

AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET		1. TRANSACTION CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">A</div> A ADD C CHANGE D DELETE	SPP 2. DOCUMENT CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div>
3. COUNTRY/ENTITY Yemen Arab Republic		4. DOCUMENT REVISION NUMBER Document Amendment Three <div style="border: 1px solid black; display: inline-block; padding: 2px;">3</div>	
5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; display: inline-block; padding: 2px;">279-0052</div>	6. BUREAU/OFFICE A. SYMBOL NE B. CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">03</div>	7. PROJECT TITLE (Maximum 40 characters) <div style="border: 1px solid black; display: inline-block; padding: 2px;">Agricultural Development Support Poultry Extension & Training Subproject</div>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">88</div>		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">812</div> B. QUARTER <div style="border: 1px solid black; display: inline-block; padding: 2px;">2</div> C. FINAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">817</div> (Enter 1, 2, J, or 4)	

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL				38,746		38,746
(GRANT)				(38,746)		(38,746)
(LOAN)						
OTHER U.S.	1.					
	2.					
HOST COUNTRY				10,027		
OTHER DONOR(S)						
TOTALS				47,773		

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>79</u>		H. 2ND FY <u>80</u>		K. 3RD FY <u>81</u>	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) ARDN	100	000		1,200		4,032		6,855	
(2)									
(3)									
(4)									
TOTALS						1,032		6,855	

A. APPROPRIATION	N. 4TH FY <u>82*</u>		O. 5TH FY <u>83*</u>		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULE <div style="border: 1px solid black; display: inline-block; padding: 2px;">MM YY 01 83</div>
	D. GRANT	F. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) ARDN	11,579		13,848		38,746		
(2)							
(3)							
(4)							
TOTALS	11,579		13,848		38,746		

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

*Funding includes existing and proposed subprojects

1

 1 = NO
2 = YES

14. ORIGINATING OFFICE CLEARANCE SIGNATURE TITLE Charles D. Ward, Director	15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION DATE SIGNED MM DD YY 11 24 81
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POULTRY EXTENSION AND TRAINING

SUBPROJECT PAPER

SUBPROJECT OF

PROJECT 279-0052

AGRICULTURAL DEVELOPMENT USPPORT

(YEMEN TITLE XII PROGRAM)

**MICROFILMED FROM BEST
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**USAID/YEMEN
SANA'A, YEMEN ARAB REPUBLIC
NOVEMBER 1981**

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TEAM COMPOSITION

The Poultry Extension and Training Subproject of the USAID/Yemen Agricultural Development Support Program (Project 279-0052) was designed and written by a team from member universities of the Consortium for International Development (CID).

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LIST OF ABBREVIATIONS AND ACRONYMS

CID	Consortium for International Development
ICWM	Integrated Crop and Water Management
MOA	Ministry of Agriculture
PETS	Poultry Extension and Training Subproject
PP	Project Paper
PS	Poultry Specialist
PT	Poultry Technician
RPRDC	Rawdah Poultry-Rearing and Distribution Center (formerly the Rawdah Government Farm or Dutch Farm)
SPID	Subproject Identification Document
SPTC	Sana'a Poultry Training Center
STL/PS	Subproject Team Leader/Poultry Specialist
TDY	Temporary Duty
USAID	United States Agency for International Development
YALI	Yemen American Language Institute
YAR	Yemen Arab Republic
YARG	Yemen Arab Republic Government
YR	Yemeni Rial

EXECUTIVE SUMMARY

The purpose of the Poultry Extension and Training Subproject (PETS) is to establish and implement an improved extension and training program within the Livestock Division of the Ministry of Agriculture (MOA) that will enhance egg and poultry meat production for small producers in the traditional sector and for small and medium-scale producers. The five-year subproject is part of USAID Project 279-0052 (Agricultural Development Support) under the Yemen Title XII Program.

This is a five-year \$11,413,000 project which requires \$6,185,600 dollars from USAID and a YARG rial budget contribution equivalent to \$5,227,400 dollars (see page 19). Major inputs from USAID include 15.0 person years of long-term technical assistance, 1.5 person years of short-term assistance, construction of ten poultry houses for YARG use to brood and rear pullets for distribution, contribution towards construction of six village demonstration laying houses, and participant training (eight B.S., two M.S./D.VM).

The outputs from this subproject are of three types: 1) 79 trained extension agents, private farm managers, technicians, and specialists, 2) the rearing of 319,700 sixteen week-old pullets and their distribution to private producers for the establishment of flocks and 3) the enhancement of the MOA capability to service the development of the poultry industry. The project design requires the establishment of the Sana'a Poultry Training Center (SPTC) and increasing the housing capacity for birds at the Rawdah Poultry-Rearing and Distribution Center (RPRDC). Both of these MOA facilities are under its Livestock Resources Division. The SPTC will train extension agents to service private producers entering into poultry production. The RPRDC will rear pullets to sixteen weeks of age for distribution to producers. The RPRDC will also arrange for the importation and distribution of poultry feed.

The Poultry Extension and Training Subproject will utilize the three satellite "demonstration" poultry farms built under preproject activity in the outlying areas of Sadah, Sanhan, and Jahliah. Besides the three poultry farms already established additional demonstration farms may be built. The Ministry of Agriculture will employ the managers of these satellite "demonstration" farms after training them at the SPTC. The farms will serve a limited demonstration role in supporting the establishment of private producer flocks. They will also be a visible example of the YAR government's commitment to assist the farmers with projects which will have an immediate production benefit.

This subproject's primary focus is on training persons and assisting the MOA but it also can result in the production of 40 million YR worth of eggs and poultry meat each year which will promote achieving the overall goal of progressing toward self-sufficiency.

BUDGET SUMMARY
POULTRY EXTENSION AND TRAINING SUBPROJECT

USAID

		(Thousands dollars)	
Technical Assistance		\$ 1,973.2	
Commodities		250.0	
Participant Training		723.4	
Evaluations		140.0	
Local Currency Costs		1,710.0	
Contingency and Inflation		<u>1,089.0</u>	
Subtotal		\$ 5,885.6	
Pre-subproject Expenses from Core Subproject		<u>300.0</u>	
Total		\$ 6,185.6	\$ 6,185.6

YARG

		(Thousands YR)	
Operating Budgets		17,764	
SPTC	7,850		
RPRDC	9,914		
Salaries		5,232	
Dormitory at SPTC		500	
Producer Subsidies (May be up to 25 YR per pullet in selected cases)		<u> </u>	
Subtotal		23,496	
Pre-subproject Demonstration Farms		<u>315</u>	
Total		23,811 YR = U.S.	\$ <u>5,227.4*</u>
PROJECT TOTAL			\$11,413.0

*1 YR = \$.22 or U.S. \$1.00 = 4.555 YR

PART I

PROJECT DESCRIPTION AND PURPOSE

Background Statement

The poultry industry in the Yemen Arab Republic (YAR) is one of the fastest growing commodity subsectors in agriculture. Over the past ten years the demand for poultry meat and eggs has been growing at about 10% per year. Domestic production of poultry and broiler meat rose from 1325 tons in 1976 to about 5,280 tons in 1980, however 1980 imports of frozen poultry meat were 502.2 million YR (67,320 tons) or 93% of consumption. For eggs, large-scale commercial production has not occurred. Traditional and small-scale entrepreneurs produce 53% of Yemen's consumed eggs. The only commercial egg producer existing in 1978 has switched to broilers suggesting that profits in large operations are greater in broilers. Egg imports were 6.7 million YR (190 million eggs) in 1980 - an estimated 47% of domestic consumption. Virtually all hatching eggs and baby chicks are imported as are 5.8 million YR of poultry concentrate feeds. Presently, there is no use of locally produced feedstuffs by commercial poultry producers of either poultry meat or eggs.

The YARG is interested in moving towards self-sufficiency. Such a move will contribute to better nutrition for the Yemeni people, save valuable foreign exchange and decreased dependence on the outside world. The most limiting factor in developing a domestic poultry industry is the lack of trained persons in the private sector to manage commercial poultry operations and in the public sector to provide the extension personnel, technicians, and specialists to backstop traditional and transitional producers and to train additional people. The latter requires an institutional structure in the Ministry of Agriculture to deliver and teach appropriate technology packages to meat and egg producers.

USAID is assisting agricultural development efforts in the YAR. Under the Yemen Title XII Program (Project 0052), a number of subprojects are being implemented. The poultry industry has been assigned a high priority by YARG and USAID. The project designed in this paper is a continuation of past assistance by USAID to several poultry-rearing and distribution units and includes plans for other demonstration facilities. The Royal Dutch Government of the Netherlands has a poultry-rearing and distribution project as a part of their Rural Integrated Agricultural Development Project at Rada. Their distribution capacity is small - 6,000 pullets and 10,000 broiler chicks per year. The Dutch have completed assistance at the Rawdah YAR Farm near Sana'a. referred to in this report as the RPRDC.

Project Setting

Yemen has a population of 6.6 million people which is growing at an estimated two percent per year. The Yemeni have no cultural reservations in consuming poultry meat and eggs and have a natural enterprising spirit. Climate throughout most of the nation is favorable to poultry production. Local foodstuffs are currently not being used by commercial producers but there is the potential to grow more maize, millet and sorghum. Additionally, there are locally available ingredients such as sesame cake and dried fish, as well as a local source of calcium.

The Yemeni are willing to pay a price premium for local fresh eggs and live poultry rather than imported eggs and frozen poultry. Frozen poultry is, to some extent, a separate market from live poultry and, on a dressed weight basis, is only one-third as expensive as meat from live birds. Furthermore, the smaller domestic bird grown by villagers commands a price premium of nearly two times the white feathered commercially grown broiler. While colored feathered birds are preferred, there is no evidence of a preference for brown eggs.

Project Outline

Purpose and Goals

The purpose of the subproject is to establish and implement an improved extension and training program within the Livestock Resource Division of the MOA that will enhance egg and poultry meat production for private producers in the traditional sector and for small/medium-scale commercial producers. This will serve to achieve a subgoal of increasing domestic egg and poultry meat production, which should promote the overall goal of moving toward self-sufficiency. (See the Logical Framework in Annex E.)

Outputs

Outputs from the subproject are of four types: Trained people, establishment of private producers in poultry production, institutional capability enhancement within the MOA, and support to established satellite poultry farms used for demonstration purposes.

The subproject will result in four groups of trained Yemeni - poultry extension agents, poultry technicians, poultry specialists, and poultry farm managers. The first three groups, as employees of the MOA, will assist four private producer types to get established in egg and/or poultry meat production: Subsistence producers in the traditional sector, small and medium-scale egg producers, and medium-scale broiler producers. Women managed cooperatives will be established as part of the small-scale commercial egg producer group. The focus of the subsistence producer group is also on women.

Presently, the MOA is reorganizing its Animal Production Department under the Livestock Resources Division to include a Poultry and an Extension Unit. An important output of this subproject is to institutionalize the capacity within the Livestock Resources Division to continue project outputs after 1986. Finally, this subproject will provide support for the satellite demonstration egg producing farms constructed at Jahliah, Sanhan, and Sadah during the pre-subproject phase and any additional demonstration units which may be established.

Training Components

1. Poultry extension agents for MOA (38 agents to be trained)
2. Poultry farm managers for private producers (26 to be trained)
3. Poultry farm managers for satellite egg production farms -
(five managers to be trained)
4. Poultry technicians for MOA (eight to be trained)
5. Poultry specialists for MOA (two to be trained)
6. In-service training for poultry extension agents
7. Demonstrations and extension education for private producers

Physical Components

1. Rawdah Poultry-Rearing and Distribution Center (RPRDC)
2. Sana'a Poultry Training Center (SPTC)
3. Satellite poultry farms with limited demonstration capacity

Institutional Components

1. Livestock Resources Division, Ministry of Agriculture, YARG
2. Animal Production Department
 - Poultry extension agents
 - Poultry technicians
 - Poultry specialists

Private Producer Components

1. Traditional sector egg and meat producers - primarily for subsistence (10 to 25 birds)
2. Small-scale commercial egg producers (100 to 500 birds)
 - Women's cooperatives
 - Other
3. Medium-scale commercial egg producers (1000+ birds)
4. Medium-scale broiler producers (3000 to 5000 birds)

Project Historical Perspective

A USAID effort commenced in 1974 when Professor Leo E. Sankoff and Dr. L. P. Rathburn of California Polytechnic State University, San Luis Obispo, developed a Poultry Planning Project Report. Their report concluded "that the development of an improved poultry industry in Yemen is both socially and economically desirable".

This report led to the development in the same year (October 1974) of a Project Paper (PP) on Poultry Development, 279-0019. This project proposed the development of demonstration training centers at Sana'a and Taiz involving activity in both the egg and meat production sectors. It was recognized at that time that there were no truly commercial operations in the YAR comparable to anything in the U.S. (Note: As the project was implemented the focus was shifted away from broiler meat production to a concentration on egg production. The rapid development of commercial broiler operations at that time indicated that assistance was not needed to promote broiler or meat production.)

Project Outputs were identified as: 1) Research on, a) breeds, b) housing structures, c) feed rations and d) management systems; 2) Construction of poultry production centers and 3) Trained personnel for operation of the production centers and to conduct field demonstration/training programs involving 25 extension workers, up to 130 target farmer growers and ten commercial growers. (In a 1980 Evaluation Report, Andrews noted: 1) No extension workers identified by MOA; 2) approximately 67+ farmer-growers were trained and 3) no commercial growers mentioned although the construction of facilities occurred as planned at Sana'a and Taiz.)

During 1978 Dr. Paul C. Miller and Dr. John Rogalla, California Polytechnic State University undertook an Analysis and Overview of the Poultry Subsector of the Yemen Arab Republic. The purpose of the study was to define the poultry industry in Yemen and to provide insights as to what USAID, the private sector, YARG and others could do to assist the growth of the poultry industry. They concluded on the basis of benefit cost ratios that village producers should be advised to produce eggs, while the commercial sector should concentrate on broiler production. Many of their recommendations have been incorporated into this project paper and its pre-subproject activities; for example: educate extension poultrymen, establish an active poultry extension service, establish demonstration flocks at prime locations throughout Yemen, and educate poultrymen and women from both village and commercial environments.

In a January/February 1979 Report of Inspection and Review of the Poultry Project by Dean John W. West, of California Polytechnic State University, a statement was made that summarized the success of the project. "The Poultry Project is generally regarded as the truly successful agricultural project of all those in Yemen." The current project design team notes that this view continues to be voiced.

In mid 1979 Project 279-0019 with its technical assistance was completed and all responsibilities were turned over to the Yemen Government.

In 1980 Professor Sankoff returned to the YAR to review the Poultry Project which had been under MOA operation for a year. A few of his suggestions included: 1) expanding the capacity of the Sana'a Poultry Extension Unit but not the unit at Taiz; 2) continue in-country training; 3) utilize a TDY poultry specialist at six-month intervals to improve and monitor the Poultry Plant management, and 4) develop a preventative maintenance program.

In 1979 a Core Subproject (CID) was developed as part of AID's Agricultural Development and Support Program (Yemen Title XII) Project 279-0052. One of the proposed subprojects was the development of a program in Poultry Extension. A technical team completed a Special Evaluation of the Poultry Development Project 279-0019 and recommended that limited technical assistance be provided over the next two years. Responding to a shift in MOA priorities it was decided to develop a second poultry project that would focus on extension and training using the infrastructure of Project 279-0019 as a base.

The Interim Work Plan for the Core Subproject dated December 6, 1980 provided a budget of \$300,000 dollars to initiate a poultry outreach program. CID selected Oregon State University to be the lead institution to design and implement the Poultry Extension and Training Subproject and to provide technical assistance for pre-subproject activities.

In early 1981 Dr. G. H. Arscott, Head of the Department of Poultry Science, Oregon State University spent six weeks in Yemen to: 1) assess that department's role in a poultry project; 2) prepare the poultry component of the First Annual Core Subproject Work Plan; 3) write a draft PID for the Poultry Extension and Training Subproject; and 4) prepare a detailed operational work plan to supplement the February 1981 Memorandum of Agreement with the MOA and CID, undertaking a poultry layer demonstration program. A copy of the Memorandum of Agreement is included in Annex F.

The First Annual Core Subproject Work Plan provided the technical assistance for the design of this project paper and for the continuation of pre-subproject construction of four village-level poultry demonstration egg-laying houses in three villages. Four additional layer houses and four brooder houses were also constructed at the Sana'a Poultry Training Center. As of October 30, 1981 \$286,223 dollars were spent to construct twelve poultry houses as pre-subproject activity.

Relationship to Other Subprojects

This is one of six subprojects currently being planned or implemented under the Yemen Title XII Program. The Core subproject designs other subprojects and then provides logistical and administrative support for each subproject as it is implemented. The Ibb Secondary Agricultural Institute is the only other subproject being implemented now. Besides this Poultry Extension and Training Subproject the other subprojects being planned are Horticulture, Integrated Crop and Water Management (ICWM), and the Faculty of Agriculture.

The Poultry Subproject is particularly complementary to the ICWM. The ICWM will establish an increased water supply in the Beni Shaia Clan's area that, together with improved agronomic practices, will increase the yields of grain, grapes, and other speciality crops, and will permit the use of an additional 100 hectares of land. Expansion of cereal grain production beyond area subsistence needs would provide a locally produced grain to be fed to poultry flocks. The establishment of traditional sector and small-scale commercial producers in the Beni Shaia area is being given consideration in both subprojects to take advantage of the potential complementary relationship.

The Ibb Secondary Agricultural Institute will graduate its first class in 1982. Some of these graduates will be candidates for further training at the B.S. level. The Ibb Institute might also be used for training. The Ibb students now get exposure to Animal Science and the facilities include a poultry-rearing house.

If a Faculty of Agriculture is established at Sana'a University it might eventually provide specialized services to the poultry industry by training technicians and specialists. The Poultry and Extension and Training Subproject may well be in a position to identify potential poultry science staff through its search for specialists and technicians.

PART II

DETAILED PROJECT DESCRIPTION

The project is focused on the training of a three tier structure of personnel for the Livestock Resources Division of the MOA with upward assignments as poultry extension agents, poultry technicians and poultry specialists. A Sana'a Poultry Training Center (SPTC) will be developed as the site for all training. Poultry extension agents will service the development of the private poultry industry by assisting four producer groups: traditional sector household producers, small-scale commercial egg producers, medium-scale commercial egg producers, and medium-scale commercial broiler producers. Among small-scale commercial egg producers, a women's cooperative group is identified for specific attention.

A second training objective is to give instruction to persons planning to become poultry farm managers. These trainees can be mixed with poultry extension agent trainees in classes to be offered at the Sana'a Poultry Training Center. The first class of trainees will include the farm managers of the satellite poultry farms currently being established at Sanhan, Jahliah, Sadah and farm managers of any other demonstration poultry farms.

Complementary to the training objectives of the subproject is the simultaneous stimulation of egg and meat production in the private sector. This requires a physical component of a capacity to rear and distribute sixteen week-old pullets, day-old broiler chicks, and poultry feed to the target producer groups. The Rawdah Government Poultry Farm is planned as the site for rearing and distribution activities.

The institutional structure is the Ministry of Agriculture, Livestock Resources Division, Animal Production Department. Agents, technicians, and specialists are to be hired by the MOA to service the development of the poultry industry.

The Sana'a Poultry Training Center (SPTC)

This center is to be established at the MOA Poultry Farm at Sana'a (the AID-financed Project 279-0019 demonstration unit turned over to the MOA in 1979). This farm is currently rearing both red and white-feathered pullets for distribution to producers with small flocks.

This unit which was renamed SPTC and officially opened by the Minister of Agriculture on October 1, 1981, will function entirely for training purposes. Four additional layer houses and four additional brooder houses were constructed during 1981 to increase the capacity and to prepare the farm to become a training center. This was part of the pre-subproject

activities that also included construction of satellite demonstration houses for layers. Pullets will continue to be reared and mature laying hens will be kept but all activity will support the training of poultry extension agents for the MOA and poultry farm managers for private producers. Sale of chickens and eggs will occur and provide some revenue.

The SPTC will function year round as a training site for MOA poultry extension agents and for poultry farm managers to enter private industry, and for in-service training for agents, technicians, or any other group. The manager for the satellite demonstration unit at Sadah was the first trainee. A dormitory on site will be built to accommodate up to twenty persons. Both room and board will be provided and the building will include a classroom and dining/lounge area. Two training sessions of eighteen weeks duration are planned each year. Weeks two through eighteen will match a sixteen week pullet-rearing cycle. The training will be equally divided between classroom and practical "hands on" instruction with pullets, broilers, and laying hens. Each student will have assigned responsibility in caring for a particular set of chickens. The practical training will include the actual construction of a coop for 10-25 birds that simulates the housing to be used by traditional sector producers. For specific curriculum details over the eighteen week instruction period, see Annex H.

The initial selection of trainees is critical to the success of the training program in order to reduce the rate of attrition. A class of fifteen men is recommended for the first training cycle out of which it is expected that 8-9 will complete the program and be available as extension agents and satellite farm managers. Basic criteria for trainee selection include a preparatory school education, a willingness to return to their village area as extension agents, and ability to read, write, and speak Arabic. (See Criteria List in Annex H.)

The second class of trainees is to be women with the output to be five extension agents. The selection criteria suggested are similar to that for men although older women should also be considered (See Annexes G and H). It is further recommended that a woman be named by the MOA to identify women for training, to organize plans for managing the first group of women for training, to organize plans for managing the first group of women trainees and to identify any special requirements. For example, the local staffing plan calls for an older woman to be hired as a chaperone and for her to reside in the dormitory with the women trainees.

The Center will require the following Yemeni personnel: extension training director, poultry manager, dormitory manager, and employees for plant maintenance, product sales, dormitory operations, etc. The MOA will provide these personnel. The Extension Training Director will be assisted during the life of the project by expatriates. The Director will be administratively responsible to the Poultry Extension Officer in the Department of Animal Production, Division of Livestock Resources, MOA. The Director will have poultry specialists available for backstopping technical problems.

Classroom instructors will be identified from among expatriate advisors and qualified Yemeni depending on particular expertise required by the

curriculum. For example, the Veterinary Services Project now has a trained Yemeni D.V.M., a woman who can be utilized to teach the part of the curriculum devoted to poultry diseases and health care. The specific persons used in classroom instruction will vary from year to year, depending on availabilities. When non-Arabic speaking expatriates are used, translators will be required.

It is planned that assistance in the development of materials be given by CID campus personnel at Oregon State University. Taping all lectures given is recommended. Over time, a library of information can be developed to assist students in training.

For the practical part of the training, the Director of the SPTC will use his poultry manager to monitor and assist in the instruction of trainees.

Poultry Technicians and Poultry Specialists

Training at the Bachelor of Science and Graduate levels in Poultry Science must occur outside the YAR. It is planned to have one poultry technician for five extension agents. Given this ratio, there will be a need for five poultry technicians by 1986. Additionally, a full-time poultry instructor should be groomed for the SPTC as well as a Training Center Director. Presently, a trained Yemeni is the Director of RPRDC. The MOA will identify persons to be trained to the Bachelor of Science level as poultry technicians as soon as possible so their U.S. training can begin in the 1982-83 academic year. Selection criteria are outlined in Annex H.

At least two poultry specialists should complete a graduate degree during the life of the project. Highest priority needs are for a poultry extension specialist and an avian pathologist. A nutritionist may be needed if rations are to be mixed with local feedstuffs.

Experience suggests that the MOA identify at least two trainees for each training position to be filled. One screening device available is through English language instruction at the Yemen American Language Institute (YALI). It is suggested that potential technicians be identified immediately and placed in English instruction at YALI. For example, if 12-15 potential participants are identified, the top eight emerging from English instruction could be selected for further academic training in the U.S.

The Rawdah Poultry-Rearing and Distribution Center (RPRDC)

The physical facilities at the RPRDC currently include houses for broiler breeder flocks, brooding, and rearing - plus a feedmill and feed storage building, a hatchery, and housing for personnel. Land is available to build additional poultry houses. The subproject plan calls for six additional pullet-rearing houses to be built with USAID funds - two in 1982, three in 1983 and one in 1984 at a total cost of \$810,000.

This subproject calls for the rearing and distribution of sixteen week-old pullets and day-old broiler chicks. A charge of 20 YR (equal to the variable costs of production) will be made for each pullet. Traditional sector producers will be sold 25 pullets while the small-scale and medium-scale egg producers will be allowed to buy 500 and 2000 pullets respectively. Broiler chicks will be sold at cost in units of 5000 each.

At the time of delivery of pullets to producers a supply of ten kilograms of feed per pullet will be available from MOA sources. Each cooperating farmer will be required to take ten kilograms of feed per pullet. This initial supply of feed will assure that the pullets will receive proper nutrition as they begin laying eggs at about 20 weeks of age. The initial ten kilograms of feed distributed with each pullet may be partially or fully subsidized by the MOA for some of the traditional sector cooperators. Additional feed will be sold by the MOA to producers in accordance with their orders. The MOA sells feed at a slightly subsidized price since they do not pay any import duties.

After completing a laying cycle (12-14 months), growers will be encouraged to sell their spent hens. If owners have paid for their pullets and all feed used, except where part of the first ten kilograms was subsidized, then they will be eligible to receive a second batch of pullets from RPRDC under the same guidelines previously described.

It is anticipated that small and medium-scale producers can make their own arrangements for transporting pullets and feed. However, traditional sector producers will have feed supplied through the poultry extension agents and pullet deliveries by vehicles owned by the RPRDC.

Personnel at the RPRDC are already in place to manage the pullet-rearing operation with perhaps some modifications. The Yemeni Director at RPRDC has a Bachelor's Degree in Poultry Science and will not require a large amount of assistance from expatriate personnel. However, pullet-rearing is more complicated than broiler-rearing. Therefore, an expatriate poultry technician will be assigned by the MOA to co-direct the rearing and distribution activities at the RPRDC. Administratively, the Director of the RPRDC should report to the Poultry Production Officer in the Animal Production Department, Division of Livestock Resources, MOA.

For the technology package to be used for pullet-rearing at the RPRDC, see Annex A.

Satellite Poultry Farms

The project includes a number of satellite demonstration layer houses each with a 650 bird capacity. Four layer houses have been constructed at Sanhan, Jahliah, and Sadah. The villages of Irian and Maswarat Nihm have been identified as possible additional sites. These units will operate as small-scale commercial egg producing farms. Managers for these farms will be employed by the Ministry of Agriculture and will be trained at the SPTC. For the first year, these farms will be supplied by the MOA with sixteen week-old pullets reared at the RPRDC.

These farms will serve the project as demonstration units to a limited degree. They will be open for visitation by the general public and the manager is expected to provide answers to inquiries. Extension agents will arrange tours for interested persons to observe the satellite poultry farms. The managers will also be expected to give part-time on-the-job training to at least one person per year. These trainees will have priority to enter a regular class at the SPTC if they meet regular entrance requirements.

Since these farms will be models for small-scale commercial egg production, the managers will be subject to inspection visits by a poultry technician who will monitor all aspects of the management of the satellite farm.

Manpower Plan and Project Organization

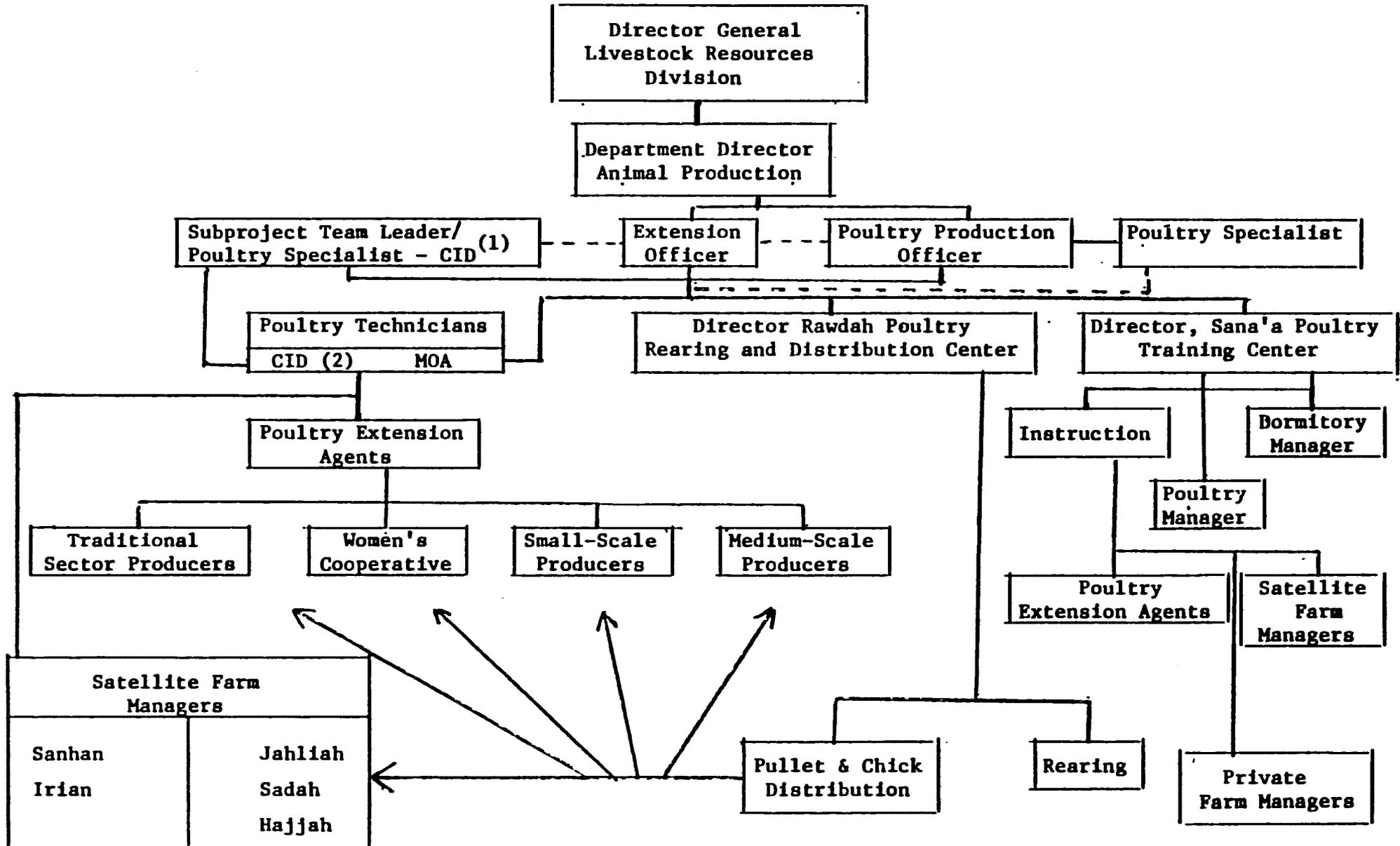
The proposed organizational chart for the project is given on the following page. Under the revised organization structure of the Division of Livestock Resources in the MOA, four departments are planned: Animal Production, Animal Health, Wild Animals, and Pasture and Range Management. Within the Department of Animal Production there are positions for a poultry production officer and an extension officer. The people filling these positions will be counterparts to the Poultry Extension and Training Subproject Team Leader. The Subproject Team Leader, who will also be a poultry specialist will maintain a working relationship with the Director of the Livestock Resources Division.

The MOA poultry and extension officer positions are not filled at this time. The Ministry of Agriculture has asked if the Poultry Subproject team leader could also function as the MOA poultry officer and/or extension officer until trained Yemeni are available to fill those positions. The Subproject team leader together with his counterpart(s) will administer the RPRDC and the SPTC. (See official job description in Annex M.)

Sana'a Poultry Training Center

The SPTC will be the principal location of subproject activity. One expatriate poultry technician (PT) will be located there along with his counterpart who will be the Director of the SPTC. The poultry technician and his counterpart will function as co-managers for the SPTC and be responsible for the training of extension agents/farm managers in-service training activities, management of poultry flocks, sales of eggs or chickens, coordinating pullet-rearing and distribution with the RPRDC, management of feed mixing and storage area, management of the dormitory, and maintenance of physical facilities. For the life of the subproject the expatriate poultry technician and his counterpart will also supervise and monitor extension agents in the field. In 1985, upon return of trained Yemeni poultry technicians, the responsibility for supervision and monitoring of extension agents can be shifted from the Director of SPTC to the Extension Officer in the MOA's Department of Animal Production.

Organizational Chart for the Poultry Subproject



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- (1) May also serve as the MOA extension officer and/or poultry production officer until counterparts are available to fill those positions.
- (2) Will also be counterpart to the Director of the RPRDC and the SPTC.

One manager and four employees are currently in place at the SPTC. It is suggested that the present SPTC manager become a poultry flock manager with responsibility for care of flocks and responsibility to assist in the practical hands-on training. Additionally, there is presently a driver, a bookkeeper, and a trainer employed at the SPTC. The present personnel in these positions can handle the change in activities planned for the SPTC. In addition the following new personnel will be needed: 1) a dormitory manager, 2) a dormitory cook, 3) a part-time chaperone while women trainees are in residence, 4) a translator to assist in classroom instruction and, 5) an additional driver. The instructional staff at the SPTC will include the subproject Team Leader/Poultry Specialist and the two Poultry Technicians along with assistance from the British Veterinary Services Project (see Annex H). As Yemeni complete advanced training, the instructional load will be transferred to them.

The YARG input for 1982 as reflected in the proposed budget allocation to the SPTC is 1.57 million YR.

Rawdah Poultry-Rearing and Distribution Center

It is planned that an expatriate poultry technician with a counterpart be assigned as co-managers of the RPRDC. Their responsibilities include ordering baby chicks and feeds to be imported, rearing pullets and broilers, distributing pullets, feed, and chicks to producers, management of broiler breeder flocks, hatchery, and feed facilities. The RPRDC will supply feed and medicines to the SPTC as well. There is a residence at the RPRDC for the expatriate poultry technician and office space. The present staff at the RPRDC is adequate to do the planned activities except for the labor required to construct the six pullet-rearing houses. One additional driver will be needed. The additional 3-5 persons needed will be supplied by the MOA.

The YARG input for 1982 as reflected in the proposed budget allocation to the RPRDC is .865 million YR.

Use of TDY Personnel

Eighteen months of short-term technicians will be needed in the five-year project (six months in the first year, four months in the second year, three months in years three and four, and two months in year five). As designed, the subproject could use a third poultry technician full-time. However, given the costs associated with full-time persons and the difficulty in identifying persons for long-term assignments, it was decided to make more use of TDY personnel to cover this need. The SPID called for a full-time expatriate poultry disease specialist. With the availability of a Yemeni D.V.M and the diagnostic facilities at the Veterinary Services Unit, it was decided that a poultry disease specialist was not required. However, the availability of services from that unit may vary from time to time requiring a TDY person for either poultry diagnostic problems and/or to instruct the poultry health portion of the training given at SPTC.

Other probable TDY needs are for an extension methods specialist, a farm management specialist, a building design and construction specialist, a feed technologist, a rural sociologist, a cooperatives advisor, and a poultry marketing specialist.

The staffing plan calls for a full-time Project Director on campus at Oregon State University for the first two years. For Years 3-5, the need is decreased to 0.75, 0.50, and 0.25 respectively. The job description for the Project Director is detailed in Annex M. There will be one full-time secretary, but no administrative assistant on campus.

Summary

Besides the existing MOA personnel already in place with budget support, the subproject will require the following additional personnel:

In Yemen

One Subproject Team Leader/Poultry Specialist (STL/PS) - CID - 5 yrs.

One counterpart for STL/PS - MOA - 5 yrs.

One Poultry Technician (PT) to work at SPTC - CID - 5 yrs.

One counterpart for PT (SPTC) - MOA - 5 yrs.

One Poultry Technician to work at RPRDC - CID - 5 yrs.

One translator - CID - at SPTC

One Women's Advisor - MOA - for six months to assist in identifying and planning women's training program at SPTC

One dormitory manager - MOA - at SPTC

One cook for dormitory - MOA - at SPTC

One part-time chaperone - MOA - at SPTC for women's classes

Two drivers - CID - one at SPTC, one at RPRDC

Three-five additional employees at RPRDC to work in new rearing houses - MOA

On Campus - Oregon State University

Project Director - Average of 0.7 full-time equivalent

Secretary - Full-time

Magnitude of OutputsExtension Agents and Farm Managers

Twenty-three persons will be able to enter the program each year because there will be one class of fifteen male trainees and one class of eight female trainees. Each class will be for an eighteen week duration. One class is planned for 1982 and two classes each year for 1983-86. Male and female trainees will not attend sessions together. It is planned that three classes for female trainees will be programmed, one each in 1986, 1984, and 1985. In the five-year period this will allow six sessions for males. The MOA will need about 23 male extension agents and fifteen female extension agents to service the proposed program. The demand on the training sessions from private industry will begin slowly but should grow. The first class for males in 1982 will include those being trained to manage the satellite farms. Assuming an attrition rate of 40%, nine males or five females will emerge from each session. Given the above assumptions, following is the projected number of persons who will complete the training:

	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total</u>
Male Extension Agents	4	4	3	4	8	23
Female Extension Agents	-	5	5	5	-	15
Satellite Farm Managers	5	-	-	-	-	5
Private Farm Managers	<u>-</u>	<u>5</u>	<u>6</u>	<u>5</u>	<u>10</u>	<u>26</u>
Total	9	14	14	14	18	69

Fifteen female trainees can be accommodated per class although only eight are expected. Therefore, if private industry producers choose to send females for training they can be accommodated. The above numbers can be increased if conditions change since the SPTC can accommodate thirty trainees each year. If facilities are fully utilized and there are no dropouts, the SPTC could train 135 persons in the five-year period.

Persons that are to be trained for work as poultry extension agents will be hired by the MOA at the beginning of their training period. Private industry trainees will presumably be in the employ of private enterprises. All trainees, whether MOA employees or private industry, however, will be provided with room and board during the eighteen week class at the SPTC. While the MOA will be responsible for the room and board costs of the training classes held at the SPTC they may expect reimbursement from private sector trainees. The room and board and training costs are included in the MOA's Operating Budget for the SPTC as shown on page 19.

Poultry Technicians

Poultry technicians are expected to complete a Bachelor of Science degree. Persons beginning training in 1982 will not complete a B.S. degree until

1985 or 1986 and will not serve the MOA and the industry until near the expiration date of this project. The project will support eight persons for this training which allows an attrition rate of 50%. These trainees will be identified and hired by the MOA (if not already MOA employees) within the first month after signing the Project Agreement. They will be scheduled for training beginning in early summer 1982 having already met English language requirements.

Poultry Specialists

The highest training priorities are a poultry extension specialist and a veterinarian specializing in avian pathology. Given the graduate degree requirements, the project proposes support for two trainees during the life of the project. It is hoped that a person already possessing a B.S. degree can be identified to enter veterinary school in September 1982 for completion of a D.V.M degree in 1985. There is a higher probability that a B.S. degree holder can be identified for M.S. training in poultry science with a starting date in 1983 and return in 1985.

Persons identified for specialist training should begin English instruction at YALI as soon as possible. More than two persons should be identified and their performance in English at YALI will be used to screen out the less successful candidates.

The SPID called for eight persons to pursue training at the graduate level. The project as designed in this paper can be supported by only two specialists.

Establishment of Poultry Flocks

Given a planned ratio of one extension agent for twenty traditional sector producers and a ratio of one extension agent for eight small and medium-scale producers, the following number of flocks are projected to be established. Flock establishment, however, is more constrained by pullet availability than by extension agents.

Number of New Flocks Served Each Year

<u>Producer Type</u>	<u>Flock size</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Total of Flocks Established</u>
Traditional Sector	25	-	90	90	90	-	270
Women's Cooperative	500	-	1	1	1	1	4
Small-scale - egg	500	24	20	18	16	-	78
Medium-scale - egg	2,000	6	9	15	4	-	34
Medium-scale/broiler	5,000	-	-	-	32	64	96
Total		30	120	124	143	65	482

The number of flocks established for egg production is constrained by the availability of pullets (see next section). Assuming that the MOA is the only source of sixteen week-old pullets, all the pullets reared after March 1985 will be needed as replacements for flocks previously established. The twelve male extension agents trained after March 1985 (four each in the classes of October 1985, March 1986, and October 1986) will not be able to establish new egg production flocks because of the lack of pullets. They will be shifted instead to assist with the establishment of medium-scale broiler producer flocks. There will also be an attrition rate of extension agents after they enter duty in the field. Thus, some of the agents completing training in the 1985 and 1986 classes will be needed to replace those leaving MOA service.

It is initially planned that extension agents will give bi-weekly visits to the producers assigned to them. After one year (a complete cycle), producers should need only one visit per month and after a second year, only a visit every other month. Thus, as time passes, one extension agent will be able to service a larger number of old producers and/or take on new producers. There is no way to estimate, at this time, how many farmers will continue producing after the first cycle. At the end of five years, there is the potential for introducing a greater number of flocks than the 482 listed in the total column in the previous table. Hopefully, the program will generate a sufficient demand for sixteen week-old pullets to cause private entrepreneurs to grow pullets for sale. In such a case, all the pullets from the MOA would not necessarily be needed for replacements in 1985 and more new layer flocks could be established with MOA assistance.

Pullets

Pullets are basically an input for the purpose of achieving the output of establishing flocks for private producers. However, pullet-rearing is an integral part of the total system and has been identified as the key constraint to the magnitude of output that can be achieved.

The annual availability of pullets would be 27,900 in the first year and 87,000 pullets by year four from the following sources:

SOURCES OF PULLETS

Date Available	SPTC	RPRDC Existing houses	RPRDC New houses	Total
12/82	5,000	12,500	10,400	27,900
4/83	5,000	-	10,400	15,400
10/83	5,000	12,500	10,400	27,900
3/84	5,000	-	26,000	31,000
10/84	5,000	12,500	26,000	43,500
3/85	5,000	12,500	26,000	43,500
10/85	5,000	12,500	26,000	43,500
3/86	5,000	12,500	26,000	43,500
10/86	5,000	12,500	26,000	43,500
Total	45,000	87,500	187,200	319,700

Pullets will be reared at the SPTC for training purposes. When each training class is completed there should be about 5,000 pullets available for sale. The existing RPRDC capacity (six houses) can provide 12,500 pullets per rearing cycle. Since these houses are currently producing broilers, it is planned to use these houses for only one cycle of pullets per year until 1984.

Two new rearing houses are to be constructed at the RPRDC in 1982, three more in 1983, and a final one in 1984. Each of these houses, at 70 x 15 meters, will be larger than the present ones at the RPRDC and will have a capacity for rearing 5,200 pullets per cycle. Two cycles are planned for each year to coincide with the SPTC training sessions. Thus the projected output is 26,000 pullets per year beginning in 1984.

Through March 1985 (end of training session No. 6), the number of pullets reared, the number of flocks established, and the number of extension agents are synchronized except for March 1983 where 11,400 excess pullets are available and not utilized in the program. Beginning in October 1985, MOA pullet-rearing capacity will not service replacement needs assuming all producers with flocks established stay in production. The MOA will encourage commercial poultry producers to raise pullets for their own use and for sale in order to meet the expected demand.

MOA Capability Enhancement

Throughout the five years and at the conclusion of the project, two things must occur if MOA is to continue service to the development of the poultry industry. First, YARG must continue to allocate funds to support the MOA personnel, the physical facilities at the SPTC, and the physical facilities at the RPRDC. Second, MOA must establish and gradually take complete responsibility for the organizational structure and the internal management of the project. An important output of the project is to develop such a capacity. The use of Yemeni counterparts with CID technical advisors should allow this output to be achieved.

Magnitude of Inputs

USAID

The total budget for five years of the subproject is \$6,185.6 million dollars. Technical assistance which includes 15.0 person years of long-term and 1.5 person years of short-term assistance comprises 32% of the budget. Local currency costs are 32% of the total budget. This includes \$810,000 for the construction of six new pullet-rearing houses at the RPRDC and \$300,000 which was spent during the pre-subproject phase for construction of four brooder houses at the SPTC and four village demonstration layer houses. Participant training will be 12% of the total budget. The other costs are contingency and inflation 17%, commodities 5%, and evaluations 2%. (For budget details see Annex I.)

YARG

The YARG contributions to the subproject consist of: operating budget for the SPTC; cost of rearing pullets at the RPRDC including initial cost of day-old chicks, starter feed for pullets, and funds for ordering layer feed (some of which will be sold to producers); salaries for extension agents, technicians, and specialists; construction of SPTC dormitory; salaries for new personnel required at RPRDC and SPTC.

Input Type	Year					Total
	1	2	3	4	5	
	(thousands of YR)					
Operating Budget - SPTC	1570	1570	1570	1570	1570	7850
Pullet Rearing Budget - RPRDC	865	1345	2310	2697	2697	9914
Salaries for additional workers - RPRDC	96	96	96	96	96	480
Salaries for additional workers - SPTC	15	18	18	18	15	84
Salaries for extension agents	60	372	756	1080	1368	3636
Salaries for technicians/specialists	168	216	216	216	216	1032
Dormitory building at SPTC	500	-	-	-	-	500
Budget for producer feed subsidies	(may be up to 25 YR per pullet in selected cases)					
TOTAL	3274	3617	4966	5677	5962	23,496
Pre-subproject egg laying demonstration farms (four farm managers, pullets, feed, per diem, building repair)						<u>315</u>
GRAND TOTAL						23,811

The five-year contribution by the YARG is 23,811,000 YR or \$5,227,400 dollars*.

The YARG budget will also require a capital fund in order to purchase feed, chicks, and possibly equipment for distribution and/or resale to farmers.

* 1 YR = \$.22 or U.S. \$.00 = 4.555 YR

PART III

FEASIBILITY ANALYSES

Technical Feasibility

The physical environment in Yemen is generally quite favorable for the raising of poultry. The higher plateaus pose no limitations except for the hatching of chicks. Hatchery efficiency declines markedly above 1000 meters (3500 feet) although a new but expensive technology injecting oxygen into the incubator (not being used in this project) may overcome the problem. Rearing of pullets, broilers and mature hens for egg production has no constraints.

Another favorable factor for egg production in the YAR is the number of hours of light available per day. Egg production declines if hens do not have twelve hours of light per day. In the YAR the shortest day of the year provides 11.14 hours - considerably more than at most other latitudes. There is less need for artificial lighting in poultry houses for maximum egg-laying efficiency to be maintained. This may be a particularly favorable factor in introducing laying hens to village households in the traditional sector.

For details on technology packages for various project models, see Annex C.

Economic Feasibility

Poultry Production

The YAR is heavily dependent on imports for their poultry industry. Current consumption levels of eleven kilograms per capita of poultry meat and 61 eggs requires imports of 502 million YR of meat and 16 million YR of eggs. This represents some 93% of poultry meat usage and 47% of egg usage. Furthermore, domestic production of broilers in 1980 required the import of 12.0 million YR of baby chicks and 5 million YR of poultry feed.

Since 1977, domestic broiler production has increased almost 60% annually primarily the result of a few very large producers beginning operations. Also, a number of growers producing 60-70,000 broilers per year have begun production. Broiler production has been more profitable than egg production with the result that no large-scale commercial egg producers have emerged to contribute to domestic production.

The stimulation of small and medium-scale egg production by private enterprise can be enhanced by several methods. Generally, any action that results in higher egg prices or lower cost of production will stimulate egg production.

Egg prices could be increased by placing import duties on eggs or by eliminating the regulation of marketing margins at the wholesale and retail levels, or by a general devaluation of the Yemeni rial. Without regulation, the oligopolistic importing firms that act as wholesalers would likely raise their prices. It appears that importing of poultry meat and eggs is oligopolistic due to large capital requirements rather than overt government policy to restrict entry. The domestic cost of producing eggs could be expected to decrease over time as management expertise levels increase with more trained persons managing operations using the modern technologies that can be imported.

The YARG can also stimulate producers to enter the industry by providing subsidies to inputs - pullets, feed, housing, or equipment or by reducing import taxes on poultry feed, etc. As a short-term policy, subsidies can be helpful but since they automatically result in price distortions among input factors, they can seriously impair industry development in the long run. Furthermore, producers may come to expect subsidies and complain bitterly once they are removed.

YARG has chosen to subsidize traditional sector and small-scale commercial producers in order to encourage their participation in the subproject. The variable cost of rearing a pullet at the RPRDC is estimated to be 20 YR. It is recommended that pullets be sold at this price to producers. This is the price used in the cost-return budgets presented in Table 2 of Annex C. However, if fixed costs at the RPRDC are included, the cost of rearing a pullet is about 31 YR (see Table 1, Annex C).

Another subsidy recommended for use for the short run is to provide some or all of the initial ten kilograms of feed free with each pullet. This will assure that the bird receives proper nutrition as the laying period begins. If the full subsidy is provided it will cost the YARG about 25 YR per pullet. After two production cycles, it is recommended that any subsidy be withdrawn.

A key question regarding the profitability of egg production is how much more Yemeni will pay for a fresh egg compared to an imported egg. According to data supplied by the Agricultural Research Service in Taiz compiled by J. Allchin, World Bank, 1981, consumers will pay 25% more for a fresh egg. In the cost-return budgets for the producer models, the egg price assumed was 0.67 YR per egg. If 0.75 YR were assumed (a 25% premium over imported egg prices), the traditional sector producer's egg value would increase by 406 YR or about 16 YR per bird per year. This would make the return for layers comparable to broilers. For the small and medium-scale producers, a 0.75 YR per egg price would increase return per bird per year to about 50 YR - again similar to broilers.

An import duty could be imposed on fresh eggs which would protect and encourage the infant egg production business and provide revenues to the YAR government. An import duty may be justified if its purpose is to reduce the expenditure of foreign exchange by increasing local production. However, it is not recommended that an import duty be established if its purpose is to protect the local egg production and providing incentives for an infant commercial poultry industry.

There would be many disadvantages to an import duty on eggs at this time. The local production is not sufficient to meet the total demand, therefore a scarcity would develop with an accompanying rise in the cost of eggs. The goal of this project is to increase the production of eggs, not raise the price. The existing production constraints - no source of pullets and lack of technical knowledge and institutional support - would have to be removed before an import duty could be effective. Implementation of a program of import duty on eggs could be difficult and expensive to enforce especially when eggs can easily move over the vast undefined border with Saudi Arabia.

The imposition of an import duty on eggs at this time would immediately favor the large-scale commercial producers. This would decrease the traditional producers share of the market and at the same time increase the importation of feed. This subproject will provide technical assistance particularly for the benefit of the traditional village egg producers who presently produce 53% of the eggs consumed in the country. Income generation, equity of income distribution, and nutrition benefits can be improved if the traditional egg producers are able to increase their share of the total market. The use of foreign exchange for importation of feed will be less if the project favors the producers who will make maximum use of local feedstuffs as compared to the large-scale commercial producers who will import most of the feed they use.

An import duty on eggs might cause some of the existing commercial broiler producers to shift to egg production which they could easily do since they already have a large investment in buildings and equipment. The result would be detrimental to both the traditional egg producers and the local broiler industry.

Broiler production is a strong local industry that has developed without special subsidies or the protection of substantial import duties. It may be possible for the development of egg production to follow the same course. Yemeni farmers, and Yemeni in general, are noted for their entrepreneurship and private business acumen. Import duties on eggs would increase the likelihood that egg production would develop in an inefficient manner.

The commercial egg production industry has not developed largely because of a lack of available technical knowledge and institutional support. Under these circumstances import duties would not necessarily increase local egg production. This subproject will provide a source of pullets, technical assistance and trained personnel which should alleviate the production constraints. If the removal of these constraints does not begin to cause an increase in local egg production then consideration may be given to recommending import duties. The annual project evaluation and annual update of the agriculture sector analysis will address this issue.

There are two other approaches that might be considered. A devaluation of the Yemeni rial would immediately increase the cost of imported eggs, meat and feed which in turn would stimulate local production - both commercial and traditional broilers and eggs. Another method of stimulating local

production would be to promote the differentiation of local fresh eggs from the imported eggs. Surveys indicate that Yemeni are willing to pay more for many locally produced products - including live chickens and eggs.

Egg production is generally less profitable than broiler production. However, with the subsidies suggested for the short run along with the assumption that fresh eggs will command a price premium of 25% over imported eggs, the return per bird per year for the producer models outlined is comparable to broilers. Since the subsidies suggested will be provided for two production cycles only to some farmers, the critical question is if farmers will find egg production without subsidies profitable enough to cause them to continue to raise layers.

Project Economic Feasibility

To complete a benefit/cost analysis on the project design in this paper is difficult since the major outputs are trained people. What contribution they can make to the industry is indirect and the final impact of their work is not predictable. As indicated above, much will also depend on the microeconomics of egg production and YARG pricing and importing for the industry.

Assuming that the number of trained people result as planned and the target number of new producer flocks is achieved, the total number of eggs from domestic production could potentially increase by some 34 million eggs annually. The demonstration effect of the program can very well induce more producers to enter egg production and also stimulate private industry development in pullet-rearing. The latter would be significant to an expansion of producer flocks.

Assuming that the magnitude of outputs as related to persons trained is achieved, those persons productive lives for contribution to the industry would total some 2,200 person years.

To estimate a benefit/cost ratio the present value of the income streams of trained individuals must be estimated. Assuming that the majority of these trained individuals will serve the livestock industry of the YAR in some capacity, it could be concluded that the project is feasible in economic terms. Much of the effect of the project will be from the impact of increased incomes to small-scale producers and the multiplier effect from increasing investment in rural areas. Given the relatively capital intensive modes of production for poultry, the impact on employment is not large but the income effects to the producer families are significant as resources become available for expenditures on education and consumer goods.

The project's benefit/cost ratio after ten years will be 1.19. This assumes that there will be a 10% annual growth of poultry and egg production generated by this subproject beginning the sixth year. If the economic factors are favorable for egg production and they remain

favorable for broiler production, then it is expected that there should be a sharp increase in poultry production (above 10% annually) due to this subproject which will probably begin before the sixth year. As a comparison the broiler industry has grown 60% annually since 1976.

The investment of \$11,413,000 made in this project by USAID and YARG will be recovered within two years after project funding ceases. The investment costs will be returned in six years and nine months after the project begins if there is no growth in production beginning in year six. If production does increase 10% annually then the investment costs will be returned six years and seven months after the project begins. The net present worth of the project after ten years will be \$10,736,968 with no growth or \$16,451,780 with the 10% growth assumption. Details of the economic analysis and the cost and benefit factors used appear in Annex C.

During the first five years this project will reduce the requirement for imported poultry eggs and meat by more than 26 million dollars and by 82 million dollars during the first ten years. With a modest 10% growth as a result of the project the decreased poultry meat and egg imports would be 99 million dollars. The foreign exchange savings for the country will be about 55% of the amount of reduced poultry imports because of the continued need to import day-old layer chicks and poultry feed. The potential exists for increased local feed production but the imported feed is cheaper at the moment.

The current demand for eggs is expected to increase at 10.3% per year, thus in ten years (1991) the annual demand will be 1,183.5 million eggs with a value (in constant dollars) of 174 million dollars. Current domestic egg production is 213 million eggs. Thus, if this project is not undertaken and if local egg production does not increase, then the production gap in 1991 will be 970.5 million eggs with a value of \$142.75 million dollars. Since the only local egg production at this time is from the traditional village flocks then it becomes necessary for the YARG to provide some of the upfront costs to enable this traditional agriculture sector to modernize.

The purpose of this poultry project is to institutionalize an equity oriented expansion of the poultry industry in Yemen. The economic analysis would show a 1.35 benefit/cost ratio instead of 1.19 and a net present worth of \$18,747,790 after the first five years if the project were limited to broilers only. Such an approach would exclude most women and other traditional sector producers because they would not have the necessary capital or managerial skills to make the transition from a few native fowl to a 2,000 bird broiler operation. This would also mean that the government program would be providing competition for the already well developed private sector broiler industry.

The broiler industry in Yemen is oligopolistic with a few large farms dominating the market. The opportunity exists to assist the development of egg production so that it does not move towards an oligopoly. The mechanism for accomplishing this is to provide the YAR

government with the institutional capability to service the total poultry industry, all levels of production, without regard to size of entrepreneurs. Economic efficiency does not have to be sacrificed in order to prevent an oligopoly in egg production.

The egg production will increase as a result of this project and that increase will be equity-oriented. The project pays for itself in less than seven years in aspects that can be quantified. In addition there are benefits which have not been quantified, i.e., trained Yemeni farmers, extension agents and technicians; increased MOA contact with traditional sector producers; enhancement of MOA's ability to manage and administer a development program; and institutionalization of that process within Yemen.

This subproject provides the least expensive approach to institutionalize an equity-oriented development of Yemen's poultry industry particularly egg production. There are other approaches to the development of Yemen's poultry industry, which might be cheaper or quicker in the short run. The other methods might not be successful and they would not develop the governmental institutional ability to support the industry. U.S. poultry specialists could provide long-term technical assistance but this approach would not develop the Yemeni institutions and would certainly be more expensive in the long run. The government could hire third country professionals to fill the poultry related positions in the MOA. While this may be less expensive there is no training involved and therefore little possibility of Yemeni being able to take over after a few years.

The least expensive method of expanding the local egg production would be to do nothing. As egg production became more profitable, or as the live bird/broiler market became saturated from local production the commercial broiler producers would likely shift to egg production. The disadvantage of this approach is that there would be little hope for improving the position of the women and traditional producers. They would be forced to rely on the commercial egg producers as a source of inputs and technical assistance. (Some are doing this now.) It is doubtful, however, that the commercial producers would provide technical assistance and sell chicks, feed, and equipment to the traditional sector at prices they can afford.

Social Feasibility

The complete Social Soundness and Feasibility Analysis provided as an attachment is summarized here. The Yemen people have no aversion to raising chickens or eating poultry meat or eggs. In fact, poultry meat consumption has risen steadily relative to red meats. Both men and women Yemeni have an enterprising spirit and will respond to economic incentives that arise. Lifestyles are being modernized at a rapid rate and consumer goods of all types are available and in greater demand as incomes rise.

Regarding poultry production, women are the caretakers of chickens as well as livestock in the traditional sector. With the large numbers of men working outside the country, women have been accustomed to accepting more managerial tasks in food production. The project plans to encourage production in the traditional sector using some trained women extension agents appears socially sound. For small-scale commercial production, the same case can be made.

There is no apparent social reason why women cannot enter commercial production as men do. The Agricultural Credit Bank will loan money to women as well as men. Also there is no reason why women cannot enter markets to sell their eggs. Since the extension education plans do not require women to leave their village or place of residence for information, it should also be socially acceptable.

Another favorable factor from the viewpoint of social considerations is the wide acceptance of new communications technologies among the Yemeni. The demand for radios, stereos, televisions, tape players, etc., and accompanying equipment is growing rapidly. The project anticipates the distribution of cassette players and tapes to village women with information on the care of poultry. Poultry raising information will be prepared for presentation on television. This type of communications technology can also enhance the effectiveness of training programs at the SPTC.

Yemeni men like to travel and have increasing means to do so. They should be willing to visit demonstration farm sites for information and participate in short workshops. Qualitative evidence suggests that there are monetary resources available for small-scale enterprise investment in villages. In summary, there seems to be a number of social reasons why the project can be successful.

Institutional Feasibility

The Ministry of Agriculture is reorganizing their Livestock Resources Division into four departments: Animal Production, Animal Health, Range and Pasture Management, and Wild Animals. The Department of Animal Production will have subdepartments of Poultry and Extension. The project designed in this paper will require at least one person (preferably two) to serve as counterparts with the CID Subproject Team Leader/Poultry Specialist (Figure 1, page 12). The two CID poultry technicians will have the managers of the SPTC and RPRDC as counterparts. Yemeni poultry

technicians are to be trained by the project to the Bachelor of Science level in the U.S. and return to the Poultry and Extension subdepartments for regular MOA service. The poultry extension agents trained by the project at the SPTC are to be part of the subdepartment of Extension and will be supervised and monitored by the technicians. (One of the monitoring elements is described in Annex H.)

A major constraint on the institutional feasibility of the proposed project is the low salaries paid by the MOA. Trained agents, technicians and specialists will tend to leave the employ of the MOA as opportunities present themselves in private industry. The institutional structure is reasonably in place to incorporate the output of trained persons from this subproject. The alternative is to organize extension agents outside the Livestock Resources Division like the Southern Uplands Regional Development Program and the Tihama Development Authority. While short-term benefits may be realized and the retention problem is less severe because of the higher salaries paid, the longer run benefit may not be served. Divisions in the MOA such as Livestock Resources have not gained experience in managing a program to serve their clientele in the poultry industry, for example, and thus have little credibility with producers or extension agents. An important output of this project plan is to enhance the institutional capability of the Livestock Resources Division in the MOA.

Women in Development

The Yemeni women are actively engaged in traditional agriculture and have assumed particular responsibility in caring for livestock including chickens. Their role in food production in the Yemeni economy is further increased because of the higher percentage of males that leave the country for employment. (See details given in Annex D.)

This project directly assists women to make increasing contributions to the development of the poultry industry. The traditional sector target producer group is women. Women extension agents will be trained to work with women in the villages. A subset of the small-scale commercial producer target group is the development of women's cooperatives (see Annex G).

PART IV

EVALUATION PLAN

An evaluation plan is an integral part of any project. Basically, evaluations serve to test previous plans in the light of actual experience and to redesign or give new direction to the future. The overall Project 279-0052 will have internal evaluations in FY 1982, FY 1984 and FY 1986 and external evaluations in FY 1983, 1985, and 1987. These evaluations will include this subproject.

This subproject will be evaluated at the same time as the overall 279-0052 project and the other individual subprojects are being evaluated. The Poultry Extension and Training Subproject budget includes \$140,000 for two internal and two external evaluations. The evaluation criteria are suggested directly in the output of the logframe (Annex E). The achievement of these outputs is heavily dependent upon the USAID and YARG making inputs on schedule. Of particular significance to the success of the subproject will be YARG's ability to identify persons for training.

The first evaluation (FY 1983) should confirm the suitability of the original design and address whether the logframe is still sound under conditions in the YAR in 1983. The evaluation will determine whether inputs became available on the original proposed schedule and whether progress towards final output indicators is being achieved on a timely basis. By the time of this first evaluation, the SPTC will have graduated one class of male trainees and one class of female trainees. The training curriculum will be evaluated to know whether to modify it with regard to subject matter, content and timing of events. By late 1983, two new rearing houses should be functioning in the field. The number of producer flocks established is also a criteria for the first evaluation.

Project records at the SPTC and RPRDC can provide most of the input for the evaluation. A field survey of agents and producers to verify the accuracy of records will be done. If agents are functioning and producers have birds laying eggs and producing meat, the subproject can be considered as progressing satisfactorily.

Progress in meeting manpower requirements will be evaluated internally each year, beginning January 1, 1982.

The external evaluations planned in FY 1983 and FY 1985 will be a thorough review led by outside consultant(s). The external evaluations should include a team of at least three persons for four weeks - one week

in the United States and three weeks in Yemen. The focus of the external evaluations should be on determining output effectiveness and whether the basic purpose has been achieved. A survey will be conducted to determine the number of farmers assisted by this project who are still continuing to produce eggs. The outputs of agents and private farm managers trained at the SPTC and flocks established can be measured quantitatively but the output of MOA capability enhancement will be a qualitative evaluation.

The methodology for the evaluation will be a search of records at the RPRDC and SPTC, interviews with the project manager, spot check interviews with extension agents and technicians, and interviews with all types of egg and broiler production units.

ANNEX A

TECHNICAL MATERIALS

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

Physical Environment

The central portion of the Yemen Arab Republic stretching from Saadah in the north to Taiz in the south and including the area around Sana'a, Dhamar and Ibb is well suited for poultry production. While the elevation is fairly high in a large part of this region, this factor has not been detrimental to poultry performance, except for incubation. To obtain satisfactory hatches of 85 to 90% hatch of fertile eggs, hatcheries should be located at a much lower elevation, 700 meters or less.

The temperature in the central portion of the YAR is very satisfactory for poultry production ranging from about 30° C to around 0° C. Freezing temperatures are not experienced commonly.

Rainfall is not an important consideration in brooding or managing confined poultry. Poultry are not large users of water - 100 hens at 80 to 90% production will consume only six or seven gallons (23 or 27 liters) of water daily. Although small village flocks are allowed to range, rainfall is not a problem since there is usually some cover available.

Day lengths at this latitude range from about 13 hours on June 21 to slightly over 11 hours on December 21 (see page 38). Recommended day length for layers is 12 to 14 hours, and anytime day length drops below 12 hours, egg production may be reduced (see page 37). In view of this, some form of supplemental lighting may be recommended from October 15 to March 1 to ensure that laying flocks continue to produce in the 65 to 75% range. Although desirable, electricity is not absolutely essential to provide supplemental light. Kerosene or gasoline lanterns would be satisfactory. Lighting schedules for flock replacement pullets are also important (see page 37).

Availability of Capital Inputs

Feed - At the present time (August 1981) most of the feed used for poultry production in the YAR is imported from Europe. For a time in the late 1970's only concentrate (protein, vitamin, mineral mix) imported and mixed with local grains. Inflationary pressures

the past few years have resulted in the price of local grain as high as the price of concentrate. Importing the complete ration has been the usual practice for the past two years. If locally produced feed grains become plentiful and competitive in price, the system of using concentrates with local grains could be reinstated. Feeding one pound of scratch grains for each pound of complete layer ration containing 20% protein could also be practiced.

Building Materials - Practically all building materials, with the exception of stone and mud bricks, have to be imported. Lumber, plywood, metal roofing, fencing and other essential building components are available but at considerably high prices than in the U.S. While mud brick construction has some possibilities, the high cost of labor in the YAR makes this type of construction at least as expensive as conventional materials.

Equipment - Poultry equipment of all kinds is available in Sana'a, including feeders, waterers, nests, brooders, and related items. Such equipment is ordered from Europe or the U.S. The Sana'a supplier of poultry equipment keeps only a few items on hand so needed equipment must be ordered three to five months in advance.

Pharmaceuticals - All types of vaccines and drugs used in poultry production in the U.S. and Europe are available in the YAR. The inventory of these items is not large, and additional supplies must be ordered well in advance. Arrangements must be made to store vaccines in reliable refrigeration facilities.

Feed Supplements - Poultry concentrate (protein, vitamin, mineral mix) can be ordered from Europe for use with local feed grains, if and when they become available at a price competitive with imported complete rations. Until then, imported rations will be necessary.

Fuel - Supplies of propane and diesel fuel are readily available for use in poultry production. The mild climate greatly reduces the need for fuel in brooding broilers and flock replacements.

Availability of Labor

Visits to villages revealed a sufficient supply of labor, particularly teenage boys and girls to adequately serve an expanding poultry industry. The raising of layers and broilers is not as labor intensive as other alternative productive enterprises. Labor requirements, however, depend on the degree of mechanization which is dependent on the amount of funds available for capital investment. The availability of private capital at the village level has not been a constraint for development projects. With complete mechanization one person can manage 20,000 to 50,000 broilers or 1,000 to 5,000 laying hens.

Technology for Poultry Producer Models

Traditional Household Production

The usual size chicken flocks at the village level are from five to twenty-five birds, which are allowed free range and are fed scraps, perhaps some green feed, and in rare cases locally produced feed grains. The birds are of mixed breeds and generally very small, approximately the size of bantams. Their eggs are small and the number produced per hen per year is estimated at 40-60. The meat yield is much less than obtained from the usual size of broiler, but the Yemeni consumers are willing to pay more for the native bird than a meat-type broiler because of the alleged superior flavor. Much of this flavor difference is likely due to the age of the bird, as it is well known that old birds are more flavorful than eight to ten week old birds.

In working with this segment of the population, the plan is to attempt to encourage the use of improved breeding stock that is superior to the present native bird in egg and meat production. The pullets to be distributed should be dual-purpose types (colored feathers) as there is some resistance to white birds by many villagers. Several strains of multi-purpose birds may be distributed to that their performance under local conditions could be measured by collecting information on mortality, average egg production, incidence of broodiness, etc. The number to be distributed to each villager for this model will not exceed 25 pullets.

It is planned to raise the pullets to 16 weeks at the pullet-rearing facility. At this age they will be past the most susceptible period for many poultry diseases and will have been vaccinated for certain other diseases that might be contracted during the laying cycle. They will also have been debeaked in time to recover from the stress caused by this procedure before being distributed.

Cockerels will not be distributed with the pullets, as there is no need for them in a laying flock and they are very expensive to maintain.

Prior to the time the pullets are distributed, the extension agent for the village will have carefully screened the villagers and checked their facilities. Growers will be required to have an enclosed area in which the birds are protected from the elements and each bird provided at least three square feet of space. (i.e., a twenty bird flock would need an area of 6 ft. x 10 ft.)

In addition, the villagers will have received instruction, preferably in a group setting, on the care and management of laying birds. This will include information on feed, feeding methods,

litter, litter management, lighting, health problems, collecting and care of the eggs, culling and other management factors.

The villagers will also have either purchased a feeder adequate for the number of pullets they will receive or constructed one according to plans furnished by the extension agent, as well as a pan or trough for water. The construction of nests will also have been completed before the pullets arrive. Platforms on which to place the waterers to keep the litter dry are also recommended.

Some provision for extending day length during the late fall and winter may be made. (See pages and for day length at this latitude and lighting schedules.) If electricity is not available, kerosene or gasoline lanterns could be used.

Adequate light can be provided the layers by suspending a 40 watt light 6-7 feet above the floor for each 100 square feet of floor space. Equivalent light may be provided with lanterns.

Feed for the laying cycle can be purchased from the pullet-rearing facility. If they have local feed grains which they wish to use as feed, the extension agent will assist in helping formulate a proper mix of concentrate feed to grain so that the layers will receive a balanced ration.

The laying flocks should be totally confined to obtain optimum performance. If the villagers insist upon allowing them to range part of the day, they should be confined at least until noon so that most of the eggs will be laid inside the enclosed area.

Small-Scale Commercial Egg Production

This model is designed for flocks of 100 to 500 birds. Producers will be given a choice of either Leghorns or dual-purpose brown shell layers. One square meter of space must be provided for each four layers.

Under this program, birds must be confined in suitable housing which will protect them from the elements. The number and size of feeders and waterers required by each producer's flock will be determined by the extension agent, and this number must be in use at all times (see page for recommendations).

Provisions for extending day length to at least 12 hours should be considered (see page for recommendations). If electricity is available, an automatic timer may be installed so that the birds receive approximately the same amount of light each day. A 40 watt bulb suspended 6 to 7 feet above the floor per 100 square feet will provide adequate light.

Pullets to be distributed to these producers will be at least 16 weeks of age and vaccinated and debeaked prior to delivery.

Producers may continue to purchase the laying ration from the pullet-rearing facility with the price per kilogram to be negotiated. The ration must contain at least 15% protein (preferably 16%) and contain the necessary vitamins and minerals. Locally produced grains may be incorporated into the ration provided the amount of protein intake does not drop below 15%. This will have to be calculated by the extension agent with assistance by the poultry technician and specialist. Consideration will be given to the need of importing equipment for analyzing the protein content of local feedstuff (sending samples to the United States for analysis).

Egg production under this model will be sufficiently large to require instruction on the care and marketing of eggs. Eggs must be gathered at least three times daily, cleaned, and placed in a cool place. The surplus over family needs can be sold to other villagers or delivered to markets in the nearest large city. Eggs are currently not sold by grade and differentiation by size is not widespread. In time, producers with larger flocks may find it advantageous to grade and size their eggs. Such a practice should give them a competitive advantage if consumers are willing to pay more for large eggs.

Medium-Scale Commercial Egg Production

This model is designed for flocks of 1,000 to 2,000 laying hens. Producers will be given a choice of either Leghorns or dual-purpose brown shell layers. The layers must be confined in suitable housing and provided with one square meter of floor space for each four layers (see page 39 for space and equipment recommendations).

As the number of pullets increases beyond 1,000, producers may find it advantageous to install automatic feeding and watering systems and possibly include clocks for an automatic lighting system. Day length should be held to at least 12-14 hours (see pages 37 and 38).

Producers may continue to receive the laying ration from the RPRDC, with the price per kilogram to be negotiated. The ration must contain at least 15% protein and preferably 16%, and contain the necessary vitamins and minerals. Locally produced grains may be incorporated into the ration provided the amount of protein does not drop below 15%. This will have to be calculated by the extension agent with assistance of the poultry technician and specialist.

Egg production under this model will be sufficiently large to require instruction on the care and marketing of eggs. Eggs must be gathered at least three times daily, cleaned and placed in a cool place. In time, producers of this size may find it advantageous to build a small refrigerated storage room. After satisfying the demands for eggs at the local village level, the remainder will have to be marketed in the nearest large city.

Medium-Scale Commercial Broiler Production

This model is designed for flocks of 3,000 to 5,000 broilers per brood. Producers will be sold up to 5,000 day-old broiler chicks. Requirements for brooding this size flock are as follows:

Brooders:	Five	(1,000 bird capacity)
Feeders:	80	(1.23 meter feeders)
Waterers:	50	(pan and wire guard)
Lights:	15	(60 watt bulbs)

Housing should consist of an enclosed structure with curtains on each side. Floor may be gravel covered with litter. Floor space of one square meter for each fifteen broilers is recommended.

Protein requirements in feed are as follows:

0-6 weeks	- 21-23% protein
6 weeks to market	- 20% protein

An anticoccidial drug such as Monensin Sodium (Coban) should be incorporated into the ration (at about 100 ppm).

Feed required per broiler - mixed sexes:

1.8 kg average	- 3.6 kg
1.4 kg average	- 2.7 kg
1.2 kg average	- 2.3 kg

Vaccinations required: see page

Marketing: Broilers will be sold live at about 1.2 to 1.4 kg live weight. Most will be sold at the farm to buyers from the local area and other villages and cities.

Management Program for Pullet-Rearing

Pullet chicks will be placed at the RPRDC and at the SPTC at various times every year. Both White Leghorn and dual-purpose pullet chicks should be ordered at least six months prior to delivery date. Arrangements can be made to fly in pullet chicks on chartered planes carrying broiler chicks.

The brooding facilities and equipment should be thoroughly cleaned from two weeks to one month prior to arrival of chicks. Cleaning and disinfecting should be completed one week prior to arrival of chicks. All equipment should be completely checked for operation prior to arrival of chicks, particularly brooders. Litter, starter lids and small water fountains should be in place and brooders started 24 hours before chicks arrive.

Pullet chicks should be debeaked either at the hatchery or at six to nine days of age. A precision debeaker should be kept on hand at all times with extra cauterizing cutting blades. A second debeaking may sometimes be necessary before the pullets are distributed. For the recommended vaccination schedule see page 40.

To reduce feather picking and cannibalism, pullet-rearing houses should be darkened, provided this does not interfere with proper ventilation.

After six weeks, roosts may be provided but are optional.

Feed requirements and protein levels are as follows:

<u>Age</u>	<u>% Protein</u>
0-6 weeks	20
6-14 weeks	16
14-20 weeks	12
over 20 weeks	15

Feed Required Per Pullet (Kg)

<u>Age</u>	<u>Light Breeds</u>	<u>Dual-Purpose Breeds</u>
0-6 weeks	1.14	1.37
7-16 weeks	3.86	6.36
17-20 weeks	2.27	3.18
Total	7.27	10.91

The starter feed may contain an antibiotic at a high level for the first ten days to help the chicks get a good start. This is particularly important if the plane delivering the chicks is delayed.

Pullets are to be distributed at 16 weeks. Transport creates considerable stress in the birds. Antibiotics or other fortification measures may be used just before and after the move. The same food should be used in growing houses for at least a week after birds are moved to laying houses, as well as the same type feeders and waterers should also be used.

Crates used to distribute pullets should be washed and disinfected upon return to the RPRDC before further use.

Recommended Lighting Schedules

Lighting requirements vary with the type of housing used and the date chicks are hatched. The open front (naturally ventilated) building which is influenced by natural light is currently recommended for the YAR. The windowless (environmentally controlled forced ventilated) building depends on artificial light and is not currently recommended for the poultry program.

Chicks that are hatched between March 15 and August 14 are defined as "in-season flocks". Chicks hatched between August 15 and March 14 result in flocks which are considered "out-of-season". In rearing flock replacement pullets, exposure to light should be decreasing or at least constant during the last six weeks before the laying period begins (about 20 weeks).

When rearing pullets in environmentally controlled houses, the date chicks are hatched is unimportant since light provided can be maintained at 8-9 hours per day (constant light methods). However, for the open front houses currently recommended for the YAR and used in this project, the date of hatch is important.

For in-season flock replacements, natural daylight is used (decreasing light method) in rearing the pullets. When rearing for out-of-season flock replacement, two options are available. The one recommended for the YAR is to determine the maximum day length to which pullets will be exposed during their 0-20 week growing period (see page 38) and provide this amount of light throughout the period. This is the constant light method. An alternative plan (not recommended) is to determine the maximum day length, add seven hours to this light period and decrease 20 minutes per week until original maximum day length is attained at about 20 weeks. This is the decreasing light method.

For native laying hens, 12-14 hours of continuous light per day should be provided. Light should be stepped up at least one hour above the day length provided at the 20th week of age.

For village flocks in the YAR, some question arises as to the effect of a decrease of one or two hours of light during the egg production year in number of eggs laid and molting. It is suggested that dependence on natural light be used until experience indicates otherwise.

Day Length and Day Length Changes by Week - 1981
(Sana'a, North Yemen - Latitude 15° North)

Date		Sunrise to Sunset Hrs:min	Change in Day Length Minutes	Date		Sunrise to Sunset Hrs:min	Change in Day Length Minutes
January	2	11:15	2- 8=+2	July	1	13:00	1- 7=-1
	8	11:17	8-14=+2		7	12:59	7-16=-2
	14	11:19	14-20=+3		16	12:57	16-22=-4
	20	11:22	20-29=+5		22	12:53	22-28=-3
	29	11:27	29- 4=+1		28	12:20	28- 6=-6
February	4	11:28	4-10=+4	August	6	12:44	6-12=-4
	10	11:36	10-19=+6		12	12:40	12-18=-4
	19	11:42	19-25=+5		18	12:36	18-27=-7
	25	11:47	25- 3=+6		27	12:29	27- 2=-5
March	3	11:53	3-12=+7	September	2	12:24	2- 8=-5
	12	12:00	12-18=+5		8	12:19	8-17=-8
	18	12:05	18-24=+5		17	12:11	17-23=-4
	24	12:10	24- 2=+8		23	12:07	21-29=-6
					29	12:01	29- 8=-7
April	2	12:18	2- 8=+4	October	8	11:54	8-14=-4
	8	12:22	8-14=+5		14	11:50	14-20=-6
	14	12:27	14-23=+8		20	11:44	20-29=-6
	23	12:35	23-29=+4		29	11:38	29- 4=-5
	29	12:39	29- 5=+4				
May	5	12:43	5-14=+6	November	4	11:33	4-10=-4
	14	12:49	5-14=+6		10	11:29	10-19=-5
	20	12:53	20-26=+2		19	11:24	19-25=-4
	26	12:55	26- 4=+4		25	11:20	25- 1=-2
June	4	12:59	4-10=+2	December	1	11:18	1-10=-3
	10	13:01	10-16=+1		10	11:15	10-16=-1
	16	13:02	16-25= 0		16	11:14	16-22= 0
	25	13:02	25- 1=-2		22	11:14	22-31=+1
					31	11:15	

Housing and Equipment Required for Broilers, Pullets, and Layers

Housing

Space Per Bird:

Leghorn pullets - not more than five birds per square meter

Leghorn layers - not more than four birds per square meter

Dual-purpose layers - not more than three birds per square meter
(unless they are about the same size as
Leghorns)

Broilers - Fifteen birds per square meter

Type of Construction:

Not important as long as birds are confined and protected from the elements. Several possibilities are available at the village level.

1. Existing stone buildings or sheds;
2. Buildings constructed of mud brick;
3. For small numbers, a small colony cage type enclosure may be constructed from scrap lumber and chicken wire;
4. Pole frame construction (treated poles set in the ground to support a roof of corrugated steel roofing and enclosed by chicken fencing).

Feeder Space - per 100 birds

<u>Age</u>	<u>Feeder Space</u>
0-2 weeks	2.5 meters or one 1.23 m. feeder
3-6 weeks	5.0 meters or two 1.23 m. feeders
over 6 weeks	7.5 meters or three 1.23 m. feeders

Waterers

<u>Age</u>	<u>Waterer Space</u>
0-6 weeks	1.5 cm
6-20 weeks	2.2 cm

Roosts for Pullets (optional)

At 4-6 weeks of age, allow 10 to 15 cm of roost space. Roosts should be spaced 30-36 cm apart.

Nests

One 30 cm x 30 cm x 30 cm nest for each four to five hens.

Poultry Vaccination and Health Care

The following vaccination schedule is recommended for the Rawdah Poultry Rearing and Distribution Center:

1. Marek's disease at day one at hatchery;
2. Newcastle disease (Hitchner or B₁ strain) and infectious bronchitis (Connecticut strain) water route at four weeks of age;
3. Newcastle disease (LaSota or B₁ type) and infectious bronchitis (Massachusetts/Connecticut strains), water route at seven and twelve weeks of age.
4. Fowl pox (pigeon pox strain), individual bird inoculation into wing web at fourteen weeks of age (or whenever birds are to be handled, i.e., moving, caging, etc.);

Recommended health care following pullet distribution to traditional and small-scale producers:

1. Litter management - Litter should be kept dry, avoiding wet spots and "cake formation" under and around feeders and waterers;
2. Ventilation - Birds should have free circulation of air, but not exposed to drafty conditions;
3. Disease - if any abnormalities (droopy birds, ruffled feathers, lack of appetite, loose droppings, reluctance to move, paralysis, etc.) contact extension agent.

Health care following distribution:

1. Vaccination - In endemic Newcastle disease areas, booster vaccinations using LaSota strain (B₁ type) at 90 day intervals in the water may be indicated.
2. Health care - Same as above.

Vaccinations and health care recommended for medium-scale commercial broiler producers receiving day-old chicks is as follows:

1. Marek's disease at day one at hatchery;
2. Newcastle disease (Hitchner or B₁ strain) and infectious bronchitis (Connecticut strain), water route at five days of age;
3. Infectious bursal disease (Gumboro disease), water route at ten days of age.

Health care:

Same as for laying birds, except that an anticoccidial drug such as Monensin soium (Coban) should be incorporated into the ration. (Presently each 100 ppm).

ANNEX B

POULTRY HEALTH

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

Prompt and accurate diagnosis of disease and knowledgeable disease prevention are essential for a successful poultry industry in the Yemen Arab Republic. Newcastle disease and infectious bronchitis, two highly contagious virus respiratory diseases of chickens, are present in North Yemen. Without adequate prevention and control, either one can cause significant mortality in young birds, and decreased production in birds producing eggs.

For prompt diagnosis and knowledgeable disease prevention to occur, qualified people at three levels of competence must be available. These include:

1. Poultry extension agents, Yemeni who will be trained during the life of the project;
2. Poultry technicians with Bachelor's degrees probably expatriates initially with Yemeni in Egypt or U.S. available in 5-6 years trained;
3. Poultry specialists, a poultry extension specialist (M.S.), and an Avian Disease Specialist (DVM). Initially these specialists will probably be expatriates, with Yemeni possibly available in four years.

At the present time there are no poultry extension agents, and identifiable individuals in the remaining two categories are limited.

Preventative disease control and diagnosis must relate to three types of chickens:

1. Broiler - a meat-producing chicken that is raised to approximately eight weeks of age and slaughtered;
2. Layer - an egg-producing chicken that starts laying at approximately 20 weeks of age and continues for about 12-13 months. Although relatively small, they can be eaten following an egg production cycle;
3. Dual-purpose - a heavier bodied bird than the layer, usually red in color that lays brown eggs. This bird produces somewhat fewer eggs in a laying cycle but the bird is larger and more desirable for consumption following an egg production cycle.

Five levels of production are currently seen:

1. Traditional household with 10-25 birds;
2. Small-scale commercial egg production with 100-500 birds;
3. Medium-scale commercial egg production with 1,000+ birds;
4. Medium-scale commercial broiler production with 3,000 to 5,000 birds per brood;
5. Large-scale commercial broiler and commercial egg production with 100,000 to 2.5 million birds.

At present, the majority of the poultry production in the Yemen Arab Republic is devoted to broiler-type birds; however, the red, dual-purpose birds appear to be more generally accepted by the traditional sector. The health care of the dual-purpose birds along with those that will be utilized in the small and medium-scale commercial egg production units must be considered.

The health care of the large-scale broiler production farms appear to be adequately served by staff veterinarians. These include:

1. Dr. Elaayed Elshalkamy, Sheba Farms, Sana'a
2. Dr. Schafi, Omeri Poultry Farm, Sana'a

Currently, there is only one veterinary diagnostic facility in the Yemen Arab Republic. It is located in Sana'a and is part of the Veterinary Services Project. Dr. Brian D. Hosie is the Director of the laboratory and is assisted by two veterinarians, Dr. Omar Bakri, and Dr. Ihsan Munibary. Dr. Ihsan Munibary is a Yemeni, recently graduated from Cairo University, and is primarily concerned with Avian Pathology.

Two veterinarians are associated with the Veterinary Services Project at Dhamar and Hodeidah, respectively. In addition, Dr. Achmid is with the Tihama Development Authority, Dr. Shafii with the Southern Uplands Rural Development Project, and Dr. Awadalla Hamid is associated with the Ibb Secondary Agricultural Institute.

The health care of the medium-scale broiler producers appears to be served by the staff veterinarians at Sheba Farm, Omeri Poultry Farm, and the Veterinary Services Project Laboratory in Sana'a. Therefore, it appears that the major effort of this subproject should be directed toward the traditional household, small, and medium-scale egg production units. Toward this end, extension agents will be trained in Sana'a at the SPTC (formerly USAID Poultry Farm) initially. These agents would interface with the farmer at the village level. They would be trained to recognize and articulate the problem to the poultry technicians, or poultry specialists as required.

The poultry technicians would act as liaison between the extension agents and the professional poultry specialists so that they can keep abreast of the current status of disease, or the emergence of a serious disease problem. Additionally, both of these latter groups will conduct periodic continuing education type short courses on timely subjects, such as the current status of Newcastle Disease. They will also provide refresher training in vaccination techniques, changes in management techniques, etc., for appropriate personnel.

ANNEX C

ECONOMIC CONSIDERATIONS

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

Production of Poultry ProductsPoultry Meat

In the YAR, two types of birds are produced. The first is the small baladi fowl seen scavenging in the villages and in the urban areas. The annual marketed production of these birds was estimated at 300 tons in 1978-79. While a very small amount, they command a significant price premium in the live poultry markets, being sold for 35 to 40 YR per bird. The other bird type sold live is the 1.2 - 1.4 kilograms per bird broiler produced by commercial broiler growers using modern technology. Beginning in 1978-79 when production was estimated at 1,100 tons, production has climbed rapidly reaching an estimated 8,500 tons for 1981. The plans of new firms and expansion plans of existing producers will be able to produce an output of around 14,000 tons by 1983. These commercial broilers are white in color and presently bring 20-25 YR per live bird in the markets.

Eggs

Egg production in the traditional sector was estimated at 200 million in 1978-79 with an annual growth rate of perhaps 3%. Of this amount, a very small amount is commercialized - 10% or less. Commercial egg producers are non-existent. No fresh eggs were found in markets visited either in Sana'a or villages. The few locally produced eggs commercialized by villagers are likely bartered when a family has an excess over subsistence needs. A 4,000 layer egg producer operated in Sana'a in 1978, but has switched to broilers which are relatively more profitable.

Imports of Poultry ProductsPoultry Meat

Importation of frozen poultry meat has been growing rapidly. In 1977-78, imports were valued at 168.7 million YR. By 1980, the figure had risen to 502.2 million YR making frozen poultry third highest on the list (in terms of Rials) for all imports. The 1980 value represents 67,320 tons - an increase of 2.8 times in only three

years. Most imports are packaged as whole birds weighing 1.0 - 1.8 kilograms and originate in Western Europe. Imports accounted for 94% of consumption in 1978-79 and 82% in 1980.

Eggs

Egg imports in 1977-78 amounted to 46.3 million rials. This figure grew to 61.7 million rials in 1980 - an increase of 34% in three years. Import dependency for eggs was estimated as 43% of consumption in 1978-79 and 47% in 1980. Numbers imported were estimated at 150 million in 1977-78 and 190 million in 1980.

Consumption of Poultry Products

Given the lack of any survey information on consumption habits of households, the only means of estimating consumption is to add domestic consumption with imports and assume that amount was consumed. Of course, stock movements and physical losses in the marketing channel distort the estimate to an unknown degree.

Poultry Meat

A report on "The Marketing of Livestock and Animal Products in the Yemen Arab Republic" prepared by the CPO in 1981 estimates consumption in 1979-80 of 42,600 tons, or 8.5 kilograms per capita. This would presume a resident population of 5.01 million, which is 1.0 - 1.5 million below other population estimates. Based on a 1977-78 figure of 168,674,000 YR of frozen poultry imports, the imported quantity would be closer to 30,000 tons rather than the 40,000 tons assumed in the CPO report.

Using a six million population and a 2,600 ton domestic production estimate, per capita consumption in 1978-79 would be 5.4 kilograms rather than 8.5 kilograms. Another estimate reported in the August 1981 issue of "Poultry International" gave a per capita consumption for 1976-78 of 2.9 kilograms per capita, which would seem to be on the low side.

Estimating from the 1979-80 population of 6.76 million reported in the Statistical Yearbook published by the CPO, an import of 67,320 tons for calendar year 1980 and domestic production at 8,500 tons, per capita consumption would be 11.2 kilograms. This result suggests that the 8.5 kilograms per capita estimate for 1978-79 was more accurate than a 5.4 kilograms figure. Given all the information available with obvious inherent discrepancies, this writer will use a per capita consumption of 11 kilograms per capita for poultry meat for 1980 based on a population of 6.6 million. The population figure is about a midpoint between the CPO and CYDA estimates.

The eleven kilograms per capita consumption puts poultry meat usage above that of all other red meats which was estimated by the CPO report of 8.6 kilograms per capita in 1978-79. Clearly, a major reason for the growth of poultry meat relative to red meats is its lower relative price. Both the price and income elasticity of demand for poultry meat are high.

Eggs

Using domestic production estimates plus imports as an estimate of consumption, the CPO report gives an egg availability in 1978-79 of 351 million, with 201 million from local production and 150 million imported. Using a 5.01 million population base, the per capita consumption is 70 eggs per capita in 1978-79 - using 6.0 million, it is 58. For an 1980 estimate, if domestic production was 212 million (3% growth rate) and imports were 190 million eggs, the per capita consumption would have been 61 eggs assuming a 6.6 million population figure. This suggests the CPO report figure of 70 eggs per capita in 1978-79 was too high. For purposes of this report, the figure of 61 will be used. This figure is also in line with estimates in the "Poultry International" magazine of 44 eggs per capita in 1976-78 plus a 10% annual growth rate.

Supply

Poultry Meat. The future supply of domestically grown poultry meat is primarily a function of new firms entering into production and existing firms expanding their operations. Up to date technology is already in use by the larger commercial growers and input prices are not likely to decline. Thus, the supply of domestically produced poultry meat is almost totally a function of new firms beginning and old firms expanding. Based on the known plans of the current major growers and an estimate of 1.2 - 1.5 million broilers annually from small-scale growers, the domestic supply is estimated at 13,000 tons by 1983 by commercial growers - an amount which will only reduce import dependency to about 87% (see next section for demand estimates). This assumes also that imports will continue to be available.

Eggs. The future supply of eggs is extremely difficult to estimate. As previously mentioned, there have been no new commercial producers entering production in the last three years, primarily because broilers are more profitable. Presently, eggs can be imported at about the same cost as to produce them domestically. The plan designed in this paper would result in the distribution of 50,000 pullets each year, which presumably could add 1.2 - 1.4 million eggs annually to the domestic production. If the economics of producing eggs becomes more favorable, however, it could be reliably predicted that domestic egg production could rise in the same dramatic fashion as did broilers since 1978. Two large commercial growers are making plans to begin output in 1982 with a projected annual capacity of about 50 million eggs.

Demand

The primary factors affecting demand are income, population, and the price of substitutes. The real per capita income in 1975-76 constant prices has risen at an average rate of 10% per year for the last ten years with ranges from 4.4 to 21.4 according to data reported in the 1978-79 Statistical Yearbook of the CPO. For the years 1978-79 and 1979-80, the rate slowed to an average of 7.8%, which this writer feels is more representative of the situation for the next five years. There is no research that estimates the income elasticity of demand coefficient. This writer chooses to use 1.0 which is likely conservative.

In the same yearbook, population shows an annual average growth of 3.3% which is higher than most other estimates. A crude birth rate of 46, less a crude death rate of 27, would yield a 1.9% per year increase. For purposes of this report, a 2.5% per year growth rate is assumed with a population elasticity of demand of 1.0.

Evidence indicates that poultry meat is a substitute for red meat, suggesting that the cross elasticity of demand is high. Conversations with consumers concerning egg substitutes, however, elicited no useful insights.

Eggs would seem to be more supplementary in the diet. In review of beef and mutton prices for recent years, there is no appreciable price change that would affect the demand for poultry, meat or eggs.

Estimates to 1986

Given the assumptions as to elasticity coefficients, income growth, and population growth, one could expect the demand for poultry meat and eggs to rise at an annual rate of 10.3%. Such a rate would result in the following total needs in the future:

	<u>1983</u>	<u>1986</u>
Poultry meat (tons)	97,422	130,732
Eggs (millions)	540.2	724.9

On a per capita basis, the 1983 and 1986 consumption requirements are 80 and 107 for eggs and 14.6 and 19.5 kilograms for meat.

Based on these supply and demand estimates, import dependency in 1983 will be 87% for poultry meat and 57% for eggs. This result shows a rising dependency ratio for eggs and meat from 1980 to 1986. Clearly, the goal of self-sufficiency will be difficult to obtain in the near future.

Capital Inputs for the Poultry Industry

Poultry Feed

Presently, all rations fed to poultry in the YAR and commercial producers are imported. The Miller-Rogalla report of 1978 stated:

"In the near future the Yemen-Holland Project will mix broiler diets using the basic ingredients of wheat, sorghum, corn, sesame cake, dried fish and vitamin-mineral-protein premix."

However, this has not occurred. Imported feed in 1980 amounted to 3.200 tons with a value of 5.8 million YR.

Local ingredients have continued to be high priced relative to imported materials in recent years which has precluded their use. In some cases, No. 3 yellow corn has been imported, ground locally and mixed with the imported concentrates. However, the importation of the complete feed ration is the general practice. Feed cost to commercial producers is about 2,000 YR per ton for the Yemeni Government Farm at Rawdah and 2,400 YR per ton for commercial producers. The former USAID unit at Sana'a is selling feed to small growers at a subsidized price of 1.75 YR per kilogram. Large commercial growers are selling feed to small producers for 2.8 YR/kg.

Chicks

In 1980 there were 3.7 million baby chicks imported into Yemen at a cost value of 12.1 million YR. The large commercial growers typically charter a DC-9 type airplane which can carry about 130,000 chicks at a time. Chicks are imported at 2.5 - 3.0 YR each.

Hatching Eggs

Hatching eggs can be imported at a cost of about 1.65 YR each. At the elevation of Sana'a there is a severe decrease in hatchability of eggs. One large grower in the Sana'a area who currently imports chicks is planning for a hatchery in the Taiz area to reduce the problem. The Rawdah Government Farm will begin hatching chicks from eggs in October 1981. While the use of eggs from their own breeder flock will somewhat ease the problem, they are expected to achieve a hatchability in the 50% area rather than the 80% area. Another major grower is planning for their own breeder flock and hatchery, but will use a relatively new and expensive technology of concentrating oxygen to avoid the low hatchability problem.

Equipment and Houses

A large variety of house structures for poultry exist - from open houses with mud walls to enclosed houses with aluminum and steel

construction. Several European leased firms such as the Big Dutchman provide buildings and materials for the larger units.

Virtually all equipment for poultry houses is imported at a price generally double that of similar equipment in the U.S.

Poultry Marketing Channels

Locally produced poultry are marketed either directly from producer to consumer, or more through one intermediary - a trader. The farmers with only a few birds generally carry chickens in baskets or tied together by the legs to the market where they may also sell eggs (often hard boiled). Traders may go to the farm to purchase poultry or eggs and then transport them for sale in the market. With the emergence of the large commercial broiler growers, traders now prefer to buy from them if travel distance is not too great.

The marketing of imported broilers and eggs is similar to the handling of imported red meats. There are a few major importing firms that also act as a wholesaler moving meat products and eggs from the port at Hodeidah to city centers. They sell to nearby city retailers and to other traders who move products to small towns. Currently, in villages without access by car, freezers and frozen poultry meat can be found.

In recent years, the rapidly growing demand for imported poultry meat and eggs put stress on the marketing infrastructure but generally, temporary supply disturbances could be removed in one or two weeks time.

Locally grown poultry faced larger problems due to the unsteady supply of the commercial farms, although this problem is becoming less with time.

With the exception of imported frozen broilers, no grading, weight, or quality standard is related to the marketing of poultry and eggs. Indigenous as well as commercially grown poultry meat and eggs vary in size and weight. Broilers and eggs are sold by the piece, introducing an inefficient element in the marketing system.

Handling, transport and storage of poultry and eggs are generally satisfactory as far as live and frozen poultry are concerned. Live birds are typically transported in plastic crates holding twenty birds and are retailed directly from the crate. Slaughter may be done by the customer at home or birds can be custom slaughtered at market sites for two rials each.

In comparison, egg handling can be improved. Imported eggs reach the country either in refrigerated vans or freighters, with the cooling

hopefully functioning throughout transit time. However, eggs are normally stored at the wholesale and retail stage without cooling. The result is a number of consumer complaints regarding inedible eggs. One survey of retailers in Sana'a indicated that the merchants felt that cooling eggs was actually harmful to them. Additionally, their turnover was rapid enough to further convince them that no special handling was necessary.

Consumers prefer fresh meat or eggs to the imported products and are willing to pay a price premium. A few years ago consumers would pay 70-80 YR for a two kilogram weight pullet and up to one rial for an egg. With growing competition and availability of imported products, plus the output of commercial broiler producers, prices have been falling. Prices in Sana'a in 1981 are 20-25 YR for a broiler (1.2 - 1.4 kilogram) and 0.6 YR for a imported egg. Prices of 0.75 YR per egg and 25-30 YR for a broiler were observed in Rada, a village 53 kilometers east of Dhamar. It is the opinion of most observers that fresh eggs produced in villages might command a price of 0.75 and possibly 1.0 YR per egg.

This project design calls for a colored bird to be distributed to the traditional sector. It is also felt that the sale of a spent colored hen will yield a value equivalent to a live broiler - perhaps 25-35 YR in village locales.

Regulated Margins

Marketing margins for the importer, wholesaler, and retailer on imported poultry meat and eggs are regulated by government policy as follows:

<u>For the importer (percent of CIF value)</u>	<u>Poultry Meat</u>	<u>Eggs</u>
Profit	5.0	8.0
Administrative expenses	2.0	2.0
Cold storage expenses	0.5	0.5
Banking expenses	-	2.0
 <u>For the wholesaler (percent of imported price)</u>		
Profit	3.0	3.0
Administrative expenses	1.0	1.0
Cold storage expenses	0.5	0.5
 <u>For the retailer (percent of wholesaler price)</u>		
Profit	10.0	10.0
Services and transportation expenses	1.5	1.5

Import Duties

Import duties are levied on dollar c.i.f. value times five. The duty for frozen meat and day-old chicks is 17%; for eggs, 8%. A large broiler grower gave a figure of 12% for poultry feeds. Since the present value of the YR relative to the U.S. dollar is 4.555 YR to \$1.00, the effective duty is actually higher than the percentage quoted above. After considering the duty, the price of imported frozen poultry is only one-third as expensive (per kg. of dressed weight) as is live domestic birds.

Cost and Return Budgets

Pullet Rearing

The cost to the MOA of rearing pullets for distribution is 31.4 YR per pullet (see Table 1). Variable costs are 20 YR per pullet which is the proposed price to charge producers. Inputs of land, management, feed handling and transport were not included. The RPRDC presently has land for expansion and a management team is in place. This cost estimate is based on one rearing house and does not consider the entire complex at the RPRDC. The cost estimate is useful in estimating a price to be charged to producer groups receiving pullets.

Egg/Broiler Production

Cost and return budgets were prepared for each of the producer models (Table 2) under a set of assumptions (Table 3). Return to owner's labor, management, and land were 32-37 YR per hen per year. This is a low profitability relative to broilers which confirms the hypothesis that commercial egg production in the YAR has not developed due to low producer returns. For the traditional sector the cost of producing each egg (after adjusting for revenues from spent hens and litter) is 0.48 rials. For the small-scale producer and medium-scale producer, the cost is 0.52 rials per egg.

TABLE 1

**Cost of Rearing Pullets to 16 Weeks
in a 14 x 70 Meter House**

Investment:

Buildings (YR)	480,000
Equipment (YR)	120,000

Fixed costs: (YR)

Depreciation	49,143
Interest	59,450
Maintenance repairs	6,000

Total fixed	114,593
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Variable costs (YR)

Chicks	39,000
Feed	178,750
Vaccinations	1,000
Fuel	4,170
Electricity	600
Labor	36,000
Litter	780
Miscellaneous	2,595

Total variable	262,115
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Total cost (YR)	376,308
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Cost per pullet (yr)	31.4
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Assumptions:

Life of buildings	15 years
Life of equipment	7 years
Rearing cycles	2.5
Density	5 birds per m ²
Feed consumed	5.0 kg. per bird
Feed price	2.75 YR/kg
Chick cost	3.0 YR per chick
Labor	One full-time person @ 3,000 YR per month

Miscellaneous costs: 1% of variable costs

Maintenance repairs: 1% of investment in buildings and equipment

Interest charge: 8% on buildings and equipment plus half of
variable costs

Inputs not costed: Land management, transport, feed handling

TABLE 2
 Cost and Return Budgets
 for Four Model Producer Types*

<u>Item</u>	<u>Traditional Sector</u>	<u>Small Scale Egg</u>	<u>Medium Scale Egg</u>	<u>Medium Scale Broiler</u>
Flock size (annual)	25	500	2,000	25,000
Age at distribution	16 wks	16 wks	16 wks	1 day
Investment:				
Buildings (YR)	500	81,000	324,000	33,600
Equipment (YR)	250	6,200	33,000	8,400
Fixed Costs: (YR)				
Depreciation	69	6,286	26,314	3,440
Interest	196	9,439	38,410	14,319
Maintenance Repairs	7	872	3,570	420
Total fixed	<u>272</u>	<u>16,597</u>	<u>68,294</u>	<u>18,179</u>
Variable Costs: (YR)				
Pullet/chicks	500	10,000	40,000	75,000
Feed	2,597	44,767	179,070	166,219
Water	-	788	3,152	3,063
Electricity	-	100	400	1,125
Litter	15	300	1,200	500
Vaccinations	-	-	-	625
Miscellaneous	31	566	2,238	2,465
Total variable	<u>3,143</u>	<u>56,521</u>	<u>226,060</u>	<u>248,997</u>
Income:				
Eggs/Broilers	3,384	75,200	300,800	485,000
Spent hens	770	11,000	44,000	-
Litter	188	3,760	15,040	28,336
Total	<u>4,342</u>	<u>89,960</u>	<u>359,840</u>	<u>513,336</u>
Return to owner's land, labor and management:				
Total	927	16,842	65,486	246,160
Per bird/yr**	37.1	33.7	32.7	49.0

*See Table 3 for assumptions used

**If eggs are assumed to have a sale value of 0.75 YR per egg instead of 0.67 YR, the returns for egg producers per bird per year are comparable to that for broilers.

TABLE 3
Assumptions Used for Preparing Cost and
Return Budgets for Poultry Production Models

<u>Assumption</u>	<u>Traditional Sector</u>	<u>Small Scale Egg</u>	<u>Medium Scale Egg</u>	<u>Medium Scale Broiler</u>
<u>Bird Type</u>	<u>Dual-purpose</u>	<u>Egg</u>	<u>Egg</u>	<u>Broiler</u>
Flock size (annual)	25	500	2,000	25,000
Feed required per bird (kg.)	44.2	38.1	38.1	2.7
Water usage per bird (liters)	90	90	90	7
Mortality rate (%)	12	12	12	3
Eggs produced per hen	216	240	240	-
Broiler weight at sale (kg.)	-	-	-	1.36
<u>Investment required:</u>				
Buildings (YR)	500	81,000	324,000	33,600
Equipment (YR)	250	6,200	33,000	8,400
<u>Depreciation:</u>				
Buildings (YR)	15	15	15	15
Equipment (YR)	7	7	7	7
Cost of pullet/chick (YR)	20	20	20	3
Cost of feed (per kg.)	2.5	2.5	2.5	2.5
Litter cost (per bird)	0.6	0.6	0.6	0.2
Water cost (per 400 liters)	7.0	7.0	7.0	7.0
Interest charge: 8% on buildings, equipment and one-half of variable costs.				
Maintenance repairs	1% of investment in buildings and equipment			
Miscellaneous costs	1% of variable costs			
Value of eggs (YR) per 30)	20	20	20	-
Broiler value per bird (YR)	-	-	-	20
Spent hen value (YR)	35	25	25	-
Litter value (YR per hen)	8	8	8	1.1
Inputs not costed:	Land, labor, management, transport and sale costs			

COSTS AND RETURNS FOR FIRST FIVE YEARS OF THE POULTRY EXTENSION AND TRAINING SUBPROJECT

	Traditional Sector	Small Scale Egg	Medium Scale Egg	Medium Scale Broiler	Total
COSTS					
Flock Size	25 layers annually	500 annually	2000 annually	25,000 (5 cycles with annually 5,000 per cycle)	
Flock Years	810	296	85	128	
Number of Flocks Established	270	82	34	96	
Investment Bldgs. & Equipment	202,500 YR \$ 44,457	7,150,400 YR \$ 1,569,791	12,138,000 YR \$ 2,664,764	4,032,000 YR \$ 885,181	23,522,900 YR \$ 5,164,193
Fixed Costs	220,320 YR \$ 48,369	4,912,712 YR \$ 1,078,532	5,804,990 YR \$ 1,274,421	2,326,912 YR \$ 510,848	13,264,934 YR \$ 2,912,170
Variable Costs	2,545,830 YR \$ 558,909	16,730,216 YR \$ 3,672,934	19,215,100 YR \$ 4,218,463	31,871,616 YR \$ 6,997,062	70,363,762 YR \$15,447,368
TOTAL	2,968,650 YR \$ 651,735	28,793,328 YR \$ 6,321,257	37,158,090 YR \$ 8,157,649	38,230,528 YR \$8,393,091	107,150,596 YR \$23,523,732
RETURNS					
Eggs/Broilers					
Spent Hens and Litter	3,517,020 YR \$ 772,123	26,628,160 YR \$ 5,845,919	30,586,400 YR \$ 6,714,906	65,707,008 YR \$14,425,249	126,438,588 YR \$27,758,197
		Producer Returns	126,438,588 YR		\$27,758,197
		Producer Costs	107,150,596 YR		\$23,523,732
			19,287,992 YR		4,234,465
	USAID Project Costs	\$ 6,185,600*			
	YARG Project Budget	5,227,400** (23,811,000 YR)			\$11,413,000
		\$11,413,000			(\$ 7,178,535)

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* Details in Annex I

** Details on page

COSTS AND RETURNS FOR SIXTH PROJECT YEAR OF THE POULTRY EXTENSION AND TRAINING SUBPROJECT

	Traditional Sector	Small Scale Egg	Medium Scale Egg	Medium Scale Broiler	Total
Producer Annual Costs	922,050 YR \$ 202,426	5,995,676 YR \$ 1,316,285	10,008,036 YR \$ 2,197,154	25,648,896 YR \$ 5,630,932	42,574,658 \$ 9,346,797
Producer Annual Income	1,172,340 YR \$ 257,374	7,376,720 YR \$ 1,619,477	12,234,560 YR \$ 2,685,963	49,280,256 YR \$10,818,937	70,063,876 YR \$15,381,751

Producer Annual Returns	70,063,876 YR	\$15,381,751
Producer Annual Costs	<u>42,574,658 YR</u>	<u>9,346,797</u>
	27,489,218 YR	\$ 6,034,954
Project Maintenance (YARG)	<u>5,962,000 YR</u>	<u>1,308,891</u>
	21,527,218 YR	\$ 4,726,063

ESTIMATED PROJECT COSTS AND BENEFITS
(No Growth After Initial Five Years)*

Year	Producer Incremental Benefits	Producer, USAID and YARG Incremental Costs	Cash Flow
1 - 5	\$ 27,758,197	\$ 34,936,732	(\$ 7,178,535)
6	13,983,411	9,686,990	4,296,421
7	12,712,193	8,806,355	3,905,838
8	11,556,541	8,005,778	3,550,763
9	10,505,947	7,277,981	3,227,966
10	9,550,862	6,616,347	2,934,515
TOTAL	\$ 86,067,151	\$ 75,330,183	\$ 10,736,968

The Benefit Cost Ratio will be 1.14 (excluding producer's land, labor and management) after ten years and the net present worth of the project will be \$10,736,968. The USAID and YARG initial investment costs of \$11,413,000 will be recovered six years and nine months after the project begins.

* Note - Both the benefits and costs have been discounted at a 10% annual rate beginning with the sixth year. The benefits and costs were not discounted for the first five years since a 10% annual inflation has already been included in the budgets.

ESTIMATED PROJECT COSTS AND BENEFITS
(10% Annual Growth After Initial Five Years)*

Year	Producer Incremental Benefits	Private Producer Costs	USAID and YARG Costs	Total Incremental Costs	Cash Flow
1-5	\$ 27,758,197	\$ 23,523,732	\$ 11,413,000	\$ 34,936,732	(\$ 7,178,535)
6	15,381,751	9,346,797	1,308,891	10,655,688	4,726,063
7	15,381,751	9,346,797	1,308,891	10,655,688	4,726,063
8	15,381,751	9,346,797	1,308,891	10,655,688	4,726,063
9	15,381,751	9,346,797	1,308,891	10,655,688	4,726,063
10	15,381,751	9,346,797	1,308,891	10,655,688	4,726,063
TOTAL	\$ 104,666,952	\$ 70,257,717	\$ 17,957,455	\$ 88,215,172	\$ 16,451,780

The Benefit Cost Ratio will be 1.19 (excluding producer's land, labor and management) after ten years and the net present worth of the project will be \$16,451,780. The USAID and YARG initial investment costs of \$11,413,000 will be recovered six years and seven months after the project begins.

Note -^{*} The private producer's benefits and costs have been discounted at a 10% annual rate beginning with the sixth year. A 10% annual growth rate has been calculated beginning in the sixth year. The benefits and costs were not discounted for the first five years since a 10% annual inflation has already been included in the budgets.

**The annual maintenance cost for the YARG during years six through ten remains the same. The 10% annual inflation rate and the 10% annual discount rate offset each other.

ANNEX D

SOCIAL SOUNDNESS ANALYSIS

Agricultural Development Support Program (Project 279-0052)
Poultry Extension and Training Subproject

Introduction

Purpose of Social Soundness Analysis

The purpose of the social soundness analysis is to examine the proposed project in terms of socio-cultural factors. The beliefs, social practices, and mores of a people can influence a project as directly as climate, rainfall or soil conditions.

Basically, a project such as the poultry project must relate to people, most of whom live in rural areas. In the rural areas of Yemen, it is the pattern that most people depend on agriculture not merely for their livelihood but for survival itself. Poverty has many ramifications in Yemen and may show itself as malnutrition, disease, ignorance, laborious traditional methods of raising crops, physical and cultural isolation.

Procedures Utilized in Analysis

Techniques used to gather data for the social soundness analysis were as follows:

1. Extensive reading of available agricultural development reports and reports relative to the culture of the area. Major sources often do not agree on such standard figures as population, income levels, amount of cultivatable land, as well as other items. Researched data is needed relative to the land tenure system, marketing practices, regional government patterns, dietary patterns and nutritional content of local diets.
2. Field trips to poultry farms, Bab al-Yemen poultry market, Algharasi International Trading and Cold Storage unloading dock, town markets, rural areas and various wadi areas.
3. Contacts and interviews with personnel in the following organizations: AID Washington, Ministry of Agriculture, Ministry of Education, CID in Yemen, Ibb Agricultural School, and USAID in Yemen.

4. Several informal interviews with shopkeepers, local YAR farmers (both male and female), workers in poultry projects, school teachers, and sellers of poultry in street markets.

Relevant social information has been divided into the following headings: (1) sociocultural feasibility, (2) spread effects, (3) social consequences and benefit incidence, (4) additional information, and (5) summary. In these sections the diverse needs of population groups are addressed with special emphasis upon utilizing and strengthening existing social structures. The philosophical approach is one of emphasizing the strengthening aspects of the existing social order while introducing improved technology. The project's sociocultural involvement may be characterized by co-existence, self-determination, cooperation and cultural integration of technology.

Sociocultural Feasibility

Existing Social Landscape

Modern Yemeni society is based on relations among social groups whose membership is determined by birth and whose subsequent ranking follows a strict hierarchy. Descent and stratification are important parts of Yemeni society. In some towns the cemeteries are divided into separate sections for different strata. The existing class pattern appears to have been stable for an extended time.

Education and literacy parallel the social strata rather closely. The traditional educational system has been dominated by the Sayyids, and many of them acquired their education in that system. A larger proportion of literacy among other social classes appears to have been acquired during migration in search of work. The overall literacy rate for males is 10 to 25 percent, and the rate is estimated at 2 percent for females. Generally, this averages to approximately 13 percent for the entire country. The school enrollment is approximately 3 percent of secondary aged children, 5 percent of preparatory aged children, and 29 percent of primary school aged children.

The pattern for all schools is one in which fewer girls than boys attend classes. According to the Women's Department of the Ministry of Education, there are more girls attending school in the southern areas of the country as compared to other regions. For example, there are 2,000 more girls in Taiz area primary schools than in primary schools in the Sanaa area. In addition, there are 400 more girls in Taiz preparatory schools than in Sanaa. Ten girls in Sanaa are attending commercial schools while 45 are attending such schools in Taiz.

The education facilities have been undergoing considerable improvement since 1970. Between 1970 and 1978 the number of primary schools increased by 400 percent, secondary schools by 700 percent, and Sanaa University was established. Educational progress has been greater in the urban areas as the three urban governorates have 40 percent of the country's population, but 67 percent of the primary students, 87 percent of preparatory students and 92 percent of secondary students.

In 1970 the YAR government launched an adult literacy program. The Ministry of Education is responsible for the program through the Supreme Literacy Organization. In 1976 there were 23 centers with 171 classes, for a total enrollment of 4,887 adults. Increasing numbers of women are attending literacy programs, which frequently combine home economics courses with basic literacy classes. Currently, the number of women attending literacy classes is 60 in Amran, 40 in Zabid, 30 in al-Gaida, 65 in al-Balqa, and 60 in Bagil. The minimum age for attendance is 12 years of age, while the oldest woman thus far who has enrolled in literacy classes has been 60 years of age. The Women's Department cites an example in Amran where daughter (12 years of age), mother (30 years of age), and grandmother (45 years of age) attend daily classes together.

The Muslim influence is powerful in the daily life of the people. Marriage customs, sex roles, divorce, inheritance laws, as well as most human functions, are dictated by the rules of Islam. According to the Sharia, women are subordinate to men and children are a blessing. In an Islamic court, a woman can only inherit half of what a man can legally inherit, while in court the woman's word counts for half of a man's testimony.

Cultural norms and early marriages with the resulting early child-bearing serve to exclude the majority of women from the educational system and keep them out of the labor market. Comparatively few women remain single into their twenties. Instead of being freer for work and study, however, the single girl is usually in a protected position, since her marriageability is at stake. The few Yemeni women who are in professional positions are generally of the Sayyid or Qadhi elite. This pattern of the elite women being educated first and taking the first professional positions is evident throughout the Middle East.

Central to any discussion of quality of life is the topic of health care and conditions. Existing relevant statistics are as follows:

1. The crude birth rate in Yemen is 46 per 1,000; the crude death rate is 27 per 1,000; and the infant mortality rate is reported at around 24 percent (World Bank).

2. The life expectancy at birth averages 37 years.
3. The medical doctor/person ratio in 1976 was one doctor for every 23,256 inhabitants.
4. Approximately 8 percent of the population has easy access to water.
5. The nutritional intake per person is approximately 75 percent of minimum caloric requirement daily.

Agriculture is by far the most important sector of the economy. Agriculture generates 45 to 50 percent of the country's GNP, accounts for over 90 percent of the total imports, and employs about three quarters of the labor force. The average per capita GNP is rising and was determined by the World Bank at \$580 in 1978. The GNP growth rate in 1979 was 5 percent and the inflation rate was 35 percent. Continuing large trade deficits are financed primarily by private transfers. International reserves in 1979 decreased 2 percent to \$1.4 billion. (The U.S. Department of Agriculture Foreign Agricultural Economic Report No. 159, Global Food Assessment, 1980).

The YAR does not appear to have a food problem except in years of severe drought. Agriculture largely depends on the seasonal rainfall, and this rainfall has been adequate since 1977. Total grain production in 1979 increased marginally from 1978. There has been little or no progress on increasing cereal crop production since 1969. The principal food crops are sorghum, millet, barley, corn and wheat. Cattle, sheep and goats contribute both to the domestic food supply and exports. Total grain imports increased from 510,000 tons in 1978 to 540,000 tons in 1979.

The economic outlook appears to indicate that the Yemen Arab Republic will continue to import a large part of its grain requirements. In fact, reduced labor availability and increase in wages has impacted on grain production in a negative way. Trade deficits will probably continue.

Mapping of Area to be Affected by Project

Administratively, Yemen is divided into ten units (provinces). The capital of Yemen is Sanaa (population according to 1981 Cooperative Population Census is 277,818). Other major cities include Taiz (approximately 199,873 population) and Hodeidah (approximately 126,386 population).

The major areas of primary crop production are as follows:

1. The Tihama - A flat, lowland, semi-arid strip twenty to forty miles wide, which borders the Red Sea and extends eastward until the land reaches approximately 660 feet in altitude. The major cash crops for this area are

cotton and tobacco. Other crops include: sorghum, millet, bananas, dates, mangoes and other tropical fruits.

2. The Western Slopes - An area located behind the Tihama, parallel to the coast, the mountains of this area rise in stages from 550 feet to 5,000 feet. The major crops are coffee and qat.

3. Southern Uplands - An area east of the western slopes, south of the intermountain plains and bordering on the People's Democratic Republic of Yemen (South Yemen). Grains are important in this area, as well as vegetables and qat. The major grains are sorghum and millet.

4. Intermountain Plains - A region in which Sanaa is located. The mountains range from 4,900 feet to 10,800 feet. In the area north of Sanaa, grain is an important crop. Further north, the major crops are coffee and qat, while south of Sanaa grapes and vegetables are the major crops. The grain area produces wheat, barley and maize as well as sorghum and millet.

5. Eastern Slopes - An area running parallel to the Tihama, but located east of the intermountain plain area. The area border begins a few miles from Sanaa and drops abruptly to an altitude of 3,600 feet in the vicinity of Marib, and extends to the Rub al Khali desert in Saudi Arabia. This is a temperate region with water and flora becoming increasingly scarce toward the east.

The two areas identified in the Poultry Project as those most feasible to institute the project are the Intermountain Plains area and the Southern Uplands area. Geographically, the Southern Uplands area is a logical choice due to climate, altitude, soil and topography. Since some grain is already being cultivated in the Southern Uplands area, the possibility of increasing that grain production for poultry feed may be feasible. In addition, the altitude and climate in the Southern Uplands area makes the hatching of eggs more feasible than in the Sanaa area. Poultry Extension and Training Subproject does not include a hatchery component, but if the project is embraced by the people as anticipated, the need for an in-country private sector or government supported hatchery will become apparent. Due to the transportation network, it would be practical for the hatchery to be established near Taiz while providing day-old chicks to the Intermountain Plains area.

Production-wise, the Intermountain Plains area produces a wider range of possible poultry feed grains than does the Southern Uplands area. The altitude and climate of the Intermountain Plains area is conducive for both meat and egg production.

Yemeni who own land are of a higher social status than those who do not. Land tenure is still largely feudal, as most small farmers are sharecroppers

on land rented from large landowners. The share arrangements vary according to irrigated or non-irrigated land as well as other factors. Generally, the share arrangements range from one-quarter of the crop to one-half of the crop as the landholder's share. A 1973 FAO study estimated that 60 to 70 percent of arable land was privately owned, 15 to 20 percent was held by religious groups, 2 to 3 percent was in state farms, and 1 to 3 percent was owned collectively.

In many cases land ownership is not firmly established; multiple ownership claims represent a large proportion of the disputes brought before Sheikhs and other local officials. Farmers generally verbally claim to own the land they work even if they give a share of the crop to someone else, and rich landlords often boast of owning all the land the eye can see and more. In the highlands, holdings are often counted in terraces rather than hectares.

This subproject has identified the Local Development Association's (LDA) and the Extension Services as the primary vehicles with which to work in contacting the people of the traditional sector and potential small scale commercial producers. In order to clarify the structures of the LDAs and the Extension Services, this paper briefly describes each, as well as other organizational units which may impact on the project.

1. Kinship Groups - The most basic and exceedingly important social unit is the household or family. The most common living situation throughout Yemen is the extended patriarchal family. A typical household consists of a man, his wife or wives, his married sons with their wives and children, his unmarried children, and possibly other relatives such as widowed or divorced mothers of sisters. After the death of the father, each married son ideally establishes his own household. Children grow up sharing meals with parents, siblings, father's siblings and wives and children as well as grandparents. Polygamy, high rates of migration, divorce and infant mortality create endless variations in the above described pattern. Few households consist of only the nuclear family. Women who do not share a kitchen with other adult females are considered by some to be living alone — many households function without men, but a YAR kitchen does not exist without a woman. Absent males are considered part of the household as long as they do not have a separate household elsewhere. It appears that men living away from their families prefer to live with other members of the kin group or with fellow tribesmen.

The division of responsibility and authority within the household varies according to number, sex, age and personalities of members. In most extended families, the grandfather would be undisputed head of the household. Generally, girls marry men older than themselves, and as a result many may be widowed at a relatively early age and therefore assume management of a household. Husbands, wives and siblings normally retain separate ownership of land inherited from their parents, but generally family members cooperate in farming.

2. Social Stratification - The Area Handbook of the Yemens, 1977 discusses the strata of society in the following way.

"In broadest terms south Arabian societies break down into five strata that more or less parallel the strata found in the ancient kingdoms. At the top of the hierarchy stand the Sayyids, who claim descent from the Prophet Muhammad, as a concomitant, religious and spiritual superiority. A stratum of hereditary holy men of Qahtani or South Arabian ancestry, variously known as mashaykh (sing., shaykh) or qadis (sing., qadi), comes next. In many areas they share equivalent rank but do not intermarry with the next stratum, the tribes (gubayl; sing., gabila). Below the tribes are artisans and merchants in respectable trades, who enjoy superiority to families who practice despised trades. The lowest social group, the akhdam (sing., khadam), occupies a position so disdained that it does not, for practical purposes, belong to ordinary society."

3. Agricultural Cooperative Societies (ACS) - Local agricultural cooperative type activities are emerging in association with some LDAs but there is nothing that yet could be considered a national agricultural cooperative movement. Agricultural development in Yemen is basically in the hands of the private sector to an unusually high degree for a developing country.

There were seventeen ACSs at a 1979 conference. The regulations relative to ACS activities do not appear to be as formal as is the case of LDAs. It appears that the central objective of ACSs is to generate individual profit. The specific part of this project which would most lend itself to ACS involvement is the small scale commercial producer group. It may be feasible and practical to institute an ACS in a particular geographic area which will aim to establish a basis for small scale poultry/egg producers.

4. Local Development Associations - In 1963 the Yemen government issued a law enabling the establishment of Local Development Associations. These associations were to be local self-help organizations which would decentralize the development of programs. The central government has encouraged the development of LDAs. By 1979 there were 184 certified and non-certified LDAs in Yemen. In the Five Year Plan, the LDAs are utilized to improve rural living conditions and to broaden the base for a more productive agricultural economy. There are four levels in the administrative organization of the LDA movement: (1) village or uzla Development Cooperative Committees; (2) district or nahiya LDAs; (3) governorate or muhafazah Coordinating Councils (made up of Local Development Board presidents who are elected by the LDA General Assembly to serve on the board); and (4) National Confederation of Yemeni Development Associations (presidents and the secretaries general of the individual Coordinating Councils make up the General Assembly of the National Confederation of Yemeni Development Associations).

5. Extension Service - The Extension Service appears to be well developed in the Tihama area because it is aligned with the FAO and in the Taiz/Ibb area where it is part of the Southern Uplands Regional Development Project (SURDP). The Sanaa area presently has a very poor extension program with an acute shortage of staff, buildings and qualified persons. Only two units are functioning in the Sanaa area. There does not appear to be any linkage between the national extension director and local extension workers or supervisors. Specialist help comes from expatriate subject matter specialists.

In the SURDP extension project, there are approximately 50 men and 20 women agents. The 217,000 farmers in the area who are in contact with the Development Project are the potential client pool for the seventy agents.

It is estimated that a total of 240 extension workers have been trained for work in the SURDP project, but only approximately 70 are still working with the project. There is some assurance among Ministry of Agriculture personnel that the upcoming Five Year Plan of the YAR government will include plans to increase the number of extension agents.

The typical extension worker is between 18 and 25 years of age with 6 to 9 years of education. Additional agricultural training of approximately 9 to 11 months at Taiz or Zabid with opportunities for refresher courses by various donors comprises the extent of specialized training. The typical extension agent is assigned to 20-30 villages, depending on locality, sponsoring donor, etc. Based on population, this is about one agent for 6,500 people. At present, there are women extension agents but there are no women supervisors.

The knowledge transfer techniques used are farm visits, personal contacts, and group meetings. Use of volunteers is not yet part of the system. There is an opportunity for use of radio and television, but agents need to be trained in the use of these media.

In summary, the information about YAR organization units clearly shows that innovations in poultry egg or meat production must be presented so as to win acceptance in the primary social unit, the family. In addition to acceptance by the family, the project workers must be keenly aware that the social structure of Yemen is extremely complex and shows significant variations from one locality to another. Each aspect of the project must be reviewed relative to specific geographic location and possible participants. The project will develop the nucleus of a poultry extension network which will answer the needs of the people to acquire information about poultry rearing and production.

Necessary time allocation for individual aspects of the project should be reviewed frequently relative to geographic region, as well as other factors. In addition, as specific participants are identified, a review will be undertaken in order to assess the amount of discretionary time available to the participants. In interviews with male farmers in rural areas they

estimated that all of their time went into farming and marketing, if they marketed their own produce. Female farmers in the same geographic areas said that the amount of time devoted to housework or field work varied according to the seasons. During planting and harvesting they spent more time outdoors than at other times when there was not as much field work.

Fewer women appear to participate in marketing activities, but this activity should not be overlooked when reviewing work time for women. In the Taiz area it is relatively common to see women selling qat, straw products and vegetables. Women in the market in Sanaa are still fairly limited but the number has increased. In August, 1981, a few women were observed selling incense burners, straw baskets, poultry and vegetables in the Sanaa market. Women are making inroads into the retail market even though their number is still small.

Motivation for Participation

The emigration of labor and the remittances have affected agriculture more deeply than other sectors of Yemeni life. Because the rural areas supply most of the emigrants, there is a decrease in the available labor for rural agricultural work. This has led to the abandonment of marginal lands and a general decrease in agricultural production. Emigration has also increased the cost of the remaining labor. At the same time, the farmers are facing increasing competition from imported foodstuffs which are generally not subject to duty payments. Using the effects of emigration as a starting point, each participant group needs to be carefully observed to ascertain the specific goals of that group which could be articulated in the goals of the project.

When determining specific motivational techniques, the approach must be multi-faceted in nature. That is, successful motivation must be determined to incite initial interest, while at the same time the possible end result must be evaluated in terms of the population's view of the gains from the project. Each proposed producer group development model in this project is reviewed in terms of possible participation motivation.

The primary motivation to participate in this subproject for the traditional non-commercial household unit is increased production of eggs and meat. Since it appears that many rural households eat eggs if their hens lay and eat meat if they possess chickens (this information was acquired through personal interviews) increased production of both would improve the dietary intake of the family. The acceptance by the traditional poultry sector, which is composed of a majority of women, will be greater if the birds introduced are similar in appearance to the "baladi" or native poultry.

Traditional recipes and meals have been passed down for generations relative to such native food. The concept that foods of baladi origin are good foods and to be used with trust is obvious when one observes that this food is

is given during such critical times as pregnancy, following childbirth, and during childhood. There is some evidence that baladi foods are perceived by the people to have the ability to ward off spirits and disease. Raw baladi eggs are used for gaining strength after childbirth or for helping to mend broken bones. During the 40-day period following childbirth the traditional foods are especially recommended. The new mother will eat chicken, wheat porridge, honey and eggs, all of which should be baladi foods.

In the marketplace, the price of baladi poultry is nearly double the price of white Leghorns and approximately three times the price of imported frozen chickens. The Yemeni will refer to white chickens as unnatural and "machine produced." Locally produced eggs are also highly regarded for better taste.

The motivation of the small scale commercial farmer basically would be for (1) increased income, and (2) increased eggs/meat in the home. Additional motivation for women to participate in the womens' poultry group/cooperative would be the increased income over which the individual woman would have control.

Several studies show that extra family income from improved farm practices most often will not be spent on family nutrition, regardless of whether the household produces a cash crop or a food crop. Instead, the income is spent on consumer goods such as processed foods or qat. There are indications that when women control extra resources, they tend to invest them back into the family as better nutrition and other improvements in the family's standard of living.

The motivation for the medium scale commercial egg producer and the medium scale commercial broiler producer basically relates to increased cash flow and/or a profitable economic investment. In addition, marketing may be relatively economical to arrange, as it is anticipated that the medium scale producers will be in areas somewhat removed from those where large scale producers are already established.

Obstacles to Project Implementation

Each aspect of the poultry project will be somewhat individual and unique relative to possible project implementation obstacles. However, some potential obstacles will be present to a greater or lesser degree for each activity. Concerns/obstacles may be clustered into social, political and religious sub-headings as shown below.

1. Social Concerns - Present-day Yemeni society is based on relations among social groups whose membership is determined by birth and whose ranking follows a strict hierarchy. Persons of superior rank may not work effectively for persons of lesser social rank. Therefore, if an Akhdam is

put in charge of an activity, one cannot expect a member of the Mashaykh to take directions from the Akhdam, and the activity will not be successful.

The treatment of women varies with social standing. In general, women of the higher ranks are more strictly secluded than women of lowest ranks. Women are involved in poultry production at the household level and they appear willing to learn, as evidenced by the growing number of women attending classes in the literacy centers.

2. Political Concerns - Traditional patterns of leadership and authority are beginning to change and the central government is attempting to reach out into all sections of the country. Men of the younger generation are beginning to replace traditional leaders. However, the project should be alert to formal and informal roles assumed by appointed and elected officials, as well as tribal sheikhs, landlords, religious leaders and heads of extended tribal families. Overlooking a leader in planning or implementation of activities may, in effect, turn away possible involvement and cooperation of a large group of possible participants.

3. Religious Concerns - Daily prayers, weekly mosque visits and observation of feasts and fast period (Ramadan) do have an effect upon timing of activities. Work plans must consider timing demands, otherwise the frustrations felt by all will be great.

4. Personnel Concerns - One of the major constraints to agricultural progress in Yemen is the lack of human resources development at all levels. However, it should be noted that of the four participants trained in poultry production under Project 279-0019, three are presently employed by YARG in poultry or livestock related jobs. One is the present manager of the Sanaa Poultry Training Center (SPTC), one works for the Agriculture Credit Bank responsible for the loan to the Marib Poultry Farm, one is in the Livestock Health section of the MOA, and the fourth is still in the United States completing his M.S. degree in Poultry Science.

Communication Strategies

The development of techniques of communication can affect social relations in many ways. Dr. Ingeman Hernanessan, Director of the Yemeni Swedish Save the Children Clinic in Taiz, said that para-professionals are excellent helpers in their village nutrition and health programs. The teaching method which appeared to be most successful actively involved the women in sharing experiences with the group. Those experiences were then used by the instructor to teach specific points. The younger women appeared more ready to accept advice and tried to attend classes regularly. The radio programs on health sponsored by the clinic appeared to be going well.

The basic method of person-to-person communication would be most effective at the village level. Person-to-person discussions should be planned so as to make certain that the information which is distributed at any one point of time is a standard presentation. Information distribution sessions, radio and television should be used. Radio and television programs should be planned so as to be aired at times when large numbers of the target population may be available. In-service training may be in the form of short courses, workshops, meetings, conferences and tours. Selection of specific types of training will depend on subject matter, audience profile, timing, and other sociocultural factors. The training of the poultry extension workers must include extension methodology, practical aspects of poultry rearing/care, communication techniques, farm management and record keeping.

The Ibb school should be considered as a possible additional training site for the poultry extension agents. At this time, no summer classes are scheduled at the school, so it may be possible to utilize the school facilities during that time. One-third of the livestock curriculum at Ibb deals with poultry science. Twenty-two hours a week are spent in technical agricultural courses. It appears possible to have some training for the women agents at the Ibb school site. Choice of instructors, housing, and security are some of the considerations necessary when making the decision to provide courses for the women agents at Ibb.

Spread Effects: The Diffusion of Innovation

Feasibility of Project in Initial Setting to Broader Population

One area in which increased production is possible with a minimum amount of land use is poultry production. Furthermore, the quality of land necessary for poultry production is such that non-cultivable land can be used. Thus, presently productive land does not have to be taken out of cultivation to raise poultry.

Approximately 75 to 80 percent of families eat chicken due to the relatively low cost of poultry as compared to mutton or beef. The analysis by Paul Miller and John Rogalla in July, 1978, cited a survey in which they concluded that purchasing units which currently consume over two broilers a person per week would not respond to price changes, but that those units consuming less would be responsive to such change. The economics of egg production is less desirable than broilers but still yields a net return to owners labor and management.

People eat poultry and eggs on a regular basis, and this trend appears to be increasing. The necessity to provide such desired foodstuff, plus the lack of knowledgeable people in poultry service and the rising number of

people interested in entering the poultry market as an income-generating activity provides a situation which sets the stage for project success.

Characteristics and Function of Leadership

Theoretically, within a tribe all tribesmen are equal and the sheikh is in the leadership position. Sheikhs may be elected by all members of the group or may be selected from certain leading families; or the position remains hereditary within a single extended family. Currently, some Yemeni communities have two sheikhs. One who is "old" may be recognized as "the power" while the "young sheikh" is recognized as the change agent. The young sheikh probably possesses more education than the old sheikh and he probably is a member of an old sheikh family. This seeming split in authority is a relatively new phenomenon in Yemen, and is an indication of the changing leadership roles.

The rapidity and extent of social change in Yemen is bringing about a redefinition of leadership and authority roles. Three of the most significant changes which influence leadership are consumption patterns, immigration and remittances, and the role of women.

Labor migration and remittances resulting from this migration certainly contribute to the changing role of leadership and authority. The absence of a major portion of the male labor force in a village can result in several possible spinoffs. Some or all of the following spinoffs may occur: (1) The remaining male leadership will become stronger and will be in a more ingrained position when the migration force returns. (2) The remaining women will be in a position to take over previously male-dominated roles of decision making. (3) Social mobility may become possible with economic changes which may result in higher social classes entering the commercial sector of the economy. The same factors may allow the farmers to leave the subsistence sector. (4) Increased income from remittances may make education available to a large segment of society and may also mean leadership roles will be available for a larger variety of people. (5) Increased wealth may make it possible for nuclear families to exist separately from the extended family and the traditional authority role of that group. (6) More money may be available to invest in rural areas.

The role of women is changing. Generally, women marry young, with the average female marriage age at around 14 years. Women also are expected by society to have children, and the average is 6.8 live births per woman. Side by side with these societal expectations is a real labor shortage due to the migration of husbands, fathers and brothers. The result is women taking on many traditionally male tasks especially in the rural agricultural labor force. Emigration and recent progress in family planning is expected to result in a decreased birth rate. This could result in children being less of a burden to the woman and may ultimately enable women to gain more economic power than they previously had. This may also result in more educational

opportunities for girls, more job possibilities and a freer social climate for women.

Increased buying power and the resultant increasing educational opportunities, changes in leadership roles, changing family authority patterns and modification in traditional roles for men and women will change some of the existing social order in Yemen.

Patterns of Mobility

The patterns of mobility which must be considered in this project are (1) labor migration patterns, and (2) rural to urban movement. The most striking example of mobility in Yemen is the outward labor migration which results in internal labor shortages. Since remittances are sent to the portion of the population who stayed at home, the obvious material benefits are seen in increased consumer goods. Migration as it now exists contributes to the direct diffusion of innovation in the country in various ways. The most obvious spread takes place when the men return to the YAR with information, goods and/or skills from other geographic regions in which they spent their term of migration. The bulk of information brought to Yemen, however, is representative of a non-Yemen country.

On several occasions, wives of workers who previously migrated commented upon the fact that when the husbands returned they demand different vegetables (from those usually served in the home) to be served at meal times. The wives indicated that they tried the new vegetables because of their husband's insistence. These vegetables then became part of the families' diet. The general acceptance of recently introduced (imported) fruits may also have been stimulated by returning workers.

Most of the Yemen's population still lives in rural areas or villages. The World Bank (1979) report estimates that the population of Sanaa and other larger cities and towns has probably doubled over the last five years.

Review of Related Previous Projects

It is obvious that previous interest, consumer demand and projects have resulted in the establishment of a large broiler producers. Poultry imports are the third largest import following petroleum and electrical equipment. Currently, there are twenty-four private poultry farms of significant size in Yemen (according to World Bank advisor to the MOA's Livestock Resources Division), all of which are broiler producing. The majority of these producing units were established in the last five years.

The first large poultry producer in the Sanaa area was the Mohammed Nasar Farm. It was financed by the Agriculture Credit Bank. The current farm manager said that the operation was badly in need of technical advice in the initial stages. Due to the lack of such technical help money was

lost, but the operation is now recovering financially. Approximately 52,000 to 62,000 broilers are produced per cycle and an expansion is planned.

The second large poultry producer in the Sanaa area was the Omeri Farm. The head of Omeri Farms, who is also the patriarch of the Omeri family, said that in 1975 he became aware of a need for more broilers on the market and realized the economic possibilities of such an enterprise. Since technical help was not readily available in the area, he sent his sons out of the country to study aspects of broiler raising in various other countries. Generally, each son specialized in certain aspects of the business. After receiving both technical and practical training, the sons returned and the farm was established. The Omeri Farms produce approximately 1,700,000 broilers per year. Plans are currently underway to enlarge the broiler operation in Sanaa and establish a hatchery in the Taiz area.

The Ministry of Agriculture and USAID recognized the need for extension training in the poultry area, and USAID established training centers in Sanaa and Taiz. The purpose was to train farmers in the production of eggs and to distribute poultry to villages. By 1978 there were four brooder houses, four layer houses, one cage laying house, one feed mill, one training center, one hatchery storage building, one water storage tank and seven lift vans at the Sanaa AID poultry unit. In 1978, the Taiz unit was composed of three brooder houses, four laying houses, one feed storage area and one training center. It appears that men were taught improved technology/techniques relative to poultry development, but since it was the women who raised the chickens the transfer of knowledge to those who would practice did not occur. The MOA estimates that this project assisted 40 small farms to be established at the village level between the years of 1977 and 1981. In 1979 the project was transferred to the MOA and is still operating under their direction.

The Sheba Farm located 17 km. east of Sanaa is a private operation consisting of four farms with four houses per farm. There are 22,000 to 25,000 birds per house. The mortality rate on this farm is approximately 5 percent. The system utilized at the Sheba Farm is a closed house system. At the Sheba Farm, chicks are imported from Holland and the farm produces two and one-half million broilers per year which they market in Sanaa and throughout the YAR. Selling of broilers takes place as early as 40 days and as late as 53 days, depending on market prices. The Sheba Farm markets their own chickens and sells to other retail dealers as well. The wholesale price for broilers in August, 1981, was 18 YR for a 40 day old broiler weighing approximately 1.2 kg. Retailers purchase the broilers at the farm and transport at their own expense to the marketplace. The farm also sells chickens and feed to smaller producers.

The Rawdah Farms located near Sanaa was originally established by the Dutch, but is now operated by the Ministry of Agriculture. There are six

broiler houses and three layer houses in this operation; only one layer house is currently in operation used for broiler breeder flocks. The capacity is such that there can be approximately 3,000 layers in each layer house. According to the farm manager, the purpose of Rawdah Farms is to sell birds to small farmers. The price of a 42 day old broiler to the farmer is 18-1/2 YR, which he can immediately sell at 20 YR+. One day old chicks are sold to the farmer for 3 YR each. Some farmers travel from as far away as 130 to 150 kilometers to purchase broilers or chicks and also feed. Many farmers rent trucks to haul the chickens, with purchased numbers ranging from 700 to 50,000 for one day old chicks.

The Southern Uplands Rural Development Project reported that as of 1978 the project had distributed 109 cocks free to farmers in three villages. The farmer was asked to slaughter his cock after receiving the improved breed cocker, and all hens were vaccinated against Newcastle. The project also encouraged the locals to establish poultry farms and helped them acquire credit from the Agriculture Credit Bank. As a result construction was begun on five poultry farms in 1978.

The Zabid literacy center under the authority of the Ministry of Education has a poultry project with 250 chickens at the center. The literacy center sells the chickens at a cheap price to both men and women. The local extension agent assists the people in learning how to care for the poultry and also assists with purchasing feed from Taiz.

The Dutch Farm at Rada has been in existence for approximately four years. The early progress reports at Rada indicate that the initial attempts to crossbreed White Leghorns with native fowl were not successful. In the early period of this project chickens were distributed without a supply of feed which resulted in failure because the people did not understand nor possess correct or adequate feedstuffs. Local corn is difficult to acquire. Villagers feed the poultry a combination of feed concentrate and kitchen scraps. No progress has been made in developing an adequate local feed supply.

Currently at Rada, layers are sold at eight weeks of age for 15 YR, which includes 2 kg. of feed. Broilers are sold at three weeks of age for 8 to 9 YR each, which includes 1 kg. of feed. These chickens are purchased by women farmers who are primarily responsible for their care. A male relative may make the actual purchase and distribute to the women of the family; however, the cash appears to come from the individual women. Most of the poultry is consumed by the household. Villages build their own chicken houses out of stone and wood. Specialized help is provided to the village women by the wife of the director of the Rada project.

Experience in the Rada Farm indicates that the method used in initiating a poultry unit in the village is of critical importance. Basically, if one person in a village is successful, then others will follow without outside motivation. At the village level, preference is still for the native poultry, and consumers will pay nearly double for native chickens as compared to non-native poultry.

The Marib Poultry Company in cooperation with the YAR government is constructing a poultry farm which is scheduled for completion in May, 1982. The site will consist of a power plant, a water well, and buildings for breeder flocks, layers, broilers, brooders, and a hatchery. The Marib Farm and another farm scheduled to open in 1982 will have a combined production capacity of 50 million eggs annually.

A Poultry Demonstration/Experiment at Mahweet attempted to address the problems of poor productivity and high mortality among the local chickens kept by the women in the area. A survey conducted by Judith Obermeyer in 1978 in the al-Mahweet area showed that 86 percent of the women surveyed reported that sickness was their major problem in raising chickens. The Mahweet demonstration project began with the establishment of a chicken house next to the nutrition center in the village. Rhode Island Red hens (from Rawdah) were housed in cages, with local hens being added later in a separate cage. Trainees in the nutrition center cared for the hens. People who visited the nutrition center frequently inquired about the hens. Accurate information was given to them and comparisons were encouraged.

The birds in the Mahweet project were fed imported feed initially, and alfalfa and ground corn were substituted when the imported feed was depleted. Locally available feeds were alfalfa hay, alfalfa meal, alfalfa green, cabbage, carrots, melons, potatoes, prickly comfrey, sorghum, barley, navy beans, kidney beans, pinto beans, bone meal, bread, corn, fishmeal, whole dried milk, millet, peanut kernels, dried skim milk, soybeans, sunflower seed and wheat. Utilizing storability, economic productivity ratio and stability of continuous supply as criteria, a feed was developed which contained wheat, barley, mixed (stored) sorghum, white (fresh) sorghum, French beans, beans, cowpeas, peanuts, fishmeal, dry skim milk, alfalfa and alfalfa leaf meal.

The observations/tentative conclusions of the Mahweet project indicated that keeping local (native) birds off the street and/or giving them better feed lowers the mortality rate significantly and slightly increases production. Foreign birds appear to be more susceptible to disease, but egg production is significantly higher than among native hens. There was some evidence among the women that Yemeni may consider caging birds as "inhumane"; however, this observation has not been fully researched. The authors of the Mahweet report suggest that if such an attitude exists, it may be changed if it can be demonstrated to the villagers that caging reduces the death rate and increases production. Additionally, if it can be demonstrated to the villagers that better feed reduces mortality rates, the people will be more apt to view buying feed as profitable. In taste tests, the villagers rated the local eggs as tasty (halli) and the foreign eggs as horrible (shua'a).

In summary, it appears that the following general conclusions can be drawn from the experiences of previous poultry projects:

1. Technical help and information must be available to producers, especially in the initial stages of the project.
2. People learn by demonstration methods which clearly show differences, techniques and equipment use.
3. There is a market for locally produced eggs and poultry meat.

Maximum Information and Resource Distances

One of the basic assumptions of the Poultry Project is the ultimate effectiveness of "hands on" or practical experiences. In order to achieve this, the project is designed so as to enable those who give information to monitor as closely as possible those who receive the information. This underlying principle will provide guidance in the training of the poultry extension workers, as well as the training of poultry producers.

In order to provide for frequent input and in-service assistance within the extension system, the informational chain for each poultry extension agent is shown below. The information going downward in the extension structure is primarily subject matter. While the information going upward is primarily designed to inform the technicians and specialists of the needs in the producing units.

Assistance Within Extension Service

<u>Title of Extension Personnel</u>	<u>Specific Service</u>	<u>Direct Benefactor</u>
Specialists in Poultry Disease, Nutrition, Management, etc.	Provides specific information upon request; in-service training, develops audio-visual materials, correlates data.	Poultry Technician
Poultry Technician	Monitors, provides back-stopping, collects data, helps with communication techniques, conducts classes, makes special information requests of both specialist and extension agent.	Poultry Extension Agent
Poultry Extension	Articulates needs to technician, requests specific information, brings uncommon problems to attention of specialists and technicians, keeps records.	Poultry Technician/ Poultry Specialist

The ratio of poultry extension agents per producing unit is designed to allow for sufficient time for each producer to be visited on-site by the agent at least once every two weeks. The maximum ratio for each producing unit is: Traditional Household Producers - 1 agent to 20 producers; Small Scale Commercial Producers - 1/2 agent to 1 women's cooperative, and 1 agent to 8 small scale commercial units; and Medium Scale Commercial Producers - 1 agent to 5 to 8 units.

Social Consequences and Benefit Incidence

Group(s) Whom Project is Intended to Help

There will be three categories of direct beneficiaries of the Poultry Extension and Training Project: producers, poultry extension workers, and families of producers. In the following section each poultry extension model is discussed in terms of intended beneficiaries.

Model 1 - Traditional Household Production - The producers in this model are largely women farmers who have been caring for poultry previously. Increased productivity will enable them to eat more poultry/poultry products and thereby increase their personal caloric and protein intake. Additional chickens and eggs will also allow the women to use their increased production to barter in the village or to contribute to family or neighborhood celebrations. Since the bulk of poultry/eggs produced in the traditional sector will be consumed by the families of the producers, those families are direct beneficiaries.

In the survey of children 3 to 30 months of age, the consumption of major food groups showed the following relative to egg or poultry consumption:

	Survey Children				Survey Children's Families			
	Combined %	Rural #	Urban %	Sanaa #	Combined %	Rural #	Urban %	Sanaa #
Eggs	6	691	13	203	8	690	14	208
Poultry	7	695	22	208	12	695	38	208
Meat	14	695	29	208	26	695	69	208
Fish	16	695	2	208	35	695	6	208

Model 2(a) - Small Scale Commercial Egg Production - Women's Cooperative - The producers in this cooperative are all women. Previously, they have been involved in a variety of subsistence activities, aside from such household chores as cooking, child-rearing, and laundry. These subsistence activities may have included care of animals, milking goats and/or cattle, gathering

fuel and fodder, hauling water, as well as planting and harvesting tasks. For an average sized family of six to eight persons, the labor of at least two women is required to accomplish the minimum household chores.

The development of a women's cooperative will enable women who can be spared from necessary household chores to participate in an income-producing activity. The income will directly benefit the women themselves as well as their families.

When the women's poultry cooperative as a concept was discussed with Fatima Fadel, Fawzia Numan and Ashwag al-Shafi of the Women's Department of the Ministry of Education, the response was very positive. They suggested Amran, approximately 50 km north of Sanaa, as a good site for the first women's cooperative. The literacy center in Amran is very active with about 60 women attending classes.

In addition to the evident interest in literacy classes in Amran, it appears that the majority of farm families devote most of their hectareage to grains. Most of the grains are retained for domestic use and like lucerne, used for fodder. Lentils and beans are sometimes intercropped with grains. The main cash crop is qat. The al-Boun study showed that 68 percent of the families owned chickens and that 7.5 was the number of chickens owned per family.

Model 2(b) - Small Scale Commercial Egg Production - Individuals or Groups - The producers in this commercial production unit will probably be men. Women and/or children may be involved as workers in the poultry unit, but the owners will probably be men. The benefits will be in the form of increased income, which may enable some farmers to move from subsistence farming to income from poultry production. Increased prestige in the community and increased opportunities for the producer and his family to participate in educational activities will also be benefits.

Models 3 and 4 - Medium Scale Commercial Egg or Broiler Production - These models are treated together because the benefits in both models are basically the same. The intended direct beneficiaries are the producers themselves, together with their families. The producers will be able to expand their income and increase their prestige, enabling them to benefit themselves and their families in various ways, including better nutrition.

An additional group of direct beneficiaries are the poultry extension workers who will receive specialized training, thereby increasing skill. Employment in a much-needed subject matter area, training, in-service help, frequent technical inputs, and opportunity for more education are among the benefits the poultry extension workers will acquire.

Group(s) Likely to be Adversely Affected by Project

Due to the extremely large consumption of eggs and poultry in Yemen, it is doubtful that in the initial stages of this project, at least, any large producer or importer will feel the effect economically. If the production of in-country poultry and/or eggs ever reaches the point that importers are adversely affected, the importers in country can then reverse and begin the exportation of poultry/eggs to other countries. The possibility of any serious adverse effect arising out of the project is extremely low. Some local producers may have to become more competitive as more poultry/eggs are produced in the area. That market result will benefit the local population and may encourage greater diversity in agricultural investment.

Group(s) Indirectly Affected by Project

The group which may ultimately receive the majority of direct improvement is the consumers who will be able to benefit through increased availability of poultry meat and eggs. The improvement in nutritional status of individuals can only be surmised due to lack of data relative to dietary patterns. However, the addition of poultry meat and eggs to the average diet can only be viewed as a positive factor, especially for expectant mothers and young children.

The local market structure may also be indirectly affected by the increased availability of poultry/eggs. Periods of egg scarcity such as experienced in Sanaa in 1980 will be avoided. This will enable people to buy eggs upon demand rather than when available.

Assessment of Social Costs and Benefits of Project

1. Access to Resources and Opportunities - An example of how access to resources has impacted on people is the improvement of roads, which exercises considerable impact on marketing patterns and other aspects of rural life. The effect of roads on towns and villages can be dramatic. When a road is developed, shops are built along it and new commodities become available. The Poultry Extension and Training Project could have just as dramatic an effect upon the primary producer as a new road. Increased resources may result in increased opportunities for education, improved housing, increased nutrition and investment possibilities.

The opportunities available to women through the poultry small scale commercial women's cooperatives are obvious. Through participation in the cooperative, they will increase resources and provide opportunities for other women to follow their example.

2. Employment - The exact number of Yemeni working and living abroad is not known. The lack of a definite number arises from an unclear definition of the migrant population. Generally, the migrants fall into

two groups: those who are working temporarily abroad, and those who are out of the country on a semi-permanent basis.

The impact of migration on the agricultural productivity of the country is generally unknown in any definite way. The informal evidence relative to migration and Yemen agriculture supports the hypothesis that agricultural production has been compromised by the departure of migrant labor. For example, L. A. Ross (Yemen Migration — Blessing and Dilemma, 1977) comments on the collapse of a tomato farm in the Tihama in 1977 due to the departure of 200 laborers. As a result of absent rural labor, agricultural wage rates have risen and imported Pakistani labor has been used on some development projects.

Other results of the migration of labor include agriculture mechanization made possible by incoming remittances. The tendency to change agricultural products from relatively labor intensive crops such as cotton or coffee has been apparent in recent years. These crops appear to be replaced by the growing of qat, which is a labor-cheap crop. The significance in this exchange of crops relates to the fact that coffee is an export crop that produces foreign exchanges.

Generally, the Poultry Extension and Training Project is designed to provide employment and income producing opportunities for a variety of persons who are not now engaged in the labor force. Successful income-generating poultry activities may encourage people to remain who would otherwise migrate to jobs outside. Certainly, being able to stay with one's family in the Yemen earning a respectable income would be desirable enough so that some of the labor losses would be lessened.

The concern that the Yemen government may have about the return of participants to Yemen after their course of study is completed must be addressed. A certain percentage, based on other countries' experiences, may not return to Yemen, but it is this writer's observation that at this point in the development of Yemen the odds are strongly in favor of a return. Based upon conversations with numerous upcoming young male and female professionals, this potential problem remains a possible consideration, but one that can be overcome by offering competitive salaries.

Possible Data Collection Plan

In order to study the impact of the poultry project on the people or the economy of individuals, anthropological and sociological research techniques should be utilized. Consulted material should include both documentary and field sources. Specific techniques may include observation, interview, case studies and schedules as well as census data. To determine how the Poultry Extension Project impacts upon the life of the family, it will be necessary to measure standards of living before the project is initiated and again at periodic times while the project is ongoing. The research must be interdisciplinary in approach and any schedule must be

carefully evaluated to ensure reliability, a measure of validity, and a culture bias free reporting system.

The list of components which should be included as indicators to measure the level of living of the people may be grouped under physical needs, mental needs, comfort and efficiency. Under physical needs, information which is required relates to nutrition, health maintenance, labor patterns, housing, and housing conditions. Under mental needs, information which is required relates to economic security, amount and use of leisure time, education and cultural attitudes. Under comfort and efficiency, the information which must be provided relates to living environment, home management, family relations and relationships within the community.

The most reliable method to utilize in such research is the observation method, augmented with a fact-finding survey. Discussion with people involved is probably the best way to ascertain motives, attitudes and values. The specific kind of information required for the project should be planned by representatives of a variety of disciplines. Information received from such research would be useful in planning specific project activities and communication techniques.

Summary and Recommendations

Summary

This project should enhance socio-economic conditions by increasing possible protein consumption by the people, by increasing the educational competence of Yemeni poultry specialists, and by increasing income opportunities among poultry growers.

The Livestock Resources Division of the MOA, will provide training, monitoring and information to the producers. Three levels of administration and training will be established; these levels are: poultry extension agents who will work directly with the producers; poultry technicians who will supervise, monitor and provide training and help to the poultry extension agents; and poultry specialists who will provide training, monitoring, specific information and materials development for the technicians, poultry agents and the project in general.

Training for Yemeni poultry workers will take place both in and out of Yemen. Training will consist of intensive training on specific topics, workshops, university classes, in-service training and laboratory sessions on practical aspects of poultry care and rearing.

Recommendations

Poultry extension agents should be taught to recognize the symptoms of diseases and the most practical means of control, in addition to knowing

where to go for informed help. In addition to poultry information, the farmers should be given general farm management information.

A support system must be developed for the poultry extension agents which will consist of audio-visual materials, specific reference materials, extension type bulletins, and some library facilities. Most of these materials can be based on materials developed in U.S. extension programs, but should be modified, simplified, and written in both English and Arabic. In addition, several bulletins should be developed utilizing line drawings and/or pictures to a great extent.

Build on traditional beliefs relative to poultry/eggs and encourage their inclusion in the diet. For example, eggs are perceived as being "heavy" as well as "strengthening" and emphasis should be put on the "strengthening" capability so they would be better accepted in the diet of the weaning child.

When working with women in rural areas, it may be practical to begin with the more mature women (age) who are in higher status in the village and whose voice is more likely to be listened to by the people in the community.

Extension trainees should be selected to the extent possible from the localities where they will be expected to work. In addition, two extension workers to an area initially would enable them to support each other in difficult situations, and would provide a period of additional peer training in the field.

The need to develop a practical and economic native feed source for poultry is of prime importance to the success of improved poultry/egg production in the traditional sector. A body of information should be developed which will articulate to the farmer the basic feed needs of poultry with local feedstuffs itemized for inclusion to meet those basic needs (Basic Four for chickens).

The women's cooperative should be set up according to the basic principles noted by Philip Dodge in the 1972 Public Affairs Pamphlet entitled "A New Look at Cooperatives." Specifically, voluntary membership is open to those who will assume the responsibilities of the cooperatives and who desire the services; the principle of one member — one vote should be basic to the cooperative; and savings/income are distributed to members according to a predetermined formula related to input. Some education will have to be given to the women relative to setting up a cooperative.

In return for training of poultry farm managers, the owners of those farms should be asked to agree to allow observation of their operation by extension personnel and producers who are part of the project. Each outlying area poultry demonstration unit should be set up so as to serve as a catalyst for development of poultry/egg production among household, small and medium producers.

ANNEX E

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

Narrative Summary	Objectively Verifiable Indicators	Means of Verification
<u>Program or Sector Goal:</u>		
To move toward selfsufficiency in poultry meat and egg production.	Ratio of Imports of eggs and poultry meat to total consumption.	Statistical series of YARG Agencies.
<u>Sub Goal:</u>		
To increase the output of eggs and poultry meat.	Amount of eggs and poultry meat produced by project participants.	Project records from poultry extension agents.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<u>Project Purpose:</u>			
To establish and implement an improved extension and training program within the Livestock Div of the MOA, YARG that will enhance egg and poultry meat production for private producers in the traditional sector and for small and medium scale producers.	<ol style="list-style-type: none"> 1. Thirty-eight poultry extension agents trained to service private sector producers. 2. Eight poultry technicians trained to supervise and monitor poultry extension agents. 3. Two poultry specialists trained to backstop poultry technicians. 	<p>Project Records</p> <p>Project Records</p> <p>Project Records</p>	<ol style="list-style-type: none"> 1. YARG can identify and hire persons for training. Housing for trainees becomes available at the Sanaa Poultry Training Center. 2. YARG can identify and hire persons for training. 3. YARG can identify and hire persons for training.
<u>Outputs:</u>			
Trained persons in the MOA to assist private producers in egg and poultry meat production.	<ol style="list-style-type: none"> 4. Twenty-six poultry farm managers trained for private industry. 	Project Records	4. Private industry will send persons for training

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<u>Outputs:</u>			
Establishment of flocks for poultry producers.	5. The establishment of 270 flocks of 15-25 layer birds in the traditional sector - primarily for household consumption.	Project Records	5. Pullets and feed are available from the rearing and distribution unit at Rawdah. YARG will order poultry feed and have available 10 kg per bird for two cycles. YARG will have sufficient quantity of feed on hand to resell at cost for the 270 flocks. YARG will deliver pullets and feed.
Building a capacity in MOA to rear and distribute pullets.	6. The establishment of 78 private small-scale egg producers with average size flocks of 500 birds.		6. Pullets and feed are available from the rearing and distribution unit at Rawdah.
	7. The establishment of 34 private mediumscale egg producers with average flocks of 2,000 birds.		7. Pullets and feed are available from the Rawdah Poultry-rearing and Distribution Center.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
	8. The establishment of four women-managed cooperatives to produce and market eggs from a flock of 500 layers.	Project Records	8. Identification of a women's group capable of managing a layer flock. Pullets and feed are available from the Rawdah Poultry-Rearing and Distribution Center.
	9. To assist 64 private broiler producers with average annual outputs of 25,000 broilers.	Project Records	9. Broiler chicks and feed are available from the Rawdah Poultry-Rearing and Distribution Center. 87
	10. To establish a pullet-rearing and distribution center at Rawdah with the capacity to produce and distribute 22,900 pullets in the first year and 77,000 by 1985.	Project Records	10. Six additional pullet rearing houses are built at RPRDC.
	11. The establishment of a self-sustaining unit within the MOA capable of sustaining the above outputs and expanding the program after 1986	Program continues after 1986	11. Capacity to rear pullets can be increased. Funds are made available.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
	12. To establish three or more satellite egg producing farms at Sanhan, Jahliah, Sadah, and other possible sites to serve for limited demonstration purposes.	Project Records	12. Farms managers are identified and trained.

Inputs:From USAID:

Technical Advisors	15 years of long-term advisors.	Signed Project Agreement	Funding becomes available on timely basis.
Pre Subproject Activities	Four poultry houses constructed as satellite demonstration units.	Project Records, On-Site Inspection	Funding made available YARG/MOA locates sites and contracts for construction. YARG/MOA supplies pullets, feed, and trains farm managers.
Poultry-rearing Houses	Four brooder houses constructed at Sanaa Poultry Training Center.	Project Records, On Site Inspection	Funding made available on a timely basis.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Supplies and Equipment	Adequate to meet needs of training course at SPIC.	Signed Project Agreement	Funding becomes available on a timely basis.
<u>From YARG:</u>			
Operating budget at RPRDC.	Six houses constructed at RPRDC to raise pullets.	Signed Project Agreement	Funding become available on a timely basis.
Operating budget at SPIC.	SPIC functioning as planned.	MOA Records	Funding becomes available on a timely basis to operate training center including room and board for trainees. 60
Poultry extension agent technician and specialist trainees.	SPIC class records Participants in U.S. in training	SPIC records. Transcript records in U.S.	Eligible trainees are identified on a timely basis. MOA able to retain trained personnel.
MOA counterparts	Poultry production officer Poultry extension officer Co-manager for RPRDC Co-manager for SPIC	Project Records	Counterparts are identified and assigned on a timely basis.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objective Verifiable Indicators	Means of Verification	Important Assumptions
Dormitory at SPTC	Dormitory in use.	Project Records	Funding becomes available on a timely basis for dormitory construction.
Producer feed subsidies	Producer flocks established.	Feed records at RPRDC.	Funding becomes available on a timely basis.
Producer feed sales	YARG maintains sufficient quantity of feed at RPRDC to resell to producers.	Feed records at RPRDC.	Funding becomes available on a timely basis.
Transportation of pullets and feed for 270 traditional producers.	Traditional producers receive feed and pullets without any transportation fee.	Project/YARG/MOA records	Funding becomes available on a timely basis.

ANNEX F

IMPLEMENTATION PLAN OF ACTIVITIES

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

<u>Year and Program</u> <u>Month of</u> <u>Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
Before Implementation	PETS Subproject Paper Approved	AID/W
" "	PETS Grant Agreement Signed	AID/YARG
" "	PETS Conditions Precedent Met	YARG
<u>First Year</u>		
1	Subproject team leader/poultry specialist in place	CID
1	Poultry Technician No. 1 (expatriate) in place	CID
1	Contract negotiated for two pullet rearing houses at Rawdah pullet Rearing and Distribution Center (RPRDC)	MOA/CID
1	Six growing houses at Rawdah RPRDC farm available as needed throughout the project	MOA
1	Excess capacity of pullets from Sanaa Poultry Training Center (SPTC) available as needed throughout the project	MOA
1, 2	Contract negotiated for dormitory at SPTC	MOA
3	8 Yemeni B.S. participants identified and begin English training	MOA/AID
3	1 Yemeni D.V.M. participant identified and begins English training	MOA/AID
3	Order pullet chicks - first batch	MOA
3	Dormitory construction begins	MOA
5	Extension agent/manager trainees identified	MOA/CID

<u>Year and Program</u> <u>Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
<u>First Year</u> 6	Producer models to receive chicks identified	MOA
6	1 Yemeni M.S. (Poultry Extension) participant identified and begins English training	MOA/AID
6	Construction begins on 2 pullet rearing houses	MOA
7	Order pullet chicks - second batch	MOA
8	Poultry Technician No. 2 (expatriate) in place	CID
8	Dormitory construction completed	MOA
9	Extension agent/manager trainees identified for second class	MOA
9	Training begins for extension agents/managers first class	MOA/CID
9	Chicks placed at SPTC	MOA
10	Producer models identified to receive chickens	MOA
10	8 Yemeni begin B.S. program	CID
10	1 Yemeni begins DVM program	CID
10	Construction completed on two pullet rearing houses at RPRDC	MOA
11	First annual evaluation external	AID
<u>Second Year</u> 1	Training starts for women extension agents/managers	MOA/CID
1	Training completed for first class extension agents/managers	MOA/CID

<u>Year and Program</u> <u>Month of Occurrence</u> Second Year	<u>Activity/Event</u>	<u>Responsibility</u>
1	Order third batch pullet chicks	MOA
1	First batch pullets distributed to producers	MOA
2	1 Yemeni begins Masters program	CID
2	Chicks placed at SPTC	MOA
2	Contract negotiated for 3 pullet rearing houses at RPRDC	MOA/CID
3	Extension agent/manager trainees identified	MOA
3	16 week old pullets available from RPRDC	MOA
4	Producer models identified to receive chicks	MOA
5	Women extension agent/managers training class completed	MOA
7	Third training class for extension agents/managers begins	MOA
7	Order pullet chicks	MOA
7	Chicks placed at SPTC	MOA
7	Distribution of second batch of pullets to producers	MOA
7	Construction begins for 3 pullet rearing houses at RPRDC ✓	MOA/CID
8	Extension agent/manager trainees identified	MOA
9	Producer models identified to receive chicks.	MOA
11	Third training class completed	MOA
11	Second annual evaluation - internal	AID/MOA/CID
11	Pullets distributed to producers	MOA

<u>Year and Program</u> <u>Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
<u>Second Year</u> 11	Construction completed on 3 pullet rearing houses at RPRDC	MOA/CID
12	Training starts for second women's class	MOA/CID
<u>Third Year</u> 1	Order pullet chicks	MOA
1	Chicks placed at SPTC	MOA
3	Extension agent/manager trainees identified	MOA
4	Producer models identified to receive chicks	MOA
4	Pullets distributed to producers	MOA
4	Sixteen week old pullets available from RPRDC	MOA
4	Second class women trainees completed	MOA
7	Fifth training class begins	MOA
7	Order pullet chicks	MOA
7	Chicks placed at SPTC	MOA
8	Extension agent/manager trainees identified	MOA
9	Producer models identified to receive chicks	MOA
11	Pullets distributed to producers	MOA
11	Fifth training class completed	MOA/CID
11	Third annual evaluation - external	AID
12	Training starts for third women's class	MOA

<u>Year and Program</u> <u>Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
Fourth Year		
1	Order pullet chicks	MOA
1	Chicks placed at SPTC	MOA
3	Extension agent/manager trainees identified	MOA
4	Producer models identified to receive chicks	MOA
4	Training completed for third women's class	MOA/CID
6	Order pullet chicks	MOA
6	Pullets distributed to producers	MOA
7	Extension agent/manager trainees identified	MOA
7	Seventh training class begins	MOA/CID
7	Chicks placed at SPTC	MOA
8	Producer models identified to receive chicks	MOA
11	Eighth training class begins	MOA/CID
11	Seventh training class completed	MOA/CID
11	Fourth annual evaluation - internal	AID/MOA/CID
11	Pullets distributed to producers	MOA
12	Chicks placed at SPTC	MOA
Fifth Year		
1	Order pullet chicks	MOA
2	Extension agent/manager trainees identified	MOA
3	Producer models to receive chicks identified	MOA
4	Eighth training class completed	MOA/CID

<u>Year and Program</u> <u>Month of Occurrence</u> <u>Fifth Year</u>	<u>Activity/Event</u>	<u>Responsibility</u>
5	Pullets distributed to producer models	MOA
6	Ninth training class begins	MOA
7	Yemeni students (B.S. degree Poultry Technician) return	CID/MOA
7	Yemeni students (DVM) return (Poultry Specialist - avian pathology)	CID/MOA
7	Chicks placed at SPTC	MOA
10	Ninth training class completed	CID/MOA
10	Pullets distributed to producer models	MOA
12	Yemeni student (Masters) returns (Poultry Specialist extension)	CID/MOA

POULTRY DEMONSTRATION PROGRAM
YEMEN ARAB REPUBLIC

MEMORANDUM OF AGREEMENT
between
MINISTRY OF AGRICULTURE
and
CONSORTIUM FOR INTERNATIONAL DEVELOPMENT

Pursuant to the Grant Agreement between the Government of the Yemen Arab Republic and the U. S. Agency for International Development for financing agricultural development activities in Yemen, the Consortium for International Development (the U.S. institution responsible for implementing such activities) and the Ministry of Agriculture of the Y.A.R. hereby jointly agree to undertake - in accordance with the approved workplan dated December 6, 1980 - a poultry demonstration activity. This activity is designed to demonstrate to Yemen farmers the efficiency of small scale egg and poultry production in Yemen and to establish the standards and techniques for managing such small-scale private operations. Expansion of this activity, if the demonstration activities are successful, into a larger scale program will be subject to future planning and alternative sources and methods of financing for the individual projects as well as the overall program.

The procedure for implementing this demonstration activity with a selected number of demonstrators (farmers) is specified below:

A. The Ministry of Agriculture agrees and confirms that it will:

1. Select all sites and individuals for participation in the Poultry Demonstration Program in accordance this Agreement.
2. Let all contracts for the construction of buildings, equipment and supplies in accordance with the attached Certification of Contractors and Suppliers.
3. Certify and approve all vouchers and invoices for payment by the Consortium for International Development in accordance with the attached Certification of Vouchers and Invoices.

4. Arrange for the construction of an approved laying hen house 7 meters wide and 30 meters long on land owned or long term leased by the demonstrator.

5. Provide for the installation of necessary waterers, feeders and laying nest in the laying hen house.

6. Supply an initial allotment (one time only) of 650 pullets (birds) three months of age.

7. Provide technical and managerial supervision and assistance for the life of the program.

8. Maintain activities on demonstration sites for a minimum of two years.

9. Assure that all eggs and cull birds produced by the program will be the property of the Demonstrator.

B. Further, the Ministry of Agriculture confirms that each demonstrator (farmer) will provide the following:

1. A suitable and approved site (~~one-half~~ ^{one} ~~hectare~~ increase in size) will be provided for the construction of the laying hen house and surrounding grounds on land owned or long term leased by the Demonstrator.

2. An adequate (150 liters per hour) and approved water supply piped under pressure to the laying hen house will be provided.

3. An adequate and approved electrical supply to the laying hen house will be provided.

4. Feed supplies as recommended and approved by the MOA will be provided.

5. Guards, laborers and management will be provided as recommended and approved by the MOA.

6. Financial and Management records will be kept and made available as recommended and approved by the MOA, for the purpose of evaluating the operation and of assisting other farmers in the initiation of a similar activity.

7. Health and Veterinary services will be provided as recommended and approved by the MOA.

8. The MOA will be kept advised at all times on the health and production of the flock and will request technical and managerial assistance when needed.

9. Following the initial allotment of 650 birds, Demonstrator will purchase and replace all 650 birds on an annual basis as recommended and approved by the MOA.

10. The Demonstration Program will be open to visitors ~~on a daily basis between the hours of 10.00 a.m. and 4.00 p.m. N/A~~ and management personnel will be present to answer visitor questions.

11. The Demonstration Program will be available to MOA personnel (on a pre-arranged basis) to hold tours, demonstrations and training courses.

C. The Consortium for International Development Agrees and Confirms that it will:

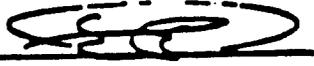
1. Make available a maximum of 1,365,000 Yemeni Rials (300,000 USA Dollars) to conduct the Poultry Demonstration Program as specified in the approved Interim Workplan for the period July 10, 1980 to March 31, 1981.

2. Promptly pay all contractors and suppliers upon certification and approval of the MOA in accordance with the attached Certification of Contractor's and Suppliers.

3. Provide technical assistance to cooperating demonstrators.

4. In collaboration with the MOA and USAID, provide a detailed operational workplan for the Poultry Demonstration Program not later than March 15, 1981.

Date 12/1/81

Signature 
 Name YAYA SA'ADA
 Title DIRECTOR GENERAL, SANAA DIST.
 Representative for Ministry of
 Agriculture

Date February 5, 1981

Signature 
 Hugh E. Henderson
 Chief of Party
 Consortium for Inter-
 national Development

ANNEX G

WOMEN'S TRAINING AND WOMEN'S COOPERATIVE

Agricultural Development Support Program (Project 279-0052)
Poultry Extension and Training Subproject

Overview of Project

The Poultry Extension Project basically aims to provide training for extension personnel in the poultry field and to provide information and/or training to producers. The five models identified include two models which are primarily aimed at helping women. Those two models are the Traditional Household Poultry Production Unit (dual-purpose birds) and the Women's Poultry Cooperative (small-scale egg production). Since these two models differ somewhat from the other three models, this annex addresses itself to these two models exclusively.

Selection of Women Agents

It is important that people, both women and men, who are selected to work in this project should have completed preparatory school. This requirement may be modified for persons who can demonstrate sufficient ability to participate in the project. For example, an older mature woman who has completed literacy training, had experience in poultry rearing and who lives in a targeted village would be a better choice for a trainee than a 15 year old just out of preparatory school who knows nothing about poultry. Such a woman would be an ideal poultry extension agent. Additional desirable attributes include respectable status in the village, desire to work, and approval of family. Consideration should be given to widowed or divorced and fatherless women because of the comparative independence they have in Yemeni society.

Child care must be available during the training sessions. If necessary, women will be able to share child care activities while in training but the instructional staff must be aware of flexibility aspects which must be part of the training cycle.

Training Cycle for Women Agents

Women and men agents shall be trained separately at different times of the year at the SPTC. Women trainees will be given the option of living in the dormitory or drawing a housing allowance and arranging their own housing. If women select to live in the dormitory, no male

instructor, technician, specialist, etc., can then live there at the same time. A respected older woman will be hired to live at the dormitory to serve as chaperone for the women trainees.

The subject matter, laboratory experiences, field trips, assignments, and daily schedules will be the same at the training center for both men and women. The training cycles will be planned so as to avoid having classes during Ramadan.

Traditional Household Poultry Production Model

Prior to the time that specific villages are identified for project activities, the subproject team leader together with a representative of the Ministry of Agriculture and any others they deem advisable will meet with village leaders and discuss the project. They should meet with political, religious, traditional, civic and "newly emerging" leaders in each targeted village. The purpose of this meeting or series of meetings is to inform the community leaders and seek their cooperation and approval. This phase of the project may be time consuming but is absolutely necessary. Without the approval of the village leadership, the project should not be attempted in that village and another village should be selected.

After the villagers have been informed and are in a cooperative mood, the individual women trained as poultry agents will go to the village to identify households with whom they will work. In order to identify specific women to participate in the traditional household production model, the women agents will spend four to six months from the time they complete training until the first chickens are ready to distribute in their assigned villages. During that time, they will discuss the project with women recognized by the village as most interested in innovation. Final selection will be made after consultation with a poultry technician and the subproject team leader.

After identification of the selected households, the agent will begin working with each woman to set up the environment in which the chickens will live after distribution. Workable and inexpensive means should be explored with each woman producer for setting up appropriate houses, nesting boxes, feeders, waterers, as well as other items necessary for meat/egg production. Information given to the women producers prior to the arrival of the birds would include basic information about handling, care and feeding. The woman producer and the environment for the poultry should be prepared by the time the birds are distributed.

After distribution, the poultry extension agent will visit the individual producers every two weeks. A visit check list will be filled out by the agent at the time each visit is made. The agent shall deliver information to the producer utilizing appropriate communication techniques. It is strongly recommended that the agent be required to have a small flock of chickens which she will care for and which will further serve as a village demonstration flock.

Women's Cooperative Egg Production Model

Background

In Yemen women are critical to food production and agriculture. When women work in cash producing crop operations, they may not be given any share in the income because cash returns are perceived as belonging to the male. Even when the male is absent, the return from the cash crop is sometimes perceived as his and must be kept for him. The control of the income normally remains in the man's hands or in the hands of a senior male relative if the male is part of the migration labor force.

The above consideration, plus the fact that women's cooperatives are successful in various other developing countries, formed the basic rationale for the development of a women's poultry cooperative in the Yemen Arab Republic. Discussions with various Yemeni women, the Women's Department of the Ministry of Education, observations of women's organizations, and discussions with MOA personnel strengthened the feeling among members of the poultry team that a women's cooperative could, 1) be successful, and 2) fulfill a real need in the traditional sector.

Issues explored in discussions relative to the women's cooperative model were the following:

1. The women's unrecognized need to work as a result of their changing economic responsibilities;
2. The importance of women's productive contribution to national development;
3. The importance of structural forces in restricting the level of demand for women workers in the labor market in contrast to the overemphasized constraints on the supply factor;
4. Factors critical to the employment of low income women such as the influences of multi-national corporations' worldwide search for cheap labor;

In addition, the following six-step approach for the creation of employment for rural women was considered in the development of the cooperative model:

1. Identification of groups of women who are most in need of income generating employment;
2. Definition of the range of economic activities in which these women are currently engaged;
3. Location of indigenous social networks around which groups of women could be mobilized to work together;

4. Establishment of sources of credit, technical assistance, and training to reach these traditionally ineligible groups;
5. Determination of needs for technology to reduce domestic burdens;
6. Identification of other cultural or structural obstacles that deny women control over the products of their labor.

Establishing the Cooperative

For purposes of clarity, each proposed step in the development of the women's cooperative is briefly discussed.

(Prior to Field Work)

1. The project staff must develop a body of information about cooperatives, present women's organizations, and governmental or legal considerations relative to cooperatives.
2. A site feasibility study must be conducted by the project staff which identifies one or more areas which would be logical locations for such a cooperative. Consideration must be given to geographic location, atmosphere, evidence of previous poultry rearing, degree of literacy among women, women's organizations or informal groups, social/cultural patterns, and leadership patterns.
3. Possible credit sources must be identified by the project staff. Bank loans or credit are usually difficult to obtain. In addition, a cosignor or guarantor is required. Specific credit possibilities must be explored and procedures to obtain credit should be detailed.

(After Site is Selected)

4. Appropriate representatives of the Poultry Project and/or Ministry of Agriculture contact the community leaders of the village. Simple, broad explanations are given at this meeting and if acceptable, further meetings are scheduled. These meetings will consist of a working subgroup made up of village representatives (their choice) and project representatives. In these subsequent meetings the entire women's cooperative plan will be discussed. The emphasis shall be upon self-help and improved conditions for the families. These first meetings should continue for as long or as frequently as considered necessary to help the leadership understand, gain their cooperation and gain their sanction.
5. Assuming that permission is received from the leadership, the next step is to begin to put together the cooperative. Information must be given to the women about the cooperative in

such a way that they do not feel that they must participate. The decision to participate is an individual one and must be made by each woman herself. Information should be given within the existing social structure of the village. The women leaders should be contacted first and their help enlisted so as to set up communications with other women.

6. Volunteers should be screened as to the list of minimum requirements noted in the Social Soundness Annex of this poultry project paper.
7. The ultimate number of women needed for the cooperative is dependent upon economic factors which are noted in the poultry project paper.

(After the Cooperative Members are Identified)

8. The poultry extension staff will provide information to the women relative to how a cooperative operates in specific detail. One device which may be used to explain the cooperative is a series of picture books. These booklets should be distributed to the women and kept for reference. Any legal procedures are worked out at this time. The work schedule, necessary investments, and other information must be understood completely by each cooperative member before the field work of the cooperative begins.
9. Physical location, equipment and enclosure building must be planned and implemented by the cooperative members. The extension agent will be closely involved in this phase of the work. Records will be kept by a member of the cooperative, if possible, but if that is not possible, the agent will keep the records.
10. Specific work schedules are devised by the cooperative members with guidance from the poultry extension agent.
11. Informational sessions, demonstrations and audio-visual media methods will be utilized by the agent to inform the cooperative members during steps 5, 8, 9 and 10.

(The Chickens are Delivered)

12. Ongoing information, record keeping, and the work of the cooperative are closely monitored by the agent. Initially, the agent is involved full-time with the women's cooperative, and as members become experienced, the primary responsibility then becomes theirs.
13. Information about marketing techniques, record keeping and help with decisions about future development are part of the agent's role as the cooperative continues.

14. The ultimate step/goal comes when the agent moves further out of the intimate workings of the cooperative and the members take over all of the tasks. The agent's role then becomes one of information distribution, training, monitoring and instruction. Special care should be given to keeping the community leaders informed so as to have their continuing support.

The development of a cooperative takes a relatively long period of time. Approximately two to three months should be allowed for the organizational period alone. Special care should be utilized in order that everyone completely understands inputs and outputs, individual responsibilities and goals. Visual aids should be relied on heavily to explain day-to-day operations, work of members, records and other relevant information.

Possible Site Location

Amran

As stated earlier in this appendix, the village recommended as the initial site for the first women's poultry cooperative was Amran. Amran is approximately 50 kilometers north of Sana'a and is connected with Sana'a by an excellent roadway.

Amran does have an active LDA whose head is Shaykh Hizam Al-Saari. People in the village commented that he was cooperative and knowledgeable. Shaykh Hizam Al-Saari should be contacted by project leaders before any other contract is made in the village.

While visiting Amran, this writer interviewed the first grade grammar school teacher who was Mrs. Dusugi. She did say that there are increasing numbers of women attending literacy classes in Amran.

The Director of the Literacy Center in Amran is Hassan Al-Shami. The Literacy Center has a staff of five teachers plus three German volunteers. The ratio of men and women teachers changes from year to year, as there appears to be much changeover in the personnel. Currently, contracts are being signed for the upcoming year so the specific breakdown of teachers relative to sex was still unknown. The Agriculture Extension Agent in Amran is Mohammad Gad who assists in the teaching at the Literacy Center. The Center is planning to have some input from the health clinic in the future and a German volunteer will teach sanitation.

When the Literacy Center teacher was presented with the concept of a women's poultry cooperative, he indicated that he felt it could work. He said ten women may be a workable number to begin with. In

addition, he reemphasized the need to work with the shaykh, the Director of the Literacy Center and the Principal of the Grammar School in setting up such a cooperative.

Taiz

Due to the relatively high rate of literacy, the number of women involved in marketing activities and the number of women's organizations, the Taiz area would be another possible site for the establishment of the women's poultry cooperative. In addition, there are presently women extension agents working in the Taiz area, and additional women poultry agents could be incorporated easily into the existing structure.

ANNEX H

TRAINING CURRICULUM

Agricultural Development Support Program (Project 279-0052)
 Poultry Extension and Training Subproject

Overview of The Poultry Extension Agents/Managers Training

Before attempting to design a training program, several people knowledgeable about education in Yemen were consulted. These included Dr. Arthur Jensen, Director of the Ibb Agricultural School at Ibb; Dr. Awadalla Hamdi, who teaches at the Ibb Agricultural School; Dr. Omar Bakri and Dr. Brian Hosie of the Veterinary Services Project Diagnostic Laboratory; and Dr. Norman Fry, principal of the Veterinary Services Project Training School.

A class size of fifteen students was selected as optimum and the first class will consist of ten extension agents trainees and five managerial trainees. Two eighteen week training cycles per year will be conducted; however, during the first year only one training cycle will be completed.

In designing the training program, special care was given to tailor the hours of the curriculum to fit the Yemeni lifestyle. Men and women will be trained separately. The first class each year will start in the spring and the second class will start after Ramadan. It has been pointed out that our curriculum may be overly ambitious, particularly as it relates to late afternoon classes; therefore, adjustments of the schedule may be necessary as the project progresses.

The trainees will be housed in a residence hall to be constructed at the SPTC. Child care may be necessary when the class for women is being conducted. Men will be required to live in the residence hall and women will be given an option. If a woman chooses not to live in the hall, she will be given a housing allowance.

The dormitory/guest house structure must be within walking distance from the poultry unit. A reasonable, workable facility would include ten double bedrooms (any of which could be converted to single bedrooms for use by instructors or to triple bedrooms for use by three extension agents or two agents and a child if necessary), ten three-quarter bathrooms (shower, toilet and sink), one kitchen, one dining/conference/large class area, one lounge/discussion/small class area. Thus, the dining and lounge areas would double as classrooms, conference rooms, or small discussion areas. Both would also serve social as well as study functions.

English is a required subject for thirty-three hours of the curriculum and an additional sixty-eight hours will be available on an optional basis for trainees if they wish. The English class was placed at the conclusion of the day's activities because recent experience has shown that students have an intense interest in the subject. A curriculum of eighteen weeks was selected because it takes sixteen weeks to raise a pullet. The two week period at the beginning will be utilized by the trainees to prepare the buildings in which their training birds will be housed and also to offer an opportunity to construct an example of the type of housing these birds will occupy when delivered to the villages. The trainees will be required to feed and care for their assigned birds throughout the training period.

Scholarship and attendance requirements will be determined and announced at the beginning of the training program. Grading will be on a pass/fail basis. A graduation ceremony will be conducted at the conclusion of the training program with an appropriate diploma from the Ministry of Agriculture presented to each successful candidate.

Curriculum Plan

Subject Matter Topics

The central subject matter topics to be covered in the training curriculum for the poultry extension agents/managers are the following:

- Basic poultry science
- Basic poultry management/rearing
- Poultry health
- Marketing
- Extension and teaching methodology
- Record keeping and monitoring, and basic mathematics
- Principles and methodology of cooperative

In addition to the above courses which relate directly to aspects of the poultry extension worker's job and the poultry manager's job, English language classes will be included in the training curriculum. The inclusion of English will serve the following purposes:

1. To attract the interest of prospective trainees;
2. To enable agents/managers to understand some technical poultry terms which are usually referred to by use of English names;
3. To enable the agents/managers to articulate more clearly poultry needs to non-Arabic speaking poultry specialists.

For purposes of clarification, each curriculum topic is discussed separately in the following section relative to general subject matter content.

In the Basic Poultry Science block information relating to the history of the poultry industry, breeds and strains of poultry currently being raised and basic information on the types of poultry operations currently in production in the world will be given.

The Basic Poultry Management/Rearing block will present information on management requirements including feeding and lighting schedules, ventilation, temperature and space requirements. In addition, information relating to equipment needs and possible substitutions for commercially available items such as feeders and waterers will be discussed. The above information will be presented as applied to layers, broilers, dual-purpose and breeder birds.

The Poultry Health block will address disease control and basic sanitation, the diagnosis of some commonly observed diseases and practical experience in necropsy procedures of normal birds so that normal tissues and organs are recognized.

The subject matter included in the Extension and Teaching Methodology curriculum blocks will include information delivery systems appropriate to each type of producer. The development and use of audio-visual materials, one-to-one teaching methods, group discussions, discovery teaching methods, and demonstration techniques will be included in this section. Emphasis will be upon effective communication techniques and the "training and visit" extension methodology.

The curriculum block which deals with the Principles and Methodology of Cooperatives will include information which relates to: background work necessary for development of a cooperative, credit and financial concerns, the initial steps in cooperative development, work scheduling and membership responsibilities. In addition, techniques for gaining acceptance from village leadership will be discussed and a specific work schedule for the poultry extension agent will be developed.

In the Marketing block information relating to the techniques of profitable marketing eggs from the small-scale women's cooperative, small and medium-scale producers will be presented.

The Record Keeping block will be concerned with collecting, maintaining and analyzing data from the aforementioned models on an ongoing basis. Toward this end, specific checklists have been developed for each model to assist the agent in gathering this information (see page 117).

Training Schedule

In developing the final training schedule for the poultry extension agents, each topic was scrutinized as to importance in the agents/managers work. Subject matter topics which were deemed most important were allotted more time in the schedule than those of less importance.

The subject matter training blocks are listed below, together with the number of actual hours and the resulting percentage of time devoted to each block. (see page 123)

<u>Subject Matter Blocks</u>	<u>Actual Hours</u>	<u>Time Percentage</u>
Extension and Teaching Methodology	65	20.0
Basic Poultry Management/Rearing	58	17.5
Poultry Health	58	17.5
Marketing	33	10.0
English Language	33	10.0
Basic Poultry Science	27	8.3
Record Keeping, Monitoring and Basic Mathematics	27	8.3
Principles and Methodology of Cooperatives	27	8.3
	<hr/>	<hr/>
Total Hours	328	100.0
Optional English	68	
	<hr/>	
Total Hours	396	

In addition to the subject matter blocks there will be 306 hours of laboratory experience. Field trips and other types of learning experiences will also be part of the overall training curriculum. Hours devoted to any subject matter area can be adjusted depending on class composition.

Training Techniques and Possible Instructors

Techniques

A variety of training techniques will be used in the training of poultry extension agents and poultry managers. Two purposes will be served by this type of presentation; namely, that a variety of techniques will help the agents/managers to learn, and the use of the techniques will demonstrate to the agents/managers how they themselves can make use of the techniques. In addition, agents/managers will be required to utilize different techniques in class presentation and laboratory exercises.

The balance of lecture classes with laboratory experiences will allow for field trips scheduled at meaningful times. The laboratory experiences are at the heart of the training schedule, as these laboratory hours require involvement and responsibility of the agents. Two agents/managers will be assigned to each poultry-rearing unit and will be responsible for the care, feeding and maintenance of the birds within their unit throughout the growing period of sixteen weeks.

Extensive use will be made in the training of audio-visual materials. The agents/managers will review audio-visual aids developed in other countries relative to poultry and will then develop booklets, leaflets, cassettes, posters and other materials which they will use when they begin to work with the producers. Slide shows specially aimed at rather narrow areas of poultry production will be available for agents to view individually. In addition, training lectures will be taped and the tapes will be available for agents/managers to review as they desire in non/class time.

Since the agents/managers will be together for relatively long periods of time as farm facilities will be available, assignments which encourage peer cooperation will be made. Peer instruction will be used whenever possible so as to reinforce teaching techniques. If possible, videotapes should be used so trainees can practice demonstrations while taping and can evaluate their own performance afterwards. Instructors in the training unit should demonstrate self-evaluation as a teaching tool for trainees. Evaluation of students should be done in a positive, supportive way. Public negative evaluations should not be utilized to humiliate students.

Possible Instructors

The expatriate subproject team leader and extension specialist will be primarily in charge of the actual training sessions. Prior to the time when Yemeni are trained to take over instructor roles in the training center, most of the teachers will be from the expatriate or TDY ranks. All poultry expatriates will be involved in the teaching of specific topics. Additional teaching capabilities will be drawn from the Veterinary Services Project in Sana'a, Ibb School faculty, and the Sana'a Agricultural Extension Service Office. Information should be gathered from the Ministry of Agriculture as to other possible instructors or guest lecturers from the Ministry Livestock Division. The USDA Intensive Poultry Production Systems Course in the United States should be considered as a resource.

It is anticipated that English classes will be handled by the Peace Corps Office. A discussion with Mr. Dichter, Yemen Peace Corps Director, indicated that the Peace Corps is receptive to the idea of teaching English to the poultry trainees. Specific financial arrangements will have to be made later.

Selection Criteria

The following paragraphs list the minimum requirements for personnel involved with the extension/managers training program and for producers who will ultimately receive birds.

Ministry of Agriculture Linkage Personnel/Counterparts

Requirements: A complete understanding of the goals and purposes of the project; a positive attitude toward the poultry project and CID personnel; extensive knowledge of Yemen and the people of Yemen; a degree in agriculture or a closely related field; good speaking, reading and understanding of the English language; understanding and knowledge of poultry in Yemen; good relationships within Ministry of Agriculture and Yemen government; good communication skills; and an ability to organize and get the job accomplished.

Poultry Extension Agents

Requirements: A preparatory level education and special training in aspects of poultry products; ability to work with the traditional sector; ability to live and work within a rural or village area; an understanding of the goals and purposes of the project; and ability to read, write and speak Arabic.

Poultry Technicians

Requirements: A B.S. or comparable degree in Poultry Science; ability to supervise and monitor the activities of poultry extension agents; ability to communicate in English and Arabic; an understanding of and a commitment to the goals and purposes of the poultry project; practical experience in poultry production; and knowledge, understanding and appreciation of socio-cultural aspects of Yemeni rural life.

Poultry Specialists

Requirements: A M.S., D.V.M. or comparable degree in Poultry Science; ability to work with and communicate with poultry technicians; an understanding of a commitment to the goals and purposes of the poultry project; knowledge, understanding and appreciation of socio-cultural aspects of Yemeni rural life; ability to compose and/or coordinate the development of audio-visual materials/programs which will be effective in the education of people in the traditional sector, in small-scale production and in medium-scale production; and ability to interact effectively with personnel in the Ministry of Agriculture or other relevant government units.

Traditional Sector Household Egg/Poultry Producers

Requirements: A willingness to participate and accept advice; past experience with raising poultry; an availability of cash or credit with which birds, feed and necessary equipment can be purchased; a willingness to allow extension personnel to visit the home production area; and physical access to village markets.

Small-Scale Commercial Egg Producers

Requirements: Previous experience with laying birds; a willingness to attend instructional classes, workshops or short courses dealing with aspects of poultry production and marketing; ownership of property/money or access to credit which will enable the establishment of a small-scale commercial egg production center; located in area with access to appropriately sized market; has access to a source of transportation; and a willingness to try unfamiliar technology.

Medium-Scale Commercial Egg/Broiler Producers

Requirements: Previous experience with laying and growing birds; a willingness to attend instructional classes, workshops or short courses dealing with aspects of poultry production and marketing; ownership of property/money or access to credit which will enable the establishment of a medium-scale (1,000+ hens and/or 5,000 broilers) commercial center; located in area with access to appropriately sized market; has access to a source of transportation; a willingness to try unfamiliar technology; and access to an adequate labor source.

In addition to the personnel listed above another group, not as directly involved, would be composed of the satellite farm managers. It will be necessary for these managers to possess an understanding of the project, a knowledge of the principles of good poultry-rearing, production and management. The poultry unit managers must also be willing to cooperate with the poultry extension agents, technicians and specialists in setting up on-site visits and possible training.

Information and Training Techniques for the Traditional Household Poultry Egg/Producers

Information to be Imparted

Basic poultry management; basic sanitation; disease signs and other abnormalities; poultry housing, lighting and ventilation; poultry nutrition; poultry extension agent's role; necessary record keeping.

Techniques for Dissemination of Information

- Picture books
- Cassette tapes
- Demonstrations
- Discussion groups
- Home visits

**Information and Training Techniques
for Small-Scale Commercial Women's Egg Cooperative**

Information to be Imparted

Basic poultry management
 Basic sanitation
 Disease signs and other abnormalities
 Poultry housing, lighting and ventilation
 Poultry nutrition
 Poultry Extension Agent's role
 Necessary record keeping
 Marketing techniques for eggs
 Financing
 Principles of cooperatives

Techniques for Dissemination of Information

Picture books
 Cassette tapes
 Demonstrations
 Discussion groups
 Home visits
 Movies or film strips (if available)
 Field trip to nearest demonstration unit

**Information and Training Techniques
for Small-Scale Commercial Egg Producers**

Information to be Imparted

Basic poultry management
 Basic sanitation
 Disease signs and other abnormalities
 Poultry housing, lighting and ventilation
 Poultry nutrition
 Poultry Extension Agent's role
 Necessary record keeping
 Marketing techniques for eggs

Techniques for Dissemination of Information

Picture books
 Cassette tapes
 Demonstrations
 Discussion groups
 Home visits
 Movies or film strips (if available)
 Field trips to nearest demonstration units

**Information and Training Techniques
for the Medium-Scale Commercial Egg Producer**

Information to be Imparted

- Basic poultry management
- Basic sanitation
- Disease signs and other abnormalities
- Poultry housing, lighting and ventilation
- Poultry nutrition
- Poultry Extension Agent's role
- Necessary record keeping
- Marketing techniques
- Care and maintenance of mechanical feeders and waterers
- Financing
- Environmental housing information (when applicable)
- Basic bookkeeping methods

Techniques for Dissemination of Information

- Cassette tapes
- Demonstrations
- Discussion groups
- Home visits
- Movies (if available)
- Instruction sheets
- Booklets
- Suggested reading materials
- Posters

**Information and Training Techniques
for the Medium-Scale Commercial Broiler Producer**

Information to be Imparted

- Basic poultry management
- Basic sanitation
- Disease signs and other abnormalities
- Poultry housing and light and ventilation
- Poultry nutrition
- Poultry Extension Agent's role
- Necessary record keeping
- Marketing techniques
- Care and maintenance of mechanical feeders and waterers
- Financing
- Basic bookkeeping methods

Techniques for Dissemination of Information

Cassette tapes
Demonstrations
Discussion groups
Home visits
Field trips
Movies (if available)
Instruction sheets
Booklets
Suggested reading materials
Posters

Monitoring Techniques

Monitoring will be conducted on an ongoing basis at several levels. In order to clarify specific needed information, the following checklists will be used by the poultry extension agent.

Agents' Checklist to be Used on Frequent Periodic Visits To Traditional or Small-Scale Commercial Producers

To be Answered by the Producer:

- _____ Number of birds present
- _____ Survival rate (original number minus present number)
- _____ Reason for loss if loss occurred:
- _____ Disappeared - unknown causes
- _____ Died - list specific cause or signs
- _____ Family consumed
- _____ Sold
- _____ Bartered or gave away
- _____ Number of eggs gathered to date from last visit
- _____ Problems with eggs:
- _____ Soft shell
- _____ Cracked shells
- _____ Palatability
- _____ Color satisfaction
- _____ Other (list)

Do you eat more chickens now than you did before you got chickens?

_____ Yes

_____ No

What feed is given to birds?

_____ Commercial only

_____ Commercial plus:

_____ Table scraps

_____ Greens

_____ Meat

_____ Other (list)

_____ Local grain

Who cares for the chickens? (primary care)

_____ Women _____ Men
_____ Children _____ Hired help

To be Answered by the Agent:

Condition of cage and equipment

_____ Very good _____ Average _____ Poor

General Sanitation

_____ Very good _____ Average _____ Poor

Condition of Birds

_____ Very good _____ Average _____ Poor

Specific kind of help/information provided on this visit: _____

Necessary follow-up: _____

Date of Visit: _____ Signature: _____

Checklist for Agents' Visits to Women's Cooperative

To be Answered by the Producer(s):

- _____ Number of birds present
- _____ Survival rate (original number minus present number)
- _____ Reason for loss if loss occurred
- _____ Disappeared - unknown cause
- _____ Died - list specific cause or signs
- _____ Consumed by family members
- _____ Battered or gave away

Were any birds sold since last visit?

_____ Yes _____ No

If yes, location of sale: _____

_____ If yes, price per bird: _____

_____ Number of eggs gathered to date from last visit
 _____ How many consumed by cooperative members
 _____ How many sold?
 Location of sale: _____

 Price per flat of 30 eggs: _____
Problems with eggs
 _____ Soft shell _____ Palatability
 _____ Cracked shell _____ Color satisfaction
 _____ Other (list) _____
Do you eat more chickens now than you did before you got chickens?
 Yes _____ No _____
What feed is given to birds?
 _____ Commercial only
 _____ Commercial plus:
 _____ Table scraps _____ Greens
 _____ Meat _____ Other (list) _____
 _____ Local grain _____
Who cares for chickens?
 _____ Members of the cooperative _____ Hired help - be specific
 _____ Other women _____ Children of members of
 the cooperative
 _____ Other Children

To be Answered by the Agent:

Condition of cage and equipment
 _____ Very good _____ Average _____ Poor
General Sanitation
 _____ Very good _____ Average _____ Poor
Condition of birds
 _____ Very good _____ Average _____ Poor

Specific kind of help/information provided on this visit: _____

 Necessary follow-up: _____

Date of visit: _____ Signature: _____

**Checklist for Agents' Visits
To Medium-Scale Commercial Egg Producers**

To be Answered by the Producer/Manager

_____ Number of birds present

_____ Survival rate (original number minus present number)

_____ Reason for loss if loss occurred:

_____ Dissapeared - unknown causes

_____ Died - list specific cause or sign

_____ Family consumed

_____ Sold

_____ Bartered or gave away

_____ Egg records:

_____ Number of eggs gathered to date from last visit

_____ Number sold in same time period

_____ Price per flat of 30 eggs

_____ Location of sale: _____

_____ Problems with eggs:

_____ Soft shell _____ Palatability

_____ Cracked shells _____ Color satisfaction

_____ Other (list) _____

_____ What feed is given to birds:

_____ Commercial only

_____ Commercial plus:

_____ Table scraps _____ Greens

_____ Meat _____ Other (list) _____

_____ Local grain _____

_____ Cost paid per feed item checked above:

<u>Feed Stuff</u>	<u>Units Purchased</u>	<u>Price per Unit</u>
-------------------	------------------------	-----------------------

Extension Agents'/Managers' Training Schedule

WEEK 1	7:30	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	
Day 1-6	BASIC POULTRY SCIENCE		Breakfast 9-10 a.m.	BASIC POULTRY SCIENCE		Lunch 12:30-2:30 p.m.		PREPARE CHICKEN HOUSE FOR CHICKS		ENGLISH		
WEEK 2												
Day 1-6	Day 1-2 BASIC POULTRY SCIENCE			BASIC POULTRY MANAGEMENT			BUILD TRADITIONAL CHICKEN HOUSE			ENGLISH		
	Day 3-6 BASIC POULTRY MANAGEMENT											
WEEK 3												
Day 1-6	Day 1-2 PLACE CHICKS IN HOUSES			BASIC POULTRY MANAGEMENT			CARE OF CHICKS			ENGLISH		
	Day 3-6 CARE OF CHICKS											
WEEK 4												
Day 1-6	CARE OF CHICKS			BASIC POULTRY MANAGEMENT			CARE OF CHICKS			ENGLISH		
WEEK 5												
Day 1-6	CARE OF CHICKS		Day 1-3 BASIC POULTRY MANAGEMENT			CARE OF CHICKS			ENGLISH			
	Day 4-6 POULTRY HEALTH											
WEEK 6												
Day 1-6	CARE OF CHICKS			POULTRY HEALTH			CARE OF CHICKS		1-3 ENGLISH			
									Day 4-6 OPTIONAL ENGLISH			

WEEK 7	7:30	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00
Day 1-6	CARE OF CHICKENS		Breakfast 9-10 a.m.		POULTRY HEALTH		Lunch 12:30-2:30 p.m.		CARE OF CHICKENS		OPTIONAL ENGLISH
WEEK 8											
Day 1-6	CARE OF CHICKENS				POULTRY HEALTH				CARE OF CHICKENS		OPTIONAL ENGLISH
WEEK 9											
Day 1-6	CARE OF CHICKENS			Day 1-2 POULTRY HEALTH Day 3-6 EXTENSION METHODOLOGY				CARE OF CHICKENS		OPTIONAL ENGLISH	
WEEK 10											
Day 1-6	CARE OF CHICKENS			EXTENSION METHODOLOGY				CARE OF CHICKENS		OPTIONAL ENGLISH	
WEEK 11											
Day 1-6	CARE OF CHICKENS		Day 1-3 EXTENSION METHODOLOGY Day 4-6 MARKETING				CARE OF CHICKENS		OPTIONAL ENGLISH		
WEEK 12											
Day 1-6	CARE OF CHICKENS			MARKETING				CARE OF CHICKENS			

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WEEK 13	7:30	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00
Day 1-6	CARE OF CHICKENS		Breakfast 9-10 a.m.	Day 1-4 MARKETING Day 5-6 COOPERATIVES			Lunch 12:30-2:30 p.m.	CARE OF CHICKENS		OPTIONAL ENGLISH	
WEEK 14											
Day 1-6	CARE OF CHICKENS			COOPERATIVES				CARE OF CHICKENS		OPTIONAL ENGLISH	
WEEK 15											
Day 1-6	CARE OF CHICKENS			Day 1-4 COOPERATIVES Day 5-6 EXTENSION METHODOLOGY II			CARE OF CHICKENS		OPTIONAL ENGLISH		
WEEK 16											
Day 1-6	CARE OF CHICKENS			EXTENSION METHODOLOGY II				CARE OF CHICKENS		OPTIONAL ENGLISH	
WEEK 17											
Day 1-6	CARE OF CHICKENS			Day 1-4 EXTENSION METHODOLOGY II Day 5-6 RECORD KEEPING			CARE OF CHICKENS		OPTIONAL ENGLISH		
WEEK 18											
Day 1-6	CARE OF CHICKENS			RECORD KEEPING				CARE OF CHICKENS		OPTIONAL ENGLISH	

ANNEX I

FINANCIAL BUDGET

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

1982 to 1986

(Thousands of Dollars)

PERSONNEL COSTSOn Campus

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Project Director, 0.7 FTE Avg.	42.0	42.0	31.5	21.0	10.5	147.0
Secretary, 1.0 FTE	13.0	13.0	13.0	13.0	13.0	65.0
TDY Consultants, 18 months	63.0	42.0	31.5	31.5	21.0	189.0
Fringe Benefits, 26%	<u>30.7</u>	<u>25.2</u>	<u>20.7</u>	<u>17.0</u>	<u>11.6</u>	<u>105.2</u>
Subtotal	148.7	122.2	96.7	82.5	56.1	506.2

Off Campus

Poultry Spec./Team Leader, 1.0 FTE	42.0	42.0	42.0	42.0	42.0	210.0
Poultry Technician, 1.0 FTE	20.0	20.0	20.0	20.0	20.0	100.0
Poultry Technician, 1.0 FTE	20.0	20.0	20.0	20.0	20.0	100.0
Allowances, 36%	29.5	29.5	29.5	29.5	29.5	147.5
Fringe Benefits, 26%	18.7	21.3	21.3	21.3	21.4	104.0
Move In/Move Out	30.0	-	60.0	-	30.0	120.0
Storage	4.5	4.5	4.5	4.5	4.5	22.5
Education Allowance (3)	17.4	17.4	17.4	17.4	17.4	87.0
Medi-Vac	2.0	2.0	2.0	2.0	2.0	10.0
R & R	<u>-</u>	<u>10.5</u>	<u>-</u>	<u>10.5</u>	<u>-</u>	<u>21.0</u>
Subtotal	184.1	167.2	216.7	167.2	186.8	922.0
Overhead On Campus, 35.4% MDTC	52.6	43.3	34.2	29.2	19.9	179.2
Overhead Off Campus, 22.4% MDTC	38.2	43.3	34.2	29.2	19.9	179.2
G and A 10% MDTC	33.3	28.9	31.3	25.0	24.3	203.5
DBA, 4.75% Overseas Base Salary	<u>3.9</u>	<u>3.9</u>	<u>3.9</u>	<u>3.9</u>	<u>3.9</u>	<u>19.5</u>
Subtotal	128.0	113.6	117.9	95.6	89.9	545.0
TOTAL	460.8	403.0	431.3	345.3	332.8	1,973.2

<u>OTHER COSTS</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Total</u>
<u>Local Costs</u>						
Poultry Houses & Equipment ¹	305.0	405.0	135.0	-	-	845.0 ²
Staff salaries ³	50.0	50.0	50.0	40.0	40.0	230.0
In-Country Training	15.0	15.0	15.0	15.0	15.0	75.0
In-Country Per Diem	12.0	12.0	12.0	12.0	12.0	60.0
In-Country CORE Support ⁴	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>500.0</u>
Subtotal	482.0	582.0	312.0	167.0	167.0	1710.0
<u>Commodities</u>						
Office Supplies	15.0	15.0	15.0	15.0	15.0	75.0
Vehicles	30.0	-	15.0	-	-	45.0
Poultry Equipment	-	10.0	10.0	5.0	5.0	30.0
Teaching Materials	10.0	10.0	10.0	10.0	10.0	50.0
Miscellaneous	<u>10.0</u>	<u>10.0</u>	<u>10.0</u>	<u>10.0</u>	<u>10.0</u>	<u>50.0</u>
Subtotal	65.0	45.0	60.0	40.0	40.0	250.0
<u>Training - USA</u>						
Participants (10)	102.6	216.6	228.0	136.8	11.4	695.4
Travel	<u>12.6</u>	<u>1.4</u>	<u>-</u>	<u>12.6</u>	<u>1.4</u>	<u>28.0</u>
Subtotal	115.2	218.0	228.0	149.4	12.8	723.4
<u>Evaluations</u>						
External - two	50.0		50.0			100.0
Internal - two		<u>20.0</u>		<u>20.0</u>		<u>40.0</u>
Subtotal	50.0	20.0	50.0	20.0		140.0

¹First year needs include \$35,000 for equipment for the demonstration farm units

²An additional \$300,000 will be charged to the subproject for demonstration units built as preproject activity.

³Two drivers, translator, secretary

⁴Staff housing, utilities, motor pool operation

SUMMARY

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Total</u>
<u>Personnel Costs</u>						
On Campus	148.7	122.2	96.7	82.5	56.1	506.2
Off Campus	184.1	167.2	216.7	167.2	186.8	922.0
Overhead	<u>128.0</u>	<u>113.6</u>	<u>117.9</u>	<u>95.6</u>	<u>89.9</u>	<u>545.0</u>
Subtotal	460.8	403.0	431.3	345.3	332.8	1,973.2
<u>Other Costs</u>						
Local Costs Financing	482.0	582.0	312.0	167.0	167.0	1,710.0
Commodities	65.0	45.0	60.0	40.0	40.0	250.0
Training - USA	115.2	218.0	228.0	149.4	12.8	723.4
Evaluations	<u>50.0</u>	<u>20.0</u>	<u>50.0</u>	<u>20.0</u>		<u>140.0</u>
Subtotal	712.2	865.0	650.0	376.4	219.8	2,823.4
Contingency, 5%	58.6	63.4	54.1	36.1	27.6	239.8
Inflation	<u>-</u>	<u>126.8</u>	<u>227.1</u>	<u>238.9</u>	<u>256.4</u>	<u>849.2</u>
Total	1,231.6	1,458.2	1,362.5	996.7	836.6	5,885.6
Core Pre-subproject Expenditures						<u>300.0</u>
GRAND TOTAL						6,185.6

BUDGET SUMMARY

POULTRY EXTENSION AND TRAINING SUBPROJECT

(thousands dollars)

USAID

Personnel Costs		\$ 1,973.2	
On Campus	\$ 506.0		
Off Campus	922.0		
Overhead	545.0		
Other Costs		\$ 2,823.4	
Local Costs Financing	\$1,710.0		
Commodities	250.0		
Training - USA	723.4		
Evaluations	140.0		
Contingency		\$ 239.8	
Inflation		<u>\$ 849.2</u>	
Subtotal		\$ 5,885.6	
Pre-subproject expenses from Core Subproject		<u>300.0</u>	
TOTAL		\$ 6,185.6	\$ 6,185.6

YARG

(thousands rials)

Operating Budgets		17,764	
SPTC	7,850		
RPRDC	9.914		
Salaries		5,232	
Dormitory at SPTC		500	
Producer Subsidies (May be up to 25 YR per pullet in selected cases)		<u> </u>	
Subtotal		23,496	
Pre-subproject Demonstration Farms		<u>315</u>	
TOTAL		23,811 YR = U.S.	<u>\$ 5,227.4*</u>
PROJECT TOTAL			\$11,413.0

*1 YR = \$.22 or U.S. \$1.00 = 4.555 YR

ANNEX J

ENVIRONMENTAL ASSESSMENT STATEMENTAgricultural Development Support Program (Project 279-0052)
Poultry Extension and Training Subproject

The Poultry Extension and Training Subproject will have no adverse environmental impact in the YAR. The following items were considered in arriving at the above conclusion.

Energy Use

The main source of energy utilized in this project will be propane used in providing heat in the brooding of chicks. All propane gas used in the YAR is imported. The use of partial house brooding and the mild climate greatly reduce the amount of propane required. The area of the house used for brooding will be heavily insulated.

The amount of electricity used will be minimal and only a small portion will be supplied by small portable generators.

In view of the latitude involved a potential exists for solar energy development. At the present time, use of this technology is not feasible because the energy required to set it up for each small unit will be greater than expenditures of fossil fuels for several years forward.

Site Locations

The YAR has already established satellite poultry units at Saadah, Sanhan and Jahliah. Two more are planned for Irian and Hajjah. Specific sites for the latter two have not yet been identified. Of the three established sites, two units at Saadah are located on Ministry of Agriculture land, the one at Jahliah is adjacent to a lava flow, and the one at Sanhan is located on land not generally suitable for crop production.

The existing Sana'a Poultry Extension Unit and the Rawdah Poultry Farm are both located a short distance north of Sana'a on Ministry of Agriculture property that has been designated for this use. Location of other buildings connected with the Extension Training phase of this project at the above locations has not been determined. Both these farms are located adjacent to administrative offices.

Land Use and Access

In general, it is anticipated that the proposed poultry units connected with the extension phase of this project will not utilize significant amounts of agricultural land and are an integrated part of existing poultry operations. Existing units located out of Sana'a are adjacent to roads, facilitating the marketing of eggs and poultry meat.

Public Health

The virus of Newcastle Disease may cause a mild transient conjunctivitis in man; however, this condition is rarely observed.

The zoonotic implications of salmonellosis, a ubiquitous enteric bacterial disease, are recognized. The health care management of the birds (described elsewhere in this paper) in this project is deemed adequate to control this eventuality.

All dead birds will be disposed of by incineration or deep pit burial in locations situated to avoid contamination of the aquifer. Drainage of the site is no problem because all water is retained and consumed on this semi-arid site.

No other significant zoonotic implications are anticipated.

Feed

At the present time, virtually all feeds used in poultry production in the YAR are imported. Should surplus grains become available locally, they could be incorporated into the poultry rations, depending upon cost.

Waste Disposal

As the poultry houses are cleaned at the end of the growing or laying cycle, the manure and litter will be sold directly to farmers who use it to fertilize their crops. No manure or litter will be stored for extended periods at any of the poultry locations. This can be considered a positive mitigating effect. In some cases, the farmers actually clean the houses in order to obtain the manure. Storage for only three days at the most would not allow odors or insects to develop.

Flora and Fauna

Alfalfa is planted between poultry houses on the existing farm. This is a supplemental green feed and helps moderate the heat around the houses.

ANNEX K

FIRST ANNUAL WORK PLAN

Agricultural Development Support Program (Project 279-0052) Poultry Extension and Training Subproject

INTRODUCTION

The work plan covers four months in the present work plan year - January 1, 1982 - April 30, 1982 and the full work plan year of May 1, 1982 to April 30, 1982.

The YARG has indicated that a poultry production/extension activity should have a high priority within the Yemen Title XII Program. Therefore during these sixteen months covered by this work plan the poultry subproject will be devoted to the continual improvement, expansion and development of new programs that will enhance the activities initiated by the CID/CORE pre-subproject activity. Oregon State University has been selected as the lead institution for the Poultry Subproject.

The purpose of the poultry extension and training subproject is to establish, implement and improve the extension and training within the livestock division of the MOA, YARG and will enhance egg and poultry meat production for the traditional sector and for small and medium-scale producers. Outputs for the poultry and extension training subproject are of four types:

1. Trained producers
2. Establishment of private producers in poultry production
3. Enhancement of institutional capabilities of the MOA
4. Support to establish satellite poultry farms used for demonstration purposes.

Some of the activities for which efforts will be devoted are:

A. Training Components

1. Poultry extension agents for MOA
2. Poultry farm managers for private producers
3. Poultry technicians for MOA
4. Poultry specialists for MOA
5. Inservice training poultry extension agents
6. Demonstrations and extension agents for private producers

B. Curriculum Development

1. A complete training curriculum will be prepared for the extension agents/managers
2. Poultry subproject administrators will join with officials in the MOA in the development of these training materials
3. At the conclusion of each training session poultry subproject administrators and officials from the MOA will review and evaluate the curriculum and make recommended changes

C. Private Producer Components to be Addressed

1. Traditional sector egg and meat producers - primarily for subsistence
2. Small-scale commercial egg producers
3. Women's/other cooperatives
4. Medium-scale commercial egg producers

D. Institutional Components

1. Livestock resources division - Ministry of Agriculture - YARG
Animal Production Department:
Poultry extension agents
Poultry technicians
Poultry specialists

E. Physical Components

1. Rawdah Poultry-Rearing and Distribution Center (RPRDC)
2. Sana'a Poultry Training Center (SPTC)
3. Satellite poultry units with limited demonstration capacity

F. Cooperative Relationships

1. Poultry subproject staff will develop cooperative relationships with officials in the MOA and CID/CORE and with other CID subproject staff and the Agricultural Advisor for CID/CORE and his counterpart.

G. Employment of Expatriate Staff

1. Poultry Subproject Team Leader/Poultry Specialist (1) in Yemen
2. Technicians (2) in Yemen
3. Project Director (0.7 FTE) located at OSU
4. Secretary located at OSU (1)

H. TDY Consultants

1. TDY consultants will be used periodically during the course of this poultry subproject
2. TDY consultants will be given specific technical and planning responsibilities that will enhance the outputs of subproject programs

I. Counterpart Assignment

1. MOA will assign a counterpart to the poultry team leader
2. MOA will assign counterparts to the two technicians
3. English language training will be provided to counterparts as necessary

J. Evaluation

1. First annual evaluation will be external and should take place eleven months after the initiation of the poultry subproject
2. Evaluation will be conducted according to the collaborative mode and include appropriate officials from YARG, CID, USAID
3. Evaluation will be external

IMPLEMENTATION PLAN OF ACTIVITIES

<u>Year and Program</u> <u>Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
First Year		
1	Technician No. 1 (expatriate) in place	CID/MOA/AID
1	Six growing houses at Rawdah (RPRDC) farm constructed previously and are available as needed through- out the project	MOA
1	Excess capacity of pullets from Sana'a Poultry Training Center (SPTC) available as needed throughout the project	MOA
1	TDY Consultant to Sana'a for three months	CID
1	Purchase supplies, equipment, vehicles, teaching materials, etc.	CID
1,2	Initiate contract negotiations for pullet-rearing houses (RPRDC)	MOA/CID
1,2	Initiate contract negotiations for dormitory at SPTC	MOA/CID
1,2	Secretary at OSU - recruit and hire	CID
1,2,3	Subproject Team Leader/Poultry Specialist - recruit and hire	CID
1,2,3	Eight Yemeni B.S. participants identified for English training at YALI	MOA/AID/(CID?)
1,2,3	One Yemeni D.VM participant iden- tified for English training at YALI	MOA/AID/(CID?)
1,2,3	Project Director (0.7 FTE) at OSU - recruit and hire	CID/MOA/AID
1,2,3	Technician No. 2 - recruit and hire	CID/MOA/AID
3	Order pullet chicks - first batch	MOA
3	Dormitory construction begins at SPTC	MOA/CID
5	Extension agent/manager trainees identified for training at SPTC (max 15)	MOA/CID

<u>Year and Program Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
First Year		
6	Producer models to receive chicks identified	MOA
6	One Yemeni M.S. (Poultry Extension) participant identified for English training at YALI, and graduate training in the U.S.	MOA/AID/CID
6	Construction begins on two pullet-rearing houses at RPRDC	MOA/CID
7	Order pullet chicks - second batch	MOA
8	Dormitory construction completed	MOA/CID
9	Extension agent/manager trainees identified for second class (max 20)	MOA
9	Chicks placed at SPTC	MOA
10	Producer models identified to receive chickens	MOA
10	Eight Yemeni begin B.S. program in U.S.	CID
10	One Yemeni begins D.VM program in U.S.	CID
10	One Yemeni begins M.S. (Poultry Extension)	CID
10	Construction completed on two pullet-rearing houses	MOA/CID
11	First annual evaluation - external collaborative mode	AID/CID/YARG
13	Training starts for women extension agents/managers (max. 20)	MOA/CID
13	Training completed for first class extension agents/managers	MOA/CID
13	Order third batch pullet chicks	MOA
13	First batch pullets distributed to producers	MOA
14	Chicks placed at SPTC	MOA
14	Initiate contract negotiations for pullet-rearing houses	MOA/CID
15	Extension agent/manager trainees identified (max. 20)	MOA

<u>Year and Program</u> <u>Month of Occurrence</u>	<u>Activity/Event</u>	<u>Responsibility</u>
First Year		
15	Sixteen week-old pullets available from RPRDC	MOA
	Producer models identified to receive chicks	MOA

FIRST ANNUAL WORK PLAN

FINANCIAL BUDGET

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

(Thousands of Dollars)

PERSONNEL COSTS

<u>On Campus</u>	<u>Jan. 1, 1982 to April 30, 1982</u>	<u>May 1, 1982 to April 30, 1983</u>
Project Director, 0.7 FTE Avg.	14.0	42.0
Secretary, 1.0 FTE	4.3	13.0
TDY Consultants, 18 Months	31.5	45.5
Fringe Benefits, 26%	<u>13.0</u>	<u>26.1</u>
Subtotal	62.8	126.6
<u>Off Campus</u>		
Poultry Spec./Team Leader, 1.0 FTE	14.0	42.0
Technician, 1.0 FTE	6.6	20.0
Technician, 1.0 FTE	6.6	20.0
Allowances, 36%	8.0	29.5
Fringe Benefits, 26%	5.8	21.3
Move In/Move Out	30.0	-
Storage	4.5	4.5
Education Allowance (3)	5.7	17.4
Medi-Vac	2.0	2.0
R & R	<u>-</u>	<u>10.5</u>
Subtotal	83.2	167.2
Overhead On Campus, 35.4% MDTC	22.2	43.3
Overhead Off Campus, 22.4% MDTC	14.2	37.5
G and A 10% MDTC	12.6	28.9
DBA, 4.75% Overseas Base Salary	<u>1.3</u>	<u>3.9</u>
Subtotal	50.3	113.6
TOTAL	196.3	407.4

<u>OTHER COSTS</u>	<u>Jan. 1, 1982 to April 30, 1982</u>	<u>May 1, 1982 to April 30, 1983</u>
<u>Local Costs</u>		
Poultry Houses and Equipment ¹	270.0	405.0
Staff Salaries ²	16.5	50.0
In-Country Training	15.0	15.0
In-Country Per Diem	12.0	12.0
In-Country CORE Support ³	<u>33.0</u>	<u>100.0</u>
Subtotal	346.8	582.0
<u>Commodities</u>		
Office Supplies	15.0	15.0
Vehicles	45.0	-
Poultry Equipment ⁴	35.0	10.0
Teaching Materials	10.0	10.0
Miscellaneous	<u>10.0</u>	<u>10.0</u>
Subtotal	115.0	45.0
<u>Training - USA</u>		
Participants (10)	102.6	216.6
Travel	<u>12.6</u>	<u>1.4</u>
Subtotal	115.2	218.0
<u>Evaluations</u>		
External - one		<u>50.0</u>
		50.0

¹An additional \$300,000 will be charged to the subproject for demonstration units built as preproject activity

²Two drivers, translator, secretary

³Staff housing, utilities, motor pool operation

⁴First year needs are for satellite farm units

SUMMARY

<u>Personnel Costs</u>	<u>Jan. 1, 1982 to April 30, 1982</u>	<u>May 1, 1982 to April 30, 1982</u>
On Campus	62.8	126.2
Off Campus	83.2	156.1
Overhead	<u>50.3</u>	<u>115.2</u>
Subtotal	196.3	397.5
<u>Other Costs</u>		
Local Costs	346.8	582.0
Commodities	115.0	45.0
Training - USA	115.2	218.0
Evaluations	<u>-</u>	<u>70.0</u>
Subtotal	577.0	915.0
TOTAL	758.3	1,312.5
Contingency, 5%	37.9	65.6
Inflation	<u>-</u>	<u>131.2</u>
TOTAL	796.2	1,509.3

JOB DESCRIPTIONS**Agricultural Development Support Program (Project 279-0052)****Poultry Extension and Training Subproject**

TITLE: Poultry Program Director - Yemen Title XII Agricultural Development Support Program at the Department of Poultry Science, Oregon State University, Corvallis, Oregon.

REPORTS TO: Head, Department of Poultry Science, Oregon State University, Corvallis, Oregon.

MAJOR DUTIES AND RESPONSIBILITIES: To monitor the activities of the poultry specialists and poultry technicians in implementing the extension and training program, to include:

- 1) Development of audiovisual aids;
- 2) Extension-type information;
- 3) Prompt response to requests for information utilizing the resources of the Department of Poultry Science for use by the program.
- 4) Where necessary, shall be available for TDY service;
- 5) When necessary, develop leaflet-type information for use by the program;
- 6) To participate in the evaluative process as it relates to personnel performance and progress of the program;
- 7) To assume leadership in the recruitment of personnel as needed.

QUALIFICATIONS: A Ph.D. degree or equivalent in the form of degree or experience in some poultry related area is desirable.

It should be recognized that the average full-time employee requirement in the five year program is 0.7 to be allocated as follows: 1.0, 1.0, 0.75, 0.50, 0.25 for years one through five respectively.

SALARY, RANK AND APPOINTMENT STATUS: Open, commensurate with background, qualifications, and experience. Rank shall be at the Associate Professor level or above. The appointment status will be on a twelve-month annual basis, subject to the full-time employee limitations noted above. In case of appointments from within OSU or other CID Universities, individuals will take leave without pay from their respective unit.

- TITLE:** Poultry Specialist, Subproject Team Leader
- MAJOR RESPONSIBILITIES:** S/he will primarily be responsible for assisting the Ministry of Agriculture in extending information to and providing training for its emerging poultry industry. S/he will serve as a technical advisor to the Ministry of Agriculture, CID sub-projects, and USAID Mission on matters relating to poultry production, processing, marketing and distribution. S/he will provide leadership and liaison to the Ministry of Agriculture, CID and USAID Mission.
- SPECIAL DUTIES:** Provide leadership and liaison to the Ministry of Agriculture, CID and USAID Mission on assisting farmers in establishing laying flocks at various locations in the Yemen Arab Republic. Provide leadership in extending poultry information and initiating a training program for the support of the poultry industry in the YAR. Included might be services in:
- 1) pullet-rearing and layer management
 - 2) broiler production
 - 3) feed and nutrition
 - 4) health
 - 5) hatchery operations
 - 6) egg processing
 - 7) distribution and marketing
- QUALIFICATIONS:** If employed by Oregon State University, this individual will assume a twelve-month tenure track appointment in the Department of Poultry Science, Oregon State University. A Ph.D. degree in some phase of Poultry Science is essential. In maintaining departmental balances preference will be given to individuals with training in poultry nutrition and/or management. Minimum of five years experience in Poultry Science and/or production required. Equivalent education and experience may be considered. This may include combinations of research, extension, consulting, advisory service and administration. International experience and foreign language capability highly desirable; Arabic preferred but not essential.
- SALARY AND RANK:** Open, commensurate with background, qualifications, and experience. Salary includes 25% post allowance, 6% cost of living, 5% Sunday work (Project adheres to Islamic Sabbath which falls on Friday). The appointment in the Department of Poultry Science will be at the Associate Professor level.

TITLE: Poultry Technician

REPORTS TO: Poultry Specialist, Subproject Team Leader

MAJOR RESPONSIBILITIES: The Poultry Technician will function as a member of the CID/CORE support team of advisors. S/he will have major responsibility under the Poultry Specialist and/or Chief of Party in handling various aspects of a Ministry of Agriculture sponsored Poultry Demonstration Village Program designed for layers. S/he must be able to operate with MOA personnel.

SPECIFIC DUTIES: Provide management advice as needed for Poultry Demonstration Units. Provide poultry extension training program at Sanaa Poultry Training Center.

QUALIFICATIONS AND EXPERIENCE: B.S. degree in Poultry highly desirable, B.S. in an agriculture discipline required. Some farm experience desirable.

LENGTH OF ASSIGNMENT: Two years

SALARY: Base salary open, commensurate with background, qualifications and experience. In addition to base salary, remunerations also include 25% post differential and additional allowances totaling approximately 10% regulations are also provided.

IS SEEN AS AN EXPANSION OF PROJECT 279-0019, WHY IS THE EMPHASIS SHIFTED FROM 50-200 BIRD FLOCKS TO 650 BIRD UNITS; SINCE 0019 H D 70 DEMONSTRATIONS, WHY ARE 12 MORE NEW ONES NEEDED? IS THE TECHNOLOGY QD MANAGEMENT, AND ECONOMICS SUFFICIENTLY DIFFERENT?

B. SOCIAL IMPACT. THE MOA/CID MEMORANDUM OF AGREEMENT SETS FORTH STIFF INVESTMENT REQUIREMENTS FOR ERICIPATING FARMERS INDICATING IT MAY EXCLUDE ALL BUT WEALTHY VILLAGERS OR COOPERAT-VEST/LDAS. WHAT IS THE IMPACT ON SMALL FLOCK PRODUCTION, AND PARTICULARLY WOMEN'S INCOME BY INTRODUCING 650 CHICKEN UNITS? WHAT ARE CONSTRAINTS TO FEMAL INVOLVEMENT IN LARGER SCALE PRODUCTION? IS THERE AN INTERMEDIATE SIZE UNIT OR LEVEL OF EFFORT REQUIRED WHICH COULD BE ADAPTED IN ORDER TO ENSURE THAT WOMEN WILL BE ABLE TO PARTICIPATE IN PROJECT BENEFITS? ACCESS OF SMALL FLOCK PRODUCERS TO IMPROVED MANAGEMENT PRACTICES NEEDS TO BE DESCRIBED.

C. ECONOMIC IMPACT. DOES A LOCAL (RURAL) MARKET EXIST FOR EGGS FOR 650 BIRD VILLAGE FLOCKS OR WILL PRODUCTION BE FOR THE URBAN MARKET? IF FOR LOCAL MARKET, WILL IT DISPLACE TRADITIONAL SMALL FLOCK PRODUCERS; IF FOR URBAN MARKET CAN IT COMPLETE WITH IMPORTED EGGS UNDER CURRENT PRICE POLICY AND IF NOT WHAT PRICE AND IMPORT POLICY CHANGE IS NEEDED? ARE COSTS AND RETURNS FROM EGG PRODUCTION SUFFICIENT INCENTIVE FOR FARMERS TO PARTICIPATE IN THE PROGRAM RATHER THAN INVEST IN BROILERS OR OTHER VENTURES? THIS IS ESPECIALLY IMPORTANT REGARDING COST OF FEED CONCENTRATES. A COMPARSION WITH TRADITIONAL HOME FLOCK PRODUCTION WOULD BE HELPFUL. THE 1980 EVALUATION BY CID OF PROJECT 0019 QUESTIONS WHETHER THERE IS AN ECONOMIC BASE FOR A NATIONAL EXPANSION OF EGG PRODUCTION IN YEMEN AT THIS TIME. WHAT IS THE JUSTIFICATION/EVIDENCE WHICH INVALIDATES THIS CONCERN?

D. PUBLIC VS PRIVATE SECTOR. THE NEED FOR GOVERNMENT EXTENSION/TRAINING SUPPORT FOR THE POULTRY INDUSTRY IS UNDERSTOOD. HOWEVER, AN EXPLANATION IS NECESSARY AS TO WHY THE GOVERNMENT NEEDS TO BE THE SOURCE OF SUPPLY FOR CHICKS OR PULLETS FOR DEMONSTRATION UNITS AND WHY THE VETERINARY FACILITIES SHOULD NOT BE DEVELOPED IN THE PRIVATE SECTOR? IT WOULD BE USEFUL TO HAVE A DESCRIPTION OF CURRENT PRIVATE SECTOR INVOLVEMENT IN POULTRY INDUSTRY IMPORTATION, MARKETING, DISTRIBUTION AND PRODUCTION.

2. FOUR MEMBERS OF THE SPP DESIGN TEAM WERE IN AID/W ON AUGUST BE TO REVIEW THE ABOVE ISSUES AND THEY HAVE BEEN DISCUSSED WITH ADO PETERSON. IT IS IMPORTANT THAT AN EARLY RESPONSE BE MADE TO THESE ISSUES SO THAT FINAL ACTION CAN BE TAKEN ON THE SPID.

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3. ASSUMING THE ISSUES IN PARA (1) ABOVE ARE ADEQUATELY ADDRESSED ENABLING THE SPID TO BE APPROVED THE SPP SHOULD REPLY TO THE FOLLOWING ADDITIONAL NFAC ISSUES.

A. EXTENSION. THE PRESENT MOA POULTRY EXTENSION SYSTEM NEEDS TO BE DESCRIBED. WILL THE EXTENSION SERVICE AT THE END OF THIS PROJECT BE CAPABLE OF SUPPORTING THE PRIVATE VILLAGE POULTRY INDUSTRY BEING DEVELOPED? AN ADEQUATE DESCRIPTION IS NEEDED ON HOW THE OUTREACH/EXTENSION PROCESS WILL WORK BEYOND SETTING UP DEMONSTRATION UNITS. THE REQUIREMENT FOR WOMEN IN THE EXTENSION PROCESS SHOULD BE DISCUSSED. A DESCRIPTION AND ASSESSMENT OF THE TRAINING AND EXTENSION SYSTEMS ESTABLISHED UNDER PROJECT 0019 AND THEIR PRESENT LEVEL AND EFFECTIVENESS WOULD BE HELPFUL.

B. OTHER DONORS. A DESCRIPTION OF DUTCH ACTIVITIES ON DEVELOPING FEEDCONCENTRATES FROM LOCAL SOURCES AND THE EXPECTED RELATIONSHIP AND IMPACT ON THIS PROJECT IS NEEDED. ALSO, ANY OTHER RELATED DONOR ACTIVITIES SHOULD BE INCLUDED.

C. IF CONSTRUCTION OF 65 BIRD OR SMALLER COMMERCIAL SCALE PRODUCTION FACILITY IS EVENTUALLY INCLUDED IN PROJECT THE CRITERIA FOR WHO WILL RECEIVE THEM AND WHERE THEY WILL BE LOCATE ARE IMPORTANT (COST SHARING MANAGEMENT WILL ALSO BE A MAJOR CONSIDERATION).

D. YARG PARTICIPATION. THE SPID FAILS TO PROVIDE ANY DETAIL ON THE NATURE OF YARG INPUT, OR TO CORRELATE IT WITH CORE WORKPLAN ESTIMATES. SOME ITEMS IN WORK PLAN; SPACE APPEAR MORE APPROPRIATE FOR YARG THAN U.S. FINANCING. ALSO, IT IS IMPORTANT THAT PRIVATE SECTOR AND YARG CONTRIBUTIONS BE CLEARLY DELINEATED. SPP MUST PROVIDE SUFFICIENT BUDGET DETAIL ON YARG AND NON-GOVERNMENT INPUTS.

E. PROJECT SIZE. THIS DOLS 8.5 MILLION SUBPROJECT INCLUDES 20 YEARS OF EXPATRIATE TA AND 10 YEARS OF U.S. SUPPORT. SPP SHOULD CAREFULLY ADDRESS AND JUSTIFY APPROPRIATE SIZE OF SUBPROJECT WITH VIEW OF REDUCING U.S. INPUT IF FEASIBLE.

4. WE ARE PREPARED TO EXCEED \$100,000 LIMIT ON PRE-SPID ACTIVITIES, PARTICULARLY FOR TECHNICAL ASSISTANCE INSTITUTION BUILDING COMPONENT OF PROJECT, BST NO JUSTIFICATION FOR AMOUNT REQUESTS INCLUDED IN SPID. ADVISE AMOUNT AND PURPOSES. HAIG

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NA

279-0052 AGRICULTURAL DEVELOPMENT SUPPORT: POULTRY EXTENSION/
TRAINING SUBPROJECT

SECSTATE WASHDC

UNCLAS SANAA 5706

ADM AID

REFS: (A) STATE 6071 (B) PETERSON/MORROW TELCON AUGUST 27, 1981

1. THIS CABLE WILL PROVIDE INTERIM RESPONSE TO QUESTIONS RAISED IN REF A. FULL DETAILS TO ALL QUESTIONS WILL BE PART OF THE FINAL PP. MISSION EXPECTS TO REVIEW FIRST DRAFT ON SEPTEMBER 9, 1981. THE PP DIFFERS IN EMPHASIS FROM THE PID AS A RESULT OF CID DESIGN TEAM'S FURTHER RESEARCH AND INVESTIGATIONS. REVISED EMPHASIS STRESSES INSTITUTIONAL DEVELOPMENT, EXTENSION AND TRAINING WHICH MAKES SOME OF THE QUESTIONS IN REF A LESS RELEVANT. HOWEVER WE DO NOT ANTICIPATE ANY SIGNIFICANT CHANGE IN THE BUDGET TOTALS PRESENTED IN THE SPID. THE PROJECT WILL MEET TWO CRITICAL NEEDS IN THE DEVELOPMENT OF YEMEN'S POULTRY INDUSTRY - (A) TRAINED TECHNICAL PERSONNEL AND (B) A SOURCE OF LAYER PULLETS. FOLLOWING IS A SUMMARY OF THE REVISED PROJECT DESIGN CONTAINED IN THE FIRST PP DRAFT OUTLINE.

2. PROJECT PURPOSE IS TO ESTABLISH AND INSTITUTIONALIZE AN IMPROVED EXTENSION AND FARMER TRAINING CAPACITY IN THE MOA AND THAT WILL ENHANCE EGG AND POULTRY MEAT PRODUCTION FOR PRIVATE PRODUCERS IN THE TRADITIONAL SECTOR AND FOR SMALL-SCALE COMMERCIAL PRODUCERS. POULTRY EXTENSION AGENTS, POULTRY TECHNICIANS, AND POULTRY SPECIALISTS WILL BE TRAINED. UTILIZING THESE PROJECT-TRAINED PERSONNEL, PROJECT OUTPUTS WILL INCLUDE TRAINED SMALL AND MEDIUM SCALE PRIVATE EGG PRODUCERS, ESTABLISHMENT OF AN MOA PULLET REARING AND DISTRIBUTION CENTER, TESTING AND FORMULATION OF A GROWER AND LAYER RATION USING LOCAL FEEDSTUFFS AND ESTABLISHMENT OF AN MOA CAPACITY TO ASSIST FOUR DIFFERENT PRIVATE PRODUCER MODELS AS FOLLOWS:

A. PROVIDING DUAL PURPOSE BIRDS TO PRIVATE PRODUCERS IN THE TRADITIONAL SECTOR BY ASSISTING THE DEVELOPMENT OF 15-25 BIRD FLOCKS.

B. SMALL SCALE COMMERCIAL EGG PRODUCERS WITH FLOCKS OF 100-500 BIRDS. A SUBSET OF THIS MODEL IS TO ASSIST A WOMEN'S COOPERATIVE GROUP TO PRODUCE AND SELL EGGS FROM A FLOCK OF 500 LAYERS.

AGR:TATWOOD:HB

9/2/81

A/DIR:RWBECKMAN

Clearances: AGR:HPPeterson

PROG:DFredrick

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C. MEDIUM SCALE COMMERCIAL EGG PRODUCERS - 2,000 LAYERS.

D. MEDIUM SCALE COMMERCIAL BROILER PRODUCERS - 60,000 BROILERS.

3. THE PROJECT'S INSTITUTIONAL FOCUS WILL BE THE LIVESTOCK RESOURCES A BRANCH OF THE MOA'S ANIMAL PRODUCTION DIVISION. THE LIVESTOCK RESOURCES BRANCH CONTAINS BOTH A POULTRY AND EXTENSION SUB DIVISION. FYI MOA RECENT REORGANIZATION ELIMINATED THE EXTENSION DIRECTORATE WITH ITS GENERALIST EXTENSION AGENTS AND INSTEAD PLACED EXTENSION AGENTS WITHIN TECHNICAL DIRECTORATES WHERE THEY WILL SPECIALIZE AND SHOULD RECEIVE NEEDED TECHNICAL BACKSTOP SUPPORT. ENG FYI.

4. ANOTHER RECENT DEVELOPMENT SINCE SPID SUBMISSION IS THAT THE DUTCH ARE PULLING OUT OF THEIR POULTRY PROGRAM IN RAWDAH. THIS LEAVES CID IN POSITION TO ADVISE AND ASSIST MAO IN THE TOTAL SPECTRUM OF THEIR POULTRY EFFORTS. YARG POULTRY FACILITIES BUILT UNDER DIFFERENT PROJECT AUSPICES CAN NOW BE COMBINED INTO AN INTEGRATED/COORDINATED POULTRY ASSISTANCE EFFORT. THE PROJECT 279-0019 FACILITIES IN SANAA WILL BE A TRAINING CENTER, THE DURCH FARM IN RAWDAH WILL BE THE PULLET REARING SITE, AND THE SATELLITE PRODUCTIONS UNITS BUILT AS PART OF THE 0052 CORE PRE POULTRY SUBPROJECT START UP ACTIVITIES WILL BE VILLAGE LEVEL DEMONSTRATION/EXTENSION CENTERS.

5. MISSION FEELS THAT BASIS FOR THIS PROJECT IS TRAINING AND INSTITUTION BUILDING WHICH CAN SUPPORT BOTH THE EXISTING TRADITIONAL EGG PRODUCTION AND COMMERCIAL EGG PRODUCTION. ALSO IT IS IN THE MOA AND USAID INTEREST TO SUPPORT A PROGRAM WHICH CAN SHOW QUICK PRODUCTION RESULTS. BESIDES THESE SOCIAL/POLITICAL REASONS THERE IS AN ECONOMIC JUSTIFICATION FOR THE PROJECT. THE YARG WANTS TO REDUCE ITS EXPENDITURE OF FOREIGN EXCHANGE (MORE THAN 14 MILLION DOLLARS IN 1980) FOR EGG IMPORTS. FYI APPROXIMATELY HALF OF THE EGGS CONSUMED ARE IMPORTED. THE FOLLOWING PRELIMINARY BUDGETS ARE BASED ON ASSUMPTIONS THAT WILL BE SPELLED OUT IN THE PP. THE TRADITIONAL (10-25 BIRDS) PRODUCERS SHOULD HAVE AN ANNUAL RETURN PER BIRD OF 40 YEMEN RIALS (EIGHT DOLLARS AND EIGHTY CENTS) FOR THE OWNERS LAND, LABOR, AND MANAGEMENT. FOR SMALL AND MEDIUM SCALE PRODUCERS UP TO 2,000 BIRDS THE ANNUAL RETURN PER BIRD TO OWNERS LAND, LABOR AND MANAGEMENT INDICATES ABOUT 16 YEMEN RIALS (THREE DOLLARS AND FIFTY CENTS). HALF THE EGGS CONSUMED IN YEMEN ARE PRODUCED BY SMALL-MEDIUM SCALE TRADITIONAL PRODUCERS. AN IMPROVED INSTITUTIONAL CAPACITY BY THE MOA IN POULTRY EXTENSION, RESEARCH, AND PULLET PRODUCTION WILL BE OF DEFINITE ECONOMIC BENEFIT TO YEMEN'S TRADITIONAL PRODUCERS.

6. USAID REQUESTS THAT NRAC APPROVE SPID AT THE SAME TIME THAT THEY APPROVE THE SPP. USAID, CID AND MOA WILL RESPOND TO FULL RANGE OF ISSUES AND QUESTIONS RAISED IN REF A. WITH THE SPP. EXPECT SPP TO BE HAND CARRIED TO AID/W ON SEPTEMBER 25, 1981 BY CID INTEGRATED CROPS AND WATER DESIGN TEAM LEADER BELCHER. PLEASE ADVISE.

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ANNEX M

611(e) CERTIFICATION

Poultry Extension and Training Subproject
Project 279-0052
Agricultural Development Support

I, Charles D. Ward, the Director of the U.S.A.I.D. in Yemen have taken into account among other things the maintenance and utilization of projects in Yemen previously financed or assisted by the United States and the specific assistance this subproject provides in manpower development and institution-building. I certify that Yemen has the financial and the human resources to effectively maintain and utilize planned subproject outputs.



Charles D. Ward

15 Nov 81
(Date)

ANNEX N

STATUTORY CHECKLIST

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights?
 1. Yes
 - Not applicable
2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the United States unlawfully?
 2. No
3. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?
 3. Yes
4. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?
 4. Yemen is not known to be in violation of the requirements of this section.
5. FAA Sec. 620(e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?
 5. Yemen is not known to be in violation of the requirements of this section.

A.

6. FAA Sec. 620(a), 620(f); FY 79 App. Act, Sec. 108, 114 and 606. Is recipient country a Communist country? Will assistance be provided to the Socialist Republic of Vietnam, Camodia, Laos, Cuba, Uganda, Mozambique, or Angola?

7. FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?

8. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property?

9. FAA Sec. 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?

10. FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters:

a. has any deduction required by the Fishermen's Protective Act been made?

b. has complete denial of assistance been considered by AID Administrator?

11. FAA Sec. 620; FY 79 App. Act, Sec. 603.
 (a) Is the government of the recipient country in default for more than six months on interest or principal of any AID loan to the country?
 (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds?

6. No.

7.(a) No.

(b) No.

8. Some damage was caused to U.S. property when diplomatic relations were severed in 1967 and the general U.S. feeling is that Yemen failed to take adequate measures at that time to attempt to prevent this damage. Although specific action was not taken by either side with respect to this damage to U.S. property, the matter has been discussed at length by U.S. and YARG officials. At present all evidence indicates that the YARG would do everything in its power to prevent such mob action if it appeared imminent again

9. An investment guaranty agreement has been concluded with the YARG COVERING the risks mentioned.

10. Not applicable

11. (a) No.

(b) No.

A.

12. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the percentage of the country's budget which is for military expenditures, the amount of foreign exchange spent on military equipment and the amount spent for the purchase of sophisticated weapons systems? (An affirmative answer may refer to the record of the annual "Taking Into Consideration" memo: "Yes, as reported in annual report on implementation of Sec. 620(s). This report is prepared at time of approval by the Administrator of the Operational Year Budget and can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)
12. N/A
13. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?
13. Yemen severed diplomatic relations with the U.S. in 1967. Relations have been resumed and new bilateral assistance agreements have been negotiated since resumption.
14. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget?
14. To AID's knowledge, Yemen's U.N. obligations are fully met.
15. FAA Sec. 620A, FY 79 App Act, Sec. 607. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism?
15. No.
16. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA?
16. AID has no knowledge of any such objection.

A.

17. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it detonated a nuclear device after August 3, 1977, although not a "nuclearweapon State" under the non-proliferation treaty?

17. No.

B. FUNDING CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria

a. FAA Sec. 102(b)(4). Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development, on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy?

1. While no specific criteria have been developed to assess commitment and progress of Yemen in areas mentioned, the YARG is judged by USAID to be making adequate progress in all enumerated areas, given the extreme obstacles to development posed by Yemen's social, political and economic milieu. The YAR Government Five Year Plan gives high priority to programs designed to (1) increase agricultural productivity and (2) beneficially affect the role of the rural poor. The plan gives particular emphasis to an expansion of agricultural extension activities.

b. FAA Sec. 104(d)(1). If appropriate is this development (including sahel) activity designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in programs such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor?

No

B.

2. Economic Support Fund Country Criteria

a. FAA Sec. 502B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights?

2. Not applicable

b. FAA Sec. 533(b). Will assistance under the Southern Africa program be provided to Mozambique, Angola, Tanzania, or Zambia? If so, has president determined (and reported to the Congress) that such assistance will further U.S. foreign policy interests?

c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

d. FY 79 App. Act, Sec. 113. Will assistance be provided for the purpose of aiding directly the efforts of the government of such country to repress the legitimate rights of the population of such country contrary to the Universal Declaration of Human Rights?

e. FAA Sec. 620B. Will security supporting assistance be furnished to Argentina after September 30, 1978?

A. GENERAL CRITERIA FOR PROJECT

1. FY 79 App. Act Unnumbered; FY 80 App. Act Unnumbered; FAA Sec. 634A; Sec. 653(b);
(a) Describe how authorizing and appropriations Committees of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure)?

1. Notification contained the Congressional Presentation.

2. FAA Sec. 611(a) (1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

2. (a) Yes
(b) Yes

4.

3. FAA Sec. 611(a) (2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?
3. No further legislative action is required.
4. FAA Sec. 611(b); FY 79 App. Act Sec. 101; FY 80 App. Act Sec. (501.) If for water or water-related land resource construction, has project met the standards and criteria as per the Principles and Standards for Planning Water and Related Land Resources dated October 25, 1973?
4. Yes
5. FAA Sec. 611(c). If project is capital assistance (a.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?
5. N/A project is not capital assistance.
6. FAA Sec. 209. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs.
6. No
7. FAA Sec. 601(a). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.
7. This project is designed to assist all levels of the poultry industry from traditional to commercial producers. The YAR Government will be provided the prerequisite inputs so it can promote items a-e.
8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).
8. Project will encourage private U.S. trade insofar as AID-financed equipment and engineering services are and will be of U.S. source and origin. Shipping will be on U.S. flag vessels for AID-financed equipment.

A.

9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?

11. FAA Sec. 601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

12. FY 79 App. Act, Sec. 608; FY 80 App. Act Sec. (521.) If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity?

9. The project agreement will stipulate the YARG contribution of local currencies to meet at least 25% of the cost of the project. The U.S. owns no foreign currencies which can be utilized for this project.

10. The Yemen Arab Republic is not an excess currency country.

11. The selection procedures for collaborative assistance will be followed.

12. Not applicable

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria
 a. FAA Sec. 102(b); 111; 113; 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives,

1. This subproject will directly involve the poor and women who are the only source of local egg production in Yemen. This subproject will assist them first. Women will form cooperatives and receive special training. Items a-d will be addressed by this subproject but not item (e).

B.1

especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

b. FAA Sec. 103, 103A, 104, 105, 106, 107.
Is assistance being made available: (include only applicable paragraph which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

(1) (103) for agriculture, rural development or nutrition; if so (a) extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, full account shall be taken of the needs of small farmers, and extensive use of field testing to adapt basic research to local conditions shall be made; (b) extent to which assistance is used in coordination with programs carried out under Sec. 104 to help improve nutrition of the people of developing countries through encouragement of increased production of crops with greater nutritional value, improvement of planning, research, and education with respect to nutrition, particularly with reference to improvement and expanded use of indigenously produced food-stuffs; and the undertaking of pilot or demonstration programs explicitly addressing the problem of malnutrition of poor and vulnerable people; and (c) extent to which activity increases national food security by improving food policies and management

(1) The Poultry Extension and Training Subproject, using section 103 funds, will provide technical agricultural assistance to implement a YAR government projects designed to produce and extend data which will permit the rural poor to increase agricultural productivity and income.

B.1

and by strengthening national food reserves, with particular concern for the needs of the poor, through measures encouraging domestic production, building national food reserves, expanding available storage facilities, reducing post harvest food losses, and improving food distribution.

(2) (104) for population planning under sec. 104(b) or health under Sec. 104(c); if so, (a) extent to which activity emphasizes low-cost, integrated delivery systems for health, nutrition and family planning for the poorest people, with particular attention to the needs of mothers and young children, using paramedical and auxiliary medical personnel, clinics and health posts, commercial distribution systems and other modes of community research.

(3) (105) for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development; and (b.) extent to which assistance provides advanced education and training of people in developing countries in such disciplines as are required for planning and implementation of public and private development activities.

(4) (106) for technical assistance energy, research, reconstruction, and selected development problems; if so, extent activity is: (1) (a) concerned with data collection and analysis, the training of skilled personnel, research on and development of suitable energy sources, and pilot projects to test new methods of

(2) The project is one of the least cost alternatives for improving the nutrition level and the income of the rural population. Insofar as the increased egg and meat production is consumed by the rural children they could be major beneficiaries of the project. The project is not otherwise involved in low cost health delivery.

(3) Non formal education in poultry rearing will be directly assisted by the training center and extension agents which are part of this project. The degree participants will study poultry production and other planning and management subjects necessary to administer a poultry development program.

No. All sections of this paragraph 4 (i) through (vi), are not applicable to the project.

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energy production; and (b) facilitative of geological and geophysical survey work to locate potential oil, natural gas, and coal reserves and to encourage exploration for potential oil, natural gas, and coal reserves.

(ii) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development organizations;

(iii) research into, and evaluation of, economic development processes and techniques;

(iv) reconstruction after natural or manmade disaster;

(v) for special development problems, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(vi) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

c. (107) is appropriate effort placed on use of appropriate technology? (relatively smaller, cost-saving, labor using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor.) 4c. Not applicable.

d. FAA Sec. 110(a). Will the recipient country provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter costsharing requirement been waived for a "relatively least developed" country)? 4d. Yes

e. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over

B.1 more than 3 years? If so, has justification satisfactory to been made, and efforts for other financing, or is the recipient country "relatively least developed"?

Yes, for project as whole. Country is "relatively least developed" country.

f. FAA Sec. 281(b). Describe the program which recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; supports civil education and training in skills required for effective participation in governmental processes essential to self-government.

This project is designed to the maximum extent to be responsive to the needs and desires of the people of the country in agriculture to use central and local government resources in the development of agricultural institutions and to provide poultry education and training. Primary focus will be on improving and expanding the capacity of Yemeni in Yemen's agricultural institutions, developing institutional capacities and more qualified, middle level, Yemeni technicians.

g. FAA Sec. 122(b). Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

4g. Yes

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec. 122(b). Information and conclusion on capacity of the country to repay the loan, at a reasonable rate of interest.

2a. N/A

b. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

2b. N/A

3. Project Criteria Solely for Economic Support Fund

a. FAA Sec. 531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of section 102?

b. FAA Sec. 531(c). Will assistance under this chapter be used for military, or paramilitary activities?

36. No.

5C(3) - STANDARD ITEM CHECKLIST

Listed below are statutory items which normally will be covered routinely in those provisions of an assistance agreement dealing with its implementation, or covered in the agreement by imposing limits on certain uses of funds. These items are arranged under the general headings of (A) Procurement (B) Construction, and (C) Other Restrictions.

A. Procurement

- | | |
|--|-------------------|
| 1. <u>FAA Sec. 602</u> . Are there arrangements to permit U.S. small business to participate equitably in the furnishing of commodities and services financed? | 1. Yes |
| 2. <u>FAA Sec. 604(a)</u> . Will all procurement be from the U.S. except as otherwise determined by the President or under delegation from him? | 2. Yes |
| 3. <u>FAA Sec. 604(d)</u> . If the cooperating country discriminates against U.S. marine insurance companies, will commodities be insured in the United States against mar' risk with a company or companies aut ted to do marine insurance business in the U.S. | 3. Not applicable |
| 4. <u>FAA Sec. 604(c)</u> . If offshore procurement | |

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of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?

4. Not applicable

5. FAA Sec. 603 Compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 per cent of the gross tonnage of commodities (computed separately for dry bulk carriers; dry cargo liners, and tankers) financed shall be transported on privately owned U.S. flag commercial vessels to the extent that such vessels are available at fair and reasonable rates.

5. Will be complied with.

6. FAA Sec. 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items?

6. Yes

7. FAA Sec. 621. If technical assistance is financed, to the fullest extent practicable will such assistance, goods and professional and other services from private enterprise, be furnished on a contract basis? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs?

7. Yes

8. International Air Transport. Fair Competitive Practices Act, 1974. If air transportation of persons or property is financed on grant basis, will provision be made that U.S. flag carries will be utilized to the extent such service is available?

8. Yes

9. FY 79 App. Act, Sec. 105; FY 80 App. Act Sec. (505.) Does the contract for procurement contain a provision authorizing the termination of such contract for the convenience of the United States?

9. Yes

B. Construction

1. FAA Sec. 601(d). If a capital (e.g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest? 1. Yes
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? 2. Yes
3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? 3. Not applicable

C. Other Restriction

1. FAA Sec. 122(b). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? 1. N/A
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? 2. Not applicable
3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign and projects or activities of the Communist bloc countries. 3. Yes
4. FAA Sec. 636(i). Is financing not permitted to be used, without waiver, for purchase, sale, longterm lease, exchange or guaranty of motor vehicles manufactured outside the U.S.? 4. Yes
5. Will arrangements preclude use of financing
 - a. FAA Sec. 104(g). To pay for performance of

C.

- abortions as a method of family planning or to, motivate or coerce persons to practice abortions; to pay for performance of involuntary sterilization as a method of family planning,, or to coerce or provide financial incentive to any person to undergo sterilization ? 5a. Yes
- b. FAA Sec. 620(g). To compensate owners for expropriated nationalized property? 5b. Yes
- c. FAA Sec. 660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? 5c. Yes
- d. FAA Sec. 662. For CIA activities? 5d. Yes
- e. FY 79 App. Act, Sec. 104; FY 80 App. Act Sec. (504.) To pay pensions, etc., for military personnel? 5e. Yes
- f. FY 79 App. Act, Sec. 106; FY 80 App. Act. Sec. (506.) To pay U.N. assessments? 5f. Yes
- g. FY 79 App. Act, Sec. 107; FY 80 App. Act. Sec. (507.) To carry out provisions of FAA section 209(d)? (Transfer of FAA funds to multilateral organizations for lending.) 5g. Yes
- h. FY 79 App. Act, Sec. 112; FY 80 App. Act Sec. (511.) To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields? 5h. Yes
- i. FY 79 App. Act, Sec. 601; FY 80 App. Act Sec. (515.) To be used for publicity or propaganda purposes within U.S. not authorized by Congress? 5i. Yes

ANNEX 0

REQUEST FOR ASSISTANCE

Agricultural Development Support Program (Project 279-0052)

Poultry Extension and Training Subproject

November 25, 1981

No.: 6646

Ministry of Agriculture

Minister of Development
Chief
Central Planning Organization

Sana'a, Yemen Arab Republic

I have reviewed the project proposal for Poultry Extension and Training prepared by USAID/CID and the Ministry of Agriculture. I am very concerned and I would like you please convey this to USAID and inform them that we recommend that the project may include the following activities:

1. Constructing more units of village poultry demonstrations.
2. Providing enough training grants for the local personnel so that they may return and be able to operate the program.
3. We would like USAID/Ministry Poultry Project to cooperate with the units of village poultry demonstrations.
4. Assisting us in conducting training classes for villagers and extension agents.
5. Constructing six pullet rearing houses in addition to the houses proposed in the project paper.
6. Providing high quality technical expertise in the field of poultry.

The Ministry will be responsible for providing the following:

1. We will have the Ministry facilities in the two poultry farms of Al-Hasaba and Al-Rawdah available for the project use.
2. We will construct a dormitory at Sana'a farm (Al-Hasaba)
3. Provide the local coordinators to work with the experts.
4. Select local participant for training.

The Ministry budget for funding the poultry farms, training facilities, and the staff salaries will be at least \$5,227,000 American dollars for the next five years, while the total cost of the project, as mentioned in the project paper, is more than \$11,400,000 American dollars for the next five years. We expect that USAID will provide at least \$6,185,000 American dollars for the project.

Please request that USAID provide

stance as soon as possible.

Thank you for your cooperation.

Dr. Ahmed Ali Al-Hamdani
Minister of Agriculture
and Fish Resources

November 24, 1981

ACTION MEMORANDUM FOR THE ADMINISTRATOR

THRU: ES
THRU: AA/PPC
THRU: AA/NE, Antoinette Ford
SUBJECT: Project Authorization

Problem:

You are requested to authorize the Poultry Extension and Training Subproject (P.E.T.S.) of the Yemen Agricultural Development Support Program (A.I.D. Project 279-0052). This subproject is planned for six years of implementation with an estimated cost of \$6.19 million dollars which includes local cost financing. This authorization increases the life of program funding for Project 279-0052 from \$32.56 million to \$38.75 million.

Discussion:

Project 279-0052, "Agriculture Development Support", a long-term sector-wide Title XII approach to Yemen's agricultural development problems, was designed under the collaborative assistance mode by the Consortium for International Development (CID), a group of eleven American Land Grant Universities. The program began with a baseline study conducted in 1979. The Ibb Secondary Agricultural Institute Subproject, which provides agriculture teachers and training to develop Yemen's first agriculture high school, was authorized in September 1979. The Core Subproject authorized in May 1980 serves as the technical and administrative umbrella for all other subprojects and is the vehicle for technical assistance and training to the Ministry of Agriculture.

Development of the poultry subsector is a top priority of the Ministry of Agriculture and the Central Planning Organization. The YAR Government's contribution to this subproject is estimated to be \$5.23 million dollars. This subproject will utilize the facilities and experience gained in poultry production under Project 279-0019 "Poultry Development" which ended in 1979. The purpose of the Poultry Extension and Training Subproject (PETS) is to establish and implement an improved extension and training program within the Livestock Resources Division of the Ministry of Agriculture. The beneficiaries of this poultry extension and training will be the traditional sector (mostly women) and medium and small-scale producers. Emphasis will be given to egg layers.

Under this subproject a Poultry Training Center will be established at the Sana'a poultry farm formerly constructed as part of Project 279-0019. Eighteen week classes will be conducted for extension agents and private farmers. Poultry technicians and specialists will receive degree training in the United States. A pullet-rearing and distribution center will be established with an expected production of over 300,000 pullets during the life of the project. Presently there is no source of pullets in Yemen. The AID technical assistance will include one poultry specialist and two poultry technicians for five years and short-term experts as needed.

The FY 1982 Congressional Presentation proposed \$60.15 million for the Agriculture Development Support Program life of project funding, inclusive of this subproject. No congressional notification is required.

There are no human rights issues under Section 116 of the F.A.A. that would preclude provision of this assistance to Yemen.

Recommendation:

That you approve this request for Amendment Number Three to the Authorization for the Agriculture Development Support Program (Project 279-0052) for the Poultry Extension and Training Subproject by signing the attached Amendment to the Authorization.

Attachments:

- 1) PETS Executive Summary (provided by USAID)
- 2) Original Authorization and Amendments 1-
- 3) Subproject Paper (AID/W to include)
- 4) Authorization Package (provided by USAID)

Clearances:

D/USAID/Yemen:CWard _____
 GC
 NE/TECH
 NE/DP
 NE/NENA

DRAFT AUTHORIZATION**FOURTH AMENDMENT TO PROJECT AUTHORIZATION**

Name of Country: Yemen Arab Republic

Name of Project: Agriculture Development Support
(Poultry Extension and Training Subproject)

Number of Project: 279-0052

1. Pursuant to Part I, Section 103 (Agriculture, Rural Development, and Nutrition) of the Foreign Assistance Act of 1961, as amended, the Agriculture Development Support Project for the Yemen Arab Republic (Y.A.R.) was authorized on May 30, 1979, amended September 24, 1979, May 27, 1980 and July 11, 1980. That authorization is hereby amended as follows:
 - a. In addition to the amount originally authorized and amended, not to exceed six million, one hundred eighty six thousand United States (U.S.) dollars (\$6,186,000) in grant funds shall be available for the Poultry Extension and Training Subproject described herein. These additional funds are to be made available over a five year period from the date of the third amendment to the authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to finance the cost of goods and services for the Subproject.
 - b. The definition of the Project contained in the existing Project Agreement, as amended, is further amended by adding the following definition therefore:

"The Poultry Extension and Training Subproject will establish and implement an improved extension and training program within the Livestock Resources Division of the Ministry of Agriculture (MOA) that will enhance egg and poultry meat production for private producers in the traditional sector and for small and medium-scale producers through the following activities:

 - 1) provision of 16.5 years of technical assistance to the MOA;
 - 2) training of Yemeni extension agents, private poultry farm managers, technicians and specialists;
 - 3) construction of up to six pullet-rearing houses;
 - 4) rearing of 16 week-old pullets and distribution of them to private producers for establishment of flocks;
 - 5) establishment of the MOA Sana'a Poultry Training Center;
 - 6) construction and utilization of demonstration poultry farms.

2. I hereby authorize the initiation of negotiation and execution of an amendment to the Project Agreement as amended, by the officer to whom such authority has been delegated in accordance with A.I.D. regulations and delegations of authority subject to the following essential covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

a. Conditions Precedent to Disbursement for Poultry Extension and Training Subproject

1. Prior to any disbursement for the Poultry Extension and Training Subproject, the Y.A.R. shall, except as A.I.D. shall otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.: a) A statement of the names and titles with specimen signatures of a person or persons who will act as representatives of the Y.A.R. in the Ministry of Agriculture; b) Appointment of the representatives of the Ministry of Agriculture who will serve as the counterparts for the CID team leader/poultry specialist and the two CID poultry technicians.
2. Prior to disbursement of funds for construction of any pullet-rearing houses the Y.A.R. shall furnish in form and substance satisfactory to A.I.D. evidence of a budget for the construction of a dormitory at the Sana Poultry Training Center.

Except as amended above, the authorization for A.I.D. Project 279-0052 and the First, Second and Third Amendments thereto shall remain fully effective.

Antoinette Ford
Assistant Administrator
Bureau for _____

Date

Clearances: Director/USAID/CWard _____
NE/TECH
NE/NENA
NE/TECH/AD
FC/NE

Drafter: ADO/USAID:Tatwood