Proj. No 279002 (2)

AID 1025-1 (7-71) (FACE SHEET)

CAPITAL PROJECT PAPER (PROP)

PD-AAC-409-B1

I. PROJECT IDENTIFICATION

1. PROJECT TITLE: Tropical and Sub-Tropical Horticulture

APPENDIX ATTACHED: [X] YES [ ] NO

2. PROJECT NO. (M.O. 1095.2): 279-11-130-024

3. RECIPIENT (specify): [X] COUNTRY Yemen Arab Republic [ ] REGIONAL ____ [ ] INTERREGIONAL ____

4. LIFE OF PROJECT: BEGINS FY 76 ENDS FY 81

5. SUBMISSION: [ ] ORIGINAL [X] REV. NO. 4/24/75 DATE

CONTR./PASA NO. 470

II. FUNDING ($000) AND MAN MONTHS (MM) REQUIREMENTS

A. FUNDING BY FISCAL YEAR	B. TOTAL $	C. PERSONNEL (1) $	C. PERSONNEL (2) MM	D. PARTICIPANTS (1) $	D. PARTICIPANTS (2) MM	E. COMMODITIES $	F. OTHER COSTS $	G. PASA/CONTR. (1) $	G. PASA/CONTR. (2) MM	H. LOCAL EXCHANGE CURRENCY RATE: $ US ____ (U.S. OWNED) (1) U.S. GRANT LOAN	(2) COOP COUNTRY (A) JOINT	(2) COOP COUNTRY (B) BUDGET
1. PRIOR THRU ACTUAL FY	-	-	-	-	-	-	-	-	-	-	-	-
2. OPRN FY 76	794	330	75	68	68	296	100					249
3. BUDGET FY 77	560	245	48	60	60	135	120					119
4. BUDGET +1 FY 78	188	100	24	12	12	56	20					119
5. BUDGET +2 FY 79	137	80	15	-	-	37	20					119
6. BUDGET +3 FY 80	109	85	15	-	-	4	20					119
7. ALL SUBQ. FY	20	-	-	-	-	-	20					
8. GRAND TOTAL	1808	840	177	140	140	528	300					725

9. OTHER DONOR CONTRIBUTIONS

(A) NAME OF DONOR	(B) KIND OF GOODS/SERVICES	(C) AMOUNT
FRG UNDP FAO	IN	IN KIND

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER: Clyde S. Adams Clyde S. Adams	TITLE	DATE 4/24/75
2. CLEARANCE OFFICER: Aldelmo Ruiz	TITLE	DATE 4/24/75

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

Includes Interim Fiscal Year Period

2. CLEARANCES

BUR/OFF.	SIGNATURE	DATE	BUR/OFF.	SIGNATURE	DATE

3. APPROVAL AAs OR OFFICE DIRECTORS

SIGNATURE ____ DATE ____

TITLE ____

4. APPROVAL A/AID (See M.O. 1025.1 VI C)

SIGNATURE ____ DATE ____

ADMINISTRATOR, AGENCY FOR INTERNATIONAL DEVELOPMENT

TROPICAL AND SUB-TROPICAL HORTICULTURE

A. Introduction Summary and Rationale

When the USA first proposed reopening assistance efforts in the Yemen, one of the priority requests by the YARG was for USAID to plan and implement a project for development of the horticultural sub sector. Development of horticulture is considered by the YARG as a major thrust in meeting the overall objectives of the first three year plan for agriculture i.e.

(1) Increasing net farm income
(2) Improving the national nutritional level, and
(3) Improving the foreign exchange position

This proposal is based on a study carried out in mid 1974, by a three man team of AID financed experts and subsequent discussions carried out by USAID with the YARG and various other donor agencies.

Summary

The proposed project consists of two major phases i.e. Phase I Research and Development and Phase II Outreach and Promotion. This PROP is mainly concerned with Phase I and a revision will be necessary before making a major effort on Phase II. During Phase I, from 1976 to 1981, efforts will be concentrated on the establishment of a National Horticultural Research Center with two substations, the training of Yemeni personnel to staff and run the center and the stations and the introduction and adaptive research screening of crop varieties with a related package of cultural practices. In short, the expected output at the end of Phase I is a greatly improved institutional capacity in the Ministry of Agriculture to plan, coordinate, and implement horticultural research efforts throughout the Yemen and in providing horticultural information for Yemeni small farmers. A decision on Phase II; outreach and promotion, will be made after Phase I is well under way and will depend upon an evaluation of both Phase I efforts plus an assessment of the Ministry's capability in extension type activities at the time. Some limited outreach activities will be engaged in during Phase I however. Phase II efforts, while continuing adaptive research, will concentrate on taking research results on varieties and cultural practice to small farmers who are in a position to switch at least some of their land from subsistence crops (largely sorghum and millets) to higher unit value horticultural crops. It is anticipated that success with the USAID supported sorghum and millet project will result in considerable shifts in land use patterns in the Yemen with larger farmers moving to other cereals and smaller farmers opting for horticultural crops.

Rationale

Why should the Yemeni's place a high priority on a horticultural project and why should AID support it? A question often asked is, "given limited resources of land, water, trained manpower and finance, why not concentrate majority efforts in sorghum and millet since these crops occupy from 2/3 - 1/2 of the cultivated acreage

and are grown throughout the Yemen by nearly all farmers?" (See Table One) One answer to this question is that the YAR is already placing major emphasis on sorghum and millet and USAID is planning a greatly expanded program for these crops. If these efforts are even moderately successful over the next five to seven years (and there is every reason to be extremely optimistic) considerable pressures will develop for land use shifts. For example, a 10% national yield increase over the past 5 years average would release 86,000 hectares for other crops (the potential increases of sorghum are expected to be 2 to 3 times in farmers fields so a 10% national yield increase is a very conservative estimate). It is expected that some land will be devoted to other cereals such as wheat and barley and some to horticultural crops. Additionally some sorghum may be released to livestock use (especially poultry) and some will be consumed by the increased population though we anticipate a downward trend in per capita consumption as the potential for diet diversification increases. Also, as Table One indicates, acreage devoted to sorghum and millet has decreased from 2/3 to 1/2 of the total. Given the above comments, we believe that additional large scale efforts in sorghum and millet, over those already planned in the proposed new 030 project, are not necessary and would not be as profitable for the YAR as putting these scarce resources into horticultural development. The Yemeni people themselves are placing increasing importance upon horticulture as Tables One and Two below indicate. However, in spite of a tripling of acreage devoted to growing these crops over the past four years, the cost of imports of fruits and vegetables have increased over six times during the same period while horticultural imports as a percentage of total food imports has nearly doubled.

TABLE ONE 1/

Land Utilization - YAR 1969/70 - 1973/74

(Cultivated Acreage by Major Crops - 000 Hectares)

	69/70		70/71		71/72		72/73		73/74	
	Acreage	%	Acreage	%	Acreage	%	Acreage	%	Acreage	%
orghum & illets	680	67	984	67	1020	62	900	59	720	50
ther Cereals 2/	197	19	219	15	312	19	295	19	385	27
ruits & egetables 3/	80	8	185	13	230	14	249	16	245	17
ulses	50	5	60	4	60	4	56	4	64	4
ther Crops 4/	8	1	17	1	25	1	29	2	30	2
Total	1015	100	1465	100	1647	100	1529	100	1447	100

Table One continued:

1/ Estimates provided by CPO & Ministry of Agriculture
2/ Includes wheat, barley and corn
3/ Coffee not included
4/ Includes all other reported crops

TABLE TWO 1/

Value Food Imports YAR 1970-74-000 YR

Horticultural Imports V.S. all Crops

	1970	1971	1972	1973	1974 2/
Horticultural Imports	5,700	3,100	17,000	24,500	37,600
All Food Imports	97,400	66,900	177,000	271,800	377,800
% Horticulture is of all food	5.9	4.6	9.6	9.0	10.0

1/ Adapted from foreign trade statistics Central Bank
2/ Estimates provided for 1st half only; USAID assumed 2nd half same as 1st half.

As stated in the Summary, the YARG's 1st 3 year plan places priority attention on increasing net farm income, improving nutritional standards and saving foreign exchange. The horticultural project hits all three of these areas. Given the increasing internal demand for horticultural products and the potential for exports in the Persian Gulf and Red Sea area, high unit value crops present the best opportunity to increase net farm income per unit of land and labor. This is especially important for small farmers who do not have opportunities to increase their total cultivated acreage. While it is also possible for large farmers to benefit, their present tendency is not to grow horticultural crops due to high labor demands. They prefer to grow wheat, sorghum, and other cereals for which it is possible to either mechanize operations or to hire labor for short periods during peak labor demands (i.e. planting and harvesting). Given the continued high demand for Yemeni labor in surrounding Arab states this condition is expected to continue. Small farmers will also benefit by more nearly full employment of unpaid family labor. The project will also have important nutritional benefits both for general consumers as well as producers who will consume unmarketed produce. While current prices in the YAR are too high for most consumers to consume much in the line of fruits, it is not uncommon to observe very poor people sharing an orange or banana with others. With increased local production, prices can be expected to decline thereby enhancing the ability of the poor to buy. Overall economic activity will quicken with the growing production and marketing of these products. From a point of efficient utilization of scarce resources, especially good land and water, this project makes very sound sense by providing a high unit value crop for these resources.

and farm operations. The two sub-stations will be considerably smaller and less elaborate. The center and its sub-stations will be used for adaptive research testing of varieties of fruits, nuts and vegetables believed to have potential for the YAR. Promising varieties will be multiplied for use by Yemeni farmers. A staff of professional horticulturists will be trained to carry on the work after U.S. involvement in the project is completed.

A staff of 11 Yemeni technicians will be sent to the U.S. and 3rd countries to be trained in all operations involving the project. This training will include all phases of production and marketing of horticultural products, the operation and maintenance of horticultural research stations and working with extension personnel involved with horticultural crops. They will also receive on the job training. These Yemenis will be fully responsible for running the center after the U.S. technicians leave Yemen.

During Phase I a number of surveys will be carried out after which further refinements will be made. Some of these studies may result in activities to be carried out by other donors. Included are an initial market study to provide base line data, a date feasibility study, and prefeasibility studies on food technology and export/import trade in horticultural products.

The project will also involve the importation of commodities to support the center's operations. Included will be vehicles, tractors, and related farm equipment, seeds and plant propagating materials and agricultural chemicals. Local costs will be programmed for building construction, developing irrigation facilities, and some labor costs.

Steps in the implementation process can be seen from a review of Annex Two PERT BAR CHART.

Function of the Center:

The center and its sub-stations will be responsible for coordinating all horticultural work in the Yemen. Specific functions will include:

1) Test and propagate different cultivars of horticultural crops which show the most promise for use in YAR.
2) Act as a demonstration and training center for showing farmers, extension agents and others new varieties and related production practices for optimum production.
3) Provide seed and plant propagation materials of superior varieties to farmers at cost for their use.
4) Serve as the plant introduction center for all Yemen in order that some type of plant quarantine activities may be implemented later.

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The question may be asked: "How does a horticultural project fit the congressional mandates AID must follow of concentrating on food and nutrition and working with poor farmers?" With regard to food and nutrition, we agree that cereals should have first priority in most LDCs and in the Yemen sorghum and millets (with 2/3-1/2 of the cultivated acreage) are getting that priority. However, once subsistence needs are met (and we believe the expanded 030 project as planned will create a surplus) farmers have an opportunity to shift to other enterprises, one of which is horticultural crops. These crops provide the opportunity for greater variety and better quality diets for consumers. Also producers will consume unmarketable surplus or culls.

With regard to working with the poor, the Yemen is considered to be one of the dozen least developed countries in the world and perhaps very near the bottom. By this criteria almost any developmental activity is keyed to the poor. Moreover as pointed out previously many larger farmers in Yemen have a tendency not to grow horticultural crops because of labor requirements. Thus an excellent opportunity exists to help very small farmers increase their income by utilizing unpaid family labor in producing high unit value crops. Casual observation indicates that Yemeni small farmers are, in fact, trying to do this as the many micro plots of bananas, papayas, dates, potatoes, onions, tomatoes, etc. indicate. However, yields are low due to inadequate cultural practices and possibly poorly adapted varieties.

The foregoing should make clear that a horticultural project ideally fits AID guidelines regarding food and nutrition and the poor of the countries in which we work.

Finally this proposal is keyed to meeting the desires of the YARG and other donors for a coordinated approach to horticultural development in the Yemen, that will reduce unnessary duplication and help insure maximum returns for various efforts. As the only Yemen wide activity in horticulture, this project will provide the best opportunity for effective cooperation (See Annex One other donors).

B. Course of Action:

As noted in the Summary this project is considered in two phases. The decision to implement Phase II will depend upon an evaluation of Phase I progress and will require a PROP revision. The balance of this PROP deals mostly with Phase I which covers the period FY 76-FY-81. During this phase a national horticultural center will be established in the Taiz area with two supporting sub-stations to serve the different ecological conditions existing in the Tihama costal area and the northern part of the country. These stations will be staffed with competent technical and administrative personnel and will be fully equipped with facilities and commodities necessary to carry out initial research and propagation activities. The Taiz center will require up to 30 hectares of land suitable for horticultural research and will be developed into a research station with fencing, irrigation, plant propagation facilities, and necessary building for administration, teaching, storage

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TROPICAL AND SUB-TROPICAL HORTICULTURE LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
GOAL: Contribute to the YARG goal as cited in the 1st 3 year plan of: 1) In increasing farm income 2) Improving nutrition by increasing the variety, quality and quantity of food stuffs 3) Preserving foreign exchange	1. Increased contribution of horticulture to GNP 2. Increased variety of horticultural products in market place. 3. Favorable trends in export-import figures.	1. National Accounts (Central Bank of Yemen 2. Baseline market survey in FY-76 and repeated in FY-79 3. Foreign trade statistics (Central Bank of Yemen)	1. YARG will continue to give high priority to agriculture. 2. Yemen wil not suffer disastrous climatic conditions, disruptive civil strife or international incident. 3. Imputs, conditions and institutions needed to increase horticultural production, not provided by this project, will be provided by Yemeni farmers, YARG or other donors.
PURPOSE: Develop a national institution needed to provide technological information and planting materials needed to expand production of horticultural products and encourage their use. Sub-Purpose 1&2 next page	END OF PROJECT STATUS: (Phase I) 1. Existence of Center and Sub-Stations as described. 2. Research information being published and disseminated. 3. Tested varieties being propagated and distributed. 4. MOA staff directing Center 5. Plan developed for implementing Phase II.	1. The Center itself and its sub-stations. 2. Center records and cooperating farmers. 3. MOA staff available, trained, competent. 4. The Phase II plan.	1. YARG continues to maintain high interest in agriculture. 2. Demand for skilled personnel in other parts of sector does not reduce staff below minimum required. 3. Successful training program.

TROPICAL AND SUB-TROPICAL HORTICULTURE LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
SUB-PURPOSE I: Establish a horticultural Research, extension and Propagation Center and sub-stations.			
SUB-PURPOSE II: Promote production through extension, productive inputs. and establishment of facilitative conditions.			
OUTPUTS:	MAGNITUDE OF OUTPUTS:		
1. Experiment Station 2. Substations 3. Staff 4. Market Surveys and Feasibility Studies. 5. Plant Propagation 6. Research	1. Experiment station of 80 hectares established, equipped, mapped, cultivated and irrigated. 2. Substation land allotted and in use for propagation and research. 3. 4 senior staff and 7 junior staff members assuming day-to-day control of operations and involving in planning, management and evaluation.	1. Direct observation 2. Center and sub-center records 3. Interviews with cooperating farmers	1. YARG will make available adequate staff for training 2. AID can recruit & retain suitable staff and consultants. 3. No constraints applied to imports of equipment, materials or personnel. 4. YARG can deliver suitable land

TROPICAL AND SUB-TROPICAL HORTICULTURE LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	4. Five surveys and studies completed. 5. 3-5 varieties of 12 species in propagation. 6. 1-3 varieties of 6 species under active study.		
INPUTS: Phase I HARG: 1. Land($130,000) 2. Staff ($40,000/year) 3. Maintenance and Operating Costs ($79,000/year) U.S.G: 1. Contract Services ($840,000) 2. Commodities ($523,000) 3. Training ($140,000) 4. Other Costs ($300,000)		Magnitude of inputs by year and principal expenditure category is provided in F Statement of Project Inputs. Schedule for making these inputs is further detailed in F. 1. Implementation Plan.	

C. STATEMENT OF THE GOAL

1. The Goal: Expansion of Horticultural Production.

In its Three Year Plan the Yemen Arab Republic Government (YARG) has emphasized the following long-range agricultural sector goals:

a) Increased agricultural sector income
b) Availability of an increased quantity, quality and greater variety of food, food crops, livestock and poultry
c) Preservation of foreign exchange through agricultural product import substitution

The expansion of horticultural production contributes directly to all three goals:

The high unit value of fruits and vegetables leads to a higher contribution to sector income than most alternative crops. Moreover, the proportions of land, labor and other factors required for horticultural production, combined with high product value, have a strong potential for increasing income on small farms by more than traditional alternatives of sorghum and millet. Further, given the strong demand for labor outside the YAR, larger farmers are increasingly turning to cereals production which is less labor intensive and more ammenable to mechanization.

Fruits, vegetables and nuts are nutritionally attractive additions to existing food stocks, both for home consumption and market. Current production is well below effective demand, as indicated by imports of fresh, dried and preserved horticultural products. (See Tables One and two, pages 3 & 4).

The increasing imports of fresh and preserved fruits and vegetables, which indicate an unfulfilled market demand, pose a large and growing balance of payments problem which can be solved through expanded domestic horticultural production. Strong potential export markets exist in the neighboring nations of the Arabian peninsula, although development of these markets and satisfaction of local demand is a long term effort.

2. Measurements of Goal Achievement

a) The contribution of horticultural production to the agricultural sector's share of gross national product in the national income accounts. (National Accounts, Central Bank of Yemen, Ministry of Agriculture and CPO).
b) The variety of horticultural products available in the market place (market surveys - baseline in FY76, repeated in FY 79).
c) The trend of imports and exports of horticultural products. (Foreign trade statistics, Central Bank of Yemen etc.).

NOTE: It is not possible at this time to quantify the goal to which this project will contribute; the minimum information required for goal setting is absent. In any event, the Research and Development phase of this project is expected to have only limited impact on the indicators of goal fulfillment during its first years. The R & D phase, and particularly the market survey, will establish a baseline from which future progress can be measured.

3. Assumptions about Goal Achievement

a) The YARG will continue to give high priority to agriculture
b) Yemen will not suffer disastrous climatic conditions, nor disruptive civil strife nor significant international incident.
c) The inputs, conditions and institutions needed to increase horticultural production, not provided by this project, will be provided by Yemeni farmers, YARG, or other assistance donors.

D. STATEMENT OF PROJECT PURPOSE

1. The Purpose: Satisfy the requirements for technological information and selected and adapted propagation materials needed to increase production of horticultural products, and encourage their adoption by Yemeni farmers. This requires the development of two distinct but interrelated capabilities which are time-phased but slightly overlapping and which can be considered as sub-purposes.

a) Phase I - Adaptive Research and Development requires the establishment of a Horticultural Research, Extension and Propagation Center and cooperating sub-stations to perform the following tasks:

1) Introduce and test horticultural seeds and cultivars under different ecological conditions to determine adaptability, yields, cultural practices and production costs
2) Survey the gross market demand, the requirements and preferences for individual horticultural products, and the processes and channels through which products move from consumer to producer
3) Propagate selected varieties for distribution to farmers and/or commercial propagators
4) Perform the initial technological outreach to get materials and methods into production by progressive farmers

b) Phase II - Outreach becomes operative when the volume of technological knowledge and available materials exceeds the capacity of the R & D staff at the Center to perform the extension function. It includes the following:

1) Disemmination of information, problem solving and related outreach activities (extension)
2) Arrangements for delivery of inputs (cultivars, fertilizers, etc.) needed for efficient production.
3) Arrangement for facilitative conditions (credit, market channels, storage and processing facilities)

NOTE: Although the general character of Phase II is understood, the precise output requirements and a quantitative description of the end-of-project conditions will depend upon conditions pertaining when this Phase becomes operative. These conditions will depend as much upon the state of other YARG institutions and the availability of YARG personnel as on the R & D phase.

During the R & D phase, project staff will monitor the development of conditions affecting horticultural production and will develop a tentative plan for implementing Phase II. Prior to this implementation,

a detailed evaluation of Phase I will be completed. The conditions affecting Phase II and the tentative plan for Phase II implementation will be reviewed in light of the Phase I evaluation. If Phase II still appears desirable and feasible, a detailed plan for implementation of Phase II will be submitted for approval. Phase II will not be discussed further in this PROP.

2. Conditions Expected at End of Project (Phase I)

   a) The existence of a Horticultural Research, Extension and Propagation Center (the Center) with its own experimental farm and two sub-stations (or cooperative arrangements for testing in other zones and regions), staffed, routinely budgeted, equipped and operating.
   b) Information on varietal adaptability, cultural requirements, plant protection, production costs, and market preferences published, being disseminated and put into use.
   c) Tested varieties being propagated and distributed
   d) MOA staff capable of continuing the management of the Center and performing all essential operations, with U.S. technicians in advisory rather than operating positions.
   e) Outreach by R & D staff at a level which takes the capacity of that staff; a plan developed for implementing Phase II.

3. Basic Assumptions about Achievement of Purpose

   a) YARG continues to maintain a high interest in agricultural development, meeting its input requirements as scheduled.
   b) The demand for skilled personnel in other parts of the sector does not prevent the assignment and retention of adequate staff at the Center
   c) A successful training program conducted.

E. STATEMENT OF PROJECT OUTPUTS

The Phase I output will be the establishment of a National Horticultural Research, Extension and Propagation Center. The specific outputs required to create this Center are the following:

1. Experimental Station: The Center will have a central government owned farm of about 80 hectares, fenced, mapped, irrigated, and organized around a research unit and a propagation unit. Essential buildings for administration, equipment and training, laboratories and some staff housing will be provided. This is the major site for introduction, testing and multiplying planting materials, and the headquarters for the Center. Indicator: Existence of the station as described.
2. The Substations: At least two substations, one located in each significant ecological zone, equipped for and performing adaptive research in these zones, propagating adapted species, and providing a base for decentralized outreach work. These substations may be owned and operated by the Center or may be available through cooperative agreement with other donors. Indicator: Existence of the two substations are described.
3. The Staff: A local staff which has been selected and trained to carry on the routine functions of the Center and oversee the

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functioning of the substations. Indicator: Minimum staff selected and trained as follows:

4 Senior Staff, one with M.S. degree, one with B.S. degree or equivalent, and two with one year's training, occupying positions as Project Co-Director, Head of Research, Farm Manager and Head of Extension.

7 Junior Staff, two nurserymen with 4 months training each, two vegetable technicians with one year training each, two fruit technicians with one year training each, and one marketing/economics technician with one year training.

2 Clerical Staff (accountant cashier and secretary)

3 Mechanically skilled staff (one mechanic, two tractor drivers)

4. Market Survey: A survey will have been completed of the domestic market for horticultural products, describing the channels through which such products flow, and the preferences, processing and prices of significant products. Projections will be made of internal demand, of imports, and of possible exports. Indicator: Existence of a survey.
5. Plant Propagation: Plant propagation unit fully functioning on up to 2 hectares of the farm. Indicators: Necessary propagation facilities will have been established. Seed and cultivars of 3 to 5 varieties of the most promising twelve crops will have been introduced and multiplied for testing. One or two varieties of each of the most promising six crops of known adaptation will be under propagation for commercial distribution.
6. Research: Adaptive research will be well underway and preliminary recommendations on varieties, zones of adoption and cultural practices will be available. Indicators: Three to five varieties of twelve or more promising crops will be undergoing adaptability trials. Preliminary recommendations on cultural practices for six or more crops of known adaptation will have been published. Selected cooperating farmers will be using these materials and practices in their farm operations.
7. Basic Assumptions
   a) That YARG will make available adequate staff for training and operations, including at least two professionals trained to the B.S. level.
   b) That A.I.D. can obtain and retain suitable staff and consultants particularly with strong management experience in operating horticultural research facilities and conducting adaptive research and development.
   c) That no constraints will be applied to imports of equipment, materials, or personnel.
   d) That YARG is able to deliver a suitable piece of land with firm title and adequate (both quantity and quality) irrigation water rights.

F. STATEMENT OF PROJECT INPUTS

1. Yemen Arab Republic Government

a) Land: A government-owned site in the Taiz area, 80 hectares in extent, suitable for an experimental farm and Center headquarters. At $1,625 per hectare, the site will cost $130,000. YARG will also provide either land for substations or will facilitate cooperative arrangements for their establishment on other stations. The Sorghum Project in the Tihama and UNDP at Gumuisha farm (also in the Tihama) have offered such arrangements.

b) Staff: All project staff will be employees of the Ministry of Agriculture assigned to this project:

1 Project Director

3 Senior Staff (Farm Management, Extension, Research)

7 Technical Staff (2 each in nursery management, fruit crops and vegetable crops, 1 marketing/economics)

2 Clerical (accountant Cashier, Secretary)

3 Mechanically skilled staff (2 tractor drivers, 1 mechanic)

6 Guards

Farm labor as required

c) Operating Costs: YARG will provide personnel support and project operating costs, at YARG standards, including:

1) Repair and maintenance of facilities
2) Repair and maintenance of vehicles and farm equipment
3) In-country travel costs and per diem for project employees
4) Farmer training at a level of 600 farmer days at 3-5 day short courses.
5) Salary continuance of project personnel on foreign training.

d) Budget: See Table 1 for estimated annual operating budget;

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YEMEN ARAB REPUBLIC

Project Cost Summary (In U.S.$)

Table I

SALARIES	No.	Unit Cost	Annual Total
Project Co-Director	1	3692	3692
Senior Staff	3	2901	8703
Technical Staff	7	1582	11077
Secretary (Bilingual)	1	1582	1582
Accountant Cashier	1	1582	1582
Mechanic	1	1582	1582
Tractor Driver	2	1056	2112
Watchmen	6	791	5537
			35867
Payroll related costs (10%)			3587
			39454
Travel and per Diem @ 10% of staff costs			3945
Maintenance and replacement of facilities (estimated at 5% of capital cost 175,000)			8750
Maintenance, operation and replacement of equipment (estimated at 40% of base cost of 164,000)			65,600
Training of 600 farmer days of 3-5 day short course @ $2.00/day			1,200
TOTAL ANNUAL COST at full operation			118,949
Rounded to			$119,000

2. U.S. Government:

a) Personnel

1) Project Director: Senior Tropical/Sub-Tropical Horticulturist (FY 76-81). For first 4-5 years, he will direct the project in all its developmental aspects, including planning, budget preparation and execution and liaisson with senior officials, in order to establish the Center as a functioning entity. For last 1-2 years, he will serve as advisor to the Yemeni Project Director who replaces him.

2) Tropical Horticultural Advisor (fruits) (FY 76 - 79)

3) Tropical Horticultural Advisor (vegetables) (FY 76 - 78)

These two advisers will assist the project director in planning and developing the Center Experiment Station and sub-stations, in planning and conducting a research program in their specialities, in training staff in propagation, research and extension, and in planning and implementing initial outreach activities.

b) TDY Services

1) Market Survey (FY 76 and 79). 3 man-months(in FY 76 and also in FY 79) to conduct a survey of the domestic market for horticultural products, describing channels of flow, preferences, transportation, processing, pricing, with projections of internal demand, imports, and prospective exports.

2) Date Production/Marketing/Processing Feasibility Survey (FY 76) 3 man-months to determine the economic feasibility of establishing a date processing and packing factory. The contractor will determine the present area of production and areas for future expansion. He will identify existing date varieties and recommend which to promote, indicating appropriate cultural practices.

3) Food technology/Processing Pre-feasibility Survey (FY 77) 3 man-months to evaluate the raw product potential for processing, determine the type of processing plant for the region and the types of crops that can best be processed. Upon return to the U.S., contractor will estimate the costs of establishing such a plant or plants and locate suppliers of appropriate equipment.

4) Fruit and Vegetable Export Production & Marketing Feasibility Study (FY 78) 6 man-months to determine the problems and potential of expanding production to enter export markets to Saudi Arabia and other countries. Survey must also determine the potential of that market in terms of volume, price and quality, and existing and potential competition and recommend a course of action.

5) Personnel Services Budget ($000) (see following page)

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FISCAL YEAR

	FY 76	INT	FY 77	FY 78	FY 79	FY 80	FY 81	Total
Project Director								
MMF	24		12	12	12	12		72
MMOB	9	3	12	12	12	12	12	72
$000	100		50	50	55	55		310
Fruit Advisor								
MMF	24		12	12				48
MMOB	9	3	12	12	12			48
$000	100		50	50				200
Vegetable Advisor								
MMF	24		12					36
MMOB	9	3	12	12				36
$000	100		50					150
Consultants-TDY Market Survey								
MMF	3				3			6
MMOB	3				3			6
$000	30				25			55
Dates								
MMF			3					3
MMOB			3					3
$000			25					25
Food Technology								
MMF			3					3
MMOB			3					3
$000			30					30
Exports								
MMF			6					6
MMOB			6					6
$000			40					40

FISCAL YEAR (Continued)

	FY 76	INT	FY 77	FY 78	FY 79	FY 80	FY 81	Total
Evaluation								
MMF						3		3
MMOB						3		3
$000						30		30
Total								
MMF	75	-	48	24	15	15	-	177
MMOB	30	9	48	36	27	15	12	177
$000	330	-	245	100	80	85	-	840

c) Training ($140,000)

Included in participant training will be two years training to the M.S. degree level for the Yemeni Project Director, two years academic and practical training in research station operations for the Yemeni Project Directors eventual assistant, four months training each for two nursery technicians and one year training each for the following individuals: horticultural extension specialist, two fruit specialists, two vegetable specialists, one horticultural marketing economist, and the station farm superintendent.

FISCAL YEAR

	FY 76	INT	FY 77	FY 78	FY 79	FY 80	FY 81	Total
Director								
MMF	12	-	12	-	-			24
MMOT	0	3	12	9	-			24
$000	12	-	12	-	-			24
Research								
MMF			12	12	-			24
MMOT			0	12	12			24
$000			12	12	-			24

FISCAL YEAR (Continued)

	FY 76	INT	FY 77	FY 78	FY 79	FY 80	FY 81	Total
Farm Supt.								
MMF	12	-	12	-	-			24
MMOT	0	3	12	9	-			24
$000	12	-	12	-	-			24
Extension								
MMF	12	0	0					12
MMOT	-	3	9					12
$000	12	-	-					12
Fruit								
MMF	12	-	-					12
MMOT	-	3	9					12
$000	12	0	0					12
Fruit								
MMF			12					12
MMOT			-	12				12
$000			12	-				12
Vegetables								
MMF	12	-	-					12
MMOT	-	3	9					12
$000	12	-	-					12
Vegetables								
MMF			12	-				12
MMOT			-	12				12
$000			12	-				12
Marketing								
MMF	12	-	-					12
MMOT	-	3	9					12
$000	12	-	-					12
Nursery								
MMF	8	-	-					8
MMOT	-	6	2					8
$000	8	-	-					8
Total								
MMF	68	12	48	12				140
MMOT	-	21	62	45	12			140
$000	68	12	48	12				140

d) Commodities: ($520,000) Commodity inputs and timing will be as follow:

Vehicles: (FY 76)

1) Three 4-wheel drive carry-all type vehicles are needed. One will be used by the Project Director for his supervision, liason, and administrative and technical duties. The other two will be utilized by the tropical fruits and tropical vegetable technicians. Carryalls are required since work will involve movement of both people and materials among stations.
2) One 3/4 ton pick-up will be required for the transportation of supplies and equipment within the center.
3) One 2½ ton truck for transportation of bulky and heavy supplies to test sites. This vehicle will also be utilized in the harvesting, grading, packing and transportation trials.

All vehicles should be equipped with 4-speed transmissions and heavy duty tires, springs, shock absorbers, etc, and come with approximately $500 of spare parts per vehicle.

NOTE: The Mission has standardized on U.S. manufactured Chevrolet Vehicles and proprietary procurement will be required.

Tractors: (FY 76)

1) Two 35 to 40 H.P. diesel tractors with accessories for land preparation and other cultural practices.
2) Two garden tractors with accessories for small plot experimental work.

Farm Equipment: (FY 76)

Fencing, irrigation equipment, hand tools, office equipment and similar items needed to establish and operate the center.

Live Plant Material: (FY 76 - FY 79)

The center will be propagating and introducing a wide range of tropical and sub-tropical fruit and vegetable plant material from disease and insect free sources in various locations throughout the world. This material is expensive, requires special packaging, handling and air shipment.

Agricultural Chemicals: (FY 76 - FY 80)

Fertilizer, fungicides, insecticides, herbicides and soil fumigants will be required throughout the life of the project.

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COMMODITIES ($000)

	FY76	INT	FY77	FY78	FY79	FY80	Total
Vehicles							
(3) Suburbans	30	-					30
(1) 3/4 ton Pickup	10	-					10
(1) 2½ T Truck	13	-					13
Spares	2	-					2
Tractors							
(2) 40 HP Diesel	30	-					30
(2) Garden	5	-					5
Equipment							
Irrigation	25						25
Sprayers	10						10
Tools	6						6
Fencing	20						20
Scales	1						1
Publications	2	1	1	1	1		6
Printing	1	1	1	1	1	1	6
Office Equipment	10						10
Plant Propagation	25	25	20	20	10		100
Chemicals							
Fertilizer	8	4	10	10	6	2	40
Pest Control	12	6	12	10	10	-	50
Fumigation	10	5	10	-	-	-	25
Sub-Total	222	47	54	42	28	3	391
Ocean Freight and Handling	74	16	18	14	9	1	132
Total	296	63	72	56	37	4	523

e) Local Costs: (FY 76 - FY 81)

1) U.S. dollar funding of local costs is justified by the "least developed nation" designation for the Yemen Arab Republic and the practical need to procure locally those commodities such as building supplies and components which are consistent with local designs and for which repairs and replacements can be assured.

2) Local costs are required for non-recurrent items such as irrigation wells, an office building with training facilities,

a warehouse/garage and a small packing/sorting shed. In addition, specialized local labor and topping-off salary of the senior Yemeni staff members will have to be provided for from FY 76 through FY 81. The YARG will be responsible for all recurrent costs associated with those investments.

Local Costs

	FY76	INT	FY77	FY78	FY79	FY80	FY81	Total
Wells & Pumps (3)	20	20	20					60
Office & Training Facilities	50	25	25					100
Warehouse/Garage	5	5						10
Packing Shed	5							5
Labor/Topping off	20	5	20	20	20	20	20	125
Total	100	55	65	20	20	20	20	300

U.S.

Project Cost Summary (Phase I)

$(000)

	FY76	INT	FY77	FY78	FY79	FY80	FY81	Total
Contract Services	330		245	100	80	85		840
Training	68	12	48	12				140
Commodities	296	63	72	56	37	4		528
Local Costs	100	55	65	20	20	20	20	300
Total	794	130	430	188	137	109	20	1808

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ANNEX ONE - OTHER DONORS

INTRODUCTION

Efforts by other donors to conduct horticultural activities have been piecemeal, fragmentary and often discontinuous. For this reason the YARG has requested USAID to assist the Government in their institutional building of a Horticultural Service within the Ministry of Agriculture. There is only one qualified expatriate horticulturist in this country and he is fully occupied at the UNDP/FAO project in Taiz and Ibb provinces. Horticultural projects carried out by other agencies are of a minor nature and constitute only a part of the general extension service. It is anticipated that this project will:

1. Carry out systematic adaptive research on horticultural crops,
2. Cooperate with and coordinate the activities of the various agencies working in the field of horticulture
3. Assist in training the Ministry's staff and farmers in horticultural production
4. Assist in the establishment and operation of nurseries and demonstration farms where new varieties and improved cultural practice will be tested and evaluated.

Various other donor projects including some horticultural activities are:

1. IDA-Kuwait fund project in Wadi Zabid is comprehensive with ground water studies, irrigation development, credit, extension services and other services necessary for full agricultural development. Limited vegetable and fruit growing is conducted by Egyptian extension workers but no research is being done and further the work is highly localized and is applicable to Wadi Zabid only. (Under the same funding is a soil and water study only for Wadi Mohr).
2. A similar type regional rural development project is planned for the Southern Uplands under IDA & Abu Dhabi funding, but has not been implemented.
3. The Tihama Development Authority (TDA) has a line of credit from IBRD of $10.9 million (plus another planned $6.6 million from Kuwait, YARG and local sources) for agricultural development. Some of this money may find its way into horticultural development.
4. U.S.S.R. has a 1,000 hectare project in Surdud (Tihama) somewhat similar to Wadi Zabid with some very limited horticultural work.
5. East Germany terminated a similar project in the Tihamas after very little results.
6. The U.K. Intermountain and Wadi Rema study may result in some horticultural work at a later date, especially in Wadi Rema.
7. The FRG (German Farm) has performed some vegetable work but only in connection with its extension program. Also some limited work has been done with trees for windbreaks. Emphasis is being shifted from extension to plant protection and expansion is being made from the Sanaa to the Saada area. Subject to the approval of this PROP arrangements have been made for cooperative work in vegetable work at Saada and also for some FRG assistance to the horticultural projects for plant protection needs.

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8. The Syrian nursery in Sanaa is putting out about 100,000 plants per year mostly ornamentals, windbreak trees, roses, nut trees and some apples, apricots and other fruits. Research work is limited to some adaptive trial plantings. The Syrians have been extremely cooperative in the planning phases of this PROP and are eager to coordinate their efforts with those of USAID.
9. UNDP/FAO Lowlands farm near Hodeidah has some limited horticultural work underway but results are very localized to Tihama.
10. UNDP/FAO Ausseifra farm near Taiz is being developed as a demonstation center for agriculture. In addition to cereals and a soils laboratory some work is being conducted on horticulture for the Taiz area. The only professional horticulturist in Yemen is located here. However, the farm has a major problem because of high soil pH and poor water quality for seedling establishment of horticultural crops. (Rain water has to be collected for this purpose). The FAO is very eager for the USAID proposal to get underway and has promised extensive cooperation.

Thus the USAID project is viewed as the only Yemen-wide effort in horticulture with the major task of institutionalizing horticultural production and marketing including research and extension, training of necessary professional and other staff and establishment of physical facilities. The role of USAID in horticulture is similar to that envisioned in the proposed new sorghum and millet project (030) where other donors carry out even more adaptive work than in horticulture.

ANNEX TWO

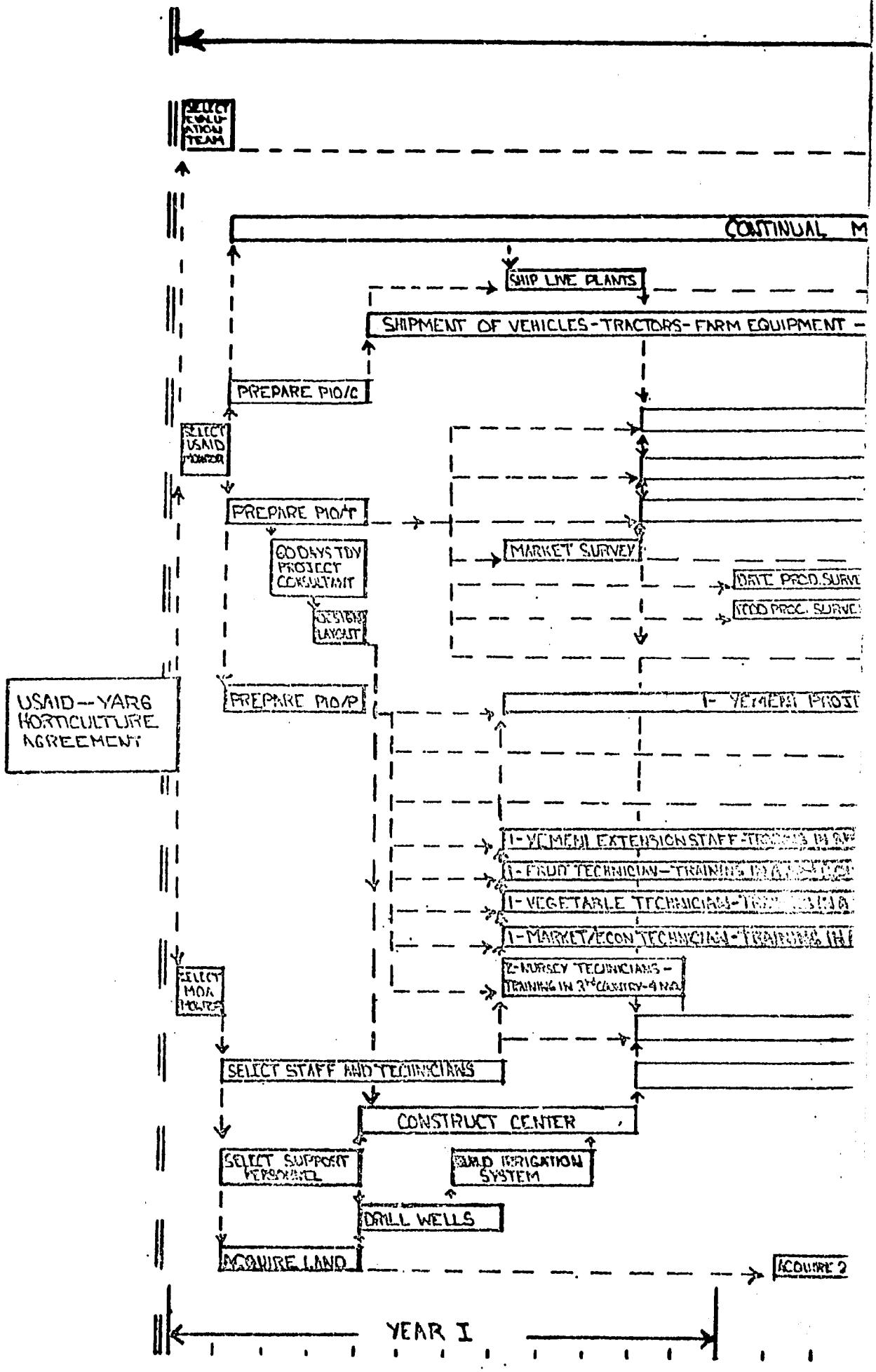
See foldout PERT BAR CHART page 3

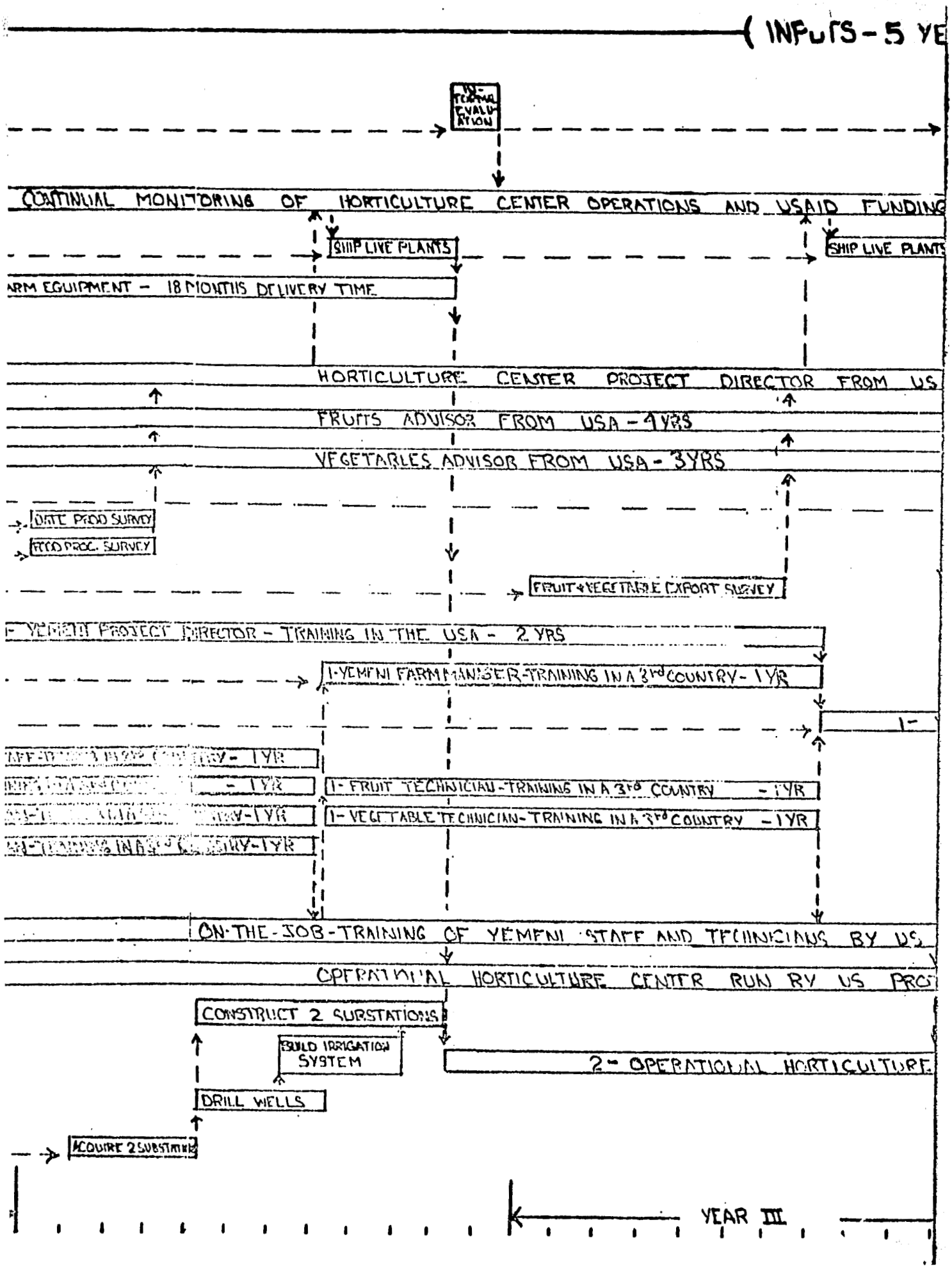
ANNEX THREE

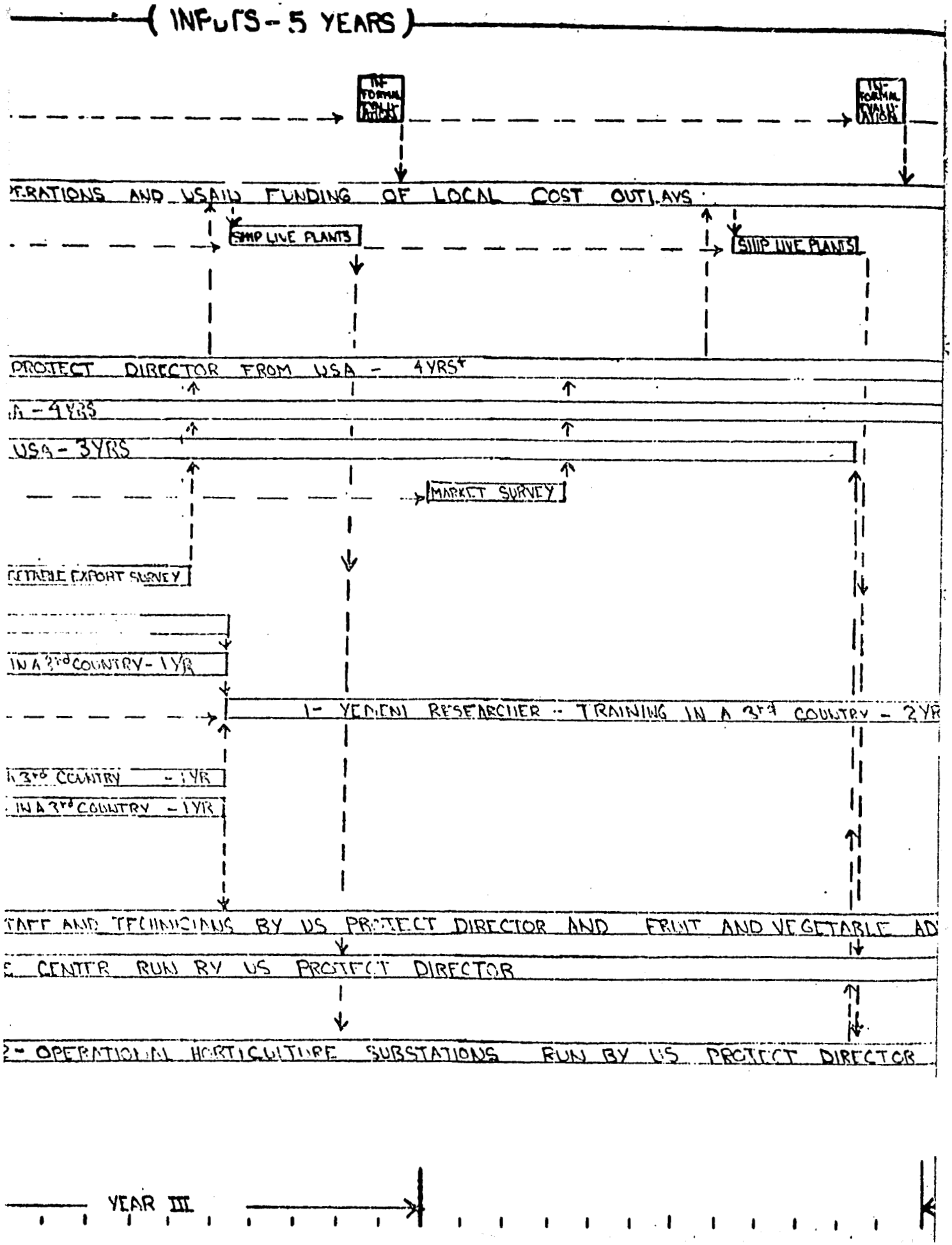
The Cultural Environment

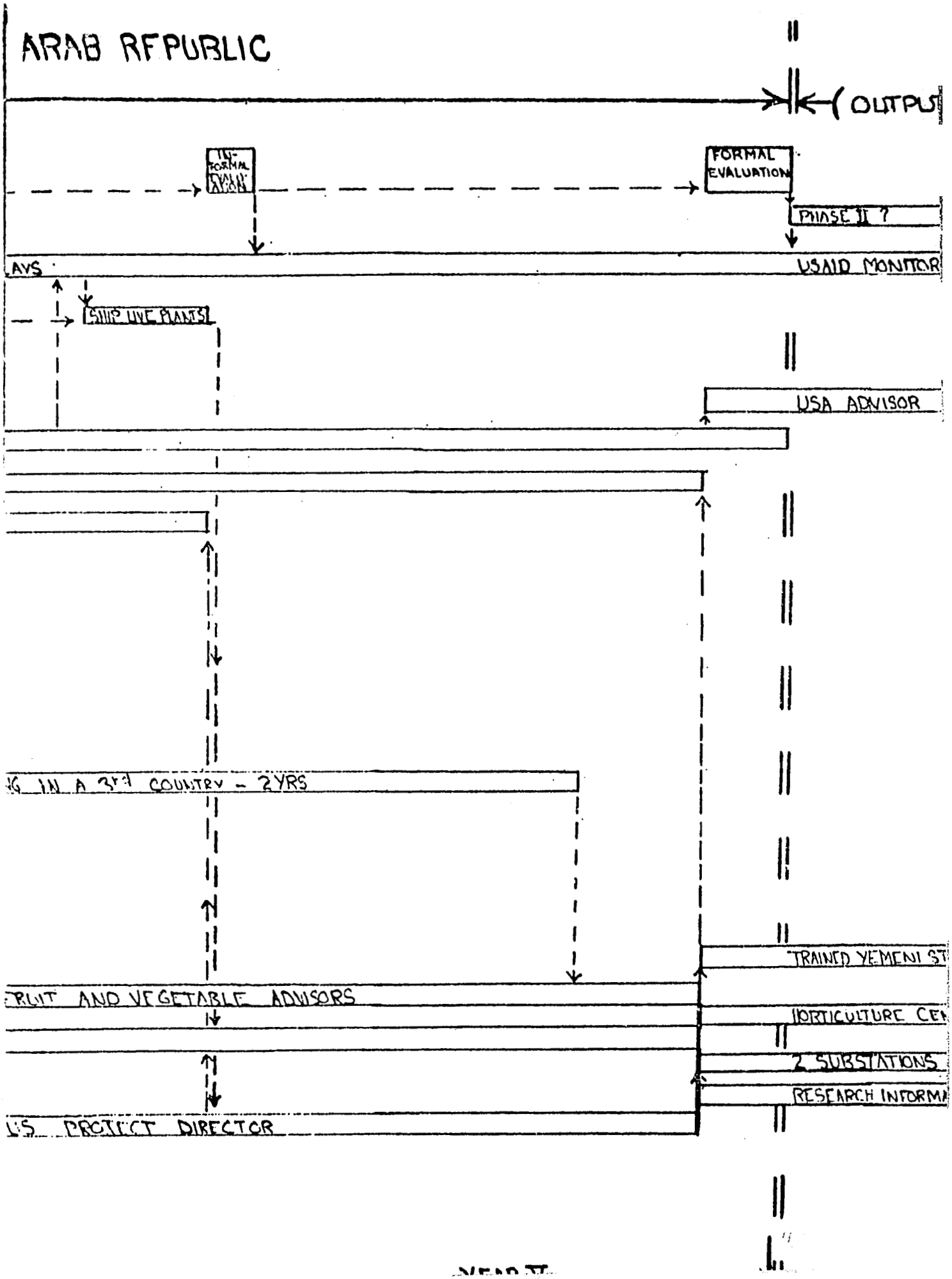
The Yemen Arab Republic with an area of about 190,000 km^2, is bounded by the Red Sea on the West, Saudi Arabia on the North and East, and the People's Democratic Republic of Yemen on the South. Its population is about 6 million with an annual growth rate estimated at 2.2%. Literacy ranges between 5 and 10%. Prior to 1962, the country, under the Imam's religious and political leadership, was virtually insulated from developmental activities. A military coup in 1962 removed the Imam and set up a republican government; a civil war then erupted between the Imam's supporters and the republicans. Almost concurrently with the civil war, the country was subjected to the effects of a very serious drought. While the Government has made considerable progress in consolidation, the nation still remains, in many respects, a confederation of sheikdoms, and the Central Government has somewhat limited authority, particularly in remote areas.

After the war ended in 1970 the Government initiated economic development programs, financed mostly from bilateral aid. These efforts have established minimal transportation trunklines and are pushing ahead in irrigation, power, and development of other basic infrastructure. Even so, the job is barely begun. The Yemen Arab Republic is one of the poorest


SELECT EVALUATION TEAM
CONTINUAL M
SHIP LIVE PLANTS
SHIPMENT OF VEHICLES-TRACTORS-FARM EQUIPMENT -
PREPARE PIO/C
SELECT USAID MONITOR
PREPARE PIO/T
60 DAYS TDY PROJECT CONSULTANT
SITE LAYOUT
MARKET SURVEY
DATE PROD. SURV
FOOD PROC. SURVE
USAID--YARG HORTICULTURE AGREEMENT
PREPARE PIO/P
1- YEMENI PROJ
1- YEMENI EXTENSION STAFF-
1- FRUIT TECHNICIAN-
1- VEGETABLE TECHNICIAN-
1- MARKET/ECON TECHNICIAN-
2-NURSERY TECHNICIANS - TRAINING IN 3rd COUNTRY-4 MO
SELECT MOA MONITORS
SELECT STAFF AND TECHNICIANS
CONSTRUCT CENTER
SELECT SUPPORT PERSONNEL
SMALL IRRIGATION SYSTEM
DRILL WELLS
ACQUIRE LAND
ACQUIRE 2
YEAR I


INPUTS - 5 YE
MID-TERM EVALUATION
CONTINUAL MONITORING OF HORTICULTURE CENTER OPERATIONS AND USAID FUNDING
SHIP LIVE PLANTS
SHIP LIVE PLANTS
ARM EQUIPMENT - 18 MONTHS DELIVERY TIME
HORTICULTURE CENTER PROJECT DIRECTOR FROM US
FRUITS ADVISOR FROM USA - 4 YRS
VEGETABLES ADVISOR FROM USA - 3 YRS
DATE PROD SURVEY
FOOD PROC. SURVEY
FRUIT & VEGETABLE EXPORT SURVEY
- YEMENI PROJECT DIRECTOR - TRAINING IN THE USA - 2 YRS
1-YEMENI FARM MANAGER-TRAINING IN A 3rd COUNTRY - 1 YR
1-
- 1 YR
1- FRUIT TECHNICIAN-TRAINING IN A 3rd COUNTRY - 1 YR
- 1 YR
1- VEGETABLE TECHNICIAN-TRAINING IN A 3rd COUNTRY - 1 YR
ON-THE-JOB-TRAINING OF YEMENI STAFF AND TECHNICIANS BY US
OPERATIONAL HORTICULTURE CENTER RUN BY US PROJ
CONSTRUCT 2 SUBSTATIONS
BUILD IRRIGATION SYSTEM
2- OPERATIONAL HORTICULTURE
DRILL WELLS
ACQUIRE 2 SUBSTATIONS
YEAR III


(INPUTS - 5 YEARS)
INFORMAL EVALUATION
INFORMAL EVALUATION
ERATIONS AND USAID FUNDING OF LOCAL COST OUTLAYS
SMP LIVE PLANTS
SMP LIVE PLANTS
PROJECT DIRECTOR FROM USA - 4YRS+
A - 4YRS
USA - 3YRS
MARKET SURVEY
ETABLE EXPORT SURVEY
IN A 3rd COUNTRY - 1YR
1- YEMENI RESEARCHER - TRAINING IN A 3rd COUNTRY - 2YR
A 3rd COUNTRY - 1YR
IN A 3rd COUNTRY - 1YR
TAFF AND TECHNICIANS BY US PROJECT DIRECTOR AND FRUIT AND VEGETABLE AD
E CENTER RUN BY US PROJECT DIRECTOR
2- OPERATIONAL HORTICULTURE SUBSTATIONS RUN BY US PROJECT DIRECTOR
YEAR III


ARAB REPUBLIC
OUTPUT
INFORMAL EVALUATION
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PHASE II ?
AVS
USAID MONITOR
SHIP LIVE PLANTS
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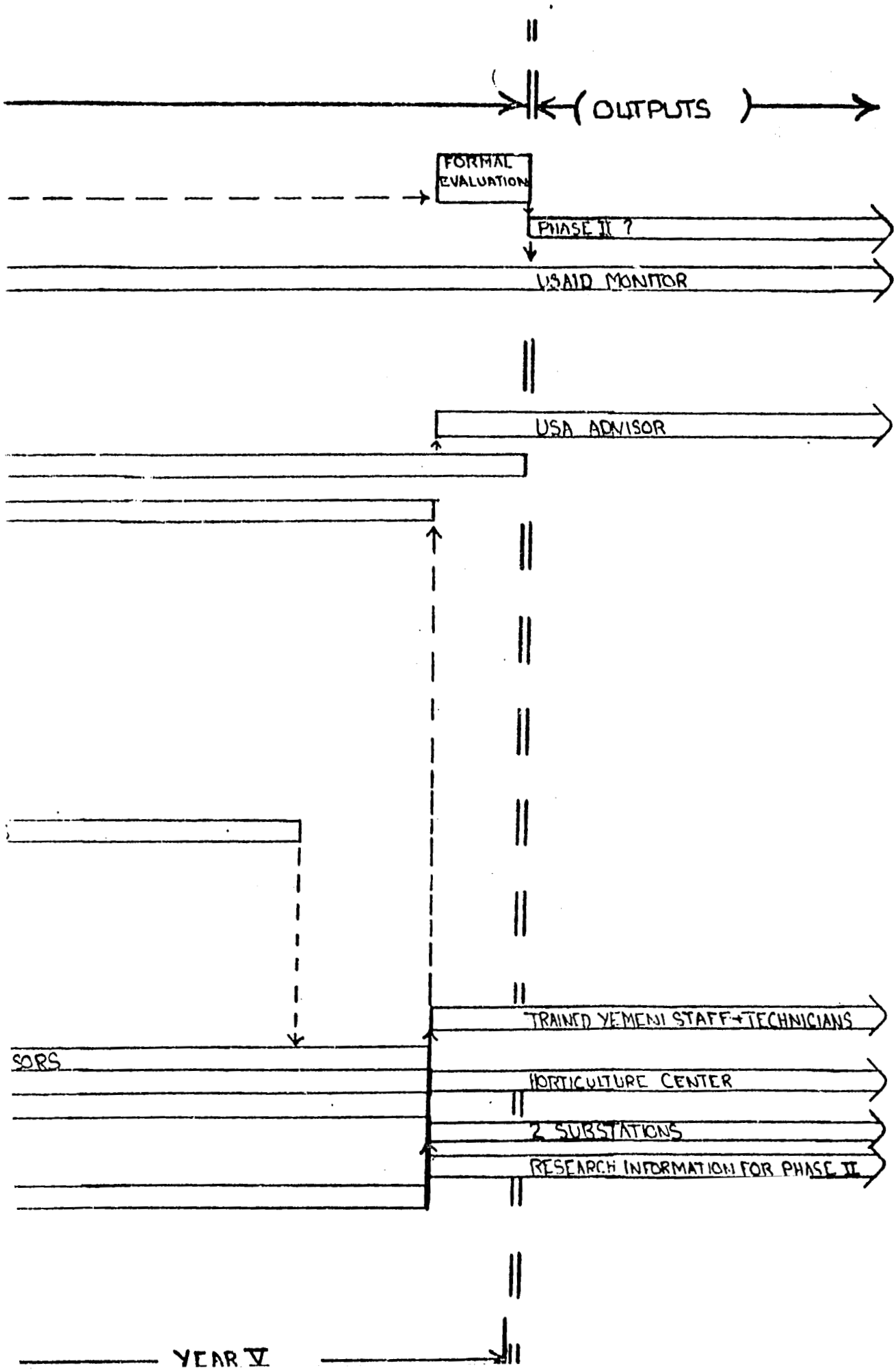
HORTICULTURE CE
2 SUBSTATIONS
RESEARCH INFORMA
S PROJECT DIRECTOR


OUTPUTS
FORMAL EVALUATION
PHASE II ?
USAID MONITOR
USA ADVISOR
TRAINED YEMENI STAFF + TECHNICIANS
SORS
HORTICULTURE CENTER
2 SUBSTATIONS
RESEARCH INFORMATION FOR PHASE II
YEAR V

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HORTI

ANNEX THREE (Continued)

countries in the world with a per capita income estimated at $50. The Government cannot cover budget expenditures with domestic revenues. Exports account for only 7% of imports; the remainder being covered by remittances from Yemeni living abroad. The bulk of the population exists on subsistence agriculture. Still, Yemen cannot feed its people; food imports account for half of total imports.

The Central Government is a creation of the last decade. Even though it has a Central Bank, a Budget Bureau in the Ministry of Finance, and a Central Planning Organization (which has produced a 3-year plan), systematic collection of statistics is just beginning. For example, the first census ever is being conducted, starting in 1975. Most Ministries, including the Ministry of Agriculture are still weak, reflecting more than any other factor the limited availability of professional administrators and technologists. Many key positions are filled by experts from other Arab countries. notably Syria and Egypt.

ANNEX FOUR

The Physical Environment

The mountains of Yemen run North-South, parallel to the Red Sea, and East-West, paralleling the Gulf of Aden. The central mountain range of the Yemen Arab Republic starts around Taiz in the South and extends north into Saudi Arabia. From this central ridge, drainage westward to the Red Sea is carried by six major wadis (Mohr, Surdud, Siham, Rimah, Zabid, and Risyan). These and other minor wadis run down steep mountain slopes forming deep gorges which eventually open to the coastal plain known as the Tihamas. Eastern drainage is to the Empty Quarter over more gentle slopes. Drainage south to the Gulf of Aden is south of Damar and east of the Damar-Ibb-Taiz line. The main wadis of this region are Wadi Bana and Tuban.

This topography divides the country into four natural regions, each with distinct climatic characteristics and vegetation:

1) Lowlands of Tihama, along the Red Sea in the West.
2) Foothills and Middle Highlands of the central mountain range.
3) Central Highlands
4) Eastern Semi-Desert Plateau, sloping into the Empty Quarter.

The Coastal Lowlands of Tihama form a 30 - 60 km wide belt along the Red Sea, extending from Bab-el-Mandeb in the South well into Saudi Arabia in the North. The elevation ranges from sea level to about 200 meters at the foothills. The terrain is level or slightly undulating and intersected by wide, shallow wadis draining from the central mountain range into the Red Sea. All of the cotton and much of the cereal grains are produced in the Tihama region.

The Foothills and Middle Highlands are situated between the Tihama and Central Highlands with an elevation range of 200 to 1500 meters above sea level. The landscape is very rugged, cut by deep wadis running through narrow gorges which have very long and steep slopes. The Foothills and Middle Highlands area produce coffee, qat, cereal grains and a limited amount of tropical and sub-tropical fruits and vegetables.

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The Central Highlands run from Ibb northward into Saudi Arabia at altitudes exceeding 1500 meters. The high plateaus of Sanaa Mabar, Damar and Yerim are all over 2000 meters elevation. The Central Highlands are devoted almost exclusively to the production of sorghum, millet and wheat with fruits and vegetables being grown in small irrigated areas around Sanaa and Taiz.

The Eastern Semi-Desert Plateau slopes eastward, falling to an elevation of 1,000 meters where it borders the Empty Quarter, Rub-el-Khali. This area, which lacks the rainfall for crop production, is devoted primarily to grazing of sheep and goats, camels and donkeys.

This ecological diversity permits the cultivation of an extremely wide variety of fruits, nuts, and vegetables, from dates, bananas, papaya, mangos and other tropical fruits, to citrus, lettuce, tomatoes, potatoes, cabbage, berries, nuts and stone fruits. It also requires the establishment of three separate introduction, testing and propagation facilities: one is in the Highlands, one in the Foothills, and one in the Tihama.

ANNEX FIVE

Policy Issues and Constraints

This annex is in response to verbal questions raised in AID/W during the February 1975 DAP review and amplified in the March 12, 1975 memo from Mr. Charles H. Antholt, NESA/TECH, to Clyde S. Adams, Food and Agriculture Officer USAID YEMEN.

I. Priority & Relevance (see also body of PROP)

A. Priority:

The YARG has set its priorities for agriculture in the first 3-year plan as follows:

1) Improving agricultural sector income
2) Increasing the quantity and quality of foodstuffs
3) Improving its foreign exchange position

USAID subscribes to these priorities; in addition we are directed by Congress to concentrate our efforts in food & nutrition and to work with rural poor.

Currently USAID has four agricultural projects approved and/or requested whereby we anticipate meeting AID's guidelines and simultaneously assisting the YARG to meet its priorities.

The first priority of both YARG and USAID in the cereals sector, especially sorghum and millet which are grown on from 2/3 to 1/2 of the cultivated acreage. (This is also in line with the IRSD sector review team's recommendation that the Yemen initially concentrate its efforts on foodgrains.) Project 016, and its proposed successor 030, concentrates on these crops. Project 030 is a result of an evaluation of efforts to date in 016 and, if implemented, should result in significant acreage shifts as internal demands for sorghum are met. The anticipated yield increases will permit the following:

(1) Provide for the needs of increasing population (though per capita consumption will probably go down as agricultural diversification permits diet substitutions)
(2) Provide some feed grains for livestock use, especially poultry.
(3) Release some crop acreage for forage production (such as legumes, grasses and forage sorghums).

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(4) Release land for production of other cereals especially wheat, barley and maize.

(5) Release land for production of other horticultural crops.

(6) In addition to yield increases, a successful millet program coupled with moisture conservation techniques - being researched in such countries as Turkey and India and by such International organizations as (ICRISAT), International Crop Research Institute for the Semi-Arid Tropics - can lead to expansion to crop acreage now marginal for production.

We believe the magnitude of inputs proposed for project 630 will accomplish the above and that substantial additional inputs are better utilized in other projects. Spin offs are expected from the sorghum project to wheat, barley and maize, because many of the techniques and practices are similar; therefore, we do not anticipate the need for substantial U.S. efforts to get yield increases in these crops. Further farmers are acquainted with these crops. With horticultural crops these practices and techniques are substantially different from cereals. Further, while practically all farmers are acquainted with cereals production, those who currently produce horticultural products are limited, (See Table One page 3).

Next in priority after the sorghum project is the YARG's concern with horticultural production and poultry. Success in sorghum will enhance both of these activities and is absolutely critical to poultry (i.e. feed grain production).

The two major physical constraints to agricultural production in the YAR are water (moisture) and good soil. It follows, then that agricultural production should move in the direction of maximizing the economic return to these two scarce resources. Since this requires considerable investment in agricultural research, agricultural extension, marketing and trained manpower, the YARG must start efforts now. The proposed horticultural project makes a very modest start in this direction. (It could be argued that attention to industrial crops such as cotton or perhaps soybeans would do the same, but these crops add relatively little to human nutrition and might further exacerbate the equity - income distribution - situation since they are more likely to be grown by large farmers).

Horticulture provides one of the best opportunities for the YARG to improve incomes for the agricultural sector (see also equity section below) by expanding production of high unit value crops, improving the nutritional level of both producers and consumers (producers will consume unmarketable culls) by expanding dietary choices and reducing prices and reducing foreign exchange drain (see Table Two page 4).

The poultry project is less broad in meeting YARG objectives. However, it does provide additional income (high unit value) for the small farmer (emphasis will be placed on small units and local development boards will provide the major focal point for administration). It is also aimed at higher protein diets and lessened foreign exchange drain. Expansion of the project will depend upon success in the cereals sub-sector.

The fourth project USAID is planning is rural development. This project seeks to demonstrate the benefits of integrated rural development

in a self-help context. It depends upon experience from the rural water project (022) for water and road development and upon the three agricultural projects outlined above for new crops and/or new varieties of existing crops plus an accompanying set of cultural practices in order to maximize their effectiveness. The Horticultural project should be especially useful as it provides the best single opportunity for very small farmers to increase their income and their nutrition thru high unit value crops which will optimize returns from scarce land and water resources while at the same time provide useful and fairly steady employment opportunities for unpaid family labor.

B. Relevance

The relevance of an AID supported project can be judged by how closely it fits the priority needs of the host country, its anticipated return (both short run and long run) to investment, ease of implementation and how it fits AID guidelines. We believe the proposed horticultural project scores high on all these points.

1. YARG agricultural goals of increased agricultural income, agricultural diversity leading to improved nutrition and reduced foreign exchange drain are all supported by this project. Horticultural products are high unit value crops making most effective use of scarce land and water and providing useful employment to unpaid family labor. They provide a wider diversity of nutritional valuable food stuffs and YARG production will lessen a rapidly growing dependence upon imports. The Yemen is blessed with a combination of natural resources and microclimates permitting it to grow an extremely wide range of horticultural products. Further it probably has a competitive advantage over most of its suppliers for practically all horticultural imports with the possible exception of apples and a few other crops requiring cold weather. (This competitive advantage is much less for cereals and probably does not exist for wheat).

2. While horticultural production generally requires fairly large investments compared to cereals production, the high unit value of these crops provides much greater net returns, while also providing for greater income generation due to its more labor intensive nature. In the short run, return to investment will largely be through reduction of import costs resulting in internal income transfers from consumers to producers. In the long run, export earnings should develop with external income transfers from foreign consumers to Yemen producers.

3. Implementation of a horticultural project is not anticipated to be more difficult than implementation of other projects.

4. The proposed horticultural project ideally fits AID guidelines of improving food supplies and nutrition and providing a source of increased income to the very poor (See equity section below).

C. Equity

On several occassions, both orally and in writing, AID/W has raised the equity issue with regard to the horticultural project. While this issue is relevant, it is not as much of a problem as with cereals which tend to be grown by large farmers (see pages 2, 4 & 5 of the PROP) because of the higher labor inputs of horticulture. The very nature of horticultural production, i.e. high unit value crops with intensive and relatively even

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labor requirements, should result in both increased agricultural sector income as well as more equitable distribution of that income.

While no accurate estimates are available, considerable observation indicates many micro-sized plots where horticultural crops are grown. However, the production and quality from these plots appears to be quite poor due to traditional cultural practices and probably less than ideal varieties. These tend to be largely in areas where both soil and water are suitable for their production and are most common in small Wadis where surface run-off from intermittent stream flows can be diverted. At the present time these areas are concentrated near to fairly good roads and the crops such as nuts, onions, potatoes, citrus which can stand rough transport or with processing techniques such as drying which will permit shipment of grapes (raisins), dried apricots, figs, dates and possibly dehydrated crops.

Larger farmers with access to good land and water tend to grow cereals, as mentioned previously, in order to minimize labor requirements.

On the consumption side, observation indicates that the poor Yemenis do consume some horticultural products. Lowered prices, resulting from increased production should increase their ability to consume. Further producers will consume full production thereby improving their diets.

D. Policy Implications

The major policy decisions have already been discussed previous in the PROP and its annexes. In summary the following may be stated:

1. Major emphasis is currently being placed on cereals production in order to (a) meet subsistence needs, (b) reduce imports of cereals, (c) release acreage for higher unit value crops and (d) lay the basis for a livestock industry.

2. Coordinated work on horticulture needs to be started immediately in order that varieties and techniques will be available as land use shifts become feasible.

3. In the long run, the Yemen must make maximum use of limited water and land by increasing production of high unit value crops.

4. Emphasis in horticulture will be placed on those crops which can be transported to market with small losses and for which effective demand exists. These include perishable crops such as tomatoes and bananas produced near to market or with access to good roads and crops such as dried fruits, potatoes, oranges etc. which can be transported over rough roads.

5. Contribute to the goals of the YARG for agriculture as previously stated.

II. Technical Considerations (see also body of PROP)

A. Other donor activities are spelled out in Annex One so only a summary paragraph will be given here.

This is also covered in the PROP. However, there are two things that bear repeating: (1) the experience is limited both as to area and as to crops and cropping systems and not necessarily continuous and (2) there is a distinct lack of coordination of effort. One of the most important reasons the YARG wants a U.S. project is to integrate and coordinate all Yemen horticultural activities on a Yemen-wide basis and to the maximum extent possible.

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Further, many areas are not covered at all! The other donors especially the FRG, the World Bank Advisory Group, FAO and Syrian Bilateral AID agree that a major U.S. effort would be most helpful in achieving the above objectives of greater and more continuous coverage and of coordination and integration of efforts.

B. Constraints to Agricultural Development:

Introduction:

The YARG has made the decision to embrace a goal of economic, social and political development defined here as increasing the total availability of goods and services with more equitable distribution of these goods and services and more broadly based decision on their use and allocation in order to move from tradition to modernity. In common with LDCs, the problems include illiteracy (90-95%), lack of modern social overhead infrastructure (roads, communications, schools, medical services, etc.), low level of trained manpower and limited capital and technology. Further, the Yemen is very limited in its known exploitable resources, which are, for the most part, agricultural. If the YAR is to be successful in modernization, the agricultural sector must succeed, thus requiring major investments in attacking the constraints listed below.

Constraints:

A. Data Limitations

1. Physical resources inventory including information:
   a) soils (mapping, classification, fertility, response to management, etc.).
   b) Moisture-availability of moisture - amount and timing - conservation and use.
   c) Wind and temperature information
2. Current and potential cropping systems. Fitting best crop to soil/moisture conditions
3. Livestock inventory, use, and contribution
4. Forest resources (including nut & fruit trees) - current and potential contribution to soil and moisture conservation, timber, fuel, recreation, aesthetics & economic return
5. Range resources (interaction with 3 & 4)
6. Complementary & competing agricultural enterprise systems for varying ecological locations.

B. Institutional Framework

1. Manpower for development, including staffing of ministry and regional needs.
   a) administrative
   b) technical
2. Research Base
3. Extension Base
4. Credit needs
5. Marketing system(s)

C. Social Overhead Infrastructure

1. Roads
2. Transportation

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3. Communications
4. Port facilities
5. Education

D. Socio-Economic
1. Government & private capital needs
2. Income generation & distribution
3. Supply & demand
4. Food consumption, elasticities, etc.
5. Willingness and ability of people to innovate
6. Land tenure system
7. Taxation
8. Subsidies - direct & indirect

All of these constraints are serious, but most are amenable to the combined actions of time, capital and manpower. The solutions to most will require integrated action from a combination of areas outside agriculture but working closely with agriculture. One paramount issue (constraint) is the lack of a water policy covering technical, socioeconomic, political and legal parameters.

Basically, the above constraints all apply to horticulture with the following probably being the most serious: moisture availability and control, cultural techniques, improved varieties and new crops (including knowledge concerning them), marketing and transportation. The proposed project seeks to help solve these constraints or at least to mitigate their adverse effects.

ANNEX SIX

Yemen and the Poorest of the Poor - The YAR is considered by the IBRD to be among the 12 least developed countries of the world and many observers would place it very near the bottom. By this criteria it could be concluded that almost any developmental activity is keyed to the poorest people. Moreover, while no accurate statistics exist regarding income distribution, simple observation indicates very little of the wide income disparities common to much of the developing world, especially in Latin America and the Sub-continent. Neither Sanaa nor Taiz has much of the outward indicators of conspicuous consumption common to Karachi, for example; neither does one see the extreme poverty, i.e. large groups of people sleeping on the street and starving children common to Calcutta or Dacca. Also, the contrast between the large masses of rural and urban residents is muted in the Yemen. The conclusion is that the great majority of all people are essentially equally poor.

Perhaps four hypotheses could be presented in explanation:

1. Large numbers of workers - perhaps as high as 20% of the total population is engaged in the labor force of surrounding Arab countries and remitting large amounts of capital - in some rural villages up to one-half of the total adult male population is engaged in this work.

2. A paternalistic, feudalistic type social structure which dictates concern on the part of the local sheikhs for all tribal members.

3. No large urban squatter populations common to newly industrialized centers of the sub-continent and Latin America, and

4. Fairly large (relative to YAR size) foreign donor capital transfers, mostly grants - which have been utilized in largely labor-intensive work

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activities, especially schools and hospitals. Even the more capital-intensive road construction and building work by other donors places a lot of disposable income in the pockets of many workers.

In summary, it would appear, almost by definition, that AID activities in the Yemen are keyed almost exclusively to the "Poorest of the Poor".

ANNEX SEVEN

Yemen Absorptive Capacity

The absorptive capacity of the Yemen is probably one of the lowest in the developing world. Given the fact that it is very near the bottom of the least developed countries, this should not be surprising. Basic social overhead infrastructure, especially schools, civil service, transportation, and health, is only in a very rudimentary stage. The following crude estimates (1972) are indicative of the stage of development: 90% of the 6,062,000 population are subsistence farmers, 47% are not over 15 years of age, and of the 10% who are possibly literate, most did not go beyond primary school.

Developmental activities in a modern sense were only started with the overthrow of the Imam in 1962. Prior to this time the country was deliberately cut off from the rest of the world with life going basically unchanged from the 14th century. The development which started with the establishment of the Republic was violently interrupted by the long trauma of civil war worsened by years of severe drought. Only with the end of the war and normalization of relationships with Saudi Arabia in 1970 did the country really get launched on the process of development and modernization.

The Government has great difficulty in finding qualified staff to plan, direct and implement even the simplest of operations. While there are some excellent people at the top, they are so few in number that advisors from friendly Arab countries often are utilized in an operational capacity. The same situation is common to the private sector. The problems of scarcity are all-pervasive and reach all levels of manpower - even artisans, mechanics, typists, truck drivers, as those skills are often exported to the oil-rich states.

In spite of these problems, the YARG is firmly committed to development and does the best it can in assigning qualified candidates to donor-assisted projects. In general U.S. AID and other donors have had reasonable success in getting counterparts assigned who can be trained to take over. The major exception to this was the Sorghum project, where an initially assigned B.S. graduate was assigned to another project, but later on he was replaced by another B.S. degree graduate. We have brought this matter to the attention of the Ministry and have received assurances (which we believe will be lived up to) that Ministry of Agriculture policy is to assign one University graduate and from one to two lower-level technical staff to each foreign technician.

The Ministry of Agriculture's problems in absorptive capacity are probably the most acute in the entire YARG. To suggest solutions to this problem, an IBRD team of advisors was recruited (currently with four advisors and three more to arrive) to advise the Ministry on administrative, financial and technical matters. The team has just

completed a five-year training proposal, approved by the Ministry, for upgrading and expanding the staff capability of the Ministry. This proposal indicates training needs by field, suggests training locations and shows requested sources of financing.

Training is divided into several areas: (1) institute training (mostly for two years beyond high-school) in surrounding Arab states, (2) B.S. degree training (also mostly in surrounding Arab Universities, (3) B.S., M.S. and high-level training in the U.S. and Europe where English or a European language is required. Two other sources of manpower training available to the Ministry: (1) Students returning to the YAR from non-government-sponsored training (this has averaged 5 - 8 B.S. - degree-trained individuals per year for the past few years) and (2) in-country training, mostly for extension workers. For example, training of extension workers (mostly 6 - 9 months for individuals with about nine years education) is being carried out by FAO in Taiz and Hodeida and by IBRD in Zabid. Twenty individuals have just completed training, 65 are planned for this year and possibly 95 for several years thereafter. The bulk of these trainees will be used on FAO/WORLD BANK-financed projects.

Since re-opening operations in the YAR in April 1973, USAID has been fully aware of this problem and in coordination with other donors has worked towards a solution which is practical for the Yemen situation. The first major problem has been an accessment of the Ministry of Agriculture's needs with proposals for solution. This problem has been worked on by the IBRD advisory team as mentioned above. Their plan has been formulated and is now ready for implementation.

The second major problem has been to either find qualified English speaking participants or make arrangement to send participants to Arab countries where language is not a problem. U.S. AID, in cooperation with USIS and Peace Corps, has made considerable effort to train Yemeni in English. Other efforts are being made by the U.K. and by the Institute for Public Administration (IPA). Considerable numbers of PCV and other volunteers are being utilized in these programs.

English speaking participants from the Ministry of Agriculture have been sent to Lebanon for training and, starting this year, will be sent to the U.S. In addition, the Misson Director has discussed a proposal to send up to 40 agriculturist to Arab Universities for training to the B.S. degree level starting in FY 76. This was discussed in AID/W during consultations in November 1974 and again in February 1975. A formal request will be made for funds for this purpose in the FY 77 FBS.

In summary the types of training U.S. AID will support are as follows:

(1) English speaking participants will be sent to the U.S. for both short term training - mostly for high level individuals - and for advanced academic training and some highly specialized B.S. level training.

(2) AUB and AIAD programs will be utilized also for English speaking individuals.

(3) Arab speakers only will be sent to Arab Universities for training to the B.S. level and possibly some shorter programs.

Thus, while Yemeni absorptive capacity is very limited, because of

its very lack of modernization, concerted efforts are being made to solve the problem. We can assist this process by having projects initially planned and directed largely by U.S. experts while conducting a large amount of training for Yemeni staff who will take over from the U.S. staff after being fully trained and experienced.

JULY 1972 EDITION
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

Memorandum

2790024 AU

TO : AA/NESA, Mr. Alfred D. White

DATE: May 28, 1975

THRU : NESA/TECH, Mr. David Steinberg

FROM : NESA/TECH/SPP, Charles H. Antholt, Project Chairperson

SUBJECT: Tropical and Sub-Tropical Horticulture/Yemen

The proposed project is estimated to cost $1.8 million over a five-year period. Essentially, the project sets out to develop a national institution capable of providing technological information and planting material needed to expand production of horticultural crops. Major project resources are allocated to TA (three long-term horticulturalists), establishment of a central horticulture center at Taiz, and 140 mm of training. These activities are presented as important elements contributing to the major objectives of the YARG's first three-year plan for agriculture which are to: 1) increase net farm income, 2) improve national nutritional levels, and 3) preserve foreign exchange.

Issues

A. Priority and Relevance

The PROP suggests that production of horticultural products offers a more profitable way to use Yemen's scarce land and water resource base. The following information briefly characterizes the agricultural sector of the country:

* 1) The 1972 and 1973 CPO Statistical Yearbook estimates that roughly 92.2 percent of all cropped land is used for cereals.

2) In their 1973 appraisal of Yemen, IBRD estimated that in a "normal year" Yemen produces only 80 percent of its foodgrain requirements. In an April 1975 report IBRD estimates the 1972 /73 sorghum deficit at 127,000 metric tons and projects that by 1983/84 Yemen's deficit will be in the neighborhood of 540,000 metric tons even assuming a 11 percent increase in national sorghum production.

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* The figures quoted above and on page 2 are from 1974 and 1975 IBRD publications that cite CPO statistical sources. They are quite different from the summary figures presented in the PROP which suggest cereals have on the average occupied 81 percent of the cropped area and horticultural crops occupied 17 percent of the cropped area in 1973/74 Crop Year.

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Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

* 3) Horticultural crops, according to the CPO Statistical Yearbook, in the 1972/73 crop season occupied only 3.1 percent of all cropped area.

4) Horticultural crops accounted for about 8 percent (in value)) of all food imports between 1970-1974. Cereals on the other hand accounted for over 50 percent of food imports with flour and wheat being the most important cereal commodities.

Impacting on these summary statistics is the YARG's limited ability to influence any economic development, particularly because of manpower constraints. Given the relatively minor importance of horticultural crops to the economy of Yemen, should AID be allocating developmental resources to this sub-sector?

B. Equity

1. In the 1973 IBRD it is stated that 80-90 percent of the cultivated land is sharecropped -- with tenants getting one-third of the crop on irrigated land and one-half on unirrigated land. A more recent IBRD report of April 1975 reports that "the most frequent crop sharing pattern is 10 percent Zakat, 60-65 percent to the peasant, and 25-30 percent to the landlords, increasing up to 68 percent in the case of investment in irrigation and tree crops." Successful promotion of orchard crops could further exacerbate the relative distribution of income given the nature of the land tenure system.

WHAT ABOUT LABOR-INTENSITY? - WATER REQUIREMENTS?

2. In a small farmer subsistence sorghum/millet agriculture, can these farmers afford to shift their cropping practices? Higher value horticultural crops are usually associated with relatively higher risks, management skills and inputs (labor and capital) and thus it may be only the already relatively better off that can afford the investment and risk of shifting into horticultural crops. That is, they could afford the risk of change.

On the other hand on very small farms a farmer's income is generally more a function of returns to his labor rather than land. Consequently, providing a high value crop alternative to small farmers might be a very attractive way for improving the farmer's welfare.

Technical

1. Underlying the project proposal is the implicit assumption that identification of suitable varieties and cultural practices are the

critical areas to direct project resources. While this may be true, the PROP fails to convincingly demonstrate this. From casual observation it appears that in Yemen there seems to be a high propensity to grow horticultural crops. However, it seems that rather than a lack of varieties or knowledge of cultural practices it is water and transportation that most severely limit wider and more intensive production of horticultural crops.

2. Lack of Specificity. That is, horticultural crops cover a broad spectrum of crops that are by no means homogenous. The project suggests that a couple of experts on the ground will, by trial and error, find some crops that fit demand/production possibilities.

Assuming "researchable" constraints to horticultural production, the PROP does not detail what the constraints are and for which crops, nor the scope of activities of the proposed TA to address the unspecified research problem areas. General experience indicates that project parameters not well defined predict problems in achievement of project objectives. On the other hand, Yemen is said to be "different" and at this point in time it could be that practical field horticulturalists would "get it together" in terms of identification and propagation of promising horticultural crops.

ARE YOU SUGGESTING PRE PROJECT STUDIES IN ADVANCE OF PROJECT APPROVAL?

3. Import/Export Markets. PROP does not specify the nature of the imported horticultural products nor export potentials by crop. This lack of information inhibits the specification and allocation of project resources to address particular horticultural crops that might have export or import substitution possibilities. At issue is, can the project move forward without more definition in this area, particularly in likely crop possibilities and the identification of associated constraints (agronomic, marketing, transport, etc.)?

4. Other Donor Activity: Considerable other donor activity has been and is being carried out by other donors in the horticultural area. Most of it has had rather impressive results vis-a-vis demonstrating the adaptability of various fruits and vegetables to Yemen and the people's receptivity to trying out new seeds (e.g. this year Federal Republic of Germany Farm distributed 35,000 seed packets containing 7-9 varieties of vegetables for kitchen gardens.) The question is, would the proposed project significantly add to what is already being done?

5. Need for, relative priority, and feasibility of project purpose to "develop a national institution....needed to expand horticultural production."

6. Requirement of a Central Research Facility and potential overlap with donor facilities.

Other:

1. PROP lacks environmental impact statement.

2. PROP lacks a statement on the role of women in development as required.

3. USAID's commitment to the YARG to support a project in the horticultural sub-sector.

4. Construction: Estimated costs of buildings and locations are not clearly identified. Facilities at the Central Experimental Station are to include "laboratories and some staff housing." The cost breakdowns need to identify these elements.

5. Commodities: SER/ENG suggests that vehicles and tractor costs are 34 percent too high.

These are substantial issues around this probject. Many of the above issues were raised in the January review of the horticultural project. State 12046 communicated AID/W concerns vis-a-vis the project at that time. Many of these concerns remain unresolved and need to be discussed further.

Attachments:
State 12040
Adams/Antholt memo, 3/12/75

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ORIGIN AID-56

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TAGS:

SUBJECT: TROPICAL AND SUB-TROPICAL HORTICULTURE/YEMEN

1. SUMMARY: NESA ADVISORY COMMITTEE MET AND REVIEWED PROP AT LENGTH ON MAY 30. WE AGREED THAT HORTICULTURAL SUB-SECTOR IS A LEGITIMATE AREA OF OUR CONCERN AND WE SHOULD BE CRITICALLY AWARE OF TARGETS AND OPPORTUNITIES RECOGNIZING THE RELATIVE ROLE OF THE SUB-SECTOR IN THE ECONOMY. WE ALSO AGREED THAT EQUITY QUESTIONS, WHILE IMPORTANT, REQUIRE MORE UNDERSTANDING BUT NOT A QUID PRO QUO FOR PROJECT ACTIVITY IN THIS SUB-SECTOR. THE ADVISORY COMMITTEE, HOWEVER, BELIEVES THAT THE PROP DID NOT ADEQUATELY DEMONSTRATE THE LACK OF RESEARCH CAPACITY AS A CRITICAL CONSTRAINT TO HORTICULTURAL PRODUCTION AND HENCE THE NEED FOR A NEW

EXPERIMENT STATION AND STAFF IS SIMILARLY NOT DEMONSTRATED. THEREFORE, WE DO NOT RECOMMEND APPROVAL OF THE PROPOSED PROJECT AT THIS TIME.

2. UNDERLYING THE PROPOSED PROP IS THE IMPLICIT ASSUMPTION THAT IDENTIFICATION OF SUITABLE VARIETIES AND CULTURAL PRACTICES ARE THE CRITICAL AREAS TO DIRECT PROJECT RESOURCES . THIS MAY BE CORRECT BUT THE BUREAU WAS MOST TROUBLED BY THE FAILURE OF THE PROP TO CONVINCINGLY DEMONSTRATE THIS. DATA PRESENTED IN THE PROP SUGGESTS THAT THERE IS ALREADY A RATHER DYNAMIC AND RAPIDLY INCREASING

HORTICULTURAL SUB-SECTOR. WE NOTE THAT IBRD, UNDP, AND FRG PROJECTS HAVE ALREADY OR WILL BE BASING THEIR FIELD PROGRAMS, AT LEAST PARTIALLY, ON AN EXTENDABLE HORTICULTURAL TECHNOLOGY. OBSERVATIONS AND REPORTS INDICATE THAT PERHAPS WATER, TRANSPORTATION, AND MARKETING CONSTRAINTS INHIBIT EXPANSION OF HORTICULTURAL PRODUCTION MORE SEVERLY.

3. RELATED TO PARA 2 ABOVE IS THE PROP'S LACK OF SPECIFICITY VIS-A-VIS THE PROPOSED PROJECT RESOURCES AND DIRECTION OF WORK. WE NOTE THAT HORTICULTURAL CROPS COVER A BROAD SPECTRUM OF CROPS, ENVIRONMENTAL AND CULTURAL NEEDS. THE PROP DOES NOT FOCUS PROJECT ACTIVITIES TO SPECIFIC CROPS WITH: EITHER IMPORT SUBSTITUTION POSSIBILITIES IDENTIFIED EXPORT POTENTIALS, OR AT CROPS THAT HAVE BEEN IDENTIFIED AS PARTICULARLY PROMISING FOR DOMESTIC PRODUCTION. THE PROJECT SUGGESTS THAT A COUPLE OF EXPERTS ON THE GROUND WILL BY TRIAL AND ERROR FIND SOME CROPS THAT FIT DEMAND/PRODUCTION POSSIBILITIES.

4. COMPELLING POINT IN DECISION NOT TO PROCEED AS PROPOSED WAS LARGE NUMBER OF OTHER DONORS CONCERNED WITH SUBSECTOR. WE NOTE THAT OTHER DONOR ACTIVITY, PARTICULARLY AT WADI ZABID, BY THE SYRIANS, AND BY THE FRG IS PARTICULARLY IMPRESSIVE IN THE CONTEXT OF YEMEN AND WONDER ABOUT THE MARGINAL RETURNS TO STILL ANOTHER PROJECT IN THIS AREA. WE DO AGREE HOWEVER, THAT A COORDINATING PROBLEM MAY EXIST AND AN ASSISTANCE EFFORT MAY BE USEFUL TO EFFECT THIS COORDINATION.

5. FURTHER CONCERN WAS EXPRESSED REGARDING THE BUILDING OF ANOTHER "CENTRAL" STATION AT TAIZ. WE NOTE THE UNDP/FAO PROJECT IS ESTABLISHING A NATIONAL RESEARCH CENTER AT TAIZ AND THAT IBRD SOUTHERN UPLANDS RURAL DEVELOPMENT PROJECT WILL UTILIZE RESEARCH FROM THIS CENTER. UNDERSTAND THAT UNDP/FAO CENTER WHICH NOW EXISTS IN TAIZ IS UNDESIRABLE SITE. HOWEVER, SINCE PROVISIONS ALREADY MADE FOR EXPATRIATE STAFF, IT WOULD SEEM APPROPRIATE FOR UNDP/FAO TO CONSIDER RELOCATING OPERATION. IF SUCH A DECISION WERE MADE AND RESULTS OF SUBSECTOR STUDY MENTIONED BELOW FAVORABLE, AID PARTICIPATION IN RELOCATING EXISTING FACILITY MIGHT BE CONSIDERED. HOWEVER, CONSTRUCTION OF PARALLEL INSTITUTION DOESN'T MAKE SENSE. ALSO CLEAR THAT YARG NEEDS TO STRENGTHEN COORDINATION OF ACTIVITIES IN THIS AREA. ARE ANY ATTEMPTS BEING MADE ALONG THOSE LINES WHICH WOULD PRESENT US WITH OPPORTUNITIES FOR ASSISTANCE?

6. WE DISCUSSED EQUITY CONSIDERATIONS. IT WAS POINTED OUT THAT THERE IS SO LITTLE EMPIRICAL EVIDENCE ON WHICH TO MAKE DEFINITIVE JUDGEMENTS VIS-A-VIS EQUITY BUT FURTHER UNDERSTANDING NEED NOT BE QUID PRO QUO FOR PROCEEDING WITH WORK IN THIS AREA. NEVERTHELESS, THE BUREAU RECOGNIZES POTENTIAL PROBLEM AREAS AND SUGGESTS THAT THE MISSION CONTINUE TO TRY AND MONITOR THE EQUITY CONCERNS AS DETAILED IN EARLIER COMMUNICATIONS TO THE MISSION AND IN PROJECT'S ISSUES PAPER.

7. IF MISSION WISHES TO PURSUE DEVELOPMENT OF PROJECT AID/W IS SUPPORTIVE, BUT WE SUGGEST THERE IS A NEED FOR A COMPREHENSIVE LOOK AT THE SUBSECTOR PRIOR TO MAKING LONG-TERM DECISION HOW TO RELATE TO THE HORTICULTURAL AREA. WE SEE IMPORTANT ELEMENTS OF ASSESSMENT AS:

A. AN OVERVIEW TO IDENTIFY MAJOR COMPONENTS OF THE SUBSECTOR, CHIEF CONSTRAINTS (WATER, DISEASE, STORAGE, TRANSPORTATION, VARIETIES, RESEARCH, ETC.) AND THE RELATIVE IMPORTANCE OF THE CONSTRAINTS.

B. DEMAND/MARKETING SURVEY DESIGNED TO IDENTIFY THOSE HORTICULTURAL PRODUCTS WHICH COULD BE PURSUED FOR EITHER

DOMESTIC OR EXPORT MARKETS.

C. ASSESSMENT OF OTHER DONOR ACTIVITY.

D. DETERMINATION AND IDENTIFICATION OF CONSTRAINTS TO WHICH CURRENTLY ADEQUATE RESOURCES ARE NOT ADDRESSED AND AN AREA AID PROJECT RESOURCES COULD BE PROFITABLY USED IN.

WE DO NOT MEAN TO IMPLY A FULL BLOWN SECTOR STUDY BUT RATHER A COMPREHENSIVE OBJECTIVE LOOK AT THE SUBSECTOR TAKING PERHAPS 3 - 4 WEEKS IN FIELD WHICH WOULD PROVIDE BASIS FOR PROJECT IN ACTIVITY AREA. WE HAVE DISCUSSED THE POSSIBILITY OF UTILIZING FRAN LEBEAU WHOM WE CONSIDER WELL QUALIFIED TO CARRY OUT THE KIND OF ASSESSMENT SUGGESTED ABOVE. HOWEVER, LEBEAU NOT AVAILABLE UNTIL SEPTEMBER 15. WE WOULD APPRECIATE MISSION'S REACTION TO PROPOSAL. IN THE MEANTIME, WE ARE MOVING AHEAD PREPARING A SUGGESTED SCOPE OF WORK FOR ASSESSMENT AND WILL CABLE BY JUNE 20 IF MISSION DESIRES TO MOVE IN DIRECTION SUGGESTED.

8. ALSO, FYI, DISCUSSED BRIEFLY IN REVIEW ARE OTHER CONTRIBUTIONS MISSION CAN MAKE TO SUBSECTOR BUT NOT A PART OF A PROJECT PER SE. THEY ARE:

A. UTILIZATION OF MISSION DIRECTORS' SPECIAL FUND AVAILABLE AFTER JULY 1 TO PERMIT USAID TO MAKE TIMELY CONTRIBUTIONS TO WORK ALREADY UNDERWAY IN SUBSECTOR, E.G. IMPORTATION OF SEED STOCK.

B. OPG GRANT. FOR EXAMPLE, DEVELOP PROGRAM AT VILLAGE AND FAMILY LEVEL DESIGNED TO EMPHASIZE NUTRITIONAL IMPORTANCE OF HORTICULTURAL PRODUCTS. WE UNDERSTAND CRS, WITH SOME EXPERIENCE IN THIS AREA, MIGHT BE INTERESTED IN EXPANDING OUTREACH ACTIVITIES. KISSINGER