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CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

YEMEN TITLE XII PROGRAM

Report No. 1

September 10, 1979

Contract No.  
AID/NE-C-1613

DESIGN OF AN AGRICULTURAL DEVELOPMENT  
SUPPORT PROGRAM FOR THE YAR

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## INTRODUCTION

In April 1979 the Consortium for International Development contracted with the United States Agency for International Development to design a program for Agricultural Development Support for the Yemen Arab Republic. Contract AID/NE-C-1613 (Yemen) required the Consortium for International Development to:

- a. Review the present state of agriculture sector analysis and identify major knowledge gaps and deficiencies which must be overcome before a coherent sector strategy can be designed.
- b. Recommend and design a time phase program of research designed to alleviate the identified deficiencies (focus must be on realistic data requirements and prospects in the Yemen context).
- c. Undertake a sufficient amount of sector analysis work to accomplish the above.
- d. Assess the requirements for development of the Ibb Agricultural Training Center.
- e. Determine the requirements for establishment of an appropriate seed multiplication organization.
- f. Catalogue and assess present and planned agricultural assistance programs (including those of other donors) and identify future project/program needs.
- g. Assess present Ministry of Agriculture personnel situation and policies and recommend training programs in view of future personnel needs.
- h. Assess the prospects for a long-term "Title XII" Agriculture Sector Support Project in Yemen, including definition of parameters and administrative configuration.
- i. Develop a plan of operation for an intermediate first phase of the project, approximately 4 to 6 years in duration, which will provide in greater detail information similar to that undertaken as part of the overall "conceptual" design.
- j. Prepare a detailed work plan for the first two years of project operation which will include detailed qualifications and costs of inputs, outputs and purpose achievements.

To design a program for Agricultural Development Support in Yemen, the Consortium for International Development assembled a team of scientists chosen from several disciplines. The roster of Design Team members is included in this report together with a list of key dates for Design Team efforts. Members of the Design Team logged more than 365 person days in Yemen between late May and late August 1979 where they observed firsthand

agricultural conditions in Yemen, conferred with Yemeni farmers and officials, USAID/Yemen personnel and representatives of other donors in Yemen and prepared the documents which meet the requirements of Contract NE-C-1613. A list of key dates for Design Team efforts is included in this report.

Design Team recommendations for an Agricultural Development Support Program are contained in the Core Project Paper, the Ibb Agricultural Training Center Project Paper, and the Agricultural Water Resources Project Identification Document. Supporting papers for these recommendations, including a Social Soundness Analysis and A Baseline Field Studies Report, are attached as appendices to the draft project papers. Reports and recommendations of individual team members have been prepared. A report on Design Team Procedures is also available.

The Core Project Paper is included in this document. Other documents, including the appendices for the Core Project Paper, the Ibb Agricultural Training Center Project Paper and appendices, the Agricultural Water Resources Project Identification Document and appendices, Individual Reports of Team Members, and a report on Design Team Procedures are available upon request.

MEMBERS OF DESIGN TEAM

<u>NAME</u>	<u>PRIMARY RESPONSIBILITY</u>	<u>UNIVERSITY</u>	<u>DATES IN YEMEN</u>
Kenneth Duft	Agricultural Credit and Cooperatives	Washington State	July 18 - Aug 8
William Farnsworth	Agricultural Extension	Utah State	June 12 - July 9
Eugene Foerster	Water Management	Texas Tech	July 3 - 30
Grant Harris	Forestry and Range Management	Washington State	July 11 - Aug 8
Donald Heckerman	Team Leader	Arizona	May 26 - Aug 30
Jean Kearns	Social Analysis	Arizona	July 3 - 30
Nabil Khaldi	Ibb/ATC	Iona	June 25 - Aug 6
Harold Matteson	Project Director of Ibb/ATC Project	New Mexico State	July 10 - Aug 6
Kenneth Nobe	Agricultural Sector Analysis	Colorado State	June 19 - July 14
Ratiba Saad	Soils	Arizona	May 26 - July 12
James Thomas	Agronomy	Utah State	May 26 - June 18
Phillip Upchurch	Program Director	Arizona	May 26 - June 7 July 10 - 18 Aug 10 - 22

KEY DATES

April 18, 1979	Contract for Design of Project 279-0052 approved
April 30 - May 1, 1979	Design Team Orientation Meeting in Tucson
May 26, 1979	First group of Design Team Members arrive in Yemen
July 21, 1979	Draft copy of Ibb/ATC Subproject Paper submitted to USAID
August 20, 1979	Draft copy of Core Project Paper and Agricultural Water Resources Project Identification Document submitted to USAID
September 5 - 6, 1979	Design Team Meeting in Tucson to review draft reports
October, 1979	Reports revised to reflect inputs from September 5 - 6 Design Team Meeting; all reports retyped and proofread.

(Part I of Yemen Title XII Design Team Report)

PROJECT PAPER  
AGRICULTURAL DEVELOPMENT SUPPORT  
YEMEN ARAB REPUBLIC  
NO. 279-0052  
AMENDMENT TWO

CONTRACT NO.  
AID/NE-C-1613

DRAFT COPY  
AUGUST 21, 1979  
REVISED SEPTEMBER 10, 1979

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KEY TO ACRONYMS USED IN THE PROJECT PAPER

ATC	Agricultural Training Center
AWRP	Agricultural Water Resources Project
COP	Chief of Party
CID	Consortium for International Development
CDSS	Country Development Strategy Statement
ICARDA	International Center for Agricultural Research in Dry Areas
ICRISAT	International Center for Research in Semi-Arid Tropics
IDA	International Development Association
LDC	Less Developed Country
MOA	Ministry of Agriculture
MOE	Ministry of Education
PASY	Professional Agricultural Society of Yemen
PY	Person Years
SURDP	Southern Uplands Rural Development Project
TL	Team Leader
TDA	Tihama Development Authority
UNDP	United Nations Development Program
USAID	United States Agency for International Development
YARG	Yemen Arab Republic Government

## I. Introduction and Summary

### A. Preface

The purpose of this Project Paper is to continue to elaborate an Agricultural Development Support Program for Yemen. The first paper in the series was a Project Paper entitled "Ibb Agricultural Training Center Mobilization". The second paper was "Ibb Agricultural Training Center Implementation". These two papers dealt with the vocational agricultural segment of the Program. They were developed first because of a priority commitment by USAID/Yemen to assist the YARG in the opening of the Agricultural Training Center (ATC) at Ibb. The present Project Paper, as Agricultural Development Support Project Amendment Number Two, will provide a base-line sector analysis for Agriculture in Yemen, define the rationale and strategy for Agricultural Development Support, identify specific implementations to be undertaken now, identify procedures for expansion of the Program, and define operational procedures. This Mission document is based on the initial PID, on interim studies and on a substantial design effort executed by the Consortium for International Development during the summer of 1979. Copies of individual Design Team member reports are available for review.

### B. Background

The Yemen Arab Republic is considered to be among the twelve least developed nations in the world by traditional measurements. The Country was out of the mainstream of modern development until the last two decades. Natural resources are scarce, being limited primarily to its agricultural features, and they are in danger of being degraded. The 4.5+ million people have traditionally relied on subsistence agriculture using labor intensive methods. Yemen is divided geographically into a low, rolling, hot, humid coastal plain (the Tihama), a central uplands region interspersed with mountains, valleys and montane plains and a large, low, flat eastern section where people and vegetation are scarce due to the extreme lack of water. The uplands area has a salubrious climate except for the dusty atmosphere. Rainfall is scarce and no rivers reach the sea except for unusual floods. Surface and underground waters could be utilized more effectively but the danger is that these limited resources may be depleted by unseasoned development rather than by the evolution of a plan which will allow a sustained water yield.

Over millenia the Yemeni have developed an elaborate system of terraces in the highlands which has collected high quality soil. The terraces constitute a substantial portion of the less than two million hectares of tilled land. Vast areas of the country have been denuded by overuse and erosion has been rampant for many generations. The principal crops have been sorghum and millet which furnish grain for humans and fodder for animals.

In the last two decades there has been an increasing flow of funds into Yemen from donor groups and from remittances from Yemeni men working outside the country. Approximately 30% of the work force is away at any one time. At the government level the funds are going into defense, schools and into rudimentary infrastructures of all sorts. At the private level expenditures

for houses, vehicles, tractors, pumps and foreign consumables have increased dramatically. The country has a 20% annual inflation rate and labor is scarce and increasingly expensive. As yet, there has been little or no improvement in the complete lack of sanitation, high disease incidence, high mortality, short life span and widespread illiteracy. The countryside remains loyal to religion (muslim) and tribal customs. The central government is just beginning to emerge. As an effective health care system is introduced there is a great likelihood of a shortrange population explosion before the present high birth rate is abated. Various donors are beginning to work on many of the critical non-agricultural problems listed above but decades will be required to make significant inroads.

The lack and high cost of farm labor and the absence of male leadership coupled with the availability of funds to buy farm produce is leading to the abandonment of terraces. This could result in a catastrophic, resource loss for the breaking of upper terraces will place excessive burdens on lower terraces making them impossible to maintain. As the terrace system deteriorates, floods will occur with devastating effects on lower valleys.

#### C. Rationale for Taking Remedial Action

The poorly developed state of agriculture in Yemen, the possibility of retrogression and the need to enhance the status and impact of the agricultural sector is well understood by the YARG. This is clearly revealed in the first five year plan for the YARG which proposes to mobilize human resources and improve their skills through education and vocational training, to expand physical infrastructure and develop the productivity sectors. The YARG has requested that the U.S. consider funding long-term assistance for a broad range of activities relating to agricultural research, extension and training. The USAID Country Development Strategy for Yemen has long range goals to develop human resources, restore and increase natural resource productivity, increase access to local services and to expand YARG capacity to manage foreign and domestically supported development efforts. The U.S. Congress has declared in Title XII of the Foreign Assistance Act of 1961, as amended, that Land Grant and other U.S. universities should be more fully involved in the planning, development, implementations and administration of overseas assistance programs. Therefore, USAID/Yemen has initiated a Yemen Title XII Program to serve the declaration of Congress, the policies of USAID, the CDSS of USAID/Yemen and the priorities of the Yemen Arab Republic.

#### D. Agricultural Development Support Program

Against the above background, the Design Team has the following firm recommendations:

- 1) Develop a multifaceted Agricultural Water Resources Program. This is imperative to stabilize and improve land management and to increase productivity. It is also essential to evaluate a system of maximizing the utilization of sustainable water yields. The elements of the effort would be: water inventory, allocation and policy; on-farm water management; watershed management demonstration, and drylands field research. A PID has been prepared on this item. It is anticipated that linkages would be established with such International Research Centers as the International Center for Research in the Semi-Arid Tropics (ICRISAT) and the International Center for Agricultural Research in the Dry Areas (ICARDA) with regard to do dry land research needs of agriculture.

2) Continue and expand appropriate phases of the horticulture, poultry and sorghum/millet projects which have been a part of the USAID/Yemen program. These are sound projects and are essential to provide for an infusion of modern technology.

3) Develop a comprehensive training program for agriculture. The ultimate success of any agricultural project in Yemen will depend upon the availability of trained Yemeni to operate and improve the projects on a continuing basis. Training is needed at all levels from the development of rudimentary skills for laborers to the generation of doctorate degrees. Training should proceed through three broad mechanisms. They are: a) support of vocational agricultural high schools, b) operation of a Training Section designed to provide all necessary levels of training in and out of Yemen, and c) incorporation of a training function in every sub-project developed. The training effort should embrace a planning effort for a Faculty of Agriculture and strengthening of the teaching of basic sciences.

4) A Core Team of 2-4 initially assigned professionals plus short term consultant backup should be placed in Yemen to provide a variety of services including the following: a) coordination of the entire Agricultural Development Support Program, b) provision of ad hoc, short-term expertise to YARG, c) development and initial operation of new projects, d) provision of support services for the entire program including advance mobilization resources for new projects, e) acceptance of special assignments.

Initial project exploration or special assignments would include the following: a) initiate an Agricultural Documentation and Learning Resources Center, b) provide special support to the Planning Directorate of the MOA, c) develop a Women in Development Home Economics Learning Project.

#### E. Conclusions

It is now anticipated that USAID will contract with CID to implement the program outlined herein. The Universities involved have great human resources experienced in resolving the problems identified as high priority. The body of the PP provides an administrative structure for implementation and demonstrates the economic, social, technical and administrative soundness of the Program. It is commended without reservations.

## II. Program Description

### A. Background

Historically, Yemen was one of the major agricultural production centers of the Middle East, with a sophisticated and complex agricultural technology which included irrigation structures that may have rivaled the pyramids in Egypt in architectural magnitude. As world trade patterns shifted, Yemen lost its advantageous position and its agricultural system declined into a typical subsistence agriculture pattern. Centuries of complete isolation from the rest of the world, which did not end until 1962, ensured the continuation of subsistence agriculture. This isolation, combined with the historical pattern of weak central government, prevented the emergence of any of the public and private sector institutions required to support the

development of a modern agricultural production system. Thus, the public and private institutions which could have provided the channels for introducing modern agricultural technologies into Yemen have proven inadequate for the task. Since 1973 migration, in response to job opportunities in the oil-rich countries of the Arabian Peninsula, has resulted in a severe labor shortage, a quadrupling of real wages, and rapidly rising income which has created markets for non-traditional agricultural products. As a consequence of all these changes within a generation, the Yemeni farmer faces a bewildering array of technologies, seeds, market opportunities and factor costs which differ radically from those circumstances with which centuries of adaptation in a subsistence environment have taught him to cope.

To assist the Yemeni farmer in making the transition from a near feudal society to modern agricultural methods, the YARG's First Five Year Plan for the period 1976/77-1980/81 set out the following strategies for modernizing Yemen's agriculture:

- 1) continue the institution building and training of agriculture staff;
- 2) carry out a comprehensive survey of soil and water resources;
- 3) expand credit services to all main agricultural areas of the country;
- 4) establish farmer cooperatives suitable for Yemeni conditions;
- 5) provide storage capacities for agricultural products and extend the network of rural roads;
- 6) conduct an agricultural census to obtain reliable data for the sector;
- 7) carry out studies on marketing, prices and taxation with a view of arriving at policies that would best promote agricultural development; and
- 8) continue with a number of area-based, donor-funded development and agricultural modernization projects.

USAID/Yemen's strategy for assisting YAR's agricultural development "...is a more accelerated approach to building Yemen's human resource base and its capacity for planning and implementation of development programs which will have equitable and beneficial impact." (CDSS, p. 38) In addition, "Conservation and restoration...need early attention. AID's contribution to this broad goal must be in the context of concern for the welfare of the small farmer." (CDSS, p. 42) Also, "Farm water management is an area requiring immediate attention given scarce water resources...Another important area is soil fertility." (CDSS, p. 47)

## B. Program Description

### 1. Goal:

The goal of the overall Agricultural Development Support Program is to increase income and improve quality of life for rural inhabitants. A sub-goal is to develop a modern agriculture sector which encourages rational use of Yemen's national resources, is integrated into the economy and is supportive of a broad based, equitable social and economic development. Achievement of these goals will be reflected in increased agricultural production,



LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTION
<p><u>Program Purposes (overall):</u></p> <ol style="list-style-type: none"> <li>1. Establish the basic human and administrative infrastructure required in the YARG and the agricultural sector for achievement of a modern agriculture sector</li> <li>2. Establish a long term cooperative relationship between YARG and U.S. land grant universities that will serve indefinitely as a resource for Yemeni agricultural development</li> </ol>	<p><u>End of Project Status:</u></p> <ul style="list-style-type: none"> <li>-MOA organizational structure and staffing patterns appropriate to support a modern agriculture sector</li> <li>-Number of qualified Yemeni personnel employed by MOA and other agricultural institutions has increased significantly</li> <li>-Yemeni officials and agriculturalists have visited CID institutions</li> <li>-Yemenis have participated in CID educational programs</li> <li>-Number of CID staff members with special knowledge of Yemen agriculture and experience in Yemen</li> <li>-Research underway involving cooperation between CID and Yemen scientists and institutions</li> </ul>	<p>YARG Records Program Review</p> <p>Core Team Records</p>	<p>YARG will welcome and use effectively the assistance offered</p> <p>MOA will be able to hold trained personnel</p> <p>YARG will continue to seek contacts with U.S. land grant universities</p>

improved agricultural trade balances, increased farm income and improved performance of YARG in planning and implementing their agricultural program. While statistical information now being collected and published by YARG would not adequately measure such progress, the government is taking steps to participate in the 1980 world agricultural census and to develop the institutional capacity for collecting important agricultural information on an annual basis. One element of this project will assist in that effort.

Inasmuch as the success of the program requires a long term involvement, an important assumption is that the YARG will continue to welcome USAID assistance and intimate involvement in development of its agricultural sector. It is assumed, also, that agriculture will continue to be an important economic activity of Yemen.

2. Purpose:

a) The Program has two major purposes:

1. Establishment of basic human and administrative infrastructure required in the YARG and in the agricultural sector for achievement of the goal of a modern agricultural sector.

2. Establishment of a long-term cooperative relationship between YARG and U.S. land grant universities that will serve indefinitely as a resource for Yemeni agricultural development efforts.

b) End of Project Status:

While this project paper covers only a five year period, this is viewed as the first phase of a longer term program. The conditions expected at the end of this first phase are:

1. A Ministry of Agriculture structure and staffing pattern appropriate to support a modern agricultural sector;

2. A significant number of qualified agricultural specialists and administrators are employed by MOA and other agricultural institutions;

3. A significant number of Yemeni nationals who have participated in CID education programs;

4. A significant number of staff members of CID institutions who have provided professional services to YARG; and

5. Research underway involving cooperation between CID and Yemeni scientists and institutions.

These conditions will be achieved through a program consisting of a "core" project described in detail in this paper, the Ibb Agricultural Training Center described in Amendment 1 to Project 279-0052, and an as yet undetermined number of satellite projects. The specific purposes of the Core activity are described in Section VII.

3. Constraints

the CID Design Team has identified four critical constraints to YAR's agricultural development which lend themselves to outside

intervention. (For an in-depth discussion of these constraints and opportunities for intervention, see section 4 of the Baseline Field Studies Report in Appendix C). One of these constraints, which restrict current agricultural production and income, is an interrelated set of institutional weaknesses, including the Ministry of Agriculture, agricultural education, the agriculture extension system and other agricultural support institutions. Contributing to these institutional inadequacies and making amelioration more difficult is a lack of trained personnel in all disciplines and at all levels. A second constraint to current output is the difficulty farmers face in managing the new technological and resource combinations which are becoming available. Two additional conditions which will constrain future agricultural production have been identified. These are a continually eroding resource base, including soils and quality and quantity of ground water, and the lack of basic agricultural research leading to plants, animals and technologies adapted to Yemeni soils, climatological conditions and water resource constraints. Since the treatment of these conditions require long lead times, it is necessary that remedial actions be initiated now if future agricultural production is to increase. Described below is a set of projects designed to alleviate these constraints.

#### 4. Proposed Projects

This proposed program in Agricultural Development Support includes efforts designed to deal with the constraints identified above. The program includes a long-term effort (up to 20 years) whose objective is to create the institutional capacity and trained manpower which will permit the Yemeni to support the process of modern agricultural development with minimal outside assistance. Efforts to halt resource deterioration and to identify plants, animals and technologies especially adapted to Yemeni conditions are necessarily long-term with highly visible results during the first five years unlikely. The program also contains extension assistance elements which do have the potential for increasing agricultural production within the next five years.

A project paper detailing a portion of this Program in Agricultural Development Support was submitted as Amendment One to Project 279-0052 (Ibb/ATC). Other projects are detailed below in the Core Project portion of this document. Still others will be detailed in future amendments to Project 279-0052.

One aspect of the program is a series of projects which will supply faculty and training for Yemeni faculty counterparts for a group of agricultural secondary schools. The training aspect of the project is designed to make available within eight years of school opening sufficient Yemeni faculty to replace virtually all the professionals supplied by USAID. It is anticipated that this group of agricultural secondary schools will provide the middle level trained support personnel required for staffing the extension service, research facilities and the MOA.

The first of these agricultural secondary schools is the Ibb Agricultural Training Center (ATC), scheduled to open in October 1979. When fully operational, this school is expected to enroll 270 10th, 11th, and 12th gradestudents. Other schools include the Surdud Agricultural Secondary School with a capacity for 180 students, scheduled to open in

September 1981, and perhaps the Sana Livestock School, scheduled for completion in September 1982, and the Sadah Agricultural Secondary School, which is still in the planning stage. The physical facilities for each of these schools are being financed by IDA. YARG has requested that USAID provide faculty support for the Surdud School. A request for USAID assistance for the Sana Livestock and Sadah Schools has not yet been received, but the likelihood is high that a request will be forthcoming within two years.

The YARG has indicated that at a later date a formal request for USAID support for staffing a university faculty of agriculture will be forthcoming. The opening of a university program of agriculture may come as early as September 1984. These university programs will eventually have the capacity to provide most of the bachelor's level agricultural training required for Yemen's future. It is anticipated that Project 0052 assistance will include staffing by a non-Yemeni faculty for a transition period, training for Yemeni faculty counterparts, and perhaps support facilities such as laboratory equipment, computer software and library materials.

Until domestic educational institutions reach capacity, significant amounts of in-service and out-of-country training will be required to provide the trained manpower needed to staff these new educational institutions as well as to upgrade the skills of personnel of existing institutions. The Core Project described below includes support for in-service training, English language training and out-of-country training for the next five years. In addition, each of the satellite projects will include out-of-country training components. It is possible that the Program will include as many as 200 out-of-country training opportunities through 1984. The second phase of the program for a period beyond 1984 will support additional out-of-country training.

Another area targeted at this time for special institution building efforts is the Planning Directorate of the MOA. The capacity of the MOA to carry out agricultural sector analysis, program planning and evaluation is limited. The primary reason for this limitation is the shortage of adequately trained personnel. The core project, detailed in Section VII, provides training opportunities for 15 present and expected future personnel of the Planning Directorate. The core project also contains resources for short-term consultants which could be made available to the Planning Directorate whenever the COP and MOA conclude that such assistance is appropriate.

The deficiencies of the extension system have been judged by the CID Design Team to be the single most important bottleneck in assisting Yemeni farmers to cope more efficiently with the technological, market and factor cost changes which have occurred over the last two decades. Extension services as we know them in the United States do not exist outside donor-sponsored, expatriate-dominated projects including SURDP,

TDA and such specialized services as United Kingdom veterinary services and West German plant protection services. Even these extension activities rely to a large extent on Yemeni personnel who have no more than a primary education, a nine-month extension training course, and little on-the-job experience. If a Yemeni extension system is to be created, it requires trained extension agents, appropriate subject matter specialists, a system of supervision, linkages to research facilities and adequate support including equipment, supplies and extension materials.

The requirements for a viable national extension service are so numerous and complex that the CID Design Team has not been able to elaborate a method by which Project 0052 can offer comprehensive assistance. However, several proposed Project 0052 activities will contribute indirectly. Included are three-year training programs for extension agents at the agricultural secondary schools, the development of a group of Yemeni irrigation extension specialists and extension supervisors as proposed by the Agricultural Water Resources Project Identification Document (see Appendix D), and assistance in developing an extension materials center as a component of an Agricultural Documentation and Learning Resource Center, details of which will be provided in a future Project Identification Document. In addition, some of the out-of-country and in-service training opportunities included in the Core Project will be reserved for present and future extension service personnel. If further opportunities for assistance to a national extension service become apparent at a later time, the Core Team should use to advantage the flexibility of the collaborative assistance mode to provide whatever assistance is judged to be appropriate.

Institutions for financing agriculture, like most other Yemeni agricultural institutions, are in their infancy. The CID Design Team has not identified a means by which USAID assistance can be effective in this area except via training staff for agricultural credit institutions. The Core Team should be alert for other opportunities to assist the development of these institutions. Such efforts should include finding ways to impress upon YARG officials the credit requirements of a modernizing agricultural sector.

The CID Design Team has concluded that a top Project 0052 priority is to use extension methods to teach farm management practices to Yemeni farmers. The objective is to assist the Yemeni farmer in learning to combine the new technologies and factor availabilities in the most efficient manner. It is difficult to imagine farmers anywhere facing more changes during the last fifteen years than the Yemeni farmer has experienced. Given the highly developed entrepreneurial instincts of the Yemeni farmer and an environment of rapid change in economic conditions, one would expect assistance in farm management to have large impact on farm productivity in the existing environment. Expert assistance would enable the farmer to avoid a long period of trial and error experimentation that would be required to find the factor proportions and technologies appropriate for his new environment.

The Agricultural Water Resources PID, contains two proposed activities for assisting Yemeni farmers in managing their resources in a changed environment. One is an On-Farm Water Management activity. The second is a demonstration of an integrated system of forest, range and

livestock management.

The On-Farm Water Management activity is designed to develop the managerial skills needed to allow Yemeni farmers to apply those water management and cropping system techniques which have proven effective elsewhere. In the early stages of the activity, the expatriate team will concentrate on teaching field leveling techniques, optimal timing patterns for field irrigation and soil probe techniques for determining optimum application of irrigation water. Once Yemeni farmers have accepted these techniques, field teams will assist with advice on fertilizer application and cropping patterns which will further increase their incomes. Also included in the activity is technical assistance on fruit and vegetable harvesting, processing and marketing and organizational and managerial assistance to farmer cooperatives.

The demonstration of an integrated system of forest, range and livestock management is designed to renovate selected rangeland and forest areas in the upper watersheds of the wadis, which are steadily deteriorating as a result of continuing livestock grazing overuse and past removal of forest trees for fuel. The strategy then will be to offer increased forage and fuel, while accomplishing soil stabilization through plantings of grasses, shrubs and trees, and teaching proper management practices. Rams from known superior sheep breeds will be introduced to cross on local inbred ewes for the purpose of increasing feed efficiency and wool production.

In addition to helping the Yemeni farmer to manage his livestock, range and woodland resources to increase their productivity, the activity just described has an important resource conservation dimension. Other resource conservation activities are required if Yemen is to halt or at least slow the continued eroding of its resource base, including soils and quantity and quality of ground water.

The Agricultural Water Resources PID includes two activities designed to deal with the problem of deteriorating ground water quantity and quality. An inventory of water resources--a water resource survey, an aquifer modeling effort designed to predict sustainable yields, depletion rates and deterioration of water quality--is planned to generate those inputs needed for the formulation of alternative water policies. A team of Yemeni and expatriate personnel will collect available climatological, hydrological and geological data necessary for modeling the aquifer. After sufficient data are available, it will be incorporated into the aquifer model program.

The water policy activity is designed to assist the YARG in the formulation of a viable national water policy. The CID Design Team is well aware of the many difficulties which the YARG will confront in its attempt to select and enforce a national water policy. Despite these very real political limitations, the water policy activity is expected to provide alternative policy options and materially assist in the implementation of that which is judged most effective.

If Yemeni agricultural production is to prosper in the future, resources must be devoted to biological and chemical research which can create new techniques or adapt existing techniques to Yemeni conditions. The greatest potential payoffs for such research appear to lie in the

area of overcoming the constraint imposed on Yemeni agriculture by limited water availability.

One of the components of the proposed Agricultural Water Resources Project, the Drylands Field Research activity, is designed to identify, introduce, test, modify and promote plant production technology uniquely suited to dryland regions. The presumption is that water availability is the most limiting factor in the region and that appropriate technologies can capitalize upon relatively favorable climatic and soil resources while obtaining the maximum possible utilization of each unit of water. Outputs from the system would be introduced to growers through a demonstration aspect of the project. Wide-scale introductions would be turned over to interested agencies to pursue as soon as feasible. Linkages with international agricultural research institutions such as ICARDA and ICRISAT will be sought in implementing this activity.

The On-Farm Water Management activity also includes limited funds for soil-water-fertility research and for research into the most appropriate irrigation techniques. In addition to these research activities, the 0052 program will embrace USAID Projects 0024 (Horticulture) and 0030 (Sorghum/Millet Improvement) which include research components for identifying plant material and production techniques which will increase the productivity of Yemeni agriculture. (For details of 0024 and 0030 - see their respective PP's).

USAID Project 0019, Poultry, was begun in 1976 under a contract with California Polytechnic University at San Luis Obispo. The contractor developed facilities at Taiz and Sana for production of laying hens for distribution to farmers, organized a feed supply program and conducted an out-reach program for training village people in proper care and feeding of poultry. USAID operation of the poultry program terminated at the end of June, 1979, but the mission has agreed to provide limited consultant services to the MOA after it assumes responsibility for operations. The potential for expansion and improvement of the poultry industry appears great and the MOA indicates it wants additional assistance in this area. The Core Team will assess the need for further assistance and, if deemed appropriate, prepare the required PID and PP for a new sub-project. Limited technical assistance may be provided in advance of the approval of the sub-project if this appears prudent to provide continuity with the previous project.

Women play an important role as agricultural producers in Yemen. Historically, village women have represented a significant portion of the agricultural labor force. The sharp increase in emigration by males since 1973 has resulted in an increased role in agriculture for the women who remain behind. There is some evidence which suggests that women are assuming a larger role in management decisions concerning agriculture as well as contributing a larger proportion of agricultural labor. At a minimum, this suggests that agricultural extension systems should be designed with the needs of women in mind. Since it is not acceptable for outside males to communicate directly with women, it seems necessary to identify how to recruit, train and employ female

extension workers to assist the growing numbers of farm decision makers who are women. Every activity of Project 0052 which deals with agricultural extension should be alert to opportunities for including the special services which will be required to assist Yemeni women in agriculture. The Core team, members of future design teams, and team leaders of sub-projects must be careful to consider ways to provide these special services. Another question to be considered is whether the scope of Project 0052 should include efforts to use extension techniques to teach foods and nutrition, child care and human development, clothing, and household management to women. Appendix E describes a sub-project which includes all these activities. The Core team should give early attention to this proposal.

One potential project outlined in the 0052 Project Identification Document not recommended for implementation is the Seed Multiplication Sub-project. Since the 0052 PID was written, USAID/Yemen has been made aware of UNDP Project No. YEM/78/015/A/01/12, "Seed Production for Small and Medium Farms." Since USAID resources should complement, and not duplicate, the efforts of other donors, it is proposed that Project 0052 use some of the Core Project training funds discussed below to provide training support to the UNDP Project which is already underway.

The activities of each of the projects identified above will be coordinated by the Core team, an activity described in detail in Section VII of this project paper. In addition to coordinating all projects and training and providing administrative support to all other projects, the Core team will carry out regular analysis of the agricultural sector. These sector analyses will be designed to identify emerging problems and constraints affecting Yemeni agriculture. With this information, the Core team can proceed to propose new projects designed to deal with emerging situations and/or propose a redirection of existing projects to better serve the needs of agricultural development in Yemen. Thus a key part of the proposed Program is a mechanism for responding to unforeseen events.

### III. Program Analysis

#### A. Economic Analysis

##### 1. Opportunities, Constraints, and Project Proposals

Long term prospects for increased agricultural production in YAR are bright. Many parts of Yemen offer a year round growing season ideally suited for producing fruit and vegetable crops for the rapidly growing markets of the Arabian Peninsula. There exist unexploited opportunities for irrigation on potentially highly productive lands which lend themselves to mechanization as well as room for large improvements in the efficiency with which existing irrigation waters are currently being used. Yemeni farmers appear ready to adopt changes in techniques which hold out the prospect of greater profit. Yemen is relatively free of political conflicts deriving from land tenure, memories of inequitable income distribution, and restrictive agricultural policies and practices, all of which are impediments to increased agricultural production and which often require generations to overcome. For all these reasons, significant increases in agricultural production are possible.

The major constraints to increased agricultural production which lend themselves to intervention by donors and also require the expertise possessed by CID, the collaborative assistance contractor, include:

1. institutional weaknesses, including the MOA, agricultural education, the agricultural extension system and other agricultural support institutions.
2. difficulty farmers face in managing the new technological and resource combinations which are becoming available.
3. continually eroding resource base.
4. lack of adaptive agricultural research leading to plants, animals, and technologies suited to Yemeni soils, climatological conditions and water resource constraints.

Section IIB contained a description of programs designed to address these constraints. Among those programs, the largest amount of resources will likely be required for:

- a. agricultural secondary education
- b. university faculty of agriculture
- c. inservice and out-of-country training
- d. agricultural water resources project

Each of these program components will be considered in turn.

## 2. Analysis of Agricultural Secondary Education

Section IIIA of Amendment One to Project 279-0052 provided an economic analysis of the Ibb Agricultural Training Center. There follows an analysis of the proposal to support a series of such schools.

The projected size of the Ibb/ATC is insufficient to meet the personnel requirements of the extension services, particularly when it is recognized that some graduates will go on for further education, some will work for other public agricultural institutions and others will elect employment in the private sector. Some of the alternatives in the face of this continuing shortage are (1) to operate the school at its present size and accept the shortage of trained personnel; (2) expand the size of the program at Ibb; and (3) maintain the Ibb/ATC at its designed size and open new schools in other regions such as at Surdud, Sana, and Sadah.

If the critical shortage of extension personnel is to be alleviated and if a Yemeni extension service capable of meeting the needs of farmers is to operate eventually without foreign assistance, the first alternative must be rejected. The second alternative, expand the size of the IBB/ATC, would be the least cost method of satisfying the Yemeni needs for middle-level trained manpower since economies of scale exist for secondary schools with enrollments of fewer than 300 students. The disadvantages of such a solution are (a) students from other areas may refuse to attend the Ibb school, thus making it difficult to train the required number of qualified students; (b) even if students from other regions are willing to attend Ibb, such a solution could result in sizable social costs due to separating 14-17 year old boys from their families for an entire semester without an opportunity to spend weekends at home; and (c) additional schools permit specializations such as an emphasis on rainfed agriculture at Ibb, on problems of irrigated crops at Surdud and on the problems of animal husbandry at the Sana Livestock School. A higher quality education could be

provided by specialized regional schools with an opportunity to rotate students among schools for short periods of time so as to expose the students to different types of agriculture. Obviously, these advantages become less important as the number of schools expands beyond two or three. The increase in quality of education and reduced social costs from additional schools seem large enough to justify at least two schools. The question of whether to expand beyond two schools is much less clearcut. (It should be understood that the formal decision about number of schools will be made jointly by the YARG and IDA. Since the economies of scale of larger schools lies largely in savings in size of physical plant, the costs of building a larger number of schools is borne, at least initially, by IDA).

### 3. Analysis of a University Faculty of Agriculture

Some time within the next ten years the Kuwait Fund is expected to create the physical facilities for a Yemeni college of agriculture. The Ministry of Agriculture has informally indicated that it would be delighted to have USAID provide support for faculty staffing. CID, the collaborative assistance contractor, certainly has the experience, the facilities and the personnel to successfully implement such a venture. Support would take the form of some combination of out-of-country training for potential Yemeni faculty members and CID experts temporarily posted at the Yemeni university. If training for potential Yemeni faculty were to start immediately, several could be trained and given some teaching experience in the United States to prepare them for assuming full teaching duties as soon as the Yemeni college of agriculture enrolls students. If, on the other hand, training does not begin until near the opening date, CID personnel will be required to staff the faculty of agriculture until Yemeni receive the training required to permit them to fill faculty positions. If it were not for the fact that the starting date for the faculty of agriculture is uncertain and will likely remain so for some time, the least-cost approach would be that of beginning now to select and train potential Yemeni faculty members. Uncertainty about the starting date may mean that persons trained for faculty positions will complete this training before the college opens and, in the absence of job opportunities in teaching, make a long-term commitment to another employer. This makes it difficult to budget now for training for an institution that has not yet been created. The appropriate strategy seems to be to do a small amount of training for a faculty of agriculture until an opening date for the institution is more certain. This virtually ensures that CID personnel will be required to staff the college of agriculture for a considerable length of time.

### 4. Analysis of In-service and Out-of-country Training

The most pervasive problem facing institution building efforts in Yemen is a lack of trained personnel in all disciplines and at all levels. These deficiencies cannot be met in the near future by Yemeni educational institutions. Indeed, a strategy of creating Yemeni educational institutions to supply the required training creates an additional demand in the short run for out-of-country training since the teachers themselves must be trained, unless the institutions are to be forever staffed by expatriates (a solution which is unacceptable to both YARG and donors). The

questions which remain, then, are how many resources should be allocated to training and what types of training should be offered. On the one hand, opportunities for training are virtually unlimited. Provided that the donor is willing to start with trainees at their own level of competence, there are virtually no limits since many Yemeni are willing to offer themselves for foreign training and since it is not possible in the short run to supply so many trained Yemeni that proper placement cannot be found for them. Decisions about training positions will invariably be constrained by donor resources, not by Yemeni needs.

The choice which remains to be determined is the type of training to be offered. The most important deficiencies in out-of-country training are master's degree and special non-degree programs. Students currently studying out-of-country in bachelor's degree programs in agriculture number nearly 300 and experienced persons report that it is not easy to identify additional high school graduates who meet entrance requirements for out-of-country B.S. programs. The most pressing need is for holders of master's degrees who can fill the numerous technical and administrative positions required by agricultural institutions and for special non-degree programs for existing MOA and other agricultural institution personnel who are too badly needed in their current positions to be released for the period required to earn an M.S. degree and/or do not have sufficient background to meet the requirements for an M.S. For many of these personnel, the most effective approach is to offer special non-degree training in their area of specialization, whether it be extension, plant protection, seed technology, administration or project planning and evaluation.

Opportunities for in-service training, in-country conferences and seminars, and travel to international research centers, international conferences and to CID universities should not be overlooked as relatively inexpensive methods for broadening the horizons of personnel of public agricultural institutions. Since such opportunities are virtually non-existent in Yemen at this time, relative small inputs can be expected to have a sizable impact on the perspective of YARG personnel.

##### 5. Analysis of Agricultural Water Resources Project

Different components of the project are designed to address three of the principal constraints on Yemeni agricultural development, including difficulties faced by farmers in managing the new technological and resource combinations available to them, the continually eroding resource base, and the lack of relevant agricultural research which will result in plants, animals and technologies adapted to Yemeni soils, climatological conditions and water resource constraints. The On-Farm Water Management activity represents an unusual opportunity to raise Yemeni agricultural production in the very near future. The activity is designed to apply CID's special expertise to a critical problem in Yemeni agriculture, how to increase agricultural production in irrigated areas by more efficiently using Yemen's scarce water resources.

Before AWRP can be advanced to the project paper stage, it will be necessary for the AWRP design team to prepare a detailed economic analysis. This preliminary discussion will anticipate some of the issues likely to be taken up in that economic analysis.

There exists an alternative to the initial design proposal of the On-Farm Water Management activity to use several teams of CID experts to work directly with Yemeni farmers to teach them more efficient water uses and alternative cropping systems. That alternative involves delaying work with Yemeni farmers at least until 1984 when the activity could be staffed by the first graduates of the Surdud Agricultural Secondary School. While these graduates would be of a different quality than the proposed field team, this alternative would permit an all Yemeni staffing pattern from the very inception of the project. Such an approach would be considerably less expensive than the proposed activity, which includes up to 16 CID specialists in the field at one time. The proposal correctly assumes that the additional cost to USAID is more than offset by the added benefits of an earlier and larger increase in agricultural production which results from fielding a CID group of specialists.

The Water Inventory activity, as currently envisaged, could be altered to spread the same amount of resources over a larger or smaller number of wadis, i.e., more extensive or intensive treatment options are possible. The AWRP design team should examine the relative cost effectiveness of these alternative approaches.

The preliminary design of the Integrated Watershed Management activity places a great deal of emphasis on the synergism of dealing with the problems of livestock, availability of range forage and fuel, and soil conservation in the same project. The cost effectiveness of the activity depends crucially on this alleged synergism.

#### 6. Analysis of the Core Project

Section III A4 has presented an analysis of inservice and out-of-country training, which is one of the components of the Core Project. Another activity of the Core Project is ongoing sector analysis with the results to be used to identify emerging problems and to design new projects and/or redirect existing projects to better serve the requirements for agricultural development in Yemen. Such an approach has two big advantages: (1) it provides for an ongoing assessment; and (2) it permits quick response to changing conditions. These are likely to prove to be enormous advantages in comparison to the more familiar USAID system of identifying and funding projects.

#### B. Social Soundness Analysis

A detailed social soundness analysis for the Title XII Yemen Agricultural Program has been prepared and appears as Appendix A. An abbreviated statement of that analysis follows.

The people of the YAR are among the poorest of the world as measured by health status, education status and other quality of life factors. Historically, the Yemeni have been tied closely to tribal customs and to an agricultural setting in a substantially closed society. Now with a rapid influx of assistance, and with substantial cash flows to the countryside from some 38% of the labor force which is working outside of Yemen, changes in the society are taking place. Funds are flowing rapidly into vehicles and houses contributing to a 20+% inflation in a labor-short economy. The result is that traditional agriculture is hard to maintain.

Farm labor is in short supply and expensive. Farming techniques are labor intensive and yields are low reflecting a low level of technological inputs. The purchase of imported goods, including farm goods, is attractive economically in the short range. Water is a critically short resource in the country and its dynamics are poorly understood and it is very poorly managed. Although a small percentage of the land area has been well preserved by heavy investment of human resources in a system of terrace agriculture, much of the country has been denuded of forage and trees and is badly eroded. While tribal and religious customs are and will remain dominant for many years, a central government is emerging as one of the rudiments of a modern society with its many advantages and its disadvantages. Among the latter are the unfavorable consequences of too rapid urbanization, the drawing down of aquifers and the failure to emphasize the need to preserve, enhance and utilize indigenous natural resources. These are few--primarily the land, some water, an amenable climate, fish in the sea, and its people.

Against the above background there is a pressing social need to preserve and rehabilitate agricultural areas, to understand and effectively manage water resources and to improve the economics of production. Only a few decades are left to do this before the massive influx of funds generated by one aspect or another of middle-eastern oil begins to diminish. The Title XII Yemen Agricultural Development Support Program, along with other donor efforts, will infuse agricultural technology into the society and provide the following societal benefits:

1. Training of thousands of Yemeni in all phases of modern agriculture at all levels from enhancing farmers skills to training Ph.D's. The end result will be a wide and deep base of personnel equipped to sustain and improve their own agriculture. This cadre, and the results they produce, will serve as an example of success for the rest of society.
2. Establishment of an economic basis for continued and enhanced agricultural production in Yemen.
3. Preservation and enhancement of the productivity and stability of agricultural lands.
4. Provision of a more nutritionally balanced and higher quality of life for the Yemeni populace.
5. Effective management of limited water resources.
6. Enhancement of infrastructures required to sustain modern economic agriculture.
7. Movement of Yemen towards having a capacity to provide its own internally produced foods.
8. Enhancement of the role of women in society.
9. Diffusion of the benefits of enhanced management of agricultural lands throughout all levels of the population.

The goals and procedures of the Yemen Title XII Agricultural Development Support Program are being designed to capture the above listed social benefits. With reasonable progress in the Program, it would appear that the social soundness of the endeavor is assured. The end results are obviously

badly needed and the procedures outlined for the Program offer reasonable chance for success.

The social soundness of the Program rests on continued recognition of the importance of social factors in the design, implementation and extension phases. The Core Team and individual project efforts must return again and again to the local social principles involved which have been described in detail in Appendix A. These principles fall under the following four broad headings:

1. Sociocultural Feasibility
2. Spread Effects: The Diffusion of Innovation
3. Social Consequences and Benefit Incidence
4. Target Groups

In order to insure that these matters are kept in perspective and treated appropriately as needed by the Core Team and the various Projects, one member of the Core Team will be assigned the responsibility to coordinate the Social Soundness Effort which must be a part of each Project in the Program. This should help to assure the social soundness to the end results of the undertaking.

#### C. Women in Development

Historically, females in Yemen have remained very much in the background. This is a result of religious tradition and it has been reinforced by policies of the Government and by males who fill dominant roles in the family and in larger societal units. Yet women have always performed a major role in agriculture. They work actively in the production of crops and animals. In general, they seem to be delegated the responsibility to manage and operate enterprises not involving a cash flow.

The fact that many males are temporarily away from the farm working outside of Yemen creates a void in management. There are some indications that these voids are partially filled by the male relatives of those who are absent. However, there is also some indication that women may assume increased responsibility under these circumstances. This probably represents an increased opportunity for training females to participate more fully in society. For example, females are now enrolled in Sana University to a much greater extent than several years ago.

The Title XII Design Team has recognized that the physical and mental capability of females in Yemen represents a resource that cannot be overlooked if agricultural production and the quality of rural life are to be enhanced. Already there is evidence that this latent resource is amenable to development. For example, the USAID Poultry Project (0019) has been quite successful. The procedure involves placing small flocks with families who agree to follow a specific set of guidelines and send a representative to a short course on poultry production. Invariably a male has attended the course but follow-up reveals that a female member of the family is normally responsible for following the guidelines. It has been possible to have communication with such females, although the procedures for doing so must be thoroughly understood and such contacts may not be feasible in all circumstances.

Because of the opportunity and need to train women in agriculture, the Title XII Design Team has drafted a document to illustrate what kind of formal effort might be defined to undertake the training. This document (WID-HELP) appears as Appendix E to this PP. It is anticipated that the Core Team will examine this document and compare it with various other areas of work with the prospect of refining the document and submitting it as a PID in due course. The document, as written, identifies some specific kinds of training which would be especially suitable for women and concerning which women could be most effective.

The challenge of training women for work in agriculture involves some severe handicaps in that the protection and isolation of women is especially ingrained in rural areas. Yet, their specific involvement in the production process establishes some basis for further training. At the level of higher education the opportunity for training and using women in professional circles seems to involve fewer barriers as time progresses. A principal limitation in such circles is the lack of suitable candidates to enroll in programs leading to Bachelor and higher degrees.

#### D. Technical Feasibility

The technical feasibility of each of the individual sub-projects will be addressed in the relevant project papers. This section discusses the technical feasibility of the overall Agricultural Development Support Program design.

As explained elsewhere the program, consisting of a core activity and an unspecified number of satellite activities, is to be carried out by a single contractor, selected to design and implement the program in collaboration with USAID/Yemen and the YARG. The program will embrace a broad range of activities including, ultimately, the entire USAID assistance program for the Yemen Agricultural sector and providing all of the support services for these activities. The contractor, the Consortium for International Development, was chosen because of its great depth of experience in arid land agriculture.

An alternative approach would, of course, be to identify and develop each major activity independently, procuring the contractor services on a competitive basis as each activity was identified and/or designed. This would provide more flexibility in choice of contractor appropriate for each activity but in selecting CID for the design and implementation of the entire program, it was assumed that the resources of the nine member universities could adequately meet the development assistance requirements. Major advantages of the arrangement with the single contractor are:

- 1) Simplification of procurement, avoiding the need for multiple contract negotiations.
- 2) Elimination of duplication in facilities for project support, consolidating support services in a single unit for all project activities.
- 3) Improved communication and coordination among the various activities in the agriculture program.
- 4) Reduced lapse time between activity conception and implementation.

These contractual arrangements, when coupled with the capacity for on-going sector analysis and project design which is built into the Program via the Core Team concept, ensure maximum flexibility and minimum response time of Agricultural Development Support Program to changing economic and social conditions.

#### IV. Program Implementation

##### A. Administrative Organization of the Program

CID will hold a prime contract with USAID and, while holding ultimate responsibility for overall performance, will delegate management and operations of the program to its member universities. To assist the universities and to insure the meeting of its ultimate responsibilities, CID will appoint a CID Title XII Yemen Advisory Committee. This committee will include representation from the universities having major participation in the Yemen Program. One CID University will be designated as Lead University and all program responsibility will be delegated to a Program Director to be appointed by the Lead University. The Program Director will reside in the USA and travel to Yemen as necessary to provide coordination and direction. A Chief of Party will have overall responsibility for in-country activities. Various CID Universities will assume specific responsibilities in the Program. For each of their major functions, the respective universities will appoint a Team Leader to be resident in Yemen and a Project Director to be resident on the home campus. Team Leaders will report to the Chief of Party and together they will resolve problems if possible. Unresolved problems will be communicated to the Program Director and the appropriate Project Director by the COP and the Team Leader respectively. The Project Director will resolve the problem, consulting with the Program Director as necessary. Team Leaders and their respective Project Directors will be in regular contact to implement approved work plans. Project Directors will provide for campus backstopping in their assigned areas. A Project Director, while located on a particular campus, will have access to resource personnel on any CID campus. When necessary and appropriate, CID may contract with a non-CID member for services, in which case the reporting/coordination relationships will be the same as if the added contractor had been a CID member. The Program Director will have responsibility for coordination of programs with AID/W units including BIFAD. The Program Director will coordinate day to day budgeting matters with the AID/W Contracting office while CID headquarters will have the prime responsibility for coordinating contract policy and contract negotiations. The CID Title XII Yemen Advisory Committee will provide CID a mechanism for advising the Program Director, for encouraging on-campus interests and for meeting its ultimate responsibility for performance.

There will be a Title XII Yemen annual review which will meet in Yemen yearly to focus primarily on input and output levels, implementation schedules and the strategy for achieving indicated targets. See the Evaluation Plan in Part V for more details on the review.

In Yemen, the Program will have a bimodal operation. One mode will involve distinctive satellite projects headed by a Team Leader and sanctioned by individual sub-project papers. A second mode will involve the use of a Core Team which will have several functions. The Core staff will include two to four professionals selected for their areas of competence as dictated by program components.

The Core professionals will provide professional ad hoc support to appropriate YARG ministries as requested, prepare new efforts for consideration and provide documentation as required, manage new projects until they reach the stage of approved sub-projects, and facilitate annual reviews. The Core staff will identify potential projects for consideration by USAID/Y and/or appropriate YARG ministries. The Core staff may proceed through the stage of drafting PID's on its own initiative. The Core staff will also include an Administrative Officer who will manage a support function to include elements such as transportation, purchasing and warehousing of commodities, fiscal management, personnel services, inventory control and housing.

CID will make available on short notice a wide variety of short term consultants as required to implement the Program. Consultants will report initially to the COP and then be assigned to an appropriate program segment. A percentage of Core staff time and Core budgeted short term consultant time will be made available to the MOA, MOE, etc. upon short notice. When a significant portion of the consultation time set aside for YARG has been requested, the COP will consult with Ministry officials to determine their priorities so that the highest priority items can be accommodated with certainty.

Each sub-project will have a training component. The Core effort will also contain a separately budgeted training component. One Core staff member will be designated as Training Officer who will operate the Core training effort and coordinate the training efforts of subprojects. The Training Officer will also anticipate the training needs of prospective sub-projects and initiate early training when feasible. The separately budgeted Core training effort will accomplish several purposes including training of key MOA administrators, prospective administrators, prospective directors of technology and personnel needed for anticipated projects. Degree and non-degree training in Yemen, in the USA or in third countries will be offered as appropriate. Training in the USA will be concentrated in the CID universities and three such universities will be asked to perform major roles in this training effort. Two of these will concentrate on degree programs and one on non-degree programs. Project Directors of Yemen Title XII activities will give special consideration to Yemeni students as regards to orientation, remedial coursework, counseling, provision of field trips and placement within specific academic descriptives. The Core Project will provide a multi-level English training program in Yemen. Decision about whether to staff the program with CID personnel or to find another contractor has not yet been made. Each formal Title XII Yemen sub-project will include a sub-substantial in-service training effort. The Core Team will be active in placing trainees in the various sub-projects.

The COP will determine the extent to which central pools (secretarial, motor, etc.) will be used by sub-projects. The COP will delegate responsibilities as appropriate to Team Leaders and to Core Team staff. Team Leaders and Core staff members will be responsible for day-to-day coordination with their counterparts within YARG Ministries and within the USAID mission. Policy determinations and coordination with the Mission Director and with Director Generals or equivalents in the ministries will be the responsibility of the COP. The USAID Mission Director may choose to delegate mission participation responsibility to the USAID Mission Food and

Agricultural Officer. Periodic meetings will be established for the COP (and staff) and USAID/Y personnel as well as for COP, USAID/Y and YARG personnel. The USAID/Y Mission and CID have invited the MOA to send a high ranking delegation to the USA to become familiar with conditions and capabilities in the USA. The first visit is expected to take place in the fall of 1979 and hopefully other such visits will follow. Periodic visits by CID administrators will be made to Yemen. These exchanges should enhance CID/MOA/USAID relations.

The Title XII Yemen Core staff and Team Leaders will endeavor to coordinate their work in planning and execution with other donors in Yemen. A special effort will be made to coordinate research activities with the Central Agricultural Research Center at Taiz. To promote collaboration among technologists the Core Team proposes to encourage the formation of a Professional Agricultural Society of Yemen which would sponsor an annual technical meeting on agriculture.

The Core staff will complete the Baseline Study and Agricultural Sector Analysis started by the Design Team and will periodically update the analysis. To facilitate the launching of sub-projects, the Core Team will, when possible, anticipate sub-project requirements and, if necessary, engage in limited mobilization efforts before sub-projects are funded. Included in these mobilization efforts will be training requiring long lead times, an in-country pool of houses, vehicles and equipment to be made available as soon as sub-projects are funded and, where necessary, short term consultants to initiate and operate sub-project activities on a limited scale before they are funded.

The collaborative style of the Program requires that there be a variety of backstopping efforts on the campuses of the various CID Universities involved in the Title XII Yemen Program. This would include some on-campus research especially designed to help resolve problems in Yemen. An example might be the use of sophisticated on-campus laboratory or computer facilities to treat problems in Yemen. Another might be library research. Another prospect is that Yemeni or American graduate students might do a portion of their work in the USA and a portion in Yemen. The details of these types of collaborative work will be specified in each sub-project.

One member of the Core Team will be assigned a responsibility for coordinating the social aspects of the total program. It is visualized that each sub-project will need to collect data on social implications, spread effects, etc. The use of one Core Team member to coordinate this work should insure that this important aspect is not slighted and will provide an additional basis for all sub-projects to be seen in aggregate as a Program rather than as a collection of unrelated projects.

The Design Team has identified a substantial need for an Agricultural Documentation and Learning Resources Center. There is a priority need to assist the MOA in organizing a Documentation Center since fundamental documents being generated are not now catalogued and held in an organized fashion. Additionally, there is a need for sharing documents and books with various organizations throughout Yemen and for extracting and converting some documents into form for public presentation. This type of service would be exceptionally valuable for the extension service which is currently without support for preparation of visual aids, tapes, etc. The

Title XII Program itself needs access to such materials and capabilities. One member of the Core team will be assigned to explore the need and prospects for developing an Agricultural Documentation and Learning Resource Center. Such an operation has substantial potential for supporting the Title XII Program, the YARG Ministries, the emerging extension service and various donors. It could be the forerunner of a unit jointly sponsored by the MOA and Faculty of Agriculture. Some short-term consultant time may be useful to assist the Core Team in this function.

#### B. Monitoring

Monitoring within CID will be carried out by the CID Title XII Yemen Advisory Committee. Weekly monitoring by the USAID Mission will be delegated to the Food and Agriculture Officer. Annual monitoring will include participation by CID, USAID/Yemen, AID/W, BIFAD and various YARG Ministries as defined in the Evaluation Plan.

#### C. Contracting

The Program will be implemented using a contractor selected under the collaborative style as defined in USAID PD 65. A direct USAID contract is requested. See attached request for waiver of host-country contract.

#### D. Host Country Obligations

The host country obligations will be detailed in the paperwork for each sub-project activity. At present it is necessary to specify host country obligations for the Core function only. The host country is expected to supply a minimum of two offices and one documents room in the MOA for the Core staff plus any space required to allow proper functioning of any special support activities requested by the YARG for execution in close cooperation with MOA, MOE, etc. The MOA is expected to designate a minimum of one full-time liaison representative for the Core plus any additional full or part-time counterparts which may be necessary because of activities specifically agreed upon. Where Core activities are designated to initiate continuing functions, the YARG must agree to a timetable for eventual assumption of full financial and staffing responsibilities.

E. Implementation Schedule

<u>No.</u>	<u>Activity</u>	<u>Agency(s)</u>	<u>Date (in months)</u>
1.	Title XII Design Team (DT) reviews Yemen Agriculture	CID USAID YARG	Completed
2.	Draft report completed including CORE PP (w/attachments), Ibb/ATC PP and Agricultural Water Resources (AWR) Project Implementation Document (PID)	CID/DT	Completed
3.	CID Advisory Committee reviews and approves DT draft report	CID	Completed
4.	Ibb/ATC PP submitted to AID/W	USAID/CID	Completed
5.	Ibb/ATC PP approved	AID/W	Completed
6.	Ibb/ATC Grant Agreement signed (for sequential actions--See Ibb/ATC PIP)	USAID/YARG	Completed (9/26/79)
7.	DT final report submitted to USAID	CID/U of A	-0-
8.	Core PP submitted AID/W	USAID	-0-
9.	AWR PID submitted AID/W	USAID	-0-
10.	Approval Core PP	AID/W	+ 1
11.	Approval AWR PID	AID/W	+ 1
12.	MOA officials visit CID campuses	USAID/YARG/CID	+ 2
13.	Tentative Identification Cor Team (CT) commenced; lead university identified	CID	+ 2
14.	Tentative Identification of AWR Design Team; lead university identified	CID	+ 2
15.	Grant Agreement Core PP signed	USAID/YARG	+ 3
16.	Core Implementation contract signed	CID/Lead University	+ 3
17.	US On-campus support functions established	CID/Lead University	+ 3
18.	Logistics support CT and AWR DT initiated	USAID	+ 3
19.	CT staff nominated	CID	+ 4
20.	AWR DT staff nominated	CID	+ 4
21.	Staff approved items 19/20	USAID/YARG	+ 5
22.	Counterparts identified - items 19/20	YARG	+ 5
23.	US orientation (items 9/20)	CID Lead/University	+ 5½
24.	Item 18 completed	USAID	+ 6
25.	AWR DT arrives Sana	CID	+ 6
26.	Counterparts assigned AWR DT	YARG	+ 6
27.	Core Team arrives Sana	CID	+ 6-8
28.	Counterparts assigned CT	YARG	+ 6-8

29.	Orientation for AWR DT and CT	USAID/YARG	+ 6-8
30.	Arabic language training started for CT	Core	+ 6-8
31.	Initial review of YAR Soil/Water Management problems/potentials conducted including work to date, donor YARG/USAID contacts and field visits	AWR/DT	+ 6-7
32.	Initial review of YAR agricultural potential, other donor efforts reviewed, office and field visits made, Ibb/ATC activities reviewed	Core	+ 6-8
33.	Agreement reached Poultry Extension, short term consultant request	YARG USAID COP	+ 6-8
34.	Short term consultant (STC) identified for Documentation Center (DC) planning	CID	+ 6
35.	Basic DC commodities identified/ordered	Core	+ 6
36.	English language training (ELT) facilities investigated	Core	+ 6/7
37.	Student demand for ELT assessed	Core	+ 6/7
38.	Staffing needs for each sub activity determined (including US on-campus staff, expatriate field staff, Yemeni counterparts, trainees, laboratory technicians, equipment operators, drivers, admin. support staff, para professionals and laborers identified	AWR/DT YARG	+ 6-8
39.	Training needs identified and planned for items 37-38 including ELT	AWR/DT	+ 6-8
40.	Initial commodity requirements identified including vehicles, mobile labs, tractors and related equipment, laboratory equipment and supplies, field equipment (tools, generators, pumps), wadi monitoring equipment, fencing, cement, seed, pesticides, fertilizers, plant propagating materials, office supplies & equip.	AWR/DT	6-8
41.	Sites for demonstrations, research, wadi monitoring, grazing plots, climatological data collection needs identified	AWR/DT	6-8
42.	Building needs determined for each sub activity (AWR project incl. housing, offices, warehouses, sheds, shops, laboratories, etc.)	AWR/DT	6-8
43.	Initial review research needs and agreements reached	Core/UNDP	6-8
44.	Other infrastructural needs for each sub activity determined incl. road, wells, irrigation channels, electricity, and sewers	AWR/DT	6-8
45.	Tentative plans and methods of work determined incl. development of a PIP	AWR/DT	6-8

46.	Priority commodity needs Core & satellite activities identified	COP/CT	+ 7
47.	Other pre-mobilization needs (including logistics, administrative support, program support, Yemen staffing, housing and transport tentatively identified)	Core	+ 7/8
48.	Tentative identification of lead university(s) for AWR sub activities (on-farm water, watershed management and dryland research staff search underway)	CID	+ 7
49.	ELT recommendations submitted	Core	+ 7
50.	Commodities for Core (item 46) approved and ordered	Core	+ 8
51.	Program Director review Core program in Yemen	CID/Lead University	+ 8
52.	Poultry Extension PID developed	Core	+ 8-9
53.	Formal identification of lead university(s) for AWR	CID	+ 8
54.	ELT recommendations (item 49) approved	USAID/YARG	+ 8
55.	Formal 2 year plan of work (including project implementation plan) formulated and submitted to YARG/USAID/AID/W for approval following elements included: agri. sector analysis; English language training (ELT); In-country and foreign training; short term consultant (STC) use and needs; administrative functions for Core and satellite activity development; conferences, meetings and VIP travel; and sub-activities such as poultry, sorghum and millet, horticulture, AWR, Documentation Center (DC), WID/HELP, Agri Faculty, Surdud ATC and Livestock ATC	Core/CID	
56.	STC DC nominated (see item 34)	CID	+ 9
57.	AWR PP completed	DT/Core	+ 9
58.	AWR PP submitted to AID/W	USAID	+ 9
59.	Poultry Extension PID submitted AID/W	USAID	+ 9
60.	Contractor selected for ELT Note: If contracting not feasible, schedule will be set back by 2-3 mos. and following steps taken:	Core	+ 9
	a) S.T. FLT consultant identified	CID	+ 9
	b) " " " nominated	CID	+ 9
	c) " " " approved	YARG/USAID	+ 9½
	d) " " " arrives Sana	CID	+ 10

60.	(Continued)		
	e) Needs identified and report submitted	STC	+ 10/11
	f) Report approved	Core/YARG	+ 11
	g) Report recommendations implemented including: provision of training materials; selection, hiring and training site. Consultant to return after 6 months	Core/YARG	+ 11½
61.	E.L.T. contract signed	Core/Contractor	+ 9½
62.	STC DC approved	YARG/USAID	+ 10
63.	Poultry Extension PIP approved	CID/AID/W	+ 10
64.	Design Consultant requested (item 63)	Core	+ 10
65.	Sorghum/millet project embraced (See PP for details)	CID/YARG/USAID U of A	+ 10
66.	Core Staffing complete	CID	+ 10
67.	Horticultural Project embraced (See PP for details)	CID/YARG/USAID Tuskegee	+ 10
68.	CID's role in updating YARG 5-year plan especially Agric. Faculty determined	CID/USAID/YARG	+ 10
69.	Following consultants nominated/approved Agricultural Faculty (short term) MOA Planning Dept. (short term) Eastern Slope Irrigation (12 months)	CID/CORE/YARG	+ 10
70.	Agri Sector Analysis updated	Core	+ 10
71.	Preliminary Agreement WID/HELP	YARG/Core	+ 10
72.	Arabic language training (item 30) Results evaluated	CID/USAID	+ 10
73.	AWR staff search initiated	CID	+ 10
74.	AWR PP approved	AID/W	+ 10
75.	Grant agreement (AWR) signed	USAID/YARG	+ 11
76.	Poultry Extension Consultant nominated	CID	+ 11
77.	Lead university(s) formally selected (AWR) staff tentatively identified	CID	+ 11
78.	Limited mobilization efforts started for admin/tech. support of AWRP	Core	+ 11
79.	Initial group of 34 Yemenis selected for ELT including: 20 for 9 mos. 5 for 6 mos. 9 for 3 mos. (incl. attrition)	Core/YARG	+ 11
80.	STC Agri Faculty arrives Sana	CID	+ 11
81.	STC DC arrives Sana	CID	+ 11

82.	MOA personnel selected for attendance International Conferences and CID campuses	Core/YARG	+ 11
83.	Professional Agricultural Society of Yemen (PASY) discussed and established	Core/YARG USAID/Donors	+ 11
84.	Lead university tentatively identified for poultry	CID	+ 11
85.	34 students (item 79) commence ELT	Core/Contractor/YARG	+ 11
86.	Housing, transport, other logistics arranged for Irrigation Consultant (IC)	Core/YARG	+ 11
87.	Agri Faculty STC reviews higher education status, needs prepare report	STC	+ 11/12
88.	Poultry Consultant (item 76) approved	YARG/USAID	+ 11½
89.	Ibb/ATC ELT needs accessed	Core	+ 12
90.	Poultry consultant arrives Sana to develop PP	CID	+ 12
91.	Basic DC commodities (item 35) arrive	CID/Core	+ 12
92.	ST consultant (DC) arrives Sana	CID	+ 12
93.	Local staff assigned DC	YARC/Core	+ 12
94.	Contract negotiated AWR	CID/Lead University	+ 12
95.	WID/HELP PID prepared	Core	+ 12
96.	1st contract roll over	CID/USAID	+ 12
97.	Local staff training conducted for DC	STC	+ 12/13
98.	DC needs reviewed	STC/Core	+ 12
99.	1st CID advisory review in Yemen	CID	+ 12
100.	Surdud ATC PID submitted AID/W	USAID/Core	+ 12
101.	Additional commodities identified for PC	STC/Core	+ 12
102.	Final report submitted Agri Faculty consultant returns USA	STC	+ 12
103.	IC Counterpart(s) assigned	YARG	+ 12
104.	IC Consultant arrives YAR	CID	+ 12
105.	Poultry PP completed	STC/Core	+ 12½
106.	Initial orientation for IC Consultant	YARG/Core/USAID	+ 12-13
107.	11 Yemenis selected for ETL 10 for 3 months 1 for 9 months	YARG/Core	+ 12/13
108.	Poultry PP submitted AID/W	USAID	+ 13
109.	Final report Agri Faculty submitted STC returns US	STC/Core	+ 13
110.	Surdud ATC PID approved	AID/W	+ 13
111.	Final report submitted DC and consultant returns US	STC	+ 13
112.	DC report accepted	YARG/Core/USAID	+ 13

113.	Additional commodities ordered for DC	Core	+ 13
114.	AWRP staff nominations submitted	CID	+ 13
115.	AWRP counterparts identified	YARG/Core	+ 13
116.	1st PASY meeting and annually thereafter	YARG/Core/USAID Donors	+ 13
117.	Poultry Ext. PP sent to AID/W	USAID/Core	+ 13
118.	WID/HELP PID sent to AID/W	USAID/Core	+ 13
119.	STC MOA Planning Dept. arrives Sana	CID	+ 13
120.	Short term consultancy funds substantially sub-obligated, priorities determined	Core/YARG	+ 13
121.	MOA Planning Dept. needs assessed	STC	+ 13
122.	Eastern slope irrigation potential reviewed, visits made to other YAR irrigation facilities	IC	+ 13/14
123.	DC starts operations	YARG/Core	+ 14
124.	Following Yemenis complete ELT 9 for 3 months (includes 5 drop outs)	Contractor	+ 14
125.	11 students (item 107) commence ELT	YARG/Core	+ 14
126.	In-service management seminars discussed and planned	YARG/Core USAID	+ 14
127.	AWR staff approved	YARG/USAID	+ 14
128.	Poultry Extension PP approved	AID/W	+ 14
129.	WID/HELP/PID approved	AID W	+ 14
130.	Agri Faculty PID prepared	STC/Core	+ 14
131.	Final report submitted MOA Planning Dept.	STC	+ 14
132.	Item 131 report accepted, STC returns USA	MOA	+ 14
133.	Coordination other donors developed	IC	+ 14
134.	Detailed 10 months work plan developed	IC	+ 14
135.	Item 134 plan accepted	YARG/Core	+ 14
136.	Detailed assessment made eastern slope irrigation potential; development plan outlined	IC	14-20
137.	Poultry Extension PP grant agreement signed	USAID/YARG	+ 15
138.	Poultry Ext. lead university identified and potential staff identified	CID	+ 15
139.	Ibb/ATC ELT classes begin	Core	+ 15
140.	Agri Faculty PIP sent to AID/W	USAID	+ 15
141.	Limited mobilization efforts completed for AWR staff	Core	+ 15

142.	In-service management training starts	Core/YARG	+ 15
143.	AWR Staff orientation in US	CID/University	+ 15
144.	AWR Staff arrives in Sana	CID	+ 15
145.	AWR counterparts assigned	YARG/Core	+ 15
146.	Poultry Ext. Staff nominated and approved	CID/MOA	+ 15
147.	Poultry Ext. Counterparts identified	Core/YARG	+ 15
148.	Mobilization completed for poultry	Core	+ 15
149.	US orientation poultry extension	CID	+ 16
150.	WID/HELP ST consultant nominated to draft PP	CID	+ 16
151.	13 students selected for ELT 5 for 3 months 8 for 6 months	YARG/Core	+ 16
152.	Poultry Extension Staff arrive Sana	CID	+ 16
153.	Poultry Extension counterparts assigned	YARG	+ 16
154.	Poultry team orientation in Yemen including review of current work by USAID, other donors and commercial operators	Core/USAID	+ 16/18
155.	Extension conference discussed and planned	Core/MOA; USAID/Donors	+ 16
156.	Surdud ATC PP prepared	Core	+ 16/18
157.	MOA officials attend International Conferences and CID campuses	Core/CID/YARG	+ 16
158.	PIP for expanded DC prepared and sent to AID/W	Core	+ 16
159.	In-country orientation for AWR team including office and field visits to MOA and other donor agencies	Core/USAID/YARG	+ 16/17
160.	AWR research and other linkages established with UNDP and other donors	AWR Donors; CORE/YARG	16-18
161.	Following PIP items reviewed and adjusted as necessary 38 through 42, 44, 45	AWR	16-18
162.	Expanded PID DC approved	AID/W	+ 17
163.	Agri Faculty PID approved	AID/W	+ 17
164.	WID/HELP ST consultant approved	YARG	+ 17
165.	WID/HELP ST consultant arrives Sana	CID	+ 17
166.	Detailed plan of work, including PIP developed for Poultry Ext. including training	Poultry Team	+ 17
167.	13 students (item 151) commence ELT	YARG Core	+ 17
168.	5 students (item 79) complete ELT	Contractor	+ 17
169.	Program Directors review Yemen	CID/U of A	+ 18
170.	Detailed Plan of Work, methods of operation	AWR	+ 18

171. Major commodity needs ordered	AWR	+ 18
172. Ibb/ATC ELT continues	Core/Ibb/ATC	+ 18
173. ST DC consultant returns	CID	+ 18
174. DC operations reviewed	STC	+ 18
175. DC training programs conducted	STC	+ 18-19
176. Poultry Ext. training program starts for MOA staff, local operators	PT/Core YARG	+ 18
177. Agri Faculty PP developed	Core	+ 18-21
178. WID/HELP PP developed	Core/STC	+ 18
179. Training needs for Yemeni staff (item 38) reviewed (including technical, academic, on the job, para technical, ELT and labor) and arrangements made for implementation	AWR/Core/YARG	+ 18-21
180. Site needs (item 41) reconfirmed, negotiations conducted with MOA, CDYA, LDA's, other donors as necessary	AWR/Core/YARG	+ 18-21
181. Infrastructural needs (items 42-44) finalized for each site	AWR/Core/YARG	18-21
182. 39 students selected for ELT including 34 for 9 months 5 for 3 months (includes attrition)	Core/YARG	18-19
183. Commodities for DC arrive	CID	+ 19
184. WID/HELP PP sent AID/W	USAID	+ 19
185. Surdud ATC PP sent AID/W	USAID	+ 19
186. Surdud PP approved	AID/W	+ 20
187. WID/HELP PP approved	AID/W	+ 20
188. WID/HELP lead university and staff identified	CID	+ 20
189. Poultry Ext. work started with growers	P. Team	+ 20
190. D.C. fully operational and turned over to YARG	Core/YARG	+ 20
191. STC returns to USA	Core	+ 20
192. Following students complete ELT 20 for 9 months 5 for 3 months	Contractor	+ 20
193. Selected students from 192 sent to USDA for training	Core/CID/YARG	+ 20
194. 39 students start for ELT 34 for 9 months 5 for 3 months	YARG/Core	+ 20
195. MOA Planning Dept. training underway	STC/YARG	20-24
196. Surdud ATC Grant Agreement signed	USAID/YARG	+ 21
197. Lead university contract signed (Surdud ATC)	CID	+ 21

198.	WID HELP Grant Agreement signed	YARG/USAID	+ 21
199.	Students (item 193) commence ELT in USA	CID University	+ 21
200.	Agri Faculty PP submitted AID/W	USAID	+ 21
201.	WID HELP staff nominated	CID	+ 22
202.	Eastern slope irrigation final report submitted	STC	+ 22
203.	STC (item 202) returns USA	CID	+ 22
204.	Surdud Staff nominated 4 months ELT CID University	CID	+ 22
205.	Final sites approved and turned over to AWR	YARG	+ 22
206.	Surdud staff approved	YARG USAID	+ 22
207.	Existing climatological sites reviewed and additional ones established; operators trained	Core/AW	+ 22/23
208.	US orientation Surdud staff	CID	+ 22½
209.	Surdud ATC counterparts identified	YARG/CID	+ 22½
210.	Site improvement work starts	YARG/AWR	+ 22½
211.	Land Use Maps prepared	AWR	+ 23
212.	WID/HELP Staff approved	YARG/USAID	+ 23
213.	25 students complete ELT	Contractor	+ 23
214.	Surdud ATC staff arrive Yemen	CID	+ 23
215.	2nd annual PASY meeting held	YARG Core/USAID Other Donors	+ 23
216.	Surdud ATC staff oriented	Core/YARG	+ 23
217.	Surdud ATC counterparts assigned	YARG	+ 23
218.	1 degree student sent to CID University; ELT commenced for 4 months	Core	+ 23
219.	Agri Faculty PP approved	AID/W	+ 23
220.	Sana Livestock PID prepared	Core	+ 23
221.	MOA staff selected to visit CID campus; attend conferences	YARG/Core	+ 23
222.	PASY annual meeting	YARG/Core/USAID	+ 23
223.	Arabic language training reviewed	Core	+ 23
224.	Agri Sector Analysis Updated	Core	+ 23
225.	Formal research review	Core/UNDP	+ 24
226.	Poultry Extension field day held	PT/YARG/Core	+ 24
227.	PIP developed for expanded DC	Core	+ 24
228.	1st 6 month evaluation AWR	Core	+ 24
229.	Surdud ATC starts operation	Surdud Staff	+ 24
230.	WID/HELP staff orientation USA	CID	+ 24
231.	2nd CID advisory committee review in Yemen	CID	+ 24
232.	Contract roll over	CID/AID	+ 24

#### F. Relationship to other USAID/Yemen Programs

USAID/Yemen has several existing programs which overlap with the agricultural and rural development concerns of the proposed Program. These existing projects include 043, 045, 046, and 053. It is essential that the Core Team and Design Teams for prospective projects be alert for opportunities which will complement and increase the effectiveness of existing projects and of Project 052. Some examples of these opportunities are identified in the issues section of the Agricultural Water Resources PID, attached as Appendix D to this proposal.

#### G. Special Problems

All infrastructures are weak in the YARG. Counterparts assigned by YARG will require major assistance through on-the-job training and formal training out-of-country. English capability is highly desired by YARG for their personnel and the lack of such capability is a major handicap to more rapid infusions of management and technological skills. The plan addresses these limitations. The YARG desires a rapid infusion of practical methodology. In many cases this will be possible but in some cases time must be allowed to adapt the technology to Yemen or in some cases to develop new knowledge. Technology is not always directly transferable to an LDC. Experience in Yemen to date indicates that this is a point of confusion and that considerable initial and follow-up dialogue is required with YARG officials to avoid misunderstandings about the time required to accomplish technology transfer. Special steps are also required to insure that participant trainees return to the positions for which they were trained.

#### V. Program Evaluation

Evaluation will be an important feature of the Program (The Core and sub-project activities). One element of the evaluation system will be an annual review related to the annual revision of a detailed work plan. Another element will be a comprehensive, in depth evaluation during the 4th year of the Program.

This paper includes an operational plan for the initial phase (5 years) of what is seen as a long term (up to 20 years) assistance effort. A more detailed work plan consisting of cost of inputs, time schedule, and outputs covering the first two years of the Program is also included. At the end of the first year of operation and on a regular annual basis thereafter the work plan will be revised and rolled forward for another year.

The annual review will focus primarily on the input and output levels, the implementation schedules and the strategy for achieving the indicated targets. The results of these reviews will be used to identify particular problems in design or implementation, modify targets if necessary, or alter implementation plans to overcome constraints to achievement of Program purposes. This information will be the basis for revisions in the annual roll forward of the work plan.

These annual reviews will be held in Sana and will involve participation by the CPO and relevant line Ministries (particularly the Ministry of Agriculture and the Ministry of Education), AID/W, USAID/Yemen, BIFAD, and the implementing Title XII contractor (CID). Participation by CID will include a CID advisory committee made up of representatives of the principal universities supporting this Program.

Each review will consider the assumptions made in original planning documents and judge whether or not the assumptions still appear sound. They will also consider the appropriateness of outputs as viewed in terms of the current social and economic system prevailing in Yemen and the policies of the U.S. Government. Special consideration will be given to the degree to which individuals trained in the Program are benefitting themselves and Yemeni society because of their training. This aspect will include consideration of evidence for the appropriateness of training provided, the degree of retention of trainees in targeted areas and the adequacy of the quantity and quality of trainees moving through the system.

The annual review will be chaired and called into session by an individual to be designated by USAID/Yemen.

Participation by the CID Advisory Committee will make possible their inputs into the evaluation of the Program and, as importantly, enhance communications among CID universities and the Yemen officials and institutions involved in the Program, and thereby, make for more effective backstopping support for the Program.

A second element of the evaluation system will be a comprehensive in-depth evaluation to be undertaken within the fourth year of the Program's operation. This evaluation would include, in addition to the participants in the annual reviews, representatives of peer institutions. This evaluation will be particularly concerned with quantifying accomplishments, identifying the impact on target rural populations, evaluating the structure and organization of the Program and developing the basis for design of a follow-on second phase of the Program. In view of the broad scope of the Program the review team for the in-depth evaluation will involve the use of sub-committees as appropriate.

#### VI. Ibb Agricultural Training Center (Ibb/ATC)

USAID agreed to assist in the operation of the Ibb/ATC with an opening date in the Fall of 1979. Since the operation was visualized as a component of the Title XII Yemen Agricultural Development Support Program and the overall Project Paper could not be prepared in time to permit assistance with the Ibb/ATC, two formal documents were processed for the Ibb/ATC in advance of the present Project Paper. The first was a project paper designed to provide mobilization support for the Ibb/ATC. This paper initiated the broad program under Project 279-0052. The second was a project paper to provide for the implementation of the Ibb/ATC. This became Amendment No. 1 to 279-0052. The present project paper will become Amendment No. 2 to 279-0052.

In due course it is anticipated that a project paper will be written to cover a second agricultural secondary school at Surdud. It will be very similar to the Ibb operation. A third agricultural secondary school in Sana dealing with livestock is a prospect for USAID support but a firm request from the MOE in this regard has not yet been received.

LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Project Purposes:</u></p> <p>1. Provide overall support to the YARG in development of appropriate institutions and programs for providing research, teaching, extension, planning and other services to the agriculture sector</p> <p>2. Design, administer and coordinate subproject development activities which address specific objectives of the YARG national priorities and USAID Yemen strategy</p>	<p><u>End of Project Status:</u></p> <ul style="list-style-type: none"> <li>-Improved YARG capacity for agricultural planning, sector analyses, project design, evaluation and implementation</li> <li>-Effective system in place and in operation for providing economic and technical backstopping services to YARG</li> <li>-Productive linkage exists between Yemen institutions and cooperating U.S. institutions and international research centers</li> <li>-Agricultural documentation and learning center established and making library materials, reports and training materials available to authorized users</li> <li>-Sub-projects will have been designed and/or are in operation in several areas</li> <li>-Additional potential satellite projects identified and PIDs prepared</li> <li>-Limited mobilization assistance being provided to facilitate transition to satellite project operations</li> <li>-Agricultural activities being coordinated with other donors</li> <li>-Logistical and administrative support is operating under the CID COP for effective implementation of entire Agricultural Development Support Program</li> </ul>	<p>YARG Records</p> <p>Core Team Records</p> <p>Core Team Records</p> <p>YARG Records</p> <p>Core Team Records</p>	<p>MOA will welcome Core Team assistance</p> <p>Qualified Yemeni will be available for advanced training</p> <p>Trained Yemeni will be employed in the agriculture sector</p> <p>Other donors will provide necessary supporting capital requirements</p>

LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Outputs (Purpose 1) :</u></p> <p>MOA Directorate of Planning staff trained</p> <p>In-service and out-of-country training provided key staff of Yemeni agricultural institutions</p> <p>In-country conferences for agricultural extension and research personnel</p> <p>English language training for personnel of MOA and other agricultural institutions for all 0052 program activities</p> <p>Agricultural sector analyses</p> <p>Policy papers</p> <p>Communications between CID universities Yemeni agricultural institutions</p> <p>Programs established at participating CID universities for study of YAR agricultural problems</p> <p>Strengthened MOA documentation center</p>	<p><u>Magnitude of Outputs:</u></p> <p>15 Planning Directorate staff trained in agricultural planning, sector analyses, project design and evaluation.</p> <p>In-service training provided for 25 MOA personnel; 3 trained in PhD programs; 30 in MS programs; 6 in BS programs and 46 in special non-degree programs.</p> <p>2 conferences and 2 seminars per year</p> <p>200 Yemeni having participated in English language training</p> <p>Periodic revisions of sector analyses</p> <p>As required</p> <p>Annual meetings of CID Advisory Committee in Yemen. Annual visits of MOA officials and Yemeni agriculturalists to CID universities</p> <p>Programs for improved understanding of YAR agriculture underway at each participating CID institution. Cooperative research programs underway at each participating CID institution</p> <p>Library materials and reports readily available to authorized users</p>	<p>Core Team Records</p>	<p>Qualified personnel will be available for training</p> <p>MOA will be able to retain personnel with advanced training</p> <p>Yemeni agriculturalists will attend conferences and seminars</p> <p>Qualified Yemeni with an interest in learning English</p> <p>Yemen agriculturalists will continue to value CID contacts</p>

LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Outputs (purpose 2):</u></p> <p>Sub-project papers</p> <p>Project Identification Documents</p> <p>Project Mobilization assistance</p> <p>Coordination with other donors</p> <p>Coordination of training</p>	<p><u>Magnitude of outputs:</u></p> <p>Detailed sub-project papers developed for</p> <ul style="list-style-type: none"> <li>-Agricultural Water Resources</li> <li>-Agricultural Secondary Education (Surdud)</li> <li>-Faculty of Agriculture</li> <li>-Poultry extension</li> <li>-Others, as identified and approved</li> </ul> <p>As needs identified</p> <p>10 Yemeni personnel received out-of-country training in preparation for proposed sub-projects</p> <p>1.8 PV's per year of consultant services Housing, equipment and vehicles for 3 personnel</p> <p>Periodic informal meetings with other agriculture sector donors</p> <p>Coordination of all training out of country for all project 0052 activities</p>	<p>Core Team Records</p>	<p>YARG will consider these important</p> <p>Prompt startup of projects will continue to be important to YARG</p> <p>Other donors will share their plans with Core Team and will be frank in discussing Core Team program</p>

## VII. The Core Project

### A. Project Description

1. Goal: The goal of the core activity is the same as that of the overall Agricultural Development Support Program discussed in Section II.
2. Project Purpose: The specific purposes of the Core project are:
  - a) to provide overall support to the YARG in development of appropriate institutions and programs for providing research, teaching, planning and other services to the agricultural sector; and
  - b) to design, administer and coordinate sub-project activities which address specific objectives of the YARG national priorities and USAID/Yemen strategy.
3. End of Project Status: While this project paper covers only a five year period, it is viewed as the first phase of a long term, (up to 20 years) assistance program. The conditions expected at the end of this first phase are thus intermediate positions in the longer term life of the project. The End of Project Status (EOPS) with respect to project purpose a) above are presented as EOPS a-d. EOPS e-i are with respect to project purpose b).
  - a) Improved YARG capacity for agricultural planning, sector analysis, project design, evaluation and implementation.
  - b) Effective system in place and in operation for providing economic and technical backstopping services to YARG.
  - c) Productive linkages exist between Yemen institutions and cooperating U.S. institutions and International Research Centers.
  - d) Agricultural Documentation and Learning Center established and making library materials, reports and training materials available to authorized users.
  - e) Sub-projects will have been designed and/or in operation in several areas.
  - f) Additional potential satellite projects identified and PIDs proposed.
  - g) Limited assistance being provided to facilitate transition to satellite project operation.
  - h) Agricultural Development Support activities being coordinated with other donors.
  - i) Logistical and administrative support is operating under the CID COP for effective implementation of entire Agricultural Development Support Program.

4. Outputs: Each of the above EOPS will be achieved through a series of activities (outputs) discussed in the following section:

EOPS (a) Improved YARG capacity for agricultural planning, sector analysis, project design, evaluation and implementation.

Most of the Yemeni staff of the Ministry of Agriculture are handicapped by deficiencies in general education as well as technical training. While much of the technical information and documentation they need to deal with is in English, many employees do not read or speak English. This project proposes English language training for personnel of MOA and other agricultural institutions, including all satellite 0052 projects. It is proposed that 200 Yemeni will participate in the training, on the assumption that there will be that many qualified Yemenis with an interest in learning English and that the Ministry will release staff time for this purpose. The English language training activity will also be responsible for providing language skills to those Yemeni selected for out-of-country training.

It is proposed that 15 Yemeni staff members of the Directorate of Planning will be given various levels of training in agricultural planning, sector analysis, project design and evaluation.

It is proposed that the staff members of other Yemeni institutions and other Yemeni agriculturists will also be provided training. This will include in-service training for 25 key MOA personnel annually; non-degree out-of-country training for 46 students; 3 students in the Ph.D. programs; 30 students in M.S. degree programs and 6 students in B.S. degree programs. Two conferences and four seminars are planned for professional agricultural research and extension staff.

EOPS (b) Effective system in place and operating for providing technical and economic backstopping services to the YARG.

The Core staff will continue agricultural sector assessments started during the project design phase, filling in gaps in information and updating the studies periodically and producing papers outlining policy options on important issues. They will make this information available to the MOA, work with the MOA Planning Directorate to determine additional studies and analysis required for effective planning and provide assistance, including consultant services, as appropriate. The Core staff will also review requests for technical services from the Ministry of Agriculture. Where the requests suggest major sub-project activities the team may propose sub-projects. Often, however, the need may be for more limited short term assistance, directly to the Ministry or to a project activity of another donor where U.S. expertise is particularly relevant. The Core Team will evaluate the need and, if adequately justified, provide the services. Up to 3 PY's of consultant services will be made available annually.

EOPS (c) Productive linkages established between Yemeni institutions and cooperating U.S. institutions.

An Advisory Committee with representatives from the principal CID Universities participating in the program will be established and

functioning as the primary mechanism for communication between YARG and the collaborating institutions on the development and implementation of the long term Yemen Agricultural Development Support Program. The CID Advisory Committee will meet annually in Yemen to participate in the annual review of the program and to interact with YARG officials. Key MOA officials and staff of other agricultural institutions will visit CID institutions annually.

Each of the participating CID institutions will develop programs for creating interest in and better understanding of Yemen agriculture and other aspects of Yemen's rural social and economic problems. Research programs will be developed to study problems relevant to Yemen's rural development and, insofar as possible, these will be designed to involve cooperation of Yemeni scholars.

EOPS (d) Agricultural documentation and learning center established and library materials and reports readily available for authorized users.

The MOA recognizes the need for a documentation center to properly maintain and catalogue their own growing numbers of documents as well as various useful documents from other sources and to establish an efficient system for retrieving and making available these documents to the government officials who need them. At the present time, the MOA does not have suitable facilities for producing the kinds of materials that can be used by radio, television and other media for providing information to the public on agricultural research results and government policies and programs. The Core staff will work with the MOA in assessing assistance requirements. A series of short term consultancies is planned initially to help develop plans for the Center and two Yemenis will be provided out-of-country training. Limited commodity assistance in the form of equipment for the MOA Documents Center and a \$40,000 matching fund for the acquisition of publications will be provided. At a later date, a decision will be made about whether to continue to operate the Center as a limited Core activity or to propose it as a sub-project and expand its activities.

EOPS (e) Sub-projects designed and/or underway in several areas.

The baseline studies and discussions with MOA officials indicated several areas in which the Core Team should proceed to develop sub-projects. Some of these are considered of high enough priority that project design work should be started soon and project implementation would be underway before the end of the project. Others, while clearly important, will be designed during this period but their implementation will not be possible until the next phase. Following is a discussion of each of the proposed activities:

- 1) Agricultural Water Resources  
A PID proposing this sub-project accompanies this document.
- 2) Agricultural Secondary Education  
These activities are described in Section II B-4.
- 3) University Faculty of Agriculture  
This possible sub-project is described in Section II B-4.

4) Poultry Extension

This possible sub-project is described in Section II b-4.

5) Women in Development - Home Economics Learning Program

This possible sub-project is described in Section II B-4 and detailed in Appendix E.

EOPS (f) Additional potential satellite projects identified.

The Core staff will undertake, using consultants as necessary, to fill important gaps in baseline information and to carry out further analysis to identify constraints to development. Certain areas examined by the Design Team, including a national extension service, agricultural credit and agricultural cooperatives and land tenure, did not appear to offer promising opportunities for intervention at this time. The Core staff will be alert to changing conditions that might make sub-projects in these areas opportune. Meanwhile, ad hoc assistance in training of staff and/or consultant services will be provided if this appears useful.

EOPS (g) Limited assistance being provided to facilitate transition to full-scale satellite project operation.

At the end of this five-year period, in addition to the sub-projects which have been approved and are being implemented, it is expected that several proposed projects will be at the PID or design stage. For some of these it will be prudent to provide "mobilization" assistance, including procurement of housing, vehicles and key equipment as well as consultant services and training of key counterpart staff. This will overcome many of the start-up problems of these projects.

EOPS (h) Agricultural development activities being coordinated with other donors.

A multiplicity of donors contribute to development of Yemen's agriculture sector, as summarized in Section 3.6 of the Baseline Field Study Report, Appendix C. One function of the Core staff will be to develop close working relationships with other donors to avoid duplication and to identify opportunities for productive cooperation. It is expected that by the end of this phase suitable mechanisms will be established for such coordination.

EOPS (i) Logistical and administrative support is operating under the CID COP for effective implementation of entire agricultural development support program.

The Core staff will develop services and facilities to provide as much as practicable of the logistical and housekeeping support to the constituent projects of the program. These services will include major repair of motor vehicles (normal maintenance facilities will be provided by individual sub-projects), spare parts inventory; assistance in procurement of housing; purchasing and customs clearance of commodities; financial record keeping and disbursement of funds; local recruitment of personnel; processing of training participants, including English language training, orientation, transportation and visa processing.

The Chief of Party will be responsible for overall coordination of the program and will support the team leaders of the individual sub-projects. He will serve as the AID contact point for all 0052 activities.

The Core activity will provide housing (either rental or purchased) and furnishings for the Core Team members, suitable office and service buildings and vehicles, equipment and supplies for the Core activity functions.

The Core activity will also include "mobilization" assistance to permit new sub-project activities to start up with the most essential facilities, including housing, vehicles and critical equipment.

#### B. Analysis

The Core Project will be one of several activities designed to implement the Agricultural Development Support Program (Project 279-0052). Since all the appropriate analyses have been performed for the Program (see Sections III A-D), they stand as well for the Core Project and need not be repeated here especially as regards Economic, Social and Technical Analysis and the statement on Women in Development. Some comments are in order regarding the administration of the Core Team.

The administration of the overall Title XII Yemen Program including that of the Core Team has been detailed under Section IV, Program Implementation. That part of the administration under the direct control of the American participants (CID, USAID) can be viewed with considerable confidence. These organizations have a history of managing complex projects and making use of well-trained people and sound management principles and practices.

The agreed upon system should work well if competent people are assigned. If the system does not work well for any reason, there will be the will and the means to correct the situation. That part of the administration outside of American hands presents a different situation. YARG offices are thinly staffed with Yemeni who are generally young and relatively lacking in experience for the responsibilities they bear. Often one has to go to the top people in an agency to find someone who can resolve simple problems. Yemeni administrators bear heavy burdens and often are without competent assistants or means to follow through effectively. Often the top administrators have expatriate counterparts who must try to contribute depth and breadth of understanding. Language is often a barrier. Furthermore, it is possible that expatriate advisors may see US participation as an attempt to usurp their role.

Under the above circumstances, there are many opportunities for misunderstanding. Substantial efforts must be made to have effective interaction with YARG officials. The following steps have been taken:

1. An office for the Title XII Program has been obtained in the MOA. This is next to the offices of the Minister and the Advisor to the Minister. It has been occupied and will continue to be occupied. This gives an excellent opportunity to become acquainted.
2. A full-time MOA liaison representative for the Title XII program has been requested. A conscious decision has been made not to request a counterpart for any member of the Core Team.

3. Top officials of the MOA and their top advisors have been invited to the USA for a familiarization visit by USAID and CID. Indications are that they will accept this invitation and travel to the US in Fall, 1979.
4. The progress of the Design Team has been reviewed several times with MOA personnel including two formal sessions. Their comments have been utilized as a basis for upgrading and downgrading various sections of the Project Paper.
5. A concerted effort has been made to work with and through expatriate advisors in the MOA.
6. A high priority has been placed on providing training for upper level MOA personnel and on furnishing ad hoc technical assistance at the request of MOA personnel.

The above steps will be augmented as the Program advances. There is no alternative but to work with the fragile administrative structure in the YARG.

TABLE 1

SUMMARY COSTS

(\$000)

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>TOTAL</u>
Total (in 1980 prices)	5410	4165	3776	3762	4238	21,351
Total (includes inflation)	5410	4580	4565	5000	6169	25,724

TABLE 2

## UNITED STATES COSTS (\$000)

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>TOTAL</u>
Field Personnel						
Long Term	731	1170	930	930	930	4,691
Short Term	363	552	552	552	552	2,571
Campus Personnel	64	76	76	76	76	368
Training	600	1000	1000	1000	1400	5,000
Commodities	551	66	131	66	131	945
Purchase Houses	1650	0	0	0	0	1,650
Travel	14	18	18	18	18	86
Evaluation	16	16	16	66	16	130
Contingency	203	62	62	62	82	471
Overhead	346	518	317	312	311	1,804
Subtotal/Current Prices	4538	3478	3102	3082	3516	17,716
Subtotal/with 7% inflation	4538	3721	3545	3776	4609	20,189

TABLE 3

## LOCAL COSTS (\$000)

	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>	<u>TOTAL</u>
Local Personnel	169	288	288	288	288	1321
Training	68	110	110	110	150	548
Commodities	78	72	72	72	72	366
Purchase/Operate						
Headquarters	422	75	55	55	55	662
Travel	10	12	12	12	12	58
Contingency	66	45	49	49	51	260
Overhead	59	85	94	94	94	426
Subtotal/Current Prices	872	687	680	680	722	3641
Subtotal/with inflation % 25, 20, 20, 20	872	859	1020	1224	1560	5535

TABLE 4

Allocation of Personnel (USAID Contract) in Yemen (PY's)

<u>Job Title</u>	<u>FY 80</u>	<u>FY 81</u>	<u>FY 82</u>	<u>FY 83</u>	<u>FY 84</u>
Chief of Party	1	1	1	1	1
Core professionals	2	3	3	3	3
Administrative Assistant*	1	1	1	1	1
Training Assistant*	1	1	1	1	1
Research Assistant*	1	1	1	1	1
Projects Assistant*	1	1	1	1	1
Administrative Officer	1	1	1	1	1
Deputy Administrative Officer	0	1	1	1	1
Purchase & Warehouse Assistant*	1	2	2	2	2
Fiscal Assistant*	1	1	1	1	1
Property Managment Assistant*	1	1	1	1	1
Personnel Assistant*	1	1	1	1	1
Bookkeeper*	1	1	1	1	1
Chief Mechanic	1	1	1	1	1
Mechanics*	1	2	2	2	2
Janitor*	1	2	2	2	2
Travel Assistant*	1	1	1	1	1
Head Secretary	1	1	1	1	1
Assistant Secretaries*	2	3	3	3	3
Drivers*	8	11	11	11	11
Translators*	1	1	1	1	1
Medium Term (6-12 mo) Consultants	1	1	1	1	1
Short Term Consultants					
Technical Assistant to MOA	1	2	2	2	2
Project Development	1	1	1	1	1
Project Mobilization	1	1	1	1	1
Documents specialists*	1	1	1	1	1

\*Indicates local hire

2. Financial Plan

1. USAID Inputs

a. Personnel

USAID will provide up to 6 full-time long term personnel during FY 80 to staff the Core Team. This will include a COP, Administrative Officer, two professionals, a secretary and a mechanic, all to be recruited in the USA.

Beginning in FY 81 the Core professionals will be increased to 3. Staffing at this level will continue for the life of the project unless satellite activities increase to the point that more Core support is required. A total of four person years in short and medium term consultant time will be available to the Core Team beginning in FY 80, and this will be increased to five in FY 81. The Core Team will divide its efforts between project identification, operation of ad hoc activities and emerging projects, responding to YARG requests, supporting projects and managing the total Title XII Yemen Program.

USAID will hire locally for the Core Team 8 drivers and 17 support personnel in FY 80, increasing these numbers to 11 and 21 in FY 81 and beyond.

The Core Team will be backstopped by a program director (campus based, 0.4 PY) and an associate program director (campus based, 0.8 PY) and 1.8 PY of support. In addition, 0.3 PY will be obligated each FY to a CID Advisory Committee and the peer consultants will assist in the evaluation function. The deployment of personnel in Yemen is shown in Table 4.

b. Training

Training will be a major activity in the Core Project. A total of \$548,000 has been provided for training in Yemen for FY 80-FY 84, of which \$48,000 is for training Americans in Arabic. This will support in-service training attendance of Yemeni trainees at local and regional seminars, support of scientific meetings in Yemen, training of US personnel in Arabic in Yemen and special visits of personnel to CID campuses. A total of \$5 million for FY 80-FY 84 has been provided for training of Yemeni outside of Yemen. Degrees anticipated are 6 B.S., 36 M.S., and 3 Ph.D. Fifty Yemeni will be designated for special non-degree training. The total training program will emphasize support for building key institutional units and training of key personnel for anticipated high priority project areas.

c. Facilities and Housing

The Title XII Yemen Program must provide its own support, including facilities and housing. The budget includes funds for building a headquarters building for 20 offices, and ancillary space, for upgrading present USAID project buildings to be turned over to the program and for operating these facilities. Funds are requested for construction of nine houses and for purchase of three mobile homes. One house will be used for short term consultants. Funds are included for rental of homes and facilities while construction takes place.

d. Commodities

Commodities to be purchased include vehicles and vehicle replacements. Ten will be purchased in FY 80 (five of these on waiver) and these will have a replacement schedule based on an average life of 2.5 years/vehicle. Other commodities include normal supplies for vehicles and facilities, a communication system, items for a Documentation and Learning Center, furnishings for houses and headquarters, shop furnishings and processing of commodities into Yemen.

e. Other USAID Costs

Contingency requirements have been calculated by applying a 0, 5% or 10% factor to sub-items in the budget. Overhead costs have been entered according to U.S. Government approved schedules for CID. Travel funds have been provided as appropriate. Inflation costs have been entered in sub-totals for Yemen and USA costs.

2. Yemen Arab Republic Government Inputs

During the life of the Program, the MOA will provide a full-time liaison representative to work closely with the Core Team. Counterparts will be requested for satellite activities and possibly for certain other activities when such assignment appears appropriate. The numbers cannot be defined until the activities are designed. This will involve joint planning with the MOA and other units as appropriate. The MOA will make available two offices in the Headquarters of the MOA and provide one room for a Documentation and Learning Resources Center. For the Center, the MOA will make available \$20,000 on a matching basis for purchase of documents, books, etc., in FY 80 and \$5,000 on a matching basis for each of the four following years. The MOA will provide salaries for individuals in training status. For training, the YARG will provide transportation to and from main cities in Yemen and to and from Rome for travel outside Yemen.

D. Implementation

The implementation plan for the total Title XII Yemen Program as presented in Section IV embraces the implementation of the Core Project and the details need not be repeated here. However, certain additional observations are in order.

Since the initial Title XII cadre will be small, the COP should be able to be involved intimately with all aspects of the work. However, as the scope of work begins to increase rapidly in the following 6-18 months, delegation of responsibility and authority by the COP will become imperative. The support function will be important and time consuming but it is a distinctive function which can be delegated to an Administrative Officer. This function should embrace transportation, housing, purchasing and importation of commodities, management of support personnel, warehousing, and communications. It is important that this function become operational as soon as possible since logistical support is essential for the technical personnel as soon as they arrive in Yemen.

Team leaders will have responsibility for the operation of major sub-projects. For routine matters involving the pursuit of an approved work plan, Team Leaders will be free to contact the Administrative Officer or the Project Director (Campus Representative) for the particular project. For unexpected problems and unresolved issues, Team Leaders should first contact the COP. If the COP and TL cannot resolve the problem, it should be referred to the Program Director and the appropriate Project Director by the COP and TL, respectively. Resolution should then come from the Project Director who would interact with the Program Director as necessary.

The COP will delegate responsibility and authority for specific functions to members of the Core staff. For example, one member might be designated Training Officer and another Projects Officer. The Training Officer would coordinate the entire training effort including that of the Core and satellite projects. The Project Officer would assist in the flow of paperwork for new projects and would monitor the reporting schedule for the entire program. Specific staff members would be asked to follow-up ideas and to prepare PID's and PP's as appropriate.

The COP will be expected to manage all of the Title XII Yemen in-country activities into a coordinated program. This will involve periodic meetings with various personnel as necessary to achieve the desired result.

Team Leaders and all professional staff members of the Program will be expected to interact freely with their peers in all circles but formal contacts at administrative levels will be according to a format to be evolved by the COP and Mission representatives.

Changes in the implementation plan will require the approval of the Mission Director and the Program Director.

#### E. Evaluation

The evaluation plan for the total Title XII Yemen Program (see Part V) provides for the evaluation of the Core Project and the details need not be repeated here. However, some amplification relative to the Core Project is in order.

The principal outputs of the Core Project (with short term consultant assistance) will be as follows:

1. A strategy for achieving program goals
2. Reports to YARG of short term consultants in various areas
3. Mechanisms for coordination of Title XII program with YARG, USAID/Y and other donor agriculture programs.
4. PIDs and PPs for new satellite projects
5. A portfolio of minor technical assistance activities of a scope too limited for satellite projects
6. Plans and procedures and organization for logistic support for all program activities (housing, transportation, commodities, etc.)

7. In-service and out-of-country training for MOA personnel and other Yemeni agriculturalists.
8. Productive linkages established between CID universities and Yemeni agricultural institutions.

The evaluation of the Core Project should be based on the achievement of these outputs and on consideration of the corresponding inputs and assumptions.

The Program Director for the Title XII effort will be resident at a CID university and will visit activities in Yemen two or three times per year. The Director is charged with the overall direction of the Program as delegated by CID. This involves coordination among participating CID universities and other sub-contractors, coordination with AID/W (includes BIFAD), coordination with CID headquarters and maintenance of an overview of the operations in Yemen. In view of the relevance of the functions of the Director to the outputs of the Core Project, the performance of the Director should be reviewed at the same time as that of the Core Team.

APPENDIX B

TO

CORE PROJECT PAPER

REVISED COST ESTIMATE-CORE PROJECT 1 SEP 79  
(CABLED TUCSON TO SANA 2 SEP 79)

(COST = \$000)	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>TOTAL</u>
A. AMER FIELD PERS:							
Chief of Party	0.5	1	1	1	1	0.5	
Social Scientist	0.5	1	1	1	1	0.5	
AG. Scientist	0.5	1	1	1	1	0.5	
AG. Planner	0.0	0	1	1	1	0.5	
Admin. Officer	0.5	1	1	1	1	0.5	
Secretary	0.5	1	1	1	1	0.5	
Procurement & Ldg.	0.0	1	1	1	0	0.0	
Equipment Spec.	0.5	1	0.5	0	0	0.0	
Total PY's	6.0	7.0	7.5	7.0	6.0	3.0	
TOTAL COSTS(\$110/PY)	330	770	825	770	660	330	\$ 3,685
B. AMERICAN SHORT TERM PY EQUIVALENTS:							
For 6 Week Trips	2	2	1	1	0.5	0.5	
For 6 Month Trips	1	3	3	2	1	0	
TOTAL COSTS(\$42/PY)	126	210	168	126	63	21	714
C. INTERNATIONAL TRAVEL FOR SHORT TERM PY:							
Costs	36	44	28	24	12	8	152
D. ON CAMPUS PROGRAM DIR., ASSOC. PROG. DIR. AT 1.2 PY AND CID ADVISORY AT 0.3 PY AT \$48M/PY AND SUPPORT 1.8 PY AT \$14M/PY							
TOTAL COSTS	48	97	97	97	97	48	484
E. ON CAMPUS OPERATIONS AND DOMESTIC TRAVEL							
COSTS	9	18	18	18	18	9	90
F. VEHICLE PURCHASE AT \$13/VEHICLE INCL. SPARE PARTS							
COSTS	130	39	104	39	104	0	416
G. US PURCHASED COMMODITIES - COMMUNICATIONS SYSTEM -30, EQUIP DOCUMENT CENTER- 20, EQUIP SHOPS- 100, FURNITURE FOR 8 HOUSES AT 20 EA, FURNITURE FOR 10 OFFICES AT 12.5 EA.							
TOTAL COSTS	435	0	0	0	0	0	435
H. OUTSIDE EVALUATION							
	0	0	50	0	0	0	
I. PURCHASE 3 MOBILE HOMES							
	165	0	0	0	0	0	
J. PURCHASE 8 PREFAB HOMES (160 EACH)							
	1280	0	0	0	0	0	

	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>TOTAL</u>
K. US PURCHASE PROJ. SUPP.	12	15	15	15	15	7	\$ 79
L. TRAINING COSTS FOR US DEGREES - 3 PHD, 36 MS, 6 BS AT \$11/UNDERGRADUATE YEAR AND \$14.4/GRADUATE YEAR AND \$2/ROUND TRIP EXPENSE - (FY85 HAS \$139 TO COMPLETE TRAINING OF ALL ENROLLED							
TOTAL COSTS	105	156	377	390	391	450	1,869
M. ENGLISH LANGUAGE TRAINING FOR 4 MONTHS IN USA FOR ALL DEGREE CANDIDATES							
TOTAL COSTS	177	133	141	126	126	0	703
N. SPECIAL TRAINING FOR YEMENI - OUT OF YEMEN CONFERENCES AND VISITS TO CID							
COSTS	6	12	12	12	12	6	60
O. CONTINGENCY - 5% OF ITEMS A - N							
COSTS	143	75	92	81	75	44	510
P. UNIVERSITY OF ARIZONA INDIRECT COST RECOVERY - 20% OF A; 37% OF B, C, D, E, H, K; 0% OF F, G, I, J, O							
COSTS	151	296	304	258	208	100	1,317
Q. CID GENERAL AND ADMIN EXPENSE - 12% OF C, D, E, L, M, N							
COSTS	46	55	81	80	79	63	404
R. US INFLATION - 7% ITEMS A - Q							
COSTS	0	134	335	458	578	475	2,907
S. DRIVERS 8 AT \$9 EA/YR	36	72	72	72	72	36	
T. CONTRACT FOR LOCAL SERVICES: JANITORIAL EQUIVALENT PY = 1, 2, 2, 2, 2, 1 and PROPERTY MAINT. PY = 1, 2, 2, 2, 2, 1 AT \$10/PY							
TOTAL COSTS	20	40	40	40	40	20	200
U. LOCAL SUPPORT - PY:							
Administration	0.5	1	1	1	1	0.5	
Training	0.5	1	1	1	1	0.5	
Research	0.5	1	1	1	1	0.5	
Project	0.5	1	1	1	1	0.5	
Purchasing	0.5	2	2	2	2	1.0	
Fiscal	0.5	1	1	1	1	0.5	
Property Mgt	0.5	1	1	1	1	0.5	
Personnel	0.5	2	2	2	2	1.0	
Bookkeeper	0.5	2	2	2	2	1.0	

U. LOCAL SUPPORT (Continued)

	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>TOTAL</u>
Mechanics	0.5	2	2	2	2	1.0	\$
Transportation	0.5	1	1	1	1	0.5	
Secretarial	1.0	3	3	3	3	1.5	
Interpretation	0.5	1	1	1	1	0.5	
Total PY	7	16	19	19	19	9.5	
TOTAL COSTS \$9/PY	63	144	171	171	171	86	

V. ARABIC TRAINING IN YEMEN

COSTS	8	10	10	10	10	5	53
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W. ENGLISH LANGUAGE TRAINING IN YEMEN - 210 ENROLL WITH 48 TO COMPLETE 3 MO, 42 TO COMPLETE 6 MO, 72 TO COMPLETE 9 MO AND 48 TO DROP OUT

COSTS	40	81	81	81	81	40	404
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X1 SPECIAL INSERVICE TRAINING FOR YEMENI IN YEMEN AND MIDDLE EAST - TRAVEL, SESSION LEADERS, ETC.

COSTS	30	60	60	60	60	30	240
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X2 SEMINARS IN YEMEN	8	16	16	16	16	8	80
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Y. PER DIEM - SHORT TERMS (\$55/Day)	60	110	80	60	30	15	355
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2. VEHICLE OPERATION	8	10	10	10	10	5	53
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AA. CORE AND PROJECT OPERATIONS = \$15/YR + \$12/YR TRAVEL COSTS	13	27	27	27	27	13	134
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BB. MATCHING \$ DOC. CENT.	20	5	5	5	5	2	42
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CC. PROCESS COMMODITIES	10	12	12	12	12	6	
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DD. INTERNATIONAL COMM.	8	10	10	10	10	5	53
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EE. HOUSE RENTAL - 2 FOR OFFICES AND 6 FOR FAMILIES Y2 OF FY80, 2 FOR OFFICES AND 7 FOR FAMILIES FY81 AT \$30 EA/YR

COSTS	120	270	0	0	0	0	390
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FF. UTILITIES FOR HOUSES AT \$5/YR INCL 8 PROJECT HOUSES FROM FY82 ON AND FOR HDQ BLDG FY82 ON AT \$10/YR

COSTS	40	45	50	50	50	25	260
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GG. UPGRADE SPACE	100	0	0	0	0	0	100
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HH. PROPERTY MAINT.	3	5	5	5	5	2	25
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	<u>FY80</u>	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>	<u>FY84</u>	<u>FY85</u>	<u>TOTAL</u>
II. OFFICE SUPPLIES AND OPERATIONS - 4 SETS AT \$5/YR							
COSTS	20	20	20	20	20	10	\$ 110
JJ. CONSTRUCT HEADQUARTERS BLDG - 6480 SQ. FT AT \$60/1000							
COST	388	0	0	0	0	0	388
KK. UNIVERSITY OF ARIZONA INDIRECT COSTS - 20% OF S, T, U, Y, Z, AA, BB, CC, DD, FF, HH, II							
COST	60	100	100	96	90	45	491
LL. YEMEN CONTINGENCY - 5% OF P - KK							
COST	63	76	74	77	79	50	419
MM. YEMEN INFLATION - AT 25% FOR FY81 AND 20% LATER							
COST (ON S - LL)	0	278	422	658	914	621	2,893
GRAND TOTALS	4317	3445	3912	3974	4140	2585	\$22,373

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**NO.** App C

APPENDIX D  
TO  
CORE PROJECT PAPER

WID IMPACT STATEMENT

I. Project Design and Planning

Two of the ten design team members were women both of whom were academic professionals. One is a Professor of Home Economics and the other is about to complete her doctorate in soil science. These women appeared to have the same access to YARG officials as any other outsider.

II. Project Implementation

The project is still in the design state and any statement as to involvement of women in implementation would be premature.

III. Project Evaluation

Project evaluators are specified in the Evaluation Plan by positions. It is not yet known who will be chosen for these positions.

**MISSING PAGE**  
**NO.** App. E

APPENDIX F  
TO  
CORE PROJECT PAPER

INITIAL ENVIRONMENTAL IMPACT EVALUATION

The Yemen Title XII Agricultural Program has a bimodal form of operation. One form involves the operation of satellite projects each of which will be justified by a sub-project paper. In each of these sub-project papers the matter of environmental impact will be considered and therefore need not be treated here. The second form involves the operation of a Core Team. The Core Team will provide the overall administrative and support functions for the entire program. The Core Team will also have two to four professionals who will provide updates for a baseline study on the agricultural sector, provide expertise to projects and to YARG upon request and generate proposals (ideas, PID's and PP's) for new projects.

The Core Team will not be involved in operational exercises such as treating agricultural fields, wadis or watersheds. The only direct environmental impact from such a Team would be that due to its own support--transportation, housing, etc. Environmental impacts from such activities are assumed to be nil.

In a broad and indirect sense the Core Team should have a positive environmental impact. Among the long range goals are to provide more ground cover and to stabilize water flows and aquifers through watershed management, afforestation, and establishment of ground covers. Specific evaluation of environmental impacts will accompany each sub-project paper.