3,915
Task 4 Data Analysis	2 person weeks of TDY time by documents researcher	8,570
	6 person weeks of TDY time by agricultural economist	19,710
Task 5	4 person weeks of TDY time	14,140

* Personnel costs for Core staff member with base salary of \$36,000 per year and full maintenance costs including local transportation. Monthly rate is \$15,660.

** Personnel costs for TDY staff with base salary of \$30,000 per year plus overhead, per diem, local and international transportation. Total for one month assignment is \$14,140, slightly less for longer periods.

Some Special Studies with Lower Priority

1. Markets for purchased inputs. Cost and availability of fertilizer, pesticides, pumps, tractors, machinery, spare parts and service.
2. The cotton fibers--domestic cotton textile system as a case study in government regulation.
3. A statistical study of agricultural productivity over time in Yemen and in comparison with other countries. Patterns in output per hectare and output per manhour.
4. Labor migration, agricultural production, foreign assistance and income distribution in Yemen, a statistical study.
5. Problems, opportunities, and prospects for agricultural exports and import substitution for imported foods and fibers.
6. Studies of local, regional, and international markets for Yemeni agricultural products.
7. Description, problems, and prospects for food processing, transportation, storage, and marketing systems.
8. Opportunities for agricultural production, credit, marketing, and purchasing cooperatives.
9. A program for improving the collection, processing, and dissemination of agricultural statistics.
10. Changing status of cultivated land due to irrigation and land abandonment