

AN ABSTRACT OF THE THESIS OF

Loretta M. Payne for the degree of Master of Science
in Agricultural and Resource Economics presented on April 27, 1988

Title: Case Study Evaluation of the Poultry Extension and Training
Subproject (PETS) Based on Impact at Village Household Level

Abstract approved: _____
Michael V. Martin

This study analyzes the impact of the Poultry Extension and Training Subproject (PETS) on the village household in North Yemen. The subproject was funded by the U.S. Agency for International Development and implemented by Oregon State University

The primary goal of this study was to determine the impact of the subproject by using a survey conducted among 130 village women. The questionnaire used in the survey was designed to determine changes in consumption and production, management practices and the effect of extension information. There were three major discoveries uncovered in the survey: (1) management practices were not significantly influenced by PETS personnel; (2) the project was not the only source of Golden Comet pullets; and (3) the use of egg-laying pullets did help increase egg production and consumption.

A secondary goal of this study was to analyze the project design and a 1984 evaluation in order to understand how the project could have been more effective in its purpose. It was found that although the project designers used the USAID "logframe" and conducted a social soundness analysis prior to project

implementation, too little research was conducted about subsistence poultry care and the role of rural women in agriculture. Success of the project was based on several unfounded assumptions which prevented the subproject from having a more positive impact on traditional poultry farmers.

ACKNOWLEDGEMENTS

My most sincere thanks to Dr. Michael Martin for encouraging me to conduct research in an area which was of great concern and interest to myself. Dr. Martin stood by me during difficult times and eventually got me to North Yemen by motivating others to believe in our purpose.

Thanks to Drs. Roger Kraynick and Larry Lev for their guidance and advice when it was most needed.

Thanks to Dr. Ed Price and the Office of International Research and Development for their logistical and financial support as well as their encouragement to conduct independent research.

Many thanks to all of my friends in North Yemen (especially Mohammed Saif, Khalid, Sophia, and Dr. Brooks), who not only made my research go more smoothly but made my time in Yemen into a very special experience.

To my friends in Agricultural and Resource Economics, especially Twila Jacobsen, Marcus Hartley, and Rick Winterhalter: thank you for your philosophical/emotional support and for your greatly appreciated technical expertise.

And thank you, Dad, for being there when this new mom had no time to do the thesis "dirty work" of typing and diagrams.

And thanks to my son, Gabriel Michael, who gave me the inspiration to complete this seemingly never-ending process.

Case Study Evaluation of the Poultry
Extension and Training Subproject (PETS)
Based on Impact at Village Household Level

by

Loretta M. Payne

A THESIS
submitted to
Oregon State University

in partial fulfillment of
the requirements for the
degree of

Master of Science

Completed April 27, 1988

Commencement June 1989

APPROVED:

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in charge of major

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Date Thesis is presented April 27, 1988

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TABLE OF CONTENTS

<u>Chapter</u>		<u>Page</u>
I	INTRODUCTION	1
II	LEARNING WITHIN THE PROCESS OF DEVELOPMENT	5
	USAID the Institution	5
	AID and the Universities in North Yemen	6
	Internal Criticism and a New Direction	8
	Social Soundness Analysis	11
	Evaluation	12
III	BACKGROUND INFORMATION ON NORTH YEMEN	15
	Early History	15
	Yemen Today	17
	Aid in Yemen	18
	Open-Door Policy	22
	Agriculture	24
	Poultry	27
	Future Outlook	28
IV	PETS AND THE EGG SECTOR	30
	Background on PETS	30
	Pullet Breed Selection	33
	Labor In The Traditional Poultry Sector	34
	The Egg Sector and PETS	35
	Egg Production	40
V	PROJECT DESIGN, IMPLEMENTATION, AND EVALUATION OF PETS	43
	USAID Framework	44
	The Project Paper	49

TABLE OF CONTENTS (continued)

<u>Chapter</u>	<u>Page</u>
Pre-Project Assumptions	52
Assumption #1: Traditional Mode of Egg Production in Yemen	53
Assumption #2: Institutional Capabilities	55
Assumption #3: Pullet Production Facilities	56
Assumption #4: Source of GC Pullets After Project Conclusion	57
The Evaluation Plan	57
The Project Evaluation	58
Chapter Summary and Questions	61
VI IMPLEMENTATION OF SURVEY AND RESULTS	63
Purpose	64
The Survey	65
Conducting A Survey in North Yemen	65
Calendar of Events	67
Survey Design	68
The Preliminary Questionnaire	69
Setting For Interviews	70
Main Survey Implementation	71
Results	72
The Golden Comet	74
Baladi	79
Use of Eggs	81
Preference	81
Consumption	82

TABLE OF CONTENTS (continued)

<u>Chapter</u>		<u>Page</u>
	Management Practices	85
	Chapter Summary	88
VII	SUMMARY AND CONCLUSIONS	90
	BIBLIOGRAPHY	99
	APPENDIX A: Project Design Summary - Logical Framework	102
	APPENDIX B: Coded Questionnaire	110

LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	AID, Consortium, University, and Ministry Network.	7
2	North Yemen Egg Sector	37
3	Map of North Yemen	40a
4	Survey One: Zoban Egg Production	77
5	Survey Two: Kurn Al Asaad Egg Production	77
6	Survey Three: Asharef Egg Production	78
7	Survey Four: Demna Egg Production.	78

LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Present Status of Development.	1
2	Households With Golden Comets.	74
3	Egg Production of Golden Comet	76
4	Households With Baladi	79
5	Use of Eggs.	81
6	Preference Between Pullet Types.	81
7	Egg Purchase Comparison Between Households	83
8	Percentages of Households Interviewed With Purchase Eggs	84

**CASE STUDY EVALUATION OF THE POULTRY
EXTENSION AND TRAINING SUBPROJECT (PETS)
BASED ON IMPACT AT VILLAGE HOUSEHOLD LEVEL**

CHAPTER 1

INTRODUCTION

Development Assistance has the two potentially conflicting objectives of encouraging economic growth and targeting benefits for poorer members of society. Aid funds can be administered through broad economic development programs, specific projects or in direct relief. Project aid, the focus of this paper, is tied to a specific project with stated goals, objectives, outputs, method of implementation and targeted beneficiaries. Projects are intended to produce visible and measurable effects. Projects are often evaluated with respect to the more tangible and measurable criteria: direct output, internal rate of return, etc. There are other criteria for evaluation of aid projects, which are more difficult to measure: changes in consumption and production, behavioral changes, and influence upon peripheral institutions.

While a project may pursue a stated intent to benefit the poorer members of the community, attempts to actually measure the success of this intent may sometimes be excluded from the project evaluation. The objective of this thesis is to evaluate the actual impact an AID project has upon one group of intended beneficiaries. The central questions are: Are the intended beneficiaries actually

reached via the project? Are they better off due to increased production and consumption of food commodities?

For the purpose of this thesis a case study approach is used to evaluate the impact that the Poultry Extension and Training Subproject (PETS) has had on its largest group of targeted beneficiaries, the traditional/subsistence poultry farmers in the Yemen Arab Republic (also known as North Yemen). The PETS project was implemented by the Oregon State University Poultry Science Department in North Yemen from 1982 to 1987. Phase out of the project began in November 1986. Since subsistence poultry farmers are primarily village women, the study is based on the results of a survey conducted among women in four villages as well as the impact of the project on production/ distribution in the larger egg sector. The primary research and data collection were conducted during the summer of 1987. During this time the survey was conducted. Also, on site information and impressions were obtained. The information, beyond the survey, is fundamental to fulfilling a secondary objective of this thesis, to develop a better understanding of why and how the project was able or unable to succeed in its mission.

The balance of this thesis is organized as follows. Chapter II consists of two parts; the first is a brief background on the U.S. Agency for International Development (USAID) and some of the problems that the agency has encountered since its creation in 1962.

The second part of the chapter discusses the two primary tools which are frequently used to make projects more successful and to simultaneously enhance the learning process: 1) Social Impact

Analysis (SIA) and, 2) Project Impact evaluations. Social Impact Analysis is used during the project design phase to prevent negative impacts and project evaluations should be used to measure actual impacts upon the beneficiaries.

Chapter III summarizes the relevant background information on North Yemen which is pertinent to this thesis. This includes historical background, changes in economic development, status of foreign aid and the agriculture sector.

Chapter IV emphasizes a discussion of PETS including background information, objectives and how the project was meant to promote the development of the egg sector. For the purpose of giving a broader perspective on the impact of the project an analysis of the egg subsector is presented. Before the early 1980s there was virtually no commercial egg production; the only sources of eggs were imports from Europe and traditional subsistence egg production.

Chapter V is an analysis of the process of project design, implementation and evaluation and how these are conducted within the USAID framework. The PETS Project Paper (PP) and the 1984 evaluation are used to show: 1) how the project was meant to progress and, 2) how the process broke down and thereby limited effectiveness of the project. Also discussed in this chapter is a summary of the assumptions which the project design was based upon and which appear to have limited the long term effectiveness and the impact upon traditional production of the poultry project.

Chapter VI documents the benefits accrued to the targeted groups of the PETS project. The first part of the chapter discusses

the criteria chosen for measuring the success of the project, primarily production and consumption figures, and how these data were gathered by conducting a survey among 130 village women. The second part of this chapter discusses the results of the survey and other factors outside of the project which influenced the distribution of the Golden Comet.

Chapter VII provides a summary of the thesis and also discusses issues which are relevant to this field of study but are beyond the scope of this thesis. One of these concerns is the future of pullet production and distribution in North Yemen.

CHAPTER II

LEARNING WITHIN THE PROCESS OF DEVELOPMENT

The purpose of this chapter is to give a more detailed explanation of the underlying issues explored through this research: the process of learning in development assistance projects. In addition to the immediate value of the data and information which are obtained during an evaluation of a completed project, an improved understanding of the development process is addressed. The scarce supply of development funds needs to be allocated in the most efficient possible manner. This can only be done with an in-depth understanding of the process and how it functions most successfully.

This chapter discusses how certain elements of development assistance can be improved significantly through the use of three tools: 1) learning while doing, 2) analysis of project impact before implementation, known within USAID as Social Soundness Analysis, and 3) in-depth project evaluation with special emphasis on impact analysis, after the project is completed.

USAID the Institution

Since the importance of learning within the process of development is discussed with particular emphasis on the U.S. Agency for International Development (USAID), some background information on this institution seems useful. USAID was created in 1962 through the Foreign Assistance Act of 1961 (P.L. 87-195), which states its

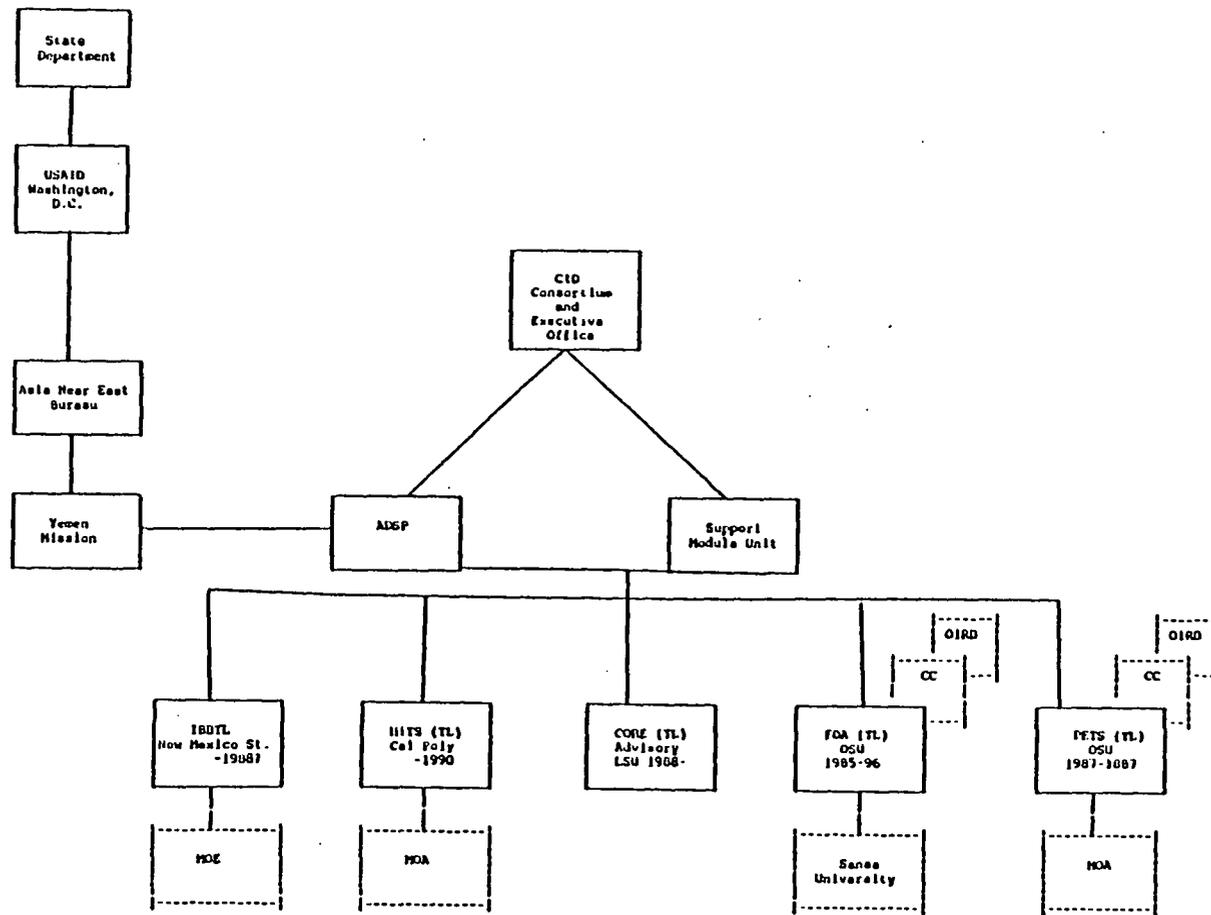
purpose as to "promote the foreign policy, security and general welfare of the United States by assisting peoples of the world in their efforts toward economic development and internal and external security" (Charlton, 1985, p. 200).

One of the principle reasons for the creation of AID was to bring together some of the previously dispersed foreign activities of the government--the International Cooperation Administration, the Development Loan Fund, the Food for Peace Program, and the local currency-lending activities of the Export-Import Bank (Tendler, 1975). USAID is the largest American donor for bilateral funding of international development projects and programs.

In 1976 Congress enacted Title XII of the Foreign Assistance Act. This piece of legislation established a Presidentially-appointed Board for International Food and Agricultural Development (BIFAD) "to provide policy guidance and leadership to a partnership between U.S. universities and the Agency for International Development (AID) on issues relating to the urgent task of food and agricultural development" (BIFAD, 1986 p.4).

AID and the Universities in North Yemen

In 1986 U.S. universities were participating in over 100 AID projects, including a monetary investment of \$125 million. Projects are administered in a number of ways depending on the University and their particular relationship with AID. Figure 1 is a stylized depiction of the relationships, in North Yemen, between the Yeman



CC = Campus Coordinator.
 MOE = Ministry of Education.
 MOA = Ministry of Agriculture.
 CID = Consortium for International Development.
 ADSP = Agricultural Development Support Program.
 OIRD = Office of International Research and Development.

Figure 1. AID; Consortium, University and Ministry Network.

AID Mission, the Universities, and the Host Country government. It is important to understand that these relationships change and are never as exact as the diagram may suggest.

The four boxes on the left represent the hierarchy from the State Department through the USAID bureaucracy. The Yemen AID mission works in cooperation with the Agricultural Development Support Program (ADSP) which is set up by a consortium of eleven universities, called the Consortium for International Development (CID), but is actually administered by the Support Module Unit (also set up by CID). Four of the CID universities are presently involved in AID projects in North Yemen: New Mexico State, Cal-Poly (Pomona), Colorado State, and Oregon State. Also represented in the diagram is the relationship between OSU and its projects. The Office of International Research and Development (OIRD) serves as technical and administrative support for all OSU projects via each individual project Campus Coordinator (CC). The bottom four boxes represent the YARG counterparts and are not part of the American administrative hierarchy.

Internal Criticism and a New Direction

Although AID was originally created with some altruistic motive the agency has been criticized from the beginning by a number of different groups, including American labor, farmers, and sociologists. The two main complaints have been: 1) AID often negatively impacts the supposed beneficiaries, and 2) American money is being used to increase productivity in other countries, thereby

competing with American producers. Because of the former criticism, USAID and its personnel have seen a need for the improvement and a redirection of efforts toward the original purpose of helping the targeted groups.

Judith Tendler conducted an in-depth analysis (influenced by her own professional experience) of the institutional restrictions within USAID which prevent optimal performance. Tendler's comments went beyond theoretical criticism and allowed the reader to obtain a more credible understanding of how development assistance works. The unpopularity of the U.S. foreign aid program has ultimately resulted in a series of executive restrictions which limited the agency's flexibility and were often contrary to the agency's goals. For example, procurement necessary for AID projects was limited almost exclusively to U.S. sources and funding was inclusive of the foreign exchange component only (House Committee, 1969). In 1982, it was estimated that 75 to 95 percent of all AID funds are dispersed on American goods and services (South, March 1982). These restrictions tended to bring about large capital intensive projects with minimal local capital input which allowed for very little stimulation of demand within the local economies. This is the view of Tendler and other "development" professionals, for example, Albert Hirschman.

What has been discussed so far is a brief review of the larger institutional view which is the level at which most criticism occurs. While these issues need to be addressed it is not within the scope of this thesis to go into further detail. The issue to be

covered in this paper is what can be done within AID to improve the process of development projects at the micro level. One of Tendler's main concerns is that AID lacks an institutional memory limiting the ability to learn from its experiences. In comparison with other fields there is more need in the area of development assistance for learning from the process itself. "The task of development assistance, then, involves not only 'doing.' An essential portion of it has to do with learning" (Tendler, 1975, p.9).

While there is a great deal of literature on development assistance, both on the positive and negative impacts, there is little coverage of direct and specific project impacts. Both the World Bank and USAID routinely conduct impact evaluations; but these studies are generally not scrutinized for accuracy in data collection, methodology, or objectives analysts by outside agencies. Some of these studies which have been subsequently analyzed by outsiders have been found to be more optimistic than was justified (Derman, 1985).

What happens during actual design and implementation of a project which enhances or discourages the opportunities for success? Despite the institutional constraints, previously addressed, how can projects be improved in order to help the people of LDCs? More information is needed which would reveal a greater understanding of the actual process of development not only within the larger institution but at the project level as well.

This is where both social soundness analysis (SSA) and project evaluations can be of great benefit. Social soundness analyses are conducted during project design to determine whether or not a project is environmentally and/or socially feasible in terms of results produced. Evaluations are conducted during the project to permit mid-course correction or after the project as impact analysis to determine if the project has been of any significant benefit. The evaluation must be comprehensive enough to both examine the impact upon the beneficiaries and to discuss how the impact could have been enhanced. The latter permits the evaluation to be a learning tool as well as a justification for development assistance. These two tools are most effective if well integrated and are a significant part of "learning while doing."

Social Soundness Analysis

In 1975 USAID mandated a social soundness analysis component to the project preparation and approval process; this was meant to assess a priori any potential negative impacts on beneficiaries (Derman, 1985). Most literature on social impact analysis (SIA), which is the more common terminology outside AID, has been concerned primarily with environmental and social impacts of large scale projects in the U.S. and Canada. The applied work is only recently being incorporated with development theory.

Following is an opinion of the issues to be addressed by SIA, which coincides with the values of other development specialists who are concerned with equity. "From our perspective, social impact assessment needs to take into account the fact that class-based

power, nested in unequal control of resources, generates and perpetuates poverty. Development projects can lead to a more equitable control of resources and power, or they can have the opposite effect. Subsequently, factors that influence these projects become a critical dimension of social impact analysis...The task of SIA is to describe and analyze the real or potential effects of proposed projects upon specific groups of people" (Derman, 1985, p. 5).

Social soundness analyses are conducted during project design in order to help prevent negative impacts on the beneficiaries. But once the project is completed, how then is the success of the project evaluated? If the evaluation is based only on production figures and rates of return, financial or economic, there will have been little value in doing the SSA. In order for AID personnel to learn about more than financial and economic impacts, project evaluations should include an ex-post impact analysis of this type. Project impact evaluations can be used as constructive lessons learned to enhance the process of project design. Admittedly every project is different, but there are some broad evaluation categories.

Evaluation

USAID does have its own guidelines and criteria for the evaluation of projects. Although the AID material is not always easily accessible to academia the guidelines do seem to be generally consistent with the academic view of evaluation criteria.

"Evaluation is the determination of the results attained by some

activity designed to accomplish some valued goal or objective" (Hoole, 1978, p. 17). One can use opinions, records, subjective or objective data as the information sources in order to perform the evaluation.

Evaluation research can be distinguished from optimization techniques, traditional audit reports and cost effectiveness techniques in that evaluation is concerned primarily with obtaining objective empirical evidence regarding the actual effectiveness of a program. This is the best method for determining, not the efficiency or optimality of a program, but whether or not it helped anyone (Hoole, p.18).

In order to use evaluation research two conditions are prerequisite: "1) there is a clearly stated hypothesis regarding the impact of a social action program; and 2) it is possible to obtain relevant and reliable data for the specified variables" (Hoole, p. 19).

Evaluation research can be utilized within a case study approach so as to permit an in-depth impact analysis as well as the opportunity to gather information as to why or why not the project was effective. A case study allows for an informative analysis which can be used as a learning tool in the process of development.

In 1959, UNESCO published "Measuring the Results of Development Projects," which provides guidelines on incorporating criteria for evaluation before and during project implementation. The author, Samuel Hayes Jr., emphasizes the importance of record keeping and data collection prior to project design and during project

implementation for the purpose of better understanding the effects resulting from the project. These recommendations are not unique; it is interesting to note that they were made almost 20 years ago and are being made again by Tandler and others.

The integration of social impact analysis and project evaluations is an effective way to remind those involved of the objectives of development projects and to ensure that projects become progressively more successful in aiding the targeted beneficiaries. Each project should be viewed as a learning process in which people gain skills which can be used in the future.

Donors, implementors, host country government officers and beneficiaries involved in a development project and those affected by it have a vested interest in knowing the results of the project. Development professionals and the home country officials should be concerned to find out whether or not the changes that are taking place, intended and unintended, are really consistent with the values and goals of those to be effected.

CHAPTER III

BACKGROUND INFORMATION ON NORTH YEMEN

A basic understanding of the history and events which have brought North Yemen to its present position are important in understanding the context of Yemen modern development. This chapter provides a brief review of Yemen history and its process of development. The history of Yemen is very complex, dominated by tribal divisions, foreign involvement and the eventual separation of the north and south regions.

Early History

In 628 A.D., Yemen adopted the new religion of Islam. Two centuries later, the Zeidi sect emerged, and proceeded to rule Yemen for more than 1000 years. The Zeidi sect was a religion-political group which believed that the Imam, secular and religious leader of Yemen, must be a descendant of the Prophet Mohammed. While under general rule of the Imam, the Red Sea coast of Yemen was occupied intermittently by the Turkish Ottoman empire from 1545 to 1918, when the British became an even greater influence, particularly in what became South Yemen (Nyrop, 1986).

Key characteristics of Yemen history are:

- 1) The dominance of the Muslim religion.
- 2) The inability of any ruler, foreign or indigenous, to "control" the tribes; rulers were compelled to maintain alliances.

- 3) The creation of the frontiers, in 1904 by the Turks, which now define present day North and South Yemen.
- 4) The isolationist policy of the Imams from 1904 to 1962.
- 5) The revolution in 1962, followed by civil war, and the commencement of the "open-door policy" (Nyrop, 1986).

Though intertwined by tradition, the relationship between North and South Yemen has recently been reduced as the ideologies of Capitalism and Marxism have become institutionalized within the respective countries. This thesis focuses exclusively on North Yemen.

The revolution of 1962 in North Yemen, which began with the assassination of the Imam, was the initiation of a process rather than the end of an era. Young men, educated overseas, had become dissatisfied with the backward and isolationist policies of the Imam. Some were determined to do away with the Imamate while others wished to retain the Imamate but with less domination (Nyrop, 1986).

Before and after the revolution the turmoil in North Yemen has been defined by two opposing sides, which obtained support from other countries. The group responsible for the assassination of the Imam, the "Republicans," gained financial support as well as 30-50,000 troops from the Egyptians. Those who favored rule by an Imam, were called the Royalists and gained a great deal of financial support from Saudi Arabia but no troops. Without the backing of Egypt and Saudi Arabia the Civil War would probably never have lasted as long as it did--until 1970 (Nyrop, 1986). From the end of

the civil war to the present there has been an additional coup d'etat as well as two heads of state assassinated. The current president of North Yemen, Abdulah Ali Saleh, became president in 1978. The permanent constitution of North Yemen was ratified in 1970.

Yemen Today

President Saleh has been reasonably effective in bringing the country together with a stronger national identity and stronger governmental control over the tribes. Like most developing countries, North Yemen is strongly influenced by other more powerful governments. President Saleh seems adept at not being easily persuaded by the motives of other governments such as the Soviet Union, the United States, Saudi Arabia, Egypt, etc.

Saudi Arabia, through the provision of development funds, exerts a great deal of influence on Yemen, trying to maintain Yemen as a conservative Muslim country. There has been Egyptian influence on the structure of the governmental bureaucracy which resulted from Egyptian involvement prior to and during the civil war.

President Saleh is noted for obtaining large amounts of funding from numerous governments while holding a stance of neutrality. For example, North Yemen is one of two countries in the world which receives official military aid from both the United States and the Soviet Union (the other country is Peru).

Yemen basically follows a free enterprise system although the government does provide public education and social services. After

the revolution, the government pursued an "open-door" economic policy but is now moving toward import substitution, in reaction to a scarcity of foreign exchange. Yemeni society remains very traditional with seemingly little western or eastern influence. Life remains dominated by Islam and the traditional village lifestyle.

Aid in Yemen

Before, during and after the revolution the Yemen economy has faced serious financial problems. After the revolution, funds that came in through remittances remained private with only a minimum amount serving as government revenue. "To alleviate its economic plight, the Y.A.R. opted for a mixed economy--a free-enterprise system with central planning and authority in development" (Zabarah, 1982, p. 115). One of the major constraints faced by Yemen in the process of development was the lack of trained personnel and an ineffective governmental bureaucracy. Yemen needed to improve relationships with foreign powers in order to gain support and financial backing for its development schemes. The government was perceived to be incapable of making effective use of aid. The government sought to overcome this problem through the recruitment of expatriate technocrats, particularly Egyptians.

The Soviet Union and China were the first countries to aid in the process of development, by constructing roads and port facilities (Nyrop, 1986). Rapprochement with the western countries began with West Germany. Yemen also renewed diplomatic relations

with the U.S. in 1972, which was followed by formal recognition of the Y.A.R. by Britain, France, and Holland (Zabarah, 1982). At the time Yemen was in desperate need of technical help to provide infrastructural support and project management. Yemen was provided aid, through grants and loans, by the United Nations Development Program, WHO, FAO, UNESCO, UNICEF and the World Bank as well as bilateral aid from the United States, Britain, China, France, Germany, Italy, Norway, the Soviet Union, Sweden, Switzerland and others (Peterson, 1982). Yemen also received large amounts of aid funding from Saudi Arabia, Kuwait and other oil producing countries.

Once improved multilateral relations were established Yemen was able to address its economic problems. In 1972, the government created the Central Planning Organization (CPO), to play a leading role in stimulating the Yemeni economy. It was the CPO which formulated the Three Year Development Program in 1973, the first five-Year Plan in 1976 and the Saudi Second Five-Year Plan in 1981 (Nyrop, 1986). Yemen has had relatively little time to define its goals, generate funding and implement planning. Despite many time constraints the country has shown significant progress in the areas of: general infrastructure, health care, education and economic expansion.

Unfortunately, just as Yemen development is getting started, the economy is facing new challenges. Much of the economic growth which occurred in Yemen was a result of foreign aid and workers remittances. In the early 1980s both of these began to decline, in part, because of declining oil prices, as well as the slower growth

occurring in the global economy. As funds declined, the budget deficit grew. Economic conditions were aggravated by the Dhamar earthquake in 1982 and a drought which occurred from 1983 to 1984. As a result of these problems government spending was slowed, the currency was devalued by 25 percent and import limits were established (Nyrop, 1986).

Table 1. Present Status of Development.

Demographic Summary	1965-1980	1985	1985-2000
Population Growth Rate	2.8	2.5	3.0
Population		8.0 million	
Per capital income		\$550	
Life expectancy		45 years	
Total fertility rate		6.8	

SOURCE: World Bank, 1987.

Statistically North Yemen is one of the poorest of developing nations with a per capita income of \$550 and a life expectancy of 45 years. The child death rate from ages 1 to 4 is the fourth highest in the world at 34 per thousand (World Bank, 1987). Illiteracy is estimated to be at 40 percent for men and 80 percent for women, which is a major improvement from 1962 when virtually the entire nation was illiterate.

But life is changing rapidly in Yemen. Education is becoming more accessible to village boys and girls. The government employs Egyptians as well as high school graduates (who must serve the government for one year) as teachers. The population per physician has decreased from 58,200 in 1965 to 7,100 in 1981 (World Bank, 1987). Health care, however, remains plagued by inadequate facilities and technicians. Modernization in some areas has exceeded that in other related areas. For example, there is an abundance of prescription drugs but too few doctors to administer them properly. Prescriptions and directions are written in English and/or French which few patients can understand.

Casual observations in Yemen often belie some statistics. In the larger cities of Taiz and Sanaa one can shop in a large variety of gold jewelry shops or expensive western clothes boutiques. Younger Yemeni women, in particular, own a significant amount of gold jewelry and dress in the height of western fashion underneath the traditional black overdress. A woman's jewelry may be her most significant source of economic security. Even in the more remote village most homes seem to have their own water source and rarely does one see young children with the protruding stomach that most of us associate with poverty.

These are just a few examples which suggest that there is a great deal of wealth in Yemen the origin of which is unaccounted. For example, Qat is a relatively expensive good, which most men indulge in twice a week and many use daily. Qat (Catha Edulis) is a leafy tree plant which has become the primary cash crop in Yemen.

Men and some women spend as much as 10 to 20 dollars a day for Qat which they chew in afternoon social sessions, enjoying the stimulating and then calming effect of the plant (Zabarah, 1982).

Yemeni society appears to be characterized by an equitable income distribution; abject poverty and homelessness appear quite rare. This is related to the fact that 90 percent of the population live in rural areas and have reasonable access to land. Agricultural production remains at a subsistence level but output is in the hands of the consumer/producer. Most farmers do not own the land that they work, but they are able to lease small parcels. As farm labor has become more scarce the renter has earned a larger share of his/her production (Tutwiler, 1981).

Urbanization has increased in the last decade but not at the rate of most other developing countries, and now the rate of urbanization is declining (World Bank, 1984). The people of Yemen maintain a strong attachment to rural life; even when living in the cities. Families often return to the villages during the holidays of Ramadan and Ede. Sanaa is the largest city with inhabitants numbering 500,000. The total population of Yemen is estimated between 6.5 and 8 million.

Open-Door Policy

The new "open-door policy", allowing for travel, communication and political contact with the international community, came about after the revolution of 1962, but was not fully implemented until the early 1970s. This has been the most significant factor

contributing to the growth in the economy. Booming economies in the nearby oil producing countries attracted significant numbers of Yemeni labor. Thirty to 50 percent of the male labor force migrated on a temporary basis sending large portions of their income back home, in the form of remittances and goods (Howe, 1985). North Yemen became a consumer society as remittances increased from \$40 million in 1970 to a high of \$1.4 billion in 1977/78 (World Bank, 1984); remittances have been declining in recent years. Consumption of imported products went beyond the actual Gross Domestic Product (GDP). Although some of this spending generated government revenue through import duties and some was used for personal investment, most of the money was spent on consumer items, primarily imported food commodities and Qat. This has had an adverse effect on self-sufficiency and export-oriented agriculture and industry. In 1982 North Yemen exported only \$44 million worth of goods; this declined to \$10 million in 1985. Another important source of income for the country was foreign aid, as discussed earlier.

Partially in response to the large increase of consumer spending, the YAR government is now pursuing a policy of import substitution and development of the agricultural sector. This seems to be a prudent measure as remittances are now on a moderate to steep decline and foreign aid is also decreasing (World Bank, 1987). Yemeni labor in the oil producing countries has declined in response to lower oil prices and replacement by cheaper labor. Funding from OPEC countries has also declined, possibly due in part to a diversion of funds to areas of unrest, and to the Iraq/Iran war. In

order to stimulate import substitution the government has placed embargoes or quotas on many major food imports, such as, poultry and fruit. The goal of establishing even partial self-reliance in food production appears to be hindered by numerous constraints in the agriculture sector.

Agriculture

The agriculture sector provides employment to 65-70 percent of the population. While agriculture production is of great importance to the country, it has been in decline in recent years (Nyrop, 1986). As mentioned earlier, there are several major constraints to increased agricultural production including:

- 1) out-migration of labor;
- 2) heavy importation of food commodities; and
- 3) desertification and soil erosion.

In response to the demand for labor in oil producing countries, it was estimated, in 1975, that between 200,000 and a million people were out of the country as temporary migrant labor. While some of the remittances from these migrants were used for investment in agriculture which increased productivity, particularly in food and Qat, the migration also caused a severe labor shortage and high wage increases. Agricultural production in Yemen is very labor intensive. Mountainous areas, with the highest rainfall, require regular maintenance of terraces. The neglect of terraces has led to

increased soil erosion, irreversible loss of the terraces themselves and ultimately declining production. Sixteen percent of tillable land has been removed from production, primarily because of the labor shortage (Howe, 1985).

Another cause of decreased agricultural productivity is desertification. Wood is the major source of fuel in Yemen. People have been harvesting trees as well as allowing intensive foraging by goats and sheep for thousands of years. This has resulted in hardened soils with little capacity for water absorption and declining water sheds, leading to increased runoff and soil erosion. This problem has been exacerbated by the declining production of sorghum (replaced by wheat, grain imports or qat), the stalks of which are used for fuel (USAID, 1985).

There remains another factor causing decreased productivity. With the sudden upsurge in the economy, the value of imports increased by 860 percent, between 1973 to 1977, from 873 million Yemeni Rials (YR) to 3,284 million YR (USAID, 1985). For the first time people were able to consume food items which they did not produce themselves; productivity was no longer a matter of survival for some people. Because of the new imports and changes in tastes acquired by the returning migrants, some farmers have changed cropping patterns.

Field grains remain the most significant crop even as the percentage of total production by weight had decreased to 52.8 percent by 1981. Wheat production is increasing but average yield is only 13.5 bu/acre (McCuistion, 1986). Coffee and cotton used to

be major export crops but have been declining due to drought, pests, low prices, high labor costs and replacement by Qat. Horticultural production has increased but only grapes, and small amounts of tomatoes and okra, are actually exported.

The investment in the agricultural sector has been increasing and the average annual growth rate in this sector was 3.6 percent between 1970 and 1982 (World Bank, 1984). Despite purchases of tractors, irrigation pumps and inputs such as chemicals and fertilizers, agriculture production in North Yemen remained at a subsistence level in 1982 (Peterson, 1982).

Most farmers who have access to land, by ownership or leasing, have relatively small plots. Although 10-20,000 tractors have been imported, it is not uncommon to observe land being plowed with oxen or camels, especially in the highlands where the plots are small (less than one-half an acre). Sorghum residue is harvested regularly and fed, often by hand, to cattle. Most families own sheep, goats and some own cows. Irrigation is quite common now and is rapidly leading to over utilization of aquifers. Farmers appear to be efficient in using those inputs to which they have access (Nyrop, 1986).

As in many developing countries, women perform a majority of the daily agricultural tasks, planting, weeding, care of livestock, and food processing (Myntti, 1979).

Poultry

As the poultry sector is the fastest growing agriculture sub-sector in Yemen and as this thesis pertains primarily to the Yemen ADSP Poultry project, an in-depth discussion of the poultry sector is important. Broiler production grew from 1,400 tons in 1976 to about 63,000 tons in 1985. Most inputs for poultry production (including; feed, vaccines, fertile eggs for hatching, and chicks) are imported. The dramatic growth in this sector was due, in part, to increasingly stringent quotas on frozen broilers until a complete ban was imposed in 1985 (Lasley, 1986). A detailed discussion of the egg sub sector will be included in Chapter IV.

The emerging commercial poultry sector was greatly aided by access to financing from the Bank for Agricultural Credit and Cooperatives and the Yemen Bank for Reconstruction. Both of these institutions supply credit for building facilities and operating costs. The importer-suppliers (some of whom are the large producers) advance credit to the smaller producers for chicks, feed and biological materials. The largest 5 of the 15 importer-suppliers provide about 88 percent of total volume of supplies. This puts smaller growers at a disadvantage, making them dependent upon the more competitive larger producers of broilers (Lasley, 1986).

Poultry is a very important source of protein, particularly for children who are often fed eggs. Unlike lamb, goat or beef, chicken can easily be consumed by a family in one day; this is important as

refrigeration is not widely available. Most families raise some chickens of their own.

The indigenous variety of chicken is called the "Baladi" hen and is not a highly productive egg layer, perhaps 60 eggs a year, but is highly adapted to the environment and casual care. The Baladi hen is small and usually lays smaller than average eggs. This bird receives a premium price of 50-60 rials compared with an imported Dutch variety (the Golden Comet) which, produces approximately 230 eggs annually, and costs 25 rials. Baladi birds seem almost impossible to obtain these days; the people are becoming dependent upon commercially raised imported poultry, even though they often prefer the Baladi bird. The Baladi is preferred for its ability to survive and reproduce with a minimum amount of care and also for the flavor of its meat and eggs.

Future Outlook

In 1985 the debt service as a percentage of GNP was only 3.1 percent, compared with an average of 4.3 percent for all developing countries (World Bank, 1987). Yemen is fortunate at this point not to be overburdened by debt and may continue to direct its incoming financial resources toward development efforts. Even if remittances and foreign aid decline as projected, the government will soon be receiving income from the recent exploitation of oil fields.

Whereas remittances served as direct income to private individuals, with only a small amount going into government revenue, the income from oil profits will accrue as government revenue.

These funds should permit the government to continue in its efforts to develop social services and support a policy of self-reliance in food commodities.

This chapter has served as an overview on North Yemen, including its history, development status, aid and agriculture. One cannot understand the present with no concept of the past, and one should not perceive an agriculture project to be an isolated event. The PETS subproject occurred within the context of the agriculture sector as a whole and within a complex development process.

During the evaluation of PETS in the summer of 1987 it became clear to this researcher that one of the major constraints to the success of the poultry project was a lack of understanding or willingness to acknowledge the realities of working in a country like North Yemen. Even if the American personnel are conscious of the constraints of a traditional underdeveloped society there appears to be little effort to deeply understand these constraints and go beyond them. By default the issues at hand are sometimes either ignored or avoided. The remainder of this thesis discusses the AID framework for confronting these constraints within project design and implementation. More importantly the thesis analyzes how this process may break down and how it should be taken into consideration at the time of project evaluation by using the PETS subproject as a specific case.

CHAPTER IV

PETS AND THE EGG SECTOR

Chapter IV is comprised of two sections. The first section discusses the PETS subproject, including a historical background and the subproject objectives. The second section of the chapter analyzes the Yemen egg sector and includes a summary diagram. The objective of this chapter is to create a better understanding of how PETS was integrated into, and impacted, on the egg sector, particularly the traditional subsector.

Background on PETS

USAID first supported the poultry sector of North Yemen with a poultry development project from October 1976 to 1979. The project was viewed to be the most successful agricultural project of all those in Yemen (West, 1979) and the Yemen Ministry therefore felt that continued emphasis on development of the poultry sector was important.

This first poultry project did not involve extensive pullet production or distribution, although the infrastructure for these activities was believed to have been established by the end of the project. The actual results of this project consisted of the completion of poultry houses at Al Hasaba and some initial success in pullet rearing and egg production. It was felt that the existing infrastructure could not be utilized because of the failure of this project to meet its goal of training 25 extension agents (USAID,

1982). The new subproject (279-0052) was meant to utilize the facilities and experience gained in the first sub-project (279-0019).

By the time that project 279-0019 was concluded USAID personnel and contractors believed that the major constraint to the growth of egg producing flocks was a lack of extension agents. This belief became a critical assumption around which a major component of the succeeding poultry project was designed. Major direct outputs of the new project were to be (1) trained extension agents and (2) poultry farm managers (USAID, 1982). Mr. Ken Sherper, then Deputy Director of USAID/Yemen, observed, in reference to the second poultry project, "The purpose of the Poultry Extension and Training Subproject is to establish and implement an improved extension and training program within the Livestock Resource Division of the Ministry of Agriculture" (USAID, 1982 p. iv). The primary beneficiaries of the project were to be the traditional sector; medium and small scale egg producers.

Subproject 279-0052, referred to as "PETS," was directed toward increased egg production, as broiler production was already well established and commercial egg production was virtually nonexistent. The fact that a majority of people were willing to consume imported, often stale, eggs indicates that the demand for eggs was far greater than local supply (Lasley, 1986). The premium price received for local eggs also indicates the high demand for these eggs.

PETS was intended to benefit three types of poultry production: traditional (flock size of 15-25), small scale (flock size of 500),

medium scale (flock size of 1,500 to 3,000) and small cooperatives. The number of pullets to be used in forming cooperatives is not specified in the project paper. While small and medium scale would require significant investments in buildings, equipment, feed, etc., traditional production would use none of these even though they were included in proposed costs (in Table One of the project paper). This thesis examines PETS' impact on the traditional sector. The "traditional household model" in the PETS Project Paper was not well specified because a flock size of 15-25 is not really traditional as cooperatives are not traditional and most households would have only five pullets or so.

All of the pullets needed for the above beneficiaries were to be produced in Sanaa by the subproject, and then sold to participating farmers. The subproject was the only producer of Golden Comets and presumably the only distributor of these pullets. Al Hasaba is a training facility with a capacity of 6,000 egg layers. Prior to the completion of Bir Al Qhusain (BAQ) in 1984, Al Hasaba was used to produce pullets but then gradually changed over to being a layer unit. Between February 1983 and November 1986, 164,500 pullets were produced--34,300 at Al Hasaba and 130,200 at BAQ. Baby chicks and other inputs were imported by and purchased from the Rawdah farm; toward the end of the project inputs were purchased from the Marib Poultry farm which is partially run by the Ministry of Agriculture.

Pullet Breed Selection

The breed of pullet used in PETS is the Golden Comet (GC); there is little discussion of the Golden Comet in the project paper or why it was chosen. Dr. Ken Holleman, PETS team leader from April 1984 to April 1986, (Arscott, 1986) explained that the pullet was chosen for its egg laying capabilities and disease resistance. The Golden Comet is a large red/brown hybrid pullet which lays large brown eggs. It seems that the tradeoff for its high egg laying capability (230 eggs annually) is its inability to easily reproduce; the GC hens generally will not lay on their eggs. This was not viewed as a drawback by the project planners since they never envisioned that GC roosters would be distributed to the villages because even if GC eggs are hatched, the succeeding generations of birds lose their desirable traits. Long-term project benefits were thus based on the assumption that a fresh supply of pullets would be continuously available from project facilities, Bir Al Qhusain or Al Hasaba.

In Yemen villages Baladi pullets provide the traditional source of eggs. "Baladi" can be loosely translated to mean "of the country." During the survey it was reported that Baladi are very maternalistic; they lay approximately 10-15 eggs in two weeks and then require about three months for hatching and raising of the chicks, which are eventually consumed or kept as layers. There has been no widescale collection of data on the Baladi hen with respect to population, productivity, etc. or use of chickens and eggs.

One might conclude that a combination of GC and Baladi hens would be the optimal pullet flock, allowing for increased egg consumption while retaining the reproductive capacity of the Baladi. It would be advisable to conduct further research into the effects of a combined flock. As of now it is unknown as to how the two types might compete with one another. Golden Comets are known to be cannibalistic and probably eat larger quantities of scraps than Baladi. Also, if pullets such as GCs are imported and then not properly inspected or cared for they may transmit diseases for which the Baladi may have immunities.

Labor In The Traditional Poultry Sector

It was recognized in the project paper that women are the primary caretakers of poultry in the traditional sector (USAID, 1982 p.28). Traditionally poultry production is a low input, non-labor-intensive activity. Chickens survive on table scraps, grain, and whatever else can be scavenged from within the village. These birds are given water and are usually kept in the house at night.

In Annex G of the PETS subproject paper, the issue of women as primary caretakers of poultry is thoroughly addressed. The project designers intended to foster two models: (1) Traditional Household Poultry Production Model, and (2) Women's Cooperative Egg Production Model. The intent of having the two designs was to allow the project to better enable women to develop poultry production as a source of income generation, either as individual producers or within a cooperative. It seemed to this researcher that the amount

of work and preparation required by PETS personnel, for the implementation of these models, would be significant enough to warrant establishment of a separate subproject and at the very least would have required a female technician, fluent in Arabic. Detailed preparation included: data collection; identification of social networks, credit sources, and site possibilities; involvement with village leaders; training of female agents and individuals; and on going contact with pullet recipients. Apparently very little of the aforementioned occurred and no cooperatives were formed.

The Egg Sector and PETS

It should be noted that PETS was undertaken within the context of the egg subsector of the poultry sector. Little has been written about the Yemeni egg sector, primarily because prior to 1982 there was very little information available other than that significant numbers of eggs were being imported from the European Economic Community (EEC) to augment local Baladi production. Since the early 1980's small and medium scale production was initiated by PETS and large scale production commenced via private entrepreneurs. Enhancement of traditional flocks and initiation of small and medium scale production was accomplished using the Golden Comet pullets which were produced at Al Hasaba and Bir Al Qhusain (BAQ).

Large scale egg producers either imported inputs themselves or through one of the larger broiler suppliers. Other sources of Golden Comets apart from PETS are possible.

Figure 2 represents a stylized view of the egg sector from July 1985 to July 1986. A one year time frame is used because actual production and distribution figures from PETS are available and relevant to the actual potential of PETS. More importantly while the egg sector is now expanding rapidly it is important to have some perspective as to how PETS affected egg production and consumption at a time when the egg sector was just developing and PETS was having its largest impact.

In Figure 2, the PETS project represents the only known source of pullets, although it is likely that there were others. All sources of egg production (known to this researcher) are included. Flock capacity is shown for some producers while for others only the egg production potential is shown. For each source of eggs a production figure is given, some are more accurate than others with explanations given for several. While the number of pullets is known, for example, in traditional small and medium scale production, the egg production figure is based on an annual production figure of 230 eggs per pullet. This estimate is probably overly optimistic for the traditional sector.

Also included on the right-hand side of the Figure are the areas of consumption where the eggs presumably were consumed. The network of distribution for EEC eggs is unclear. In the case of the large scale producers it is likely that the majority of the eggs are consumed in the larger city centers of Taiz and Sanaa but they are possibly sold as well via private entrepreneurs in the outlying villages. Under the name of each consumption area the source of egg

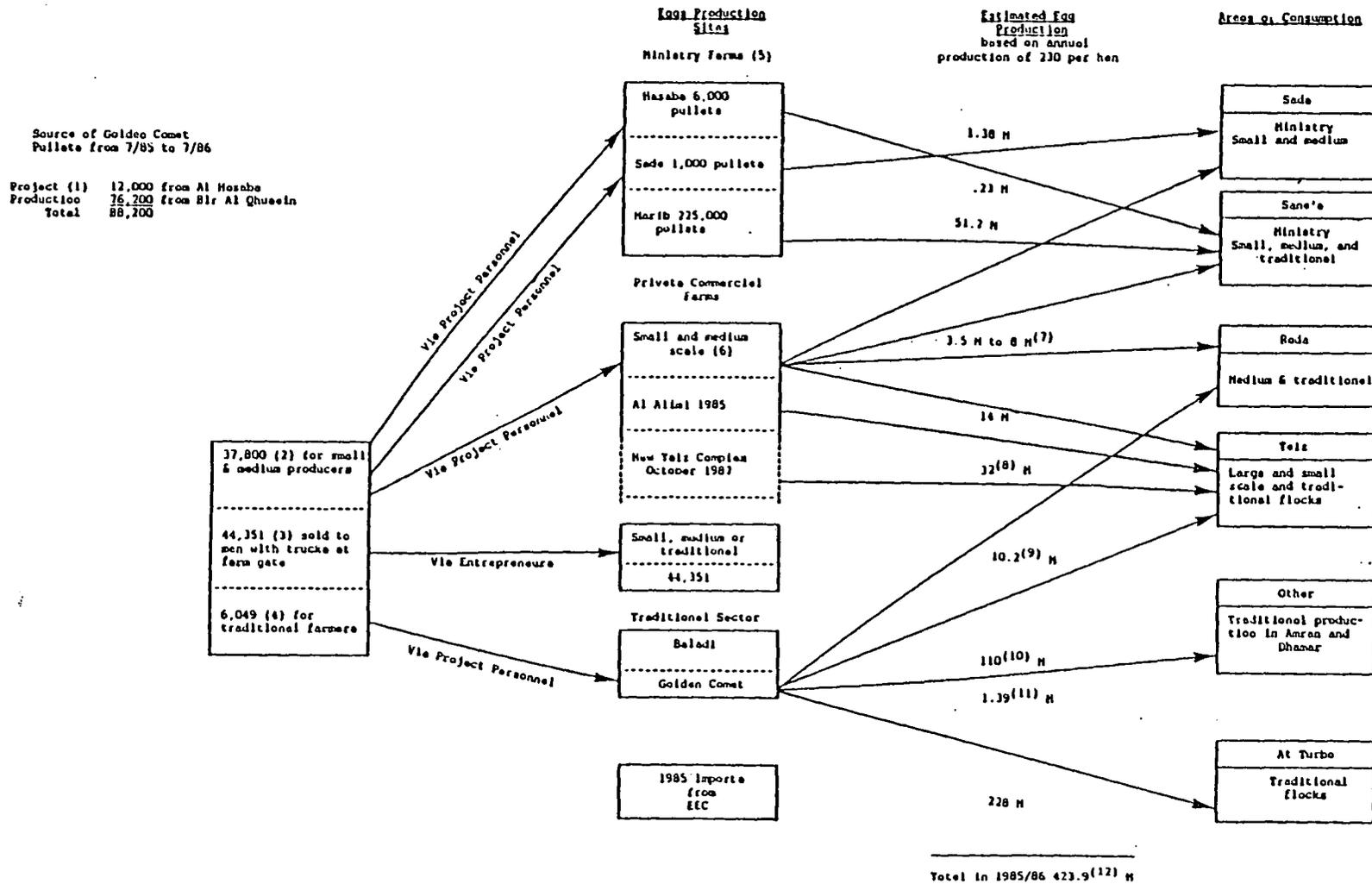


Figure 2. North Yemen Egg Sector.

Notes for Figure 2

- 1) Arscott, G.H., C.M. Fischer, D.H. Helfer and K.A. Holleman. "Phase-Out Report." December, 1986.
- 2) Heidloff, P. "End of Tour Report." May, 1987. This number applies to fourteen farms ranging in size from 700 pullets to 5,500. Since only two of these farms were started prior to late 1985, it is unclear whether all of these farms received a batch of pullets during these 12 months. This number is used to give an idea of the proportion of pullets distributed to small and medium farms but is probably an optimistic number for this time frame.
- 3) This number is calculated as the total number of pullets produced minus the number for which there were documented distributions to the traditional, small and medium scale producers.
- 4) This figure is the number distributed by Salama Bu-Hydar, from 7/85 to 7/86, according to her trip reports.
- 5) These are optimal pullet capacities.
- 6) Assuming that all small and medium scale farms are a result of PETS which is probably true.
- 7) According to the Lasley report, 70 million eggs were produced commercially in 1985 and 75 percent of these were from the Ministry farms. That leaves 17.5 million which probably includes the 14 million from the Al Alimi facility. Therefore, the calculated remaining figure for small and medium scale production is 3.5 million. The maximum potential for this group would be 8.7 million, based on the number of pullets produced at BAQ and Al Hasaba. The lower figure is probably more appropriate.
- 8) This is a large scale facility which does not use Golden Comets and is not included in the 1985 total.
- 9) Since it is unknown where these pullets went to this is a very optimistic figure. In all likelihood many of these pullets may have been eaten or if sold to villagers they are unlikely to have produced at 230 eggs a year.
- 10) This figure seems to be the result of an estimate. Assuming a Baladi hen lays 60 eggs a year and all are consumed (unlikely) and assuming a population of eight million people this would come out to approximately two Baladi for each family of eight persons. Among households interviewed in the survey there was an average of one Baladi per household.

- 11) This assumes that the only Golden Comets in the traditional sector were those delivered by the project.
- 12) This figure includes a summation of potential egg production in the traditional, small and medium scale sectors and is not based on the Lasley figure of 70 million for total commercial production.

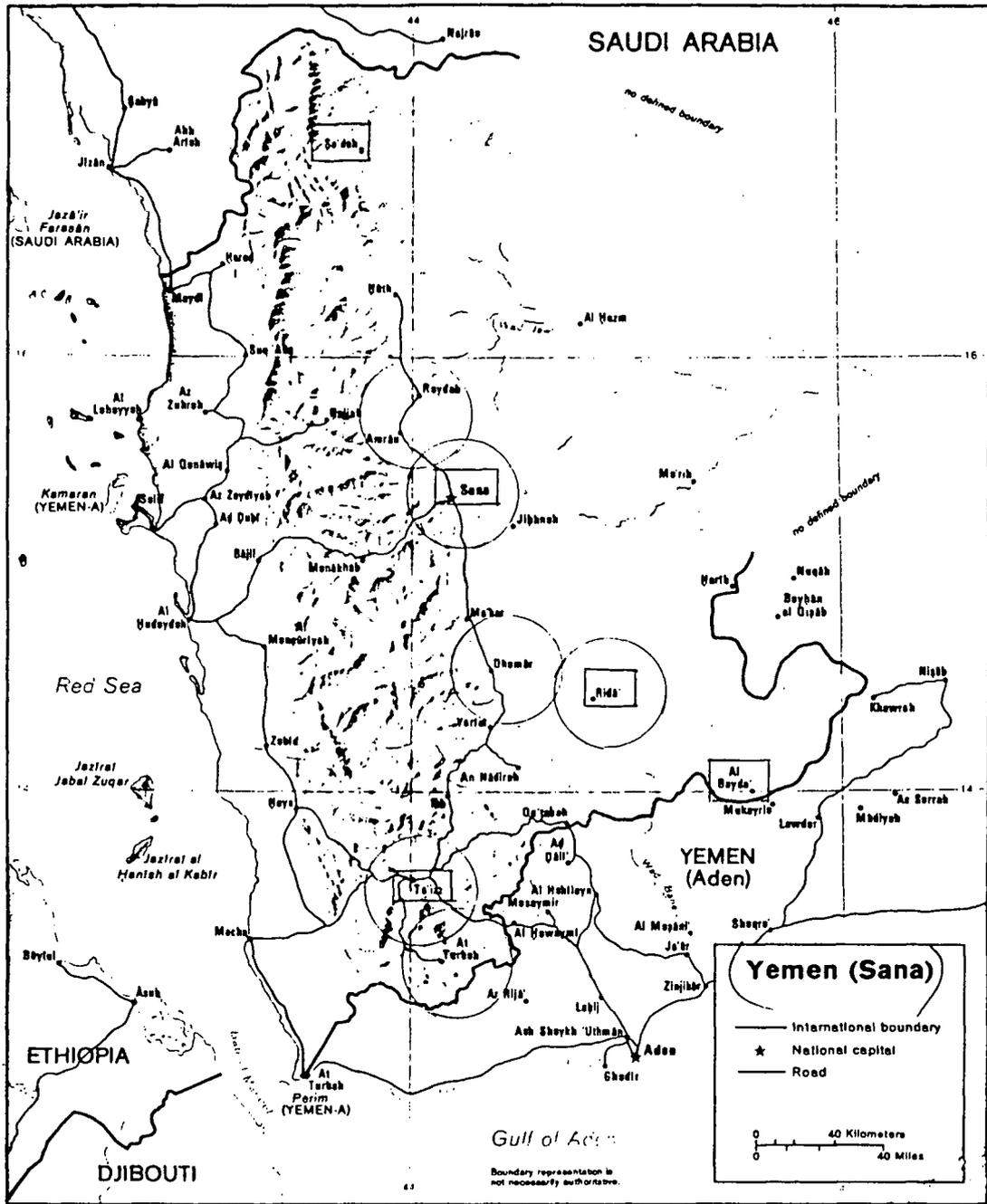
production is given, excluding Baladi production which presumably occurs in all areas. Reference to small, medium and traditional production is with respect to the GC.

For a more geographical perspective compare the diagram with the map of Yemen (Figure 3). Those areas which experienced enhancement of traditional flocks, are circled and those areas which have small and medium scale production are boxed in, both as result of PETS. The only large scale production facilities are in Sanaa and Taiz.

Egg Production

According to Figure 2 total egg supply in 1985/86 is estimated at 423.9 million eggs. European Economic Community (EEC) imports represent 54 percent of the total and traditional Baladi production comprises 26 percent. Therefore, the remaining 20 percent of eggs come from local commercial and village production of the Golden Comet. Of these 85.9 million eggs produced in Yemen, 65.7 million are produced in two large scale facilities in Sanaa and Taiz. The 20.3 million eggs in the traditional, small and medium egg sectors are a direct result of the PETS project. Thus, the number of eggs produced as a direct result of PETS is 4.3 percent of total egg consumption. These eggs have a number of advantages over the other sources of eggs:

- 1) They are produced locally and more likely to be fresh.



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Figure 3. Map of North Yemen.

- 2) They are not Baladi and not fertilized and therefore more likely to be consumed rather than hatched.
- 3) Most of the eggs were produced in areas remote from the larger cities, for example, Sada, Rada and At Turba.
- 4) Those eggs produced in the farm household are easily accessible and do not need to be purchased. So even if eggs are unavailable in the shop or there is no ready cash the family still may have eggs to eat.

In summary, viewing the PETS subproject in the larger context of the egg sector allows one to gain an improved perspective of its effect on egg production with respect to total egg production. PETS did have a significant numerical impact on the egg availability in North Yemen and allowed for the people of more remote areas to have better access to fresh eggs.

Per capita egg consumption is presently estimated at 52 eggs a year. According to the egg sector analysis, less than half of this comes from local production. In the future these shares will probably change as imports are restricted, large scale producers enter the market, and small and medium scale production expands. Traditional production, other than Baladi, remains insignificant at .3 percent of total egg consumption. Informed decisions will need to be made by the Yemen government concerning how they plan to encourage the expansion of the egg sector and if emphasis will be given to the traditional subsector.

Chapter V returns to a discussion of the PETS subproject. When PETS was designed there was no local commercial egg production and it was therefore not of great concern as to how the project fit in with the egg sector. During the project implementation project personnel attempted to focus on small, medium, and traditional egg production. Chapter V discusses and analyses the results of this dual focus and how the overall effectiveness of the project was impacted, particularly with respect to traditional production.

CHAPTER V

PROJECT DESIGN, IMPLEMENTATION, AND
EVALUATION OF PETS

Information gathering is a fundamental part of project design, implementation and evaluation. A significant share of project funding is allocated toward the gathering of information as it is recognized as being crucial to the proper allocation of resources in the future. There is an economic tradeoff between the quality and quantity of data collected and the amount of money spent on these resources. But the tradeoff between funds spent at the beginning of a project and those possibly lost because of a poorly designed project due to lack of information must be considered.

Development agencies have detailed policies and methods for information collection, but often these are inadequately implemented in response to a lack of finance, time or properly trained personnel. Project designers and implementors (often drawn from academic environments) are often not trained in, nor enthusiastic about, USAID methods of documentation. Assumptions are frequently used which are unrealistic, misdirected and/or unstated.

This chapter hypothesizes that the project was dependent on a number of unsubstantiated assumptions and the funds allocated to information gathering were inadequate assumptions. In North Yemen, as well as other developing countries, very little primary data is available and what there is may be open to question. Statistical data must be used with great caution. For example, in 1979 two

different estimates are given for the quantity of poultry meat imported. The Ministry of Supply and Trade estimates 66,068 tons while the Central Planning Organization estimates 105,934 tons. The latter figure is assumed to be in error by one decimal place (should be 10,593), by Milton Snodgrass, but regardless there is a significant discrepancy between the two figures (Snodgrass, 1984).

There are at least two types of shortcomings concerning information in development assistance. First, the process for collecting data and recordkeeping still has not been well integrated within project implementation. Furthermore, individuals in rural areas do not disclose information easily and they often give responses which they think interviewers want to hear. As a result too many broad assumptions are made by project designers who should (1) acquaint themselves more with the framework under which USAID functions, and (2) identify key elements of Yemeni culture.

These two types of information gaps deserve further discussion. First, the USAID framework of project design, implementation and evaluation is critically reviewed and found lacking only in that it does not attract as many adherents as it should. Second, the discussion will examine the design, implementation and evaluation of PETS and how these factors influenced the success of the project, particularly with respect to specific issues of Yemeni culture.

USAID Framework

USAID methods coincide with theory in proposing that means for evaluating the progress of a project should be established as part

of the project design, and not at the conclusion of the project. "The project design (as reflected in the Project Paper, Project Agreement, Logical Framework and Project Implementation Plan) is the starting point for subsequent evaluation. The project design, established the intent, the plan, the means for measuring progress, and the external conditions (assumptions) that would affect the project" (USAID Handbook, Annex 3, p. 1). When designing, implementing, and evaluating a project USAID uses the "logical framework" which is first formulated in the Project Identification Document (PID) or the Project Paper (PP). The logical framework or "logframe" is used to integrate the concept of causality, using four levels: inputs, output, purpose and goal. "If the appropriate causes are introduced, the desired effects will be brought about. The appropriate causes are the inputs; the desired effects are the outputs. The outputs in turn become the "cause" of the next desired result--the bringing about of the purpose. The purpose is then expected to contribute substantially to the bringing about of the higher goal--much as if the purpose were now the "cause" and the goal the "effect". In essence this is a causal sequence (USAID Handbook, p. 8).

In particular, the logframe should specify the indicators or measures and the sources of data for these measures in order to determine the amount of progress achieved during the project. Evaluative elements are built into the project design in the project planning stage. The project designers must state the end-objective of the project or the purpose. The indicators of whether the

purpose has been achieved by the termination date of the project are called the end-of-project status indicators or "EOPS." In order for "EOPS" to have any real meaning they must be compared to the beginning-of-project-status indicators or "BOPS." It is thus crucial to plan ahead in order to establish the "BOPS" and collect certain baseline measures. The value in this procedure lies in being able to distinguish changes which have occurred; the cause of these changes would remain unclear. The project designer must have a well defined project purpose and an appropriate method for measuring the achievement of this purpose in order to gather comparable and appropriate baseline data (USAID Handbook, p. 3).

Along with the design stage, the implementation stage activities are also important in preparing for a detailed project evaluation. During the design stage the evaluation process should be clarified; the future evaluation requirements must be kept in mind during implementation. This may require a special effort as the project implementors may not be either the evaluators or project designers. Project records should be maintained and the person or persons responsible for this should be aware of their responsibility especially if they are host country nationals (HCN). Host country nationals are the persons who will remain in the country after the completion of the project and could make further use of the information in the future. Training is important in instilling this responsibility. Even if there is good baseline data which may be compared with the EOPS indicators, actual causality may be unclear if good records are not maintained during implementation. The PETS

logframe calls for the use of project records to substantiate progress made toward initial objectives.

An analysis of the need for integrating project design, implementation and evaluation, as called for in the USAID handbook is done by using the Poultry Extension and Training Subproject (PETS) as an example. The analysis of this process with respect to PETS is also required in order to understand the relevance of the "special evaluation," of PETS conducted as the goal of this thesis.

The analysis is primarily based on two documents: the subproject paper written in mid-1982 and the evaluation conducted in 1984. The project paper is very detailed and consists of the project description, design purpose, outputs, evaluation plan, etc. The project inputs, outputs, purpose, and goal are laid out within the "logframe." While the evaluation plan called for internal evaluations in FY 1982, 1984, and 1986 and external evaluations in FY 1983, 1985, and 1987, only one evaluation was conducted, an external evaluation done in 1984, which will be used in this analysis. The PETS budget included \$140,000 for two internal and two external evaluations; the remaining two subproject evaluations were to be performed within the scope of the overall Agricultural Development Support Program (ADSP) evaluation. Annual and quarterly reports are written in order to determine if the project is on schedule in meeting project objectives, which are stated in the logframe.

It is not within the scope of this thesis to analyze all aspects of the project paper and evaluations (planned and actual).

Rather the analysis focuses on those parts which pertain directly to the goal of improving traditional sector poultry production and consumption, an undertaking which was to be accomplished via pullet production and distribution. Excluded from the analysis are those parts of the project which focused on extension, training and institutional development, as well as those activities which focused on small and medium scale production. It was intended that all project components would be integrated so as to reach the larger subproject goal. However, it is apparent that project components proceeded independently of one another. For example, training of extension agents began in 1983 but large scale pullet production and more frequent distributions did not commence until 1985. Also, while PETS officially closed August 1987, Yemeni students being educated at OSU in Poultry Science will not even begin to return to Yemen until at least 1989.

As mentioned earlier, all AID projects are required to contain monitoring and evaluation plans. As noted, the PETS PP contained a recommended schedule of internal and external evaluations. The fact that only one evaluation was conducted points to a breakdown of the project cycle.

The remainder of this chapter will proceed in three parts. First, a detailed discussion of the 1982 project paper will be presented with particular attention to the "logframe" and the evaluation plan. Second, the assumptions contained in the project paper which influenced the performance of the project will be examined. Third, the 1984 evaluation and its relationship to the

project paper and the "special evaluation" conducted in 1987 will be covered in detail. In summary the "special evaluation" will be introduced and its relation to the previous topics will be discussed.

The Project Paper

Many outputs, purposes and goals were projected within the PETS design, some materialized and others did not. It is not unusual for project designers to be overly optimistic as they are often unaware of underlying constraints (Hirschman, 1967). In this section of the chapter reference is made to the logical framework (Appendix A) as a summary of the project design. The 1984 evaluation will also be used as a reference because it was during this evaluation that some of the project goals were recognized as unattainable and a new direction was given to the project.

The program or sector goal was "to increase egg production in the traditional sector to improve nutrition and increase farm income." This is a broadly stated goal and possibly quite difficult to verify. Unfortunately, the "objectively verifiable indicators" (OVI) and the "means of verification" (MOV) indicate that the issue of verification was not fully considered. The following statements, printed in bold, are OVIs (1,2 & 4) and a MOV (3) taken directly from the log frame, which is in Appendix A. The comments following each demonstrates why the methods of verification were not researched thoroughly enough.

1. Farm level data collected over life of project.

The majority of traditional poultry farmers (women) are illiterate. If the designer believes that extension agents or small and medium farmers will maintain detailed records, the designer is under a delusion that these people are as concerned about the process as they are with the result.

2. Ratio of imports of eggs and poultry meat to total consumption.

The ratio of imports to total consumption may be irrelevant as a measure for a change in consumption if an embargo is placed on the importation of eggs or poultry. Also data collected on consumption is more related to the agency which collects it than to reality.

3. Statistical series of YARG Agencies.

As mentioned already, statistical analyses done by Yemen agencies are often poorly developed and thus unreliable.

4. Amount of eggs and poultry meat produced by project participants.

Assuming that extension agents will have access to adequate resources (vehicles, time) for keeping production records on project participants (especially for traditional farmers) is unrealistic.

In order to have meaningful project evaluations the project designers must be consciously aware of the validity of verifiable indicators and means of verification. Next looking at the stated proposed output of pullets on page three of the logframe (Appendix

A), one can compute that the minimum required production of pullets was 112,400 pullets. What is interesting here is that while the project designers stated that a certain number of flocks were to be established the OVI's would indicate the number of pullets produced at the project site, not the number of village flocks established. There is, however, a big difference between raising pullets on project site and establishing the flocks under the care of individual poultry farms.

Although good project records were maintained for pullet production; where those records are presently kept is unknown. According to the 1984 evaluation, by 1984 only ten percent of projected pullet production had been met. Under "important assumptions" in the logframe there is no stated assumption that adequate facilities would be available. As it turned out the major constraint to production of pullets was a lack of building space; Bir Al Qhusain production facilities were not completed until early 1985.

While project records might be adequate for verifying production of pullets, proper records were not kept for traditional

flocks established in the villages.¹ Ms. Bu-Haydar was employed by the project for one year to train village women in poultry care and to manage village distributions. Her reports mention 20 villages specifically along with 11 unspecified villages and areas. Her reports mention little about training and are concerned primarily with the number of pullets sold. According to these reports there were eight trips which occurred from October 1985 to July 1986. Carson Coleman, who served as a poultry technician from January 1983 to March 1986 was also involved in pullet distributions but no trip reports other than those written by Ms. Bu-Haydar have been available. Even if project records were adequately kept, there must be a method under which these reports are filed and kept easily accessible to interested persons--for example, project evaluators.

Pre-Project Assumptions

Moving away from the logical framework into other segments of the project paper, the discussion will now focus on some of the assumptions made in the project paper about the traditional poultry

¹ Before going to Yemen it was impossible to obtain records of village distributions; they were not kept in either the OSU Poultry Science Department or in the Office of International Agriculture (OIA). It was therefore believed that these records would be accessible upon request in Yemen, either from USAID or Yemeni Ministry personnel. As it turned out everyone involved felt that someone else would have these records. The trip reports of Ms. Sallama Bu-Haydar were finally available in October from the Poultry Science Department; unfortunately, this was after the research on site in Yemen was complete. Without any records in Yemen it was necessary to survey those villages where it was believed by Yemeni extension agents that the Golden Comet pullets had been distributed.

sector. In Annex A of the project paper the designers describe the traditional household production model for establishing flocks.

Assumption #1: TRADITIONAL MODE OF EGG PRODUCTION IN YEMEN

1a) Size of Enterprise

The first set of assumptions relate to traditional modes of egg production which did not coincide with the expectations of the project designers. Within the ideal model, the designers assumed that each villager would purchase up to 25 pullets, but only if certain conditions were fulfilled.

1b) Input Use

The villager was expected to provide an enclosed area, waterers, feeders, and nests. There was even some mention of possibly extending day length with kerosine or gasoline lanterns. The villagers were expected to use pullet feed and to keep the pullets contained at all times, preventing the birds from scavenging. Seven hundred fifty rials was the estimated required investment. (The exchange rate in 1982 was approximately five YR to a dollar; there was a decline to 10 YR/\$ by 1987.) The equivalent of \$150 would be necessary to set up for egg production as envisioned by the project designers; this is almost 30 percent of the average per capita income. Theoretically all of these required conditions would be verified prior to distribution.

1c) The Role of Women

As noted in the Project Paper, women conduct a large part of the agricultural daily chores. Not mentioned in the PP are the number of female hours per family required for the following chores: Wood gathering (3.5 hours), water collection (5.6 hours), and several hours for food preparation (Mynnti, 1979). This still does not include food processing, animal care and child care. These women are not likely to allocate additional time to labor intensive enterprises such as egg production. Poultry raised in the traditional manner are likely to be unattended with the exception of providing water, scraps, and enclosures at night. In some households, pullets may only receive leftover rice as other scraps are often reserved for cattle.

Yemeni women rarely have control over major expenditures and cannot go easily into the public sphere to make purchases. Therefore it would be almost impossible for a woman to buy feed and equipment for pullet care. And it is unreasonable to assume that the man of the household, who is possibly out of the country, will make a major investment in an activity with which he is uninvolved.

While the project designers acknowledged that the women are the primary poultry caretakers, they seemed to have limited understanding of the constraints in Yemeni culture relevant to the use of women's labor. Male project personnel could not talk with Yemeni women but no woman was employed by the project until 1985. There was little investigation as to how the people were likely to allocate the scarce resources of money and time.

Villagers were to have received training on the care and management of laying birds and CORE was to have provided tapes and pamphlets as training material. According to reports by Ms. Bu-Haydar, however, there was no mention of screening recipients for the above required obligations of management. In summary, there was inadequate information collected on traditional agriculture, the significance of poultry and the role of men and women, for an adequate pre-project appraisal.

Assumption #2: INSTITUTIONAL CAPABILITIES

The second major assumption within the PP was that social and governmental institutions were adequately developed for the tasks required of them. This must have been assumed by project designers otherwise there would not have been such demanding objectives with such limited personnel. If one considers the maximum pullet production and maximum number of expatriots employed then the peak output from PETS occurred during 1985/86. During that time there was a team leader (Dr. Holleman) and three poultry technicians (Heidloff, Coleman and Bu-Haydar). And yet these people were responsible for pullet production, distribution, extension, training of Yemeni agents and training of villagers (male and female). The implication is that by this point in time there would be significant delegation of responsibility to the Yemeni. The project designers presume that this far into the project the Yemeni extension system would be distributing pullets, cooperatives would be formed and under the supervision of Yemeni women, and production would be under

the control of Yemeni personnel. But instead this delegation of responsibility was only just beginning to occur.

Apparently the extension system did not have the funds or organizational abilities to conduct distributions. According to the Bu-Haydar reports pullets were returned to Sanaa more than once because village extension personnel were not adequately prepared to receive the pullets. Either they did not have feed and facilities to care for the pullets or no arrangements were made for distribution to villagers.

Although Yemenis were being trained in poultry management and some were hired at BAQ these men could not run the facilities themselves. The Ministry of Agriculture was to be responsible for variable costs such as feed and wages; when these obligations were not fulfilled American personnel were often compelled to intervene and/or cover these costs from the PETS budget.

Assumption #3: PULLET PRODUCTION FACILITIES

A third assumption, implied but not stated directly in the PP, was that there would be adequate facilities for pullet production. To assume that construction of a major facility, which was to be arranged and paid for by the Yemeni government, would occur, smoothly and on time was extremely optimistic. After the Yemeni government had received no response to its worldwide solicitation of bids for construction the responsibility of procurement of these buildings shifted to the USAID budget and OSU personnel.

Assumption #4: SOURCE OF GC PULLETS AFTER PROJECT CONCLUSION

A fourth assumption concerns the long term impact of PETS. Since the GC pullets were not meant to reproduce in Yemen, if the increases in traditional, small and medium egg scale production were to continue than there would have to be a continuous source of GCs or some other layer type. Project planners assumed that transfer of the production facilities to the Yemeni would be successful and timely and that production of the pullets would continue and that these pullets would be available to villagers.

It became clear during the special evaluation that there were other private sources of pullets; it also became apparent that they were not raised under proper conditions in order to meet productive potential. Also at that time production at BAQ was unstable and declining as a result of transferring responsibility of the facilities to complete Yemeni control. Although BAQ was believed to be operating at this time, the exact conditions remain unknown.

The Evaluation Plan

The evaluation plan included in the 1982 PP was written up in a little more than one page. The evaluation criteria are those included in the logframe which has already been discussed. The evaluation, planned for 1983, to confirm the suitability of the original design never occurred. "If agents are functioning and producers have birds laying eggs and producing meat, the subproject can be considered as progressing satisfactorily" (USAID, 1982, p. 29). A survey was to be conducted to determine the number of

farmers assisted by the project who were continuing to produce eggs at the time of evaluation. Only one evaluation, in 1984, ever occurred until the "special" evaluation of 1987.

The Project Evaluation

Some of the problems with the project scope and design were noted during the 1984 evaluation. The project was judged to be performing well within the realm of extension and training but significantly behind in pullet production and distribution. Only 7,624 pullets had been distributed within the first two years; no precise records had been kept regarding these pullets other than that they were sold in the Dhamar earthquake area. The main reason for inadequate pullet production and distribution was inadequate building space. The buildings at Bir Al Qhusain which became the major producing facility were still under construction in 1984.

The evaluation team, Robert Morrow and R.E. Cook, found the villagers to be very pleased with the high productivity of the pullets even though the farmers had met none of the required conditions (discussed earlier). Pullets were not contained in enclosed areas and were fed table scraps and grain only.

One of the issues raised by the project evaluators concerned the actual contribution of the project, to date, toward the achievement of the following objectives: (1) the traditional sector's improvement in nutrition and income, (2) reduction of dependence on imported eggs, and (3) aggregate increase in egg and poultry meat production. The team concluded that no significant

contribution had been made but that groundwork had been established whereby the project could contribute in the future.

The project objective of institutional development was unlikely to be achieved by September 1987, according to the evaluation team. However, the team felt that pullet distribution targets could be met if given proper attention (Morrow, 1984). It is important to note that the team seemed to have a good understanding of the major constraints which were holding the project back. The team knew and suggested the importance of a well-planned scheme for pullet distributions which would coincide with and enhance the extension experience for trainees (Morrow, 1984). The team observed that the division of labor and resources among numerous components was probably preventing the production and distribution process from receiving adequate attention.

Recommendations given by the evaluation team seemed logical and appropriate. It was not recommended that the project be redesigned but that modification in implementation occur. Emphasis in the PETS subproject was to be refocused on the traditional village flock in order to improve nutritional levels of rural families.

Although the team's general recommendation seemed appropriate, the suggestions given to address increased pullet production seemed, to this observer, not well informed. For example, one suggestion was that the demonstration farm in Sada be used to produce 3,000 pullets for distribution in the northern areas. According to Dr. Holleman and other former PETS personnel, during that time the farm was poorly managed and would not have been able to fulfill such a

task. A similar proposal was also made for the research center in Taiz. Such proposals were based on overly optimistic expectations of the motivation and capabilities of the Yemeni extension service.

The evaluation team provided a thorough assessment on PETS subproject accomplishments with respect to stated goals, purposes and outputs. Also the questions of why and how the project was able or unable to fulfill stated objectives were addressed. But it is important to realize that the task dealt with by the team was not very complex because it was obvious that the project had met none of its objectives with respect to production and distribution. Unfortunately, due to the lack of success with respect to production and distribution the team would not have needed to look very far for reasons of failure. If some results had been obtained, particularly if less than satisfactory, the team might have delved more deeply into the causal relationships of success and failure.

Suppose the project had been successful in meeting its objective of producing enough pullets for distribution, how would the evaluators have determined whether or not traditional flocks had been properly established? It is unlikely that they would have been able to depend on project records or records kept by Yemeni extension agents. Criteria for objective verification of success might well have been set up at the same time the team recommended a new focus on establishment of traditional flocks. Two years into the project, those involved with the evaluation should have been aware at that point that existing project recordkeeping systems and

Yemeni statistics were probably not adequate measures for determining success or failure.

Even though specific recommendations from the team for increasing pullet production were not implemented, production increased significantly once construction of buildings at Bir Al Qhusain was completed in December 1984. Pullets were also being produced at the training farm Al Hasaba, beginning in September 1983. By November 1986, 120,200 pullets had been produced at Bir Al Qhusain (BAQ) and 92 percent of these were distributed. As discussed previously the only available records of these distributions were those kept by Ms. Bu-Haydar. According to the 1982 PP, the required minimum amount of pullets was 112,400, so in fact the project had met this one objective.

Chapter Summary and Questions

Once pullets were produced, were traditional poultry flocks in fact established? What were the criteria for measuring success in this area? The only means of verification for measuring whether traditional flocks were established or not, are project records. It has been contended that those project records kept on pullet distributions were inadequate and not detailed enough to respond to such questions.

There was an underlying assumption that as long as pullets were distributed the project would be a success. There was no apparent recognition that the pullets themselves might be inappropriate for village life or that unforeseen events may occur within the pullet

market. Apparently, many of the factors that could affect the distribution and acceptance of the Golden Comet were never carefully considered by project personnel.

Development is not a matter of production only. Realities which effect the acceptance and success of the product should also be considered. Does the product (or input) really cause the owner or user of the product to be better off than without the product? It is important to understand what happened after pullet distributions. Ms. Bu-Haydar's reports provide records for only some of the distributions. Little or nothing is known of the others. There were many questions left unanswered: (1) Did the pullets raise household nutritional levels? (2) What management practices were actually employed relative to those assumed by project designers? (3) How were pullet distributions affected by the market and the initiatives of middlemen?

The goal of the "special evaluation" conducted in the summer of 1987 was to answer these and other questions. The principle question addressed was: Did this project help the villagers, how, and in what ways could it have even been made more successful?

CHAPTER VI

IMPLEMENTATION OF SURVEY AND RESULTS

Ultimately when discussing the success of a development project one should ask whether or not the project actually helped anyone. It cannot be assumed that simply because buildings have been constructed and chickens have been produced that the proposed beneficiaries are any better off. The complex social and economic fabric of a developing country, as well as the traditions of its people can confound the most well-intentioned efforts of development specialists.

In terms of the numbers of individuals as proposed beneficiaries, in the 1982 PETS Project Paper, traditional farmers were the largest group. Two-hundred seventy flocks were to be established for traditional farmers. Unfortunately, no operational criteria nor measurement strategies were established within the project design which would actually determine whether these people did indeed benefit. It might be difficult to determine if any changes had occurred because no baseline data was gathered pre-project with respect to household production and consumption of poultry. As mentioned earlier, it is not enough to depend on Yemeni statistical series to indicate changes brought about by such a small project as PETS.

For these reasons, it seemed that one method for determining the impact upon proposed beneficiaries, in order to make a comparison, would be to conduct a limited but targeted survey of

recipients and nonrecipients. This chapter discusses the methods used for implementing a survey in villages of North Yemen and the results of that survey. The specific topics covered include (1) considerations particular to North Yemen, (2) the pre-test questionnaire, (3) the final questionnaire, and (4) the results of the survey.

Purpose

The main purpose of the investigation was to establish criteria for measuring whether or not the traditional household had been positively effected and to gather data for measuring success based on these criteria. The primary measurement criteria were production and consumption levels of poultry and eggs. An intended output of the investigation in this regard was to measure overall consumption of poultry and eggs inclusive of that bought in the market, provided from Baladi flocks, other birds, and the Golden Comet and to compare between households with and without the Golden Comet.

A secondary purpose was to explore the impacts of extension and training upon these households. It was important to know whether any information had been received and if it were being utilized. A third purpose was to discover how people were responding to these pullets and how the "market" was affecting the acceptance of the pullets.

The Survey

Conducting A Survey in North Yemen

Implementing a survey in North Yemen is complicated by a number of factors. Since the questionnaire was addressed to women there were cultural norms to be investigated and approaches which had to be tested during a preliminary questionnaire. Dr. Dave Faulkenberry, a statistics professor experienced with survey methods in Yemen, agreed that a proper statistical analysis would be difficult, if not impossible, given the available time and financial constraints. A random sample using population lists would be unreliable as people are very suspicious when asked for by name. Population lists can be obtained from the Central Planning Office (CPO), but in 1987 the lists were not yet on computer nor were they up to date.

Before actually conducting a preliminary survey many details were unknown as most surveys had been conducted by male Yemeni government employees. There was very little information as to how an American woman should approach the situation. It was expected that an official letter from the Ministry to village leaders would be helpful, but as it turned out it was not necessary to directly contact the village leaders. Apparently it was more important to be accompanied by a Yemeni woman who was known to the village women and could act as guide and reference.

While the extension agents believed that the best time for interviewing was in the afternoon when the women were relaxing, it

was often more expedient to talk with women as they worked. In this way women's tasks could be observed and the women were less likely to prolong the interview with niceties. There was some expectation that either the men would be reluctant to have their women interviewed or that the women themselves would be uninterested. In fact, the men were quite hospitable and for the most part the women were quite willing to answer the questions.

There are certain customs to be aware of and to respect:

- 1) Women, western and Arab, should dress discreetly with long sleeves and loose clothing. Female Arab personnel should also cover their hair, as more is expected of the Arab woman than of the western woman.
- 2) If one has a camera they should be careful to never take photos of women and always ask permission before photographing young girls.
- 3) Most importantly, an individual should be respectful and amiable toward everyone; people know when they are looked down upon.
- 4) Be persistent in trying to progress with required workload without being overbearing. The local attitude toward research are comparatively casual relative to western standards.
- 5) Make a special effort in communicating precisely and in being understood and when misunderstandings occur regardless, be patient.

- 6) Explain the purpose of the survey and the questions, if necessary.

In order to maintain social customs and function most efficiently the researcher, translator/guide, and driver/translator/guide worked as a team. The research process itself became a learning experience by working and planning together. For this reason if the terms "us" or "we" are used in this text they are in reference to "the team." Following is a calendar of events which should help in understanding how research progresses in a developing country such as North Yemen.

Calendar of Events

July 8 - July 16: Met with USAID and ADSP personnel, members of the Ministry of Agriculture, and Dr. Nasser Al-Auqui in order to develop a better understanding of the workings and inter-relatedness of these offices and to prepare for the survey.

July 18 - July 21: Worked on questionnaire, arranged for translator (Sophia Oshaish), and prepared for trip to Taiz.

July 22 - July 23: First trip to Taiz to meet with Faiza Said of the Southern Uplands Rural Development Project (SURDP) to make arrangements to conduct preliminary questionnaire in three villages within the Taiz area.

July 25 - July 27: Translation of questionnaire into Arabic and preparations for return trip to Taiz.

August 3 - August 8: Ede Holiday.

August 9 - August 15: Prepared final questionnaire and prepared for trip to Rada.

August 15 - August 22: Conducted final questionnaire in Rada area villages of Zoban and Kurn Al Asaad.

August 23 - August 25: Made arrangements for new translator in Taiz area.

August 26 - September 1: Conducted questionnaire in At Turba area villages of Sharef and Demna.

September 9 - September 12 : Visited Ministry poultry farm and other medium scale farms in Sada area.

September 13 - October 1: Compiled and analyzed results from questionnaire, sought further related information, and prepared report for AID debriefing.

October 1 - October 5: Obtained treatment for Giardia and ringworm and prepared for departure from YAR.

Survey Design

The survey was designed in North Yemen where it was hoped that more information would be available to make the survey most relevant. The survey was designed to provide numerical data which would substantiate production and consumption figures for poultry and eggs. A secondary output of the survey was information on

management practices and villager's access to extension and training.

The original questionnaire consisted of over 80 questions; this was believed to be the minimum number of questions necessary to obtain the desired information. A preliminary survey was conducted to learn more about the best method for conducting a survey in North Yemen and for refining the questionnaire.

The Preliminary Questionnaire

The preliminary survey was conducted in Arabaic using a female extension agent, Sophia Oshaish, as translator. To test the questionnaire the survey was conducted in three different villages among 16 different people, including three men. The villages were located in the Taiz area which enabled us to employ the help of several personnel from the Southern Uplands Regional Development Project (SURDP), including several female extension agents and one male extension agent. It was very important to make the interviewers understand that if there was any doubt to the meaning any questions that they should seek clarification. The more educated personnel who also spoke English, were very efficient but the younger women with only high school educations were overly casual about the process of interviewing.

By implementing the pre-test questionnaire considerable insight was gained which was used in rewriting and improving the questionnaire. Twenty questions were eliminated or condensed as it was difficult to hold the attention of the women for the duration of

83 questions and for the following reasons as well. Questions related to "willingness to pay" appeared irrelevant as the interviewees were only willing to pay what they had previously paid or what other women were known to have paid. The more detailed questions related to marketing of eggs were also eliminated as this occurred only in the rare case where a woman was living alone. Questions were also revised to be more consistent and orderly.

Included in Appendix II is a copy of the final questionnaire. The questions are numbered in two ways: (1) a number for each original question, and (2) a second numbering preceded by a Q for each question where responses were coded and analyzed. This was done because during the process of the survey it became clear that some questions were not important to the study but did help in understanding a certain amount about the division of labor within the household. Also some questions could not be answered with precise numbers but in relative numbers. For example, question 18 which asks how many of the Golden Comet eggs are eaten. While the women rarely knew exactly in numbers they would know whether it was none, some, or all. Most women could not even give an estimate.

Setting For Interviews

Doing a preliminary questionnaire allowed for the researcher to obtain a greater awareness of how the interviews could best be conducted. In the afternoons most women socialized in large groups with many children in the room. Each interviewee was questioned individually but within the group. The other women might do any of

the following: (1) talk among themselves, (2) listen quietly, (3) interrupt constantly, and/or (4) encourage the woman to respond more accurately. It was found to be very important for the researcher to be thoroughly involved in each interview to help the translator keep from becoming overly distracted and to be able to probe more deeply with additional questions especially when answers were obviously inconsistent. In the mornings women could be interviewed individually as they worked.

Conducting a survey can be very time consuming. By having the questions printed in both English and Arabic on the same page and for the researcher to record responses while the translator questioned, greatly facilitated the process. It also helped in making sure that no questions were skipped.

Main Survey Implementation

The survey was conducted in four villages, two in the Rada area and two in the At Turba area. Ms. Sophia Oshaish, an extension agent for the Dutch project in Rada, served as a translator in the Rada area villages, Zoban² and Kurn Al Asaad³. Pullets had never been distributed in Zoban but had been in Kurn Al Assad. Since Kurn Al Asaad was a particularly large village, 400-500 families, 40 households were interviewed as opposed to 30 in the other three villages. Ms. Oshaish was well known in both villages which was

² Zoban is approximately seven miles or a 20 minute drive north of Rada.

³ Kurn Al Asaad is four miles or a 15 minute drive south of Rada.

crucial in conducting the survey. Without a guide who is known to the village women, the interviewees were not as likely to be responsive.

The two villages in the At Turba area where the survey was conducted were Asharef⁴ and Demna⁵. The translator employed for this area was Ms. Zaneb Anam who was neither familiar with rural life or the area. For this reason it was mandatory to be accompanied by the At Turba area female extension agent, Annisa. Information regarding GC distribution in the At Turba area was inconsistently reported from person to person. As it turned out, pullets were probably brought to the At Turba village but not officially distributed to other smaller individual villages. In any case no village could be found where the Golden Comets had not been received.

Results

The results of the survey will be covered by discussing first that information pertinent to the Golden Comet, then the "Baladi" pullet, then preferences between the two, followed by consumption information. The discussion of consumption of poultry and eggs will emphasize a comparison between those households with Golden Comets

⁴ Asharef is in the "uzla" Arcacacia located five miles south of At Turba. By vehicle the trip requires 45 minutes.

⁵ Demna is in the "uzla" Shargab located seven miles from At Turba. The trip requires 35 minutes by vehicle. An "uzla" comprises several villages.

and those without. The discussion of results will also focus on management practices and extension services received.

It is important to understand that some circumstances (which were discovered during the survey) related to GC distribution were unknown to USAID and Ministry personnel. For the most part none of the Golden Comets owned by the women interviewed were from the PETS subproject. Although PETS was supposedly the only importer of the GC it became apparent that this was not the case. There was no time within the context of this evaluation to determine the exact origin of the pullets. One poultry house was found in Rada where 13,000 birds (GC hens, broilers and roosters) were being raised. In this particular house the pullets were being raised as broilers for six weeks rather than 16 and in overcrowded unsanitary conditions. Dead chickens were seen laying amongst the other chickens. The reason that these other sources of GCs had not been discovered earlier was because the pre-test had been conducted in villages reasonably close to SURDP where project distributions had been more recent.

Therefore the object of the evaluation seemed to be transformed to the impact of the Golden Comet itself and not the PETS distributed Golden Comet. A great deal of effort had been devoted to identifying those villages where the project had presumably distributed Golden Comets, but it was difficult to be sure as those pullets were dead. Despite these realizations, which made it difficult to determine the impact of the PETS GC, important parallel kinds of information contributed to an understanding of the distribution component of the PETS project. These are (a) findings

about the perceived value of the GC breed; (b) findings about the perceived value of the Baladi breed(s), (c) interrelation of the broiler and layer production and marketing systems, and (d) management practices and the decision-making involved in determining flock size given constraints of available food (scraps) and needed investments in shelter, etc. and the availability of eggs in the market.

One last note before continuing with the survey results. Many women in the surveyed villages had Golden Comets previous to the ones that they possessed at the time of the interview. These pullets might have been from PETS. In any case, some women complained that the pullets had not lived long after purchase.

The Golden Comet

The Golden Comet will be discussed separately from the Baladi, which is a mixture of breeds, so that a comparison between the two is possible. Table 2 shows the total number of households interviewed which had Golden Comet pullets and the total number of pullets in these households.

Table 2. Households With Golden Comets.

Number Village Comets	# of Households Interviewed	Number of Households w/GC	Total Golden
Zoban	30	5	8
Kurn Al Asaad	40	26	86
Asharef	30	15	56
Demna	30	21	74
Total	130	67	239

In the village of Zaban where there had been, according to the extension agent, no project distribution of GCs, five of the 30 women interviewed had GCs. Of the total 18 purchased only eight remained, reflecting a loss rate of 44 percent. In the other three villages, 61 percent of the women interviewed had purchased GCs; of these there had been a loss rate of 21 percent. The major cause of loss of the hens was due to disease, often soon after purchase. Twenty-six of the 66 women who had GCs described eggs which indicated that calcium deficiencies were a significant problem. Many of the eggs were soft shelled or undeveloped. Five households were found to have consumed the GC but some only after the hen ceased laying.

In all of the villages most hens were bought six months previous to the survey but the times of purchase ranged from two weeks to three years. Over 80 percent of the pullets were bought from a middleman who would market pullets from a car in each village. Others were bought in the suq (Rada) for 25 rials, the village shops, and one from the Rada project (at 45 rials). Most all the families paid 25 rials for the pullets which were young requiring several months before laying. Children and men usually purchased the hens, perhaps because of social mores, or because the women are generally too busy.

Average egg production (per week) of the GC varied between villages as follows:⁶

⁶ This includes pullets which had not yet begun to lay and eggs that were not edible due to calcium deficiencies.

Table 3. Egg Production of Golden Comet.

	# of GC	Avg.	St.Dev.	Var	Range
Zoban	8	4.81	3.00	10.28	0-7
Kurn Al Asaad	86	3.34	1.99	4.04	0-7
Asharaf	56	2.62	2.14	4.64	0-7
Demna	69	3.40	1.76	3.22	0-6

Although the numbers for average egg production may be similar for these villages one can see by looking at the standard deviations and variances that there is a great deal of variance in the productivity of the pullets. Figure 4-7 make it even more apparent that there is little consistency in egg production among the pullets and between villages. This variance in productivity is due to a number of factors; variety in the age of pullets, origin of pullets, management practises of the women, and reliability of estimates given by the women.

The estimates for Zoban show the least normal distribution, due in large part to the small sample figure of eight GCs. The village of Kurn Al Asaad appears to show the most normal distribution for egg production. This is possibly due in part to the larger sample of 86 GCs which is also related to the fact that this was the one village, of the four, where the project had made the most significant attempt to distribute the GC pullet and disseminate information.

In the three villages where there were a significant number of GCs the average egg production per week was approximately three

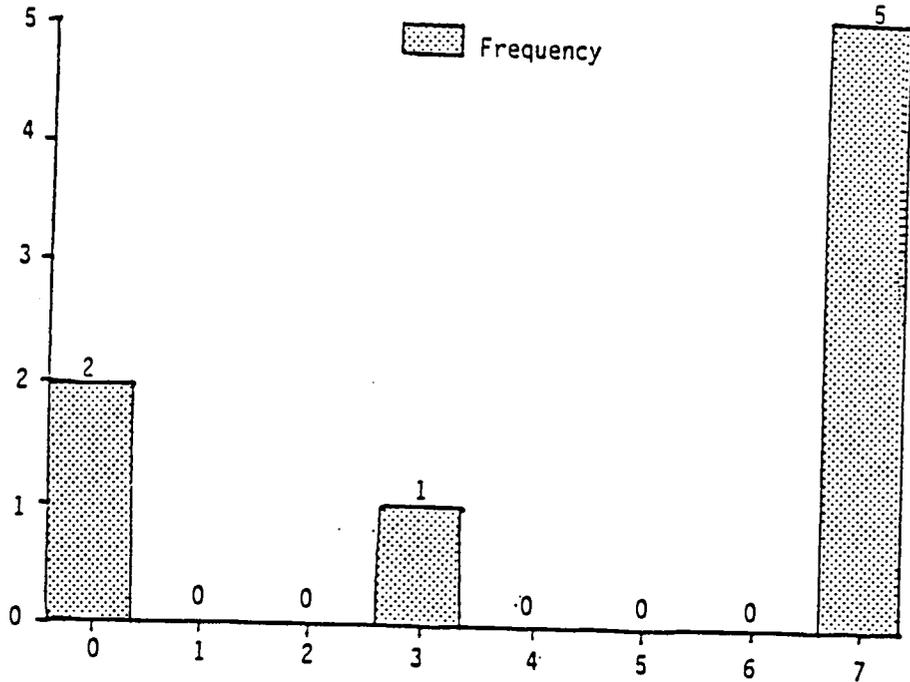


Figure 4. Survey One: Zoban Egg Production.

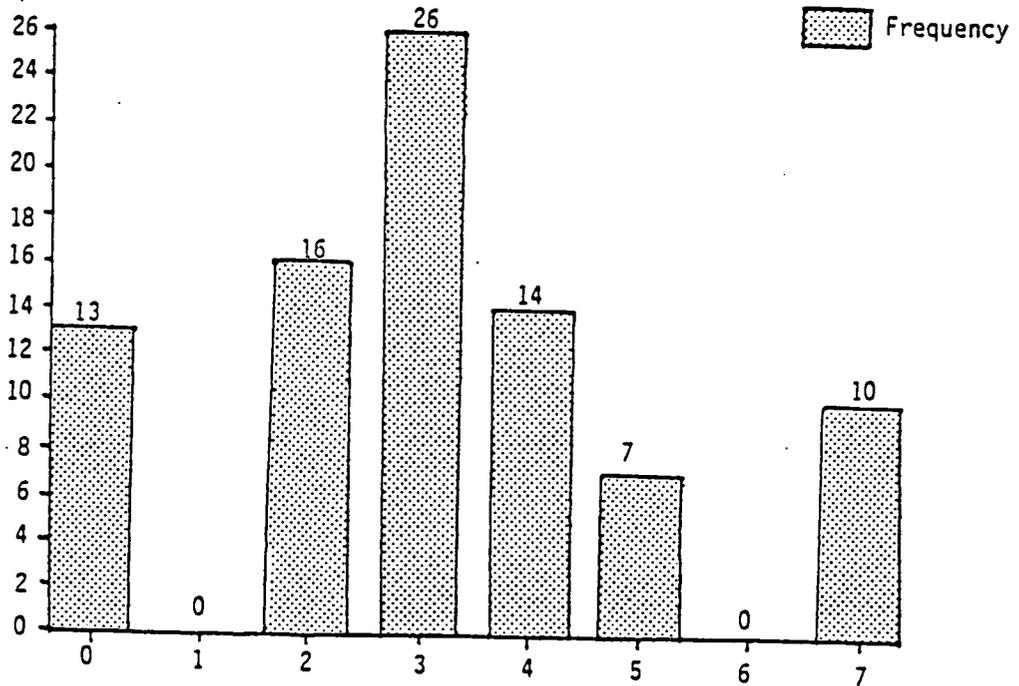


Figure 5. Survey Two: Kurn Al Asaad Egg Production.

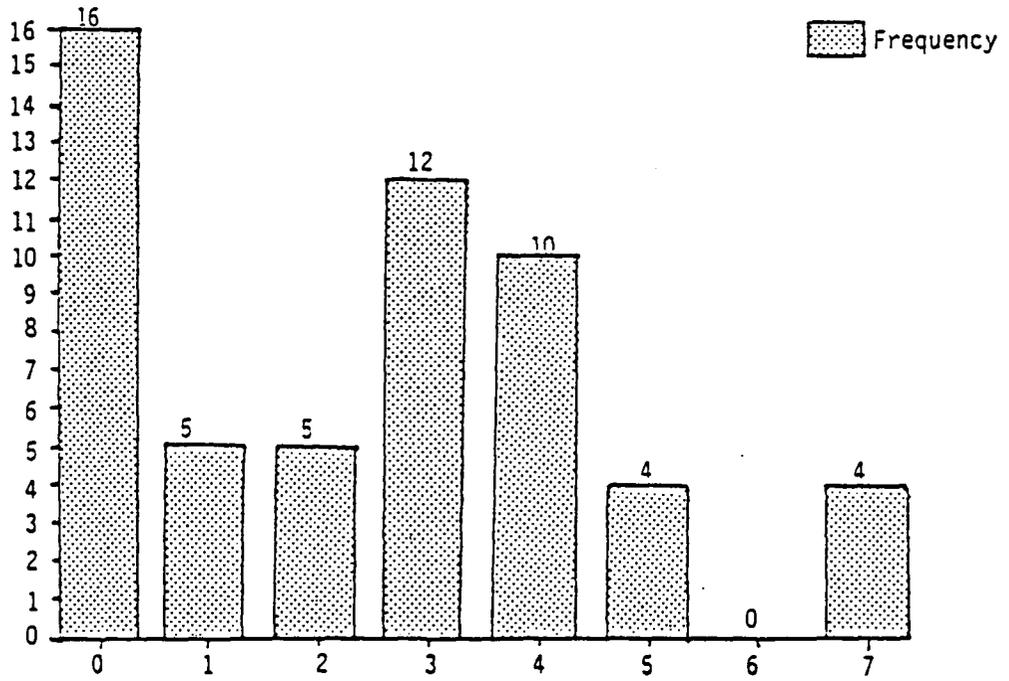


Figure 6. Survey Three: Asharef Egg Production.

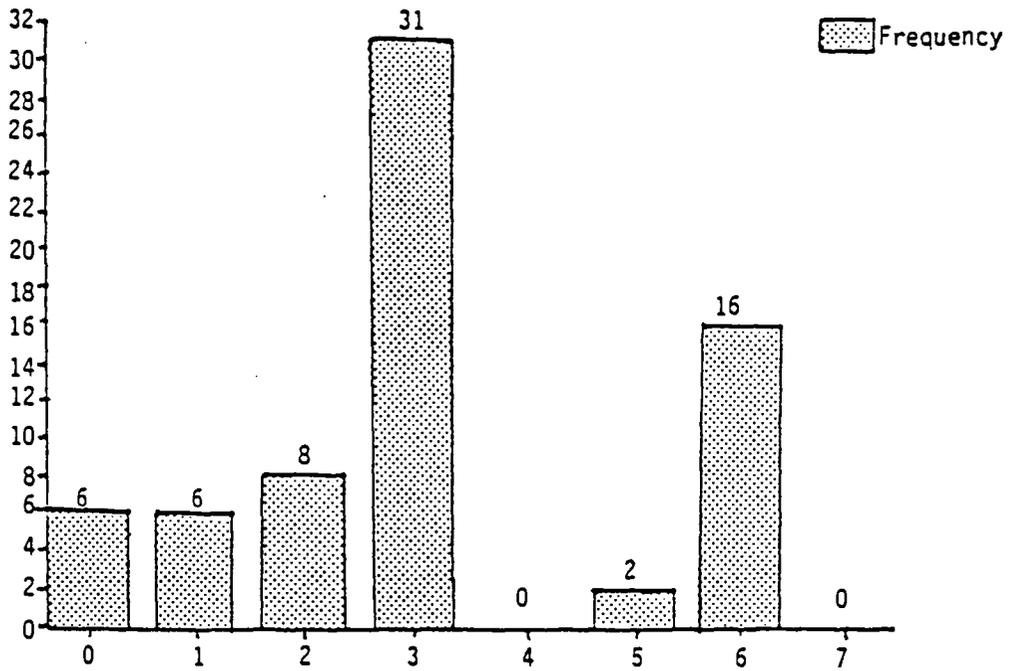


Figure 7. Survey Four: Demna Egg Production.

eggs. The GCs were not meeting their potential, probably due to poor nutrition and disease. Only five of the 130 women allowed any of the GC eggs to be hatched by Baladi hens. Many women mentioned that all of the eggs were needed in the family, particularly for the children. One woman, who lived alone, did sell her eggs.

Eight women had acquired GC roosters, all of which were allowed to roam the villages allowing for interbreeding with hens, Baladi and GC, of other households. Some of the roosters were not known to be roosters when purchased because they were still undeveloped. One woman (in Kurn Al Asaad) had GC hens, a GC rooster, and Baladi hens. She had some GC chicks which were hatched by the Baladi hens.

Baladi

The Baladi bird is a mixture of breeds which have adapted to primitive conditions and minimal care. Following is the total number of households which have Baladi and the total number of Baladi among these households.

Table 4. Households With Baladi.

Number Village	Total # of Households	Households With Baladi	Total of Baladi
Zoban	30	19	51
Kurn Al Asaad	40	9	35
Asharef	30	7	12
Demna	30	16	37

Only three women had actually purchased Baladi hens; they paid 50 rials per hen. The women wanted more Baladi but reported that

they were unavailable. The concern was voiced that since the Golden Comet had appeared that there were fewer available Baladi hens. There may be some basis for this as Zoban had a significantly higher proportion of Baladi hens than in the other villages where the Golden Comet was more prevalent. Possibly consumption of the Baladi increased when the new Golden Comet layers became available. There were two types of egg laying patterns among Baladi flocks reported in the survey. Sixty-eight percent of the hens laid eggs every day for approximately two weeks. The hens then would sit on some or all of the eggs, depending on how many were taken away, for about three weeks. The Baladi hen would not lay for another two or three months until the chicks were grown. The Baladi would lay, on the average, ten eggs within the two week period.

Twenty-six percent of the Baladi hens were reported to have laid eggs continuously, on the average 5.5 eggs a week, which is significantly more than the Golden Comet. Whether the hens lay continuously or not seems to depend on whether the eggs are taken away and if there is a rooster available. Many of the women mentioned that hens (Golden Comet and Baladi) lay more if there is a rooster available. Most of the women were not exactly sure as to how many eggs their hens laid or of the length of rest periods between laying periods, but as the interviews progressed there appeared to be a consensus of estimates.

Use of Eggs

Table 5. Use of Eggs.

Use	Golden Comet (%)	Baladi (%)
Eat All Eggs	89	33
Eat and Hatch Eggs	9	55
Eat Most & Sell Some	2	8
Eat, Hatch & Sell	0	4

Table 5 represents a breakdown of how the women among all of the villages use both the Golden Comet and Baladi eggs. Most of the women allowed enough eggs to hatch to maintain a certain flock size and to allow the family to eat the remaining eggs. None of the women interviewed were inclined to raise excess chickens to be sold. In Asharef some Baladi hens, along with the Golden Comet, were not laying strong eggs and even if the eggs hatched many of the chicks died.

Preference

Table 6. Preference Between Pullet Types.

Baladi	31
Golden Comet	21
To Have Both	11
Neutral	2

These numbers are not stated as percentages because not all of the women had both Golden Comet and Baladi, but regardless of experience some had their biases. Also, not all of the women responded to the question. Thirty-one of the women preferred Baladi hens as the eggs are hatchable and usually result in healthier chicks. Some women preferred the taste of the Baladi eggs and others said that the Baladi laid more eggs. Twenty-one women preferred the GC as it layed more and bigger eggs. Eleven women preferred to have both the Baladi and GC, as the GC layed more eggs and the Baladi hen produced chicks. Two women were neutral between the two pullets.

Consumption

Of the 130 women interviewed, 84 purchased eggs. All of these women purchased white eggs while 31 claimed to buy brown eggs as well. One would not expect to find brown eggs sold from shops in the At Turba or Rada regions as there were no small or medium scale farms functioning in these areas at the time of the survey. Theoretically the only source of brown eggs would be GC pullets. Eighty-six percent of the women purchased the eggs from the village shop. Others bought eggs brought in by car or from the Rada suq. In order to verify these statements we frequented the Rada suq and village shops. We saw no brown eggs but it's possible that they were sold mixed in with the white eggs. This is another indication that the Golden Comets were coming in with white layers and broilers. The price of eggs ranged from YR 1-2 averaging at YR 1.9.

Of the households which had GC hens 53 percent continued to purchase eggs while 76 percent of those who did not have GC hens purchased eggs. Even without the GC the villages seemed to have an adequate supply of shop eggs, but having their own hens allowed for consumption of eggs even when there was no money in the home or during those times when eggs were unavailable at the shop. Table 7 gives a comparison of the quantity of eggs purchased between those households with the Golden Comet and without.

Table 7. Egg Purchase Comparison Between Households.

	With GC	Without GC
Number of households	66	64
Average family size	6.3	7.2
Weekly egg purchase per family	5.4	7.0

The data here are a result of the estimates provided by the women. Very few women were definite about the quantity and frequency of eggs purchased. Regardless, these figures may represent a trend particularly since they correspond to the data which indicate that fewer families who had Golden Comets purchased eggs.

Table 8. Percentages of Households Interviewed Which Purchase Eggs.

Village	White Eggs (%)	Avg. Number	Brown Eggs (%)
Zoban	70	11.7	27
Kurn Al Asaad	70	11.2	30
Asharef	73	9.2	7
Demna	40	6.8	30

The information in Table 8 does not completely reaffirm that in Tables 2 and 7. Although the interviewees in the village of Kurn Al Asaad had many more GCs than those in Zoban the two villages have the same percentage for interviewees who purchase white eggs. One would expect the figures for Kurn Al Asaad to be similar to those for Demna as both of these villages had larger numbers of GCs among interviewees (see Table 1). This apparent discrepancy is possibly due to the fact that the villages of Zoban and Kurn Al Asaad are much closer to a major village (20 minutes from Rada) with better access to eggs than Asharef and Demna. It is probable that the people of Kurn Al Asaad consume more eggs than those people in the other village. The figures for the villages of Asharef and Demna does reaffirm the theory that those people with the GCs purchase fewer eggs.

Ninety-one percent of the households purchased fresh chickens for meat. While all of the households consumed white broilers (imported as chicks from Holland) seven purchased Baladi, when available, and 11 purchased GC as well. In the Rada area the chickens were bought from a car (25 rials), from the shop (25-30

rials), or from the suq (25 rials). Some chickens were sold for 25 rials if small and for 30 rials if large. On average the individual household is consuming 2.5 chickens a week. This figure seems fairly accurate as most women stated that they purchased chickens on certain days of the week and seemed quite sure about how many they purchased. In the At Turba area most all chickens were purchased from a car and at 25 rials each.

The broiler industry, which is not related to PETS, is prevalent throughout the country and seems characterized by free enterprise. The two halves of the poultry sector, layer and broiler, have become interrelated. Many layers sold for meat are kept as layers; these pullets are raised on broiler feed before being sold to villagers.

Management Practices

In all four villages the women fed the hens table scraps and grain. No one purchased feed for the hens; layer feed is difficult to obtain even for the small and medium scale farmers so even if the women wanted to buy feed it is unlikely that they would be able to do so. Cows may receive priority for table scraps over chickens. Most hens scavenged during the day. All of the women give the chickens water from the house. In the village of Kurn Al Asaad many of the women had separate constructions, courtyards or pens, for the chickens. In all of the villages women kept the pullets in the house at night.

Fourteen of the households also had white hens as layers. The source of these hens was unknown. Despite the fact that GC roosters were never meant to be distributed, eight households had acquired the Golden Comet roosters from the same middlemen who sold hens. They were found in all villages except Zaban. Many women would have liked to have a rooster (Baladi or Golden Comet) but were not overly concerned as their hens had access to other roosters. Twenty-seven households had Baladi roosters.

As mentioned earlier, the pullets owned by these women did not come from PETS. The people (men, women, or children) purchased the pullets from private entrepreneurs, men who would drive out to the villages with the pullets. Most likely the birds were meant to be sold as broilers but the women decided to keep the hens, waiting as long as 4-6 months for the hens to lay. It's possible that the women picked up information indirectly about the GC from the project when it was more active in these areas.

The women did have a preference for a layer which would lay continuously but the diseases and/or nutrient deficiencies from which the pullets suffered was a definite drawback. Subsistence farmers are known to be risk averters. Still while the women preferred a reliable Baladi to the weaker GC they were also willing to take a risk with the GC by waiting several months for them to lay despite the high consumption of scraps and grain. If the women were unable to procure Baladi hens and had no cattle (goats, cows or sheep) then there was no opportunity costs for the scraps and grain, otherwise this may not have been the most efficient use of scraps.

This does indicate that the GC can serve as an important source of supplementary protein, especially if raised under proper conditions similar to the project site for the full 16-19 weeks.

It was very obvious that a little bit of information on poultry care could have made a significant contribution to productivity. The extension agents noticed that some women fed only rice to the pullets which lead to weight gain and to decreased or a complete end to egg production. The agents were also able to advise on the alleviation of calcium deficiencies which was a major problem. Although female Yemeni extension agents had access to information on poultry care they apparently did not disseminate the information as needed. These agents should be encouraged to give out this information as intended.

The assumptions in the PP that women or husbands would buy feeders and waterers and build nests were unwarranted. Apparently there are too many other demands for resources to justify investments. Also the assumption that a household would want 25 hens was unfounded. This many pullets would demand too much attention in terms of female household labor. At this time the women do not perceive eggs to be a source of income. There were strong preferences for keeping a minimum flock and using excess poultry for meat consumption. Few eggs were ever sold as they were always needed for home consumption.

Even though a woman may not want as many as 25 pullets it appears that most women have used the Golden Comet to increase their flock size. The households with Golden Comets averaged a flock size

of four pullets and those homes with Baladi hens, only, had on the average 2.5 pullets. Compare these numbers with those homes with mixed flocks; the average flock size was 5.5. This is a very significant increase from the purely traditional flock of Baladi pullets. Obviously women do want more poultry and eggs for their family but for these women to create an income generating enterprise may require more time and resources than they have available to them.

Chapter Summary

So did the PETS subproject improve nutrition in the traditional household by increasing egg production and consumption? The answer to this is a qualified yes. The successful aspects of the project are as follows:

- 1) Villagers were exposed to more productive pullets.
- 2) Extension agents received training and information on poultry care.
- 3) The selected pullet (GC) had a high potential productivity with a reasonable ability to survive in marginal conditions.

The aspects which could have been improved upon are as follows:

- 1) There were too few pullet distributions to the villages.
- 2) Information was inadequately disseminated to villagers, particularly the women.

- 3) There was too little research conducted pre-project into the cultural norms of the Yemeni people and of the long term impact and acceptance of the Golden Comet pullet.

According to the extension agents, the Golden Comet pullets had been distributed in Kurn Al Asaad and Asharef. This was somewhat confirmed during the interviews by comments of the participants--not observations. Even though the project pullets no longer survived, the women had been exposed to the advantages of a productive egg laying bird. It is possible that this is what has encouraged the women to keep the less developed nonproject pullets for numerous months waiting for the pullets to produce, but these pullets are unlikely to produce as well as properly raised project pullets.

Secondly, it has been shown that those households with Golden Comets have larger pullet flocks with or without Baladi hens. Even if the pullets are not meeting their productive potential they are adding something to household nutrition and at a low cost. Apparently most of the women like these pullets. If the pullets were raised properly and/or the women had access to more information the pullets could make a very significant contribution to the household diet.

CHAPTER VII

SUMMARY AND CONCLUSIONS

Several distinct subjects and issues have been discussed in the previous six chapters of this thesis. One of the major goals here was to bring these issues together, relating them to one another within the context of a broader perspective; no issue, subject or event is isolated from the other.

As an introduction, the historical and political context of USAID was discussed in order to create a better understanding of the constraints faced by the larger development assistance process. Even at this level the agency is not independent of outside forces, for example, other bureaucracies, public opinion, and the host country environment. How the agency deals with these outside influences will be reflected in its own agenda and the means that AID uses to meet this agenda.

The stated intent in the creation of USAID was to help the people of lesser developed nations. As with all bureaucracies AID is the subject of criticism in some circles. The U.S. Agency for International Development has few strong domestic proponents since its perceived primary beneficiaries are outside the U.S. and the results of AID projects are not easily seen by the American public. USAID has been forced to defend itself in a manner which is possibly in conflict with its original purpose. Foreign Assistance programs began to justify their existence by the benefits which could be

accrued to American businesses and labor, rather than to the people of lesser developed countries (LDCs).

As early as the 1950s, the former president of the World Bank, Mr. Eugene Black was promoting aid in the following manner: "our foreign aid programs constitute a distinct benefit to American business. The three major benefits are: (1) foreign aid provides a substantial and immediate market for United States goods and services. (2) foreign aid stimulates the development of new overseas markets for United States companies. (3) foreign aid orients national economies toward a free enterprise system in which United States firms can prosper" (Hayter, 1981, p.83).

Whether or not these objectives, of promoting American business and helping LDCs, can be met simultaneously is debatable, but clarity with respect to whom the actual beneficiary is to be, is essential in order to have a properly directed AID program.

In response to recent increased criticism against USAID, commercial justifications are being used once again to defend aid budgets and programs (BIFAD, 1986). While these above benefits may placate Congressmen and American labor they fail to subdue the complaints coming from those groups who are concerned about the actual impact of development assistance upon target groups. These groups include the LDCs which have received aid, individuals which some label as "left wing" anthropologists and other academicians who have studied the social implications of aid upon the people (South, March 1982).

Groups and individuals inside and outside of USAID have called for changes in the direction and focus of AID programs, for example, Judith Tendler. In order for AID to become more effective in its development efforts a plan for learning about the effects of projects and evaluating projects based on these effects must be integrated into the system.

USAID personnel have come to realize the importance of learning from the process of development and have created methods and a framework for institutionalizing the learning process. Chapter two discusses the importance and purpose of both Social Soundness Analysis (SSA) and Impact Evaluation and how these are both used in AID. Although both of these methods were used in the design and evaluation of the PETS subproject, this thesis has demonstrated how they could have been implemented more effectively. More thorough research should have been conducted about Yemeni culture, particularly the use of female labor, and the potential impacts of the GC on the traditional household. Also, criteria for evaluating the impact of the GC on village household egg consumption should have been included in the project design.

There are several inherent problems with the SSA approach. Project Papers often represent a defacto commitment where the social soundness component only serves as further justification for the project. Social analyses are not well integrated with the more technical analyses which is represented more confidently by using numbers and statistics. In editing the final project paper the design officer may obscure potentially important project

deficiencies, in order to expedite the process. Possibly the most significant disadvantage to SSA is that "many social analysts do not critique the basic goals, assumptions or logic of the process" (Ingersoll, 1981, p.62). What it finally comes down to is that only 25 percent of AID projects recently reviewed were influenced by the Social Soundness Analysis component (Ingersoll, 1981). While AID has taken a step forward by mandating SSA, the extent to which individual USAID missions choose to implement it varies widely among missions. The relevance and accuracy of the SSA should be looked back upon during project evaluations.

Chapters III and IV consist primarily of background information. For an individual involved in the development process to have the most positive impact he/she should have as much relevant information and the best understanding of the culture as is possible. Chapter III gives an overview of Yemen history, development, agriculture and culture for the purpose of a better understanding of the environment in which PETS was implemented.

Chapter IV includes a description of PETS and an analysis of the egg sector in 1985/1986 which demonstrates the impact of PETS on the egg sector as a whole and also creates a better understanding of the context in which the project took place. No project occurs as an isolated event. The design, implementation and evaluation of PETS occurred within the larger institutions of the country North Yemen, USAID, the egg subsector, and the individual household, all arenas of a complex and changing nature.

Chapter V is a discussion and analysis of the design, implementation and evaluation of the Poultry Extension and Training subproject (PETS) which occurred in North Yemen. The design of PETS is described and detailed in the Project Paper which is written with the USAID methodology and includes a "logical framework." The design of the project was based on certain fundamental assumptions as well as certain objectives. It was contended in this analysis that some of these assumptions were incorrect and not supported by sufficient information.

Following is a brief summary of the assumptions contained in the project design:

- 1) The traditional mode of egg production would change by increasing inputs, increasing flock size, and marketing eggs. This assumption neglected the realities of the demands on female labor and women's role in society.
- 2) Yemeni institutions would be developed enough to take over extension activities, pullet distributions and pullet production.
- 3) Pullet production facilities, namely Bir Al Qhusain, would be completed in a timely manner.
- 4) There would be only one source of GCs (the PETS facilities) and that source would continue beyond the PETS completion date of August 1987.

Because of these improper assumptions it was shown that the project was unable to meet its objectives regarding pullet production and distribution for the traditional sector. By November 1986, as a result of the completion of Bir Al Qhusain, the required number of pullets were produced but the pullets were not distributed with the original intended primary focus on the traditional household. Egg production in the traditional subsector did not improve as it might have because fewer pullets were desired by individual recipients than expected, the recipients did not implement the management practices expected by the project designers, and because the distributions of pullets did not continue and were limited from the beginning.

As mentioned earlier, specific criteria for impact evaluation were not included in the project design. Other issues of concern were that the criteria given were not specific enough and could not be verified. Also, no baseline data were collected prior to implementation in order to measure changes resulting from the project.

The need for a "special evaluation" resulted from the lack of evaluation criteria and baseline measures. An appropriate method for determining changes and improvements in the traditional poultry sector was to conduct a survey among village women in four villages. Since there were no baseline measures a comparison was made between those households with Golden Comets and those without. The questions included in the survey addressed the following concerns:

- 1) Was there an improvement in household production and consumption of eggs as a result of the GC?
- 2) What management practices were the villagers using?
- 3) What kind of information and training had the villagers received?

One of the major discoveries of the survey was that GCs were being sold from another source other than the project, via private entrepreneurs. Villagers were purchasing improperly raised pullets incapable of meeting the productive potential of a Golden Comet. Despite the inadequacies of these pullets the women retained them as egg layers. These pullets had been raised as broilers for 6-7 weeks rather than the preferred 16 weeks in often unsanitary conditions. Even though production figures are not from the project raised pullets the information acquired is relevant to the potential acceptance and use of the project pullets.

The women wanted egg laying pullets but instead of purchasing 25 as expected by the project designers they only wanted a few, to enhance home egg consumption and not for income generation. Most of the women interviewed purchased commercially produced eggs as well but those women who had GCs purchased fewer eggs and fewer women bought eggs than those who had no GCs. The women kept the hens even if they didn't lay for long periods and/or the eggs were soft-shelled and undeveloped. A well raised project pullet could have significant impact upon household nutrition even if cared for under subsistence conditions.

As discussed in Chapter IV, during a peak year of the PETS project, approximately 35,000 pullets were sold to small and medium scale producers, 44,000 went to anonymous destinations and only 6,049 pullet were distributed to traditional farmers. Most likely such limited distribution to traditional farmers was a result of limited trained personnel, an undeveloped extension system, and limited financial resources. Even though there was a lack of focus on the traditional farmer, PETS did help to increase egg consumption in the more remote areas by aiding small and medium scale farmers. Large scale egg production, which was unrelated to PETS, was centered in the large city areas and less likely to reach the more remote areas.

It could be argued that emphasis on small and medium scale egg production would be more efficient than traditional production, for the enhancement of egg production and consumption. It is not within the scope of this thesis to argue this issue but two things should be considered when discussing this issue: 1) traditional egg production requires fewer imported inputs and is therefore less dependent upon the availability of foreign exchange, 2) 90 percent of the population continue to live in rural areas; therefore adequate availability of eggs is dependent upon non centrally located small and medium scale farms, a good distribution network, or home production.

In conclusion, the present estimate of per capita egg consumption in North Yemen is 52 eggs per year. Most likely this is an overly positive estimate, but regardless there remains room for

expansion in the egg sector. Eggs are a very important and convenient source of protein.

While the egg sector is expanding in a free enterprise system there remains a need for extension and marketing information. The sector remains dependent upon foreign exchange for imported inputs such as: chicks, vaccines, eggs, feed, etc. The egg sector should be encouraged by the Yemen government in such a manner as to reduce dependence upon scarce foreign exchange. The Yemen Ministry must also consider the direction in which to move in order to increase egg availability in the more rural areas, by emphasizing large scale, small and medium scale, or traditional production, or some combination thereof.

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APPENDICES

APPENDIX A
PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

APPENDIX A

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	Important Assumptions
<u>Program or Sector Goal:</u>			
To increase egg production in the traditional sector to improve nutrition and	*1. Farm level data collected over life of project.	*3. Statistical series of YARG Agencies.	Cost-return relationship becomes more favorable for egg production.
To, over time, reduce Yemen's dependence on imported eggs.	*2. Ratio of Imports of eggs and poultry meat to total consumption.		
<u>Sub Goal:</u>			
To increase the output of eggs and poultry meat.	*4. Amount of eggs and poultry meat produced by project participants.	Project records from poultry extension agents.	Technology packages will be used by project participants.
			Project participants will continue to produce eggs after YARG subsidies and assistance cease.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<u>Project Purpose:</u>			
To establish and implement improved extension and training programs within the Livestock Division of the MOA, YARG, that 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 servie 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 will 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.	<ol style="list-style-type: none"> 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>			
<p>Establishment of flocks for poultry producers.</p> <p>Building a capacity in MOA to rear and distribute pullets.</p>	<p>5. The establishment of 270 flocks of 15-25 layer birds in the traditional sector--primarily for household consumption.</p> <p>This is the minimum project target. It is expected that a spread effect will occur which should increase the number of flocks and egg production in the sector over the life of project.</p>	<p>Project Records.</p>	<p>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.</p> <p>YARG will have sufficient quantity on hand to resell at cost for the 270 flocks. YARG will deliver pullets and feed.</p>
	<p>6. The establishment of 78 private and small-scale egg producers with average size flocks of 500 birds.</p>		<p>6. Pullets and feed are available from the rearing and distribution unit at Rawdah.</p>
	<p>7. The establishment of 34 private medium-scale egg producers with average flocks of 2,000 birds.</p>		<p>7. Pullets and feed are available from the Rawdah Poultry-Rearing and Distribution Center.</p>

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
	8. The establishment of four women-managed co-operatives 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 and available from the Rawdah Poultry-Rearing and Distribution Center.
	9. 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.	9. Six additional pullet rearing houses are built at RPRDC.
	10. 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.	10. 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
	11. To provide technical support to satellite egg producing farms at Sanhan, Jahliah, Sadah, and other possible sites to serve for limited demonstration purposes, to encourage more traditional farmer participation.	Project Records.	11. Farm managers are identified and trained.

Inputs:

From USAID:

Technical Advisor.	15 years of long-term advisors.	Signed Project Agreement.	Funding becomes available on a timely basis.
Pre-subproject Activities.	Four poultry houses constructed as satellite demonstration units.	Project Records, On-Site Inspection.	Fundings made available YARG/MOA locates sites and contracts for construction. YARG/MOA supplies pullets, feed, and trains farm managers.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Poultry-Rearing Houses.	Four brooder houses constructed at Sanaa Poultry Training Center.	Project Records, On-Site Inspection.	Funding made available on a timely basis.
Supplies and Equipment.	Adequate to meet needs of training course at SPTG.	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 becomes available on a timely basis.
Operating budget at SPTG.	SPTC function as planned.	MOA Records.	Funding becomes available on a timely basis to operate training center including room and board for trainees.
Poultry extension agent technician and specialist trainees.	SPTG class records Participants in U.S. in training.	SPTC records. Transcript records in U.S.	Eligible trainees identified on a timely basis. MOA able to retain trained personnel.

PROJECT DESIGN SUMMARY - LOGICAL FRAMEWORK

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
MOA counterparts.	Poultry production officer; Poultry extension officer; Co-manager for RPRDC; Co-manager for SPTC.	Project Records.	Counterparts are identified and assigned on a timely basis.
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.

APPENDIX B
CODED QUESTIONNAIRE

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CODED QUESTIONNAIRE

1. Date:
2. Name of village:
3. Name of participant:
- Q1 4. Status in household:
 1. - Wife
 2. - Daughter
 3. - Mother-In-Law
 4. - Daughter-In-Law
 5. - Mother
- Q2 5. Size of household:
- Q3 6. Do you have chickens?
 - 1 - Yes
 - 2 - No
- Q4 7. Do you have Golden Comets (Large Brown Chickens)?
 - 1 - Yes
 - 2 - No
- Q5 8. When you bought the G.C., how many did you buy?
- Q6 When did you buy them, in weeks?
- Q7 9. How many do you still have?
- Q8 10. What happened to the others?
 1. - Died.
 2. - Other animals attacked them.
 3. - Eaten by family.
 4. - Children killed them.
 5. - Killed by car.
11. If eaten, why did you eat them?

- Q9 12. Who sold you the Golden Comets?
1. - From car
 2. - Rada suq
 3. - From project
 4. - Village shop
13. Did someone in your family bring them home?
14. Who?
15. Did this person explain how to care for the chicken?
- 1 - Yes 2 - No
- Q10 16. How much did you pay for the G.C.?
- Q11 17. How many eggs a week does each G.C. hen lay?
- Q12 18. How many of these do you eat? Use of eggs:
1. - Eat all
 2. - Hatch some, eat others
 3. - Eat most, sell some
 4. - Eat, hatch and sell
19. How many do you sell?
(They don't know this)
20. How much do you sell them for?
21. Where do you sell them?
1. - Village
 2. - Market
- Q13 22. Do you have Baladi hens?
- 1 - Yes 2 - No
- Q14 23. How many?
- Q15 24. Did you buy them?
- 1 - Yes 2 - No
25. How much did you pay?
(Amount is indicated along with Q15, for example, 150 means
yes for 50 rials)
- Q16 26. How many eggs a week does each lay?
Q17

- 1 - Lays for two weeks during three months
- 2 - Lays continuously

Q18 27. How many of these do you eat? / Use of eggs:

1. - Eat all
2. - Some for hatching
3. - Eat, hatch and sell
4. - Hatch all

28. How many do you sell?

29. How much do you sell them for?

30. Where do you sell them?

1. - In the village
2. - At the market

31. How far away is the market (in time)?

Q19 32. Which chicken do you prefer for laying eggs?

1. - Golden Comet
2. - Baladi
3. - They are the same
4. - Prefer to have both

Q20 33. Why?

1. - Lay bigger eggs
2. - Lay more eggs
3. - Eggs taste better
4. - G.C. lay big eggs and Baladi hatch them

Q21 34. Do you have a rooster?

1. - None
2. - Baladi
3. - Golden Comet

35. What kind is it?

1. - Baladi
2. - Golden Comet

36. Do your rooster and G.C. hens mate?
1 - Yes 2 - No
37. If so, are these eggs allowed to hatch?
38. Would you like a G.C. rooster?
39. Why?

MANAGEMENT

40. What do you feed your chickens?
1. - Table scraps only
2. - Table scraps and grain
3. - Table scraps and feed
4. - Table scraps, grain and feed
41. Do you give the chickens water?
42. Where do you get the water?
1. - House
2. - Village pump
3. - Elsewhere
43. If not in the village, how far away is the water?

CONSUMPTION

- Q22 44. Do you buy large brown (G.C.) eggs?
1 - Yes 2 - No
- Q24 45. How many each week?
- Q25 46. How much do you pay?
- Q29 47. Where do you buy them?
1. - Village shop
2. - Market
3. - Car
4. - Farm
48. How far away is the market or farm?

- Q23 49. Do you buy Baladi eggs?
1 - Yes 2 - No
50. How many each week?
51. How much do you pay?
52. Where do you buy them?
1. - Village shop
2. - Market
3. - Car
4. - Farm
53. How far away is the market or farm?
- Q26 54. Do you buy large white eggs?
1 - Yes 2 - No
55. How many each week?
56. How much do you pay for them?
57. Where do you buy them?
1. - Village shop
2. - Market
3. - Car
4. - Farm
58. How far away is the market or farm?
- Q30 59. Do you buy chicken for meat?
1 - Yes 2 - No
- Q31 60. What kind?
1. - Baladi
2. - White
3. - Brown (G.C.)
- Q32 61. How many do you buy each week?
- Q33 62. How much do you pay for each chicken?

Q34 63. Where did you buy the chicken?

1. - Village shop
2. - From a car
3. - Rada suq

Q35 65. Where are chickens kept?

1. - Have a chicken coup
2. - In house at night, out during the day
3. - In courtyard at night, out during the day

Q36 66. Major problems:

1. - Disease
2. - Calcium deficiencies
3. - Breathing
4. - Spots around eyes
5. - Falling feathers
6. - Bought others which died
7. - Loss of Baladi hens
8. - Chicks are dying

Q37 67. Also have white hens as layers?

(Number indicates number of hens)