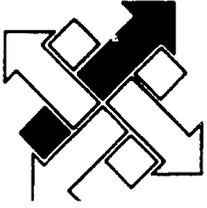


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SECOND INTERIM REPORT
EGYPTIAN POULTRY IMPROVEMENT PROJECT
AID GRANT NO. 263-0060

NOVEMBER 9, 1979



Mathtech The Technical Research and Consulting Division of Mathematica, Inc.

November 9, 1979

Excellency Dr. Mahmoud Dawood
Minister of Agriculture
Government of Egypt
Dokki, Cairo, Egypt

Dear Dr. Dawood:

Enclosed with this letter are your copies of the Second Interim Report for the Poultry Improvement Project. The report contains the findings of the project team, the status of the project, major problems which prevent poultry production from reaching desired levels, and recommended solutions for those problem areas.

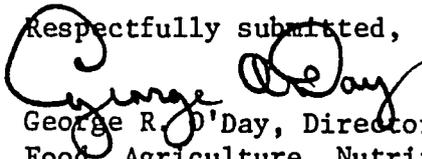
As you will note, we believe significant improvements in the cost and effectiveness of poultry production can take place without major increases in the application of scarce resources. Obviously, many of the recommended solutions and programs cannot be handled within the currently authorized project; however, as noted in the USAID Project Paper and the MOA-AID Grant Agreement, it was not expected that this project as currently authorized would do so. It was expected that solutions would be identified and the project supplemented and/or extended to include appropriate and mutually agreed upon projects.

Therefore, the project is accomplishing the objectives for which it was established; in fact, considerably more than originally stated. The project team is capable of expanding its technical assistance as necessary funds are made available.

More than likely, to accomplish all that needs to be done in the poultry sector will require funds from various sources: your Ministry of Agriculture, USAID hopefully, and other sources such as the World Bank and UNDP. We strongly recommend development of an overall plan which would fulfill such needs from the various possible sources, and we would be pleased to help you in that regard.

We firmly believe, if the recommendations contained in this report are carried out, the poultry sector will become rapidly more productive at lower cost to your government, and a larger supply of high protein, quality poultry product will be made available to your people at a lower cost to them, particularly for the poor. Development of an overall plan for the poultry and related sectors is essential to the achievement of those goals.

We of the MATHTECH project team are proud to be a part of this effort, and look forward to continued contribution toward achievement of those objectives.

Respectfully submitted,

George R. D'Day, Director
Food, Agriculture, Nutritional &
Development Services

GRO/nw

2220 PARKLAKE DRIVE, NE • ATLANTA, GEORGIA 30345 • TELEPHONE: (404) 491-0366

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SECOND INTERIM REPORT
EGYPTIAN POULTRY IMPROVEMENT PROJECT

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EGYPTIAN POULTRY IMPROVEMENT PROJECT

INTRODUCTION

This Second Interim Report contains the findings, current status, specific problems, and recommended solutions to the problems of the Egyptian poultry sector. While this project did not initially include all related elements in and of the poultry sector, events which occurred during the early phase of the project indicated that, unless all elements were included in the study, final results would not be sufficiently comprehensive and pertinent. Therefore, the project scope was expanded to include consideration of all key elements of the sector, and this has proven quite beneficial to all elements of this study.

The base-line (or starting point) of this project was the USAID Project Paper published in May, 1977. From that document, developed during 1976 and early 1977, the subsequent RFP, the contract between MATHTECH and the Ministry of Agriculture, and the work program for the project were developed. As may be expected, circumstances involving an active and dynamic sector such as poultry will change considerably over the three-year period, from the time the Project Paper's version of the study was developed in 1976 to the 1979 time frame of current project activities.

The change in the work plan and scope of the project are shown on the chart on the following pages (Exhibit I). This matrix compares the original project objectives with those stated in the contract and as they currently exist. The increased range of objectives is obvious.

<u>PROJECT PAPER</u>	<u>MATHTECH PROPOSAL</u>	<u>ACTUAL EFFORTS/WORK BY MATHTECH PROJECT TEAMS</u>	<u>PROJECT TASK NUMBER</u>
SECTOR ANALYSIS/ASSESSMENT	<ul style="list-style-type: none"> • DEVELOPMENT OF DATA BASE -- ECONOMETRIC/LINEAR PROGRAM MODEL • SECTOR ANALYSIS 	<ul style="list-style-type: none"> • DEVELOPMENT OF DATA BASE -- ECONOMETRIC MODEL 	020
		<ul style="list-style-type: none"> • SECTOR ANALYSIS -- TOTAL SYSTEM INFRASTRUCTURE -- POULTRY SECTOR ECONOMICS -- IMPACTS ON NATIONAL RESOURCES 	030
• HATCHERY EXPANSION (FAYOUM, SAKHA, INSHASS)	<ul style="list-style-type: none"> • DEVELOPMENT OF SPECS • COORDINATION OF BID SPEC CONFORMANCE • COORDINATION OF U.S. EFFORTS 	<ul style="list-style-type: none"> • DEVELOPMENT OF SPECS • COORDINATION OF U.S. EFFORTS 	090
• BREED & HATCHERY IMPROVEMENT	<ul style="list-style-type: none"> • BREED EVALUATION & ASSESSMENT • HATCHERY ASSESSMENT 	<ul style="list-style-type: none"> • BREED ASSESSMENT • HATCHERY ASSESSMENT • ALTERNATE PLANS FOR IMPROVEMENTS • BREED PERFORMANCE TEST PROGRAMS 	040
• NATIONAL PLAN FOR POULTRY VACCINES & PHARMACEUTICALS	<ul style="list-style-type: none"> • EGYPTIAN MANUFACTURE & SUPPLY OF POULTRY VACCINES & PHARMACEUTICALS • IMPORTATION & EXPORTATION OF POULTRY VACCINES & PHARMACEUTICALS 	<ul style="list-style-type: none"> • ASSESSMENT OF LOCAL MANUFACTURING FACILITIES & PRODUCTS • ASSESSMENT OF REQUIRED SUPPLY • ASSESSMENT OF IMPORTED SUPPLY QUANTITIES AND CATEGORIES • IMPACT ASSESSMENT OF VACCINE & PHARMACEUTICAL SITUATION ON PRESENT POULTRY HEALTH • UTILIZATION • DISTRIBUTION OF VACCINES & PHARMACEUTICALS • U.S. COMPANY INTERESTS • POULTRY HEALTH PLAN • REQUIRED IMPACT PROGRAMS TO IMPROVE MORTALITY/PRODUCTION OF EGGS & POULTRY MEAT 	070

<u>PROJECT PAPER</u>	<u>MATHTECH PROPOSAL</u>	<u>ACTUAL EFFORTS/WORK BY MATHTECH PROJECT TEAMS</u>	<u>PROJECT TASK NUMBER</u>
VILLAGE FLOCKS	VILLAGE FLOCKS -- CO-OPS	<ul style="list-style-type: none"> • VILLAGE FLOCKS • NATIVE HATCHERIES • PURCHASE OF EGGS & DAY-OLD CHICKS AND DISTRIBUTION/MARKET OF EGGS & POULTRY MEAT • CO-OPS • DONOR GROUPS • EXTENSION/VET SERVICES 	060
GENERAL POULTRY CO. (GPC)	<ul style="list-style-type: none"> • GPC (PUBLIC SECTOR) • PRIVATE SECTOR (INDEP. PRODUCERS) • AGRARIAN REFORM 	<ul style="list-style-type: none"> • GPC • PRIVATE SECTOR <ul style="list-style-type: none"> -- INDEPENDENT PRODUCERS -- GOVERNORATE PROGRAMS • AGRARIAN REFORM • ORDEV • FOREIGN INVESTMENT 	050
		<ul style="list-style-type: none"> • FEEDS AND FEEDSTUFFS <ul style="list-style-type: none"> • GRAIN IMPORTS/FEEDSTUFF IMPORTS • LOCAL SUPPLIES/SHORTAGES • MILLING: CAPACITY & CONDITION • FORMULATIONS/QUALITY CONTROL • IMPACT ON PRODUCTION OF EGGS & POULTRY MEAT 	055
(TRAINING)	<ul style="list-style-type: none"> • TRAINING PROGRAMS <ul style="list-style-type: none"> -- MOA -- GPC -- ORDEV 	<ul style="list-style-type: none"> • TRAINING PROGRAMS <ul style="list-style-type: none"> -- MOA -- GPC -- ORDEV -- ARO -- PRIVATE SECTOR 	080
		<ul style="list-style-type: none"> • NATIONAL POULTRY PLAN 	010

Regardless of the number of objectives and subobjectives listed on that chart, all can be consolidated into only two (2) major objectives. These are:

- To identify programs and activities necessary to improve the availability of high quality animal protein to the Egyptian population, particularly the (rural) poor, through increased production.
- To utilize existing resources, both Egyptian and American, in the most effective and rapid manner possible to achieve improvements in poultry production in Egypt, through which the increased (and hopefully lower cost) availability of this essential food category is supplied to the Egyptian population.

Several major results have been achieved by the project to date in working toward fulfillment of such important objectives. These have been achieved in spite of the lack of valid data on the poultry sector at the start of the project, and despite the considerable number of various and often unrelated public and private agencies which impact on the poultry sector.

The findings to date include:

- Poultry production in Egypt is significantly less effective than it could be, even without major increases in capital expenditures for new production facilities and equipment, feed, pharmaceuticals and vaccines. With appropriate technical assistance and judicious application of funds in accordance with a properly managed and coordinated plan, significant increases in efficiency and program effectiveness can be realized.

Production increases of up to 50 percent or more, using present resources, are considered feasible. As noted below, average production rates in Egypt are considerably below the comparable average rates in the United States.

FIGURE I
COMPARISON OF AVERAGE PRODUCTION RATES

	<u>FEEED CONVERSION</u>	<u>EGGS/LAYERS</u>	<u>HATCHABILITY</u>
U.S.A.	2.2	130	80
EGYPT	4.70	90	65
DIFFERENCE	214%	144%	123%

- While shortages do exist in properly formulated feed of acceptable quality and in vaccines and pharmaceuticals, the major impact currently is not from shortages, but from lack of appropriate and effective utilization of those resources, including improper handling.
- A major detriment to the development of the private sector, and one which has had a major negative impact on the village flock producers (the rural poor) in particular, is the highly varying prices the producers receive for their product. These prices fluctuate almost monthly from quite high to below production cost levels; in other words, an unstable market condition. Because there is a severe shortage of refrigerated storage in the distribution system and at retail and consumer levels, most poultry meat is sold live and table eggs sold unrefrigerated.

However, whenever any poultry product reaches the market in a large quantity at any given time (fresh, live, or frozen), the market price depresses directly in proportion to the degree of excess supply. Those who are forced to sell their product at these depressed, generally below-cost price levels, are those who can least afford such a loss: the village (rural poor), the small private producer, and GPC. Those in the urban markets who have the money to buy poultry prefer the already "dressed" chickens to the live, domestically produced birds.

The two (2) major factors which create this severely unstable poultry market are: 1) the shortage of slaughterhouses (processing plants) with sufficient refrigerated or frozen storage to hold the product of the market until that market can absorb the available product at profitable levels for the producer, and 2) the undisciplined, uncoordinated release of imported frozen product to the marketplace by the Ministry of Supply.

In this light, since GPC is the largest single producer of poultry product in Egypt, their shortage of such slaughterhouses and refrigerated storage capacities currently prevents any application of effort on their part to provide a disciplined, market stabilizing release of their product to the marketplace. Figure 2 on the following page depicts the estimated amounts of poultry product produced by the rural or village flocks sector for consumption by the rural and urban populations in Egypt.

FIGURE 2
ANALYSIS OF VILLAGE FLOCKS PRODUCTION & CONSUMPTION

	POULTRY MEAT		TABLE EGGS	
	AMT. (000)	% OF TOTAL NTL. PRDN.	AMT. (000)	% OF TOTAL NTL. PRDN.
TOTAL PRODUCED BY VILLAGE FLOCKS	50,000	50.1%	900,000	90.6%
CONSUMED IN RURAL SECTOR	(38,000)	(38.1%)	(594,000)	(60.8%)
CONSUMED BY URBAN SECTOR	(12,000)	(12.0%)	(306,000)	(29.8%)
TOTAL SUPPLIED BY OTHER SOURCES	49,750	49.9%	77,000	9.4%

Poultry disease is a major factor which prevents attainment of reasonable production levels. The problems start with the use of diseased hatching eggs, and are compounded by: 1) improper utilization, in many instances, of available vaccines, 2) the lack of basic poultry health practices and programs, 3) the significant shortage or deficiencies in the availability of diagnostic laboratories in-country for both disease and feed analysis, and 4) the quite limited veterinary-extension service capability in terms of rural poultry health centers and network.

Another major problem is the lack of knowledge of modern day, efficient, and productive poultry management and husbandry techniques. The vast amount of applicable scientific and technological knowledge and expertise developed in recent years is just not available in Egypt. To correct this situation will require a considerable amount of in-person technical assistance and training, and the development of an intensive in-country information program and system.

The following sections of this report contain reports, suggestions, and plans for each major sub-task or objective of this project to date. Details are contained in Volume II - APPENDIX and Volume III - FIRST INTERIM REPORT.

In summary, the project has effectively achieved its goals to date on a scale significantly broader than initially planned. Problems have been identified and solutions developed, as specified in the original Project Paper.

Supplemental action will be required to implement the solutions and complete the necessary elements of the Egyptian Poultry Improvement Program.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 010 - PROJECT MANAGEMENT

FINDINGS AND STATUS:

Project management is conducted from the MATHTECH office in Atlanta, Georgia, U.S.A., with the project field office located in Cairo, Egypt. The general management of the project is under the direction of George O'Day, Director of MATHTECH's Food, Agriculture, and Nutritional Services Division. The Cairo field office is under the management of John F. Bond.

The Atlanta office project staff includes personnel with experience in the areas of Poultry Science, Economics, Econometrics, Training, Administration, and Logistics. The staff is supplemented by MATHTECH's Bethesda, Maryland office, which provides expertise in Econometrics and Operations Research. Accounting and financial support for the project are provided by the corporate offices of MATHTECH and its parent company, MATHEMATICA, Inc., whose offices are located in Princeton, New Jersey. Communications between Atlanta, Cairo, and Princeton are maintained by a daily Telex link and a weekly commercial pouch service.

In addition to MATHTECH personnel, the project team is comprised of a number of internationally recognized consultants in the various fields of poultry science, drawn from both universities and private industry. The project has been supported by a variety of successful poultry and poultry-related firms and organizations in the United States, as well as the poultry science departments of major U.S. universities.

The team and project structure is capable of rapid expansion or supplementation as may be required, and can be readily supported by the already existing project team in the United States and Cairo. Project budget is on schedule, and sufficient tasks within this project remain to complete expenditure of currently authorized funds. (See EXHIBIT 010 - I.)

<u>BUDGET LINE ITEM</u>	<u>AMOUNT BUDGET TOTAL</u>	<u>\$AMOUNT TO DATE 9/30/79</u>	<u>BUDGET REMAINING 9/30/79</u>
I. <u>SALARIES:</u>			
U.S. Home Office Prof.	\$258,985.00	\$ 140,070.20	\$ 118,914.80
Home Office Non-Prof.	25,708.00	13,207.95	12,500.05
Field Staff Prof.	182,205.00	82,740.81	99,464.19
Field Staff Non-Prof.	—	—	—
Total U.S. Salaries	466,898.00	236,018.96	230,879.04
3rd Cntry Natls - Field Staff Non-Prof.	—	—	—
Total Salaries	466,898.00	236,018.96	230,879.04
II. <u>CONSULTANTS:</u>	162,808.00	152,866.08	9,941.92
III. <u>FRINGE BENEFITS:</u>	121,393.00	61,927.51	59,465.49
IV. <u>OVERHEAD:</u>	453,388.00	279,997.21	173,390.79
V. <u>TRAVEL & TRANSPORTATION:</u>			
U.S. Travel	8,795.00	14,154.36	(5,359.36)
Transp. of HHE	8,000.00	1,066.45	6,933.55
International Travel	—	—	—
Storage of HHE/POV	3,000.00	—	3,000.00
Total Travel & Transp.	19,795.00	15,220.81	4,574.19
VI. <u>ALLOWANCES:</u>			
Post Differential	17,214.00	8,274.09	8,939.91
Quarters	—	—	—
Education	—	—	—
Per Diem	29,541.00	10,114.71	19,426.29
Total Allowances	46,755.00	18,388.80	28,366.20
VII. <u>OTHER DIRECT COSTS:</u>	62,550.00	21,233.51	41,316.49
VIII. <u>EQUIPMENT, VEHICLES, MATERIALS, SUPPLIES:</u>			
Equipment	1,215.00	2,446.98	(1,231.98)
Material & Supplies	5,192.00	1,314.16	3,877.84
Vehicles-	21,000.00	13,470.00	7,530.00
Freight	2,000.00	5,187.63	(3,187.63)
Total Equipment, etc.	29,407.00	22,418.77	6,988.23
IX. <u>PARTICIPANT TRAINING:</u>			
Training-Tuition/Fees	62,170.00	—	62,170.00
Travel & Subsistence	182,122.00	50,521.44	131,600.56
Other	9,650.00	—	9,650.00
Total Participant Training	253,942.00	50,521.44	203,420.56
X. <u>SUBCONTRACTS:</u>	122,084.00	29,179.73	92,904.27
Subtotal	1,739,020.00	887,772.82	851,247.18
XI. <u>G & A:</u>	173,902.00	88,777.28	85,124.72
XII. <u>SUBTOTAL:</u>	1,912,922.00	976,550.10	936,371.90
XIII. <u>FIXED FEE:</u>	191,292.00	97,655.02	93,636.98
XIV. <u>GRAND TOTAL:</u>	\$2,104,214.00	\$1,074,205.12	\$1,030,008.88

SPECIFIC PROBLEMS:

1. Most of these have been outlined in the First Interim Report (see Volume III of this report), and will not be repeated here. Certain of these, such as custom fees, typewriter custom problems, etc., still need resolution.
2. Actual expenses in various budget categories have been different than anticipated. The remaining available budget needs to be revised by line item, and possibly supplemented. If the recommendations in this report are to be implemented, some supplementation will be required.
3. The field management for MATHTECH have not been included in essential MOA planning relevant to the poultry sector. The Project Technical Manager, his deputy, or the Project Director for MATHTECH are not always kept sufficiently advised on the changes in strategies, plans, and programs in order to react in a timely and pertinent manner.

RECOMMENDATIONS:

1. Inclusion of the Project Technical Manager, Deputy, and/or the Project Director of MATHTECH in appropriate MOA or GOE councils and committees, even if only as Ad Hoc members.
2. Development of revised budget at the earliest time.
3. Resolution of remaining operational problems which prevent achievement of project objectives.

TASK 010 - PROJECT MANAGEMENT

CURRENT/FUTURE PLANS:

1. Development of an overall MOA/GOE Poultry Program.
2. Continued support of project team plans, as detailed in the following task reports.
3. Expansion as required.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 020 - DATA BASE & MODEL

DATA BASE:

The data base in Egypt concerning their agricultural sector, in comparison with most other developed countries, is quite weak. The two primary problems are: the lack of a universal system which is understood and complied with by all concerned and involved persons or agencies; and an overworked, understaffed Agricultural Economics and Statistics Department. Most managers in or related to the agricultural sector do not understand, appreciate or know the management and resource utilization benefits which can be derived from an accurate and sufficiently comprehensive data base.

Therefore, data available to the project team on the poultry sector were often inconsistent, incomplete, and in many instances inaccurate. Also, the team found that many times relevant data on the agricultural sector, but in the possession of other GOE departments such as CAPMAS or the governorates, were not exchanged or made generally available to other counterpart agencies such as the Ministry of Agriculture. Concerning the poultry sector, it was necessary to conduct an extensive data search and verification process to produce even such a fundamental task as a consolidated report on poultry products by public and private sectors, and by subsectors and products in those primary sectors. The only such consolidated report was produced in January, 1979 by the team, and is outlined on Exhibit 020-I on the following pages.

ESTIMATED^{1/}
POULTRY PRODUCTION

NOT FOR PUBLICATION^{2/}
3 January 1979

POULTRY MEAT/TABLE EGGS
CALENDAR YEAR 1978
ARAB REPUBLIC OF EGYPT

<u>SECTOR</u>	<u>SUBSECTOR</u>	<u>POULTRY MEAT (000)</u>		<u>TABLE EGGS (000)</u>	
		<u>Quantity</u>	<u>% of Total</u>	<u>Quantity</u>	<u>% of Total</u>
<u>I - PUBLIC:</u>	A. GENERAL POULTRY COMPANY	23,000	(92.9)	70,000	(90.9)
	B. AGRARIAN REFORM	750	(3.0)	7,000	(9.1)
	C. GOVERNMENT (Sharkia)	1,000	(4.0)	-	-
	<u>SUB TOTAL SECTOR I</u>	<u>24,750</u>	<u>24.8%</u>	<u>77,000</u>	<u>7.8%</u>
<u>II - PRIVATE:</u>	A. <u>CONFINED PRODUCTION UNITS</u>				
	• Tonsi/Shawi/Stino/Essat	-	-	16,000	(100.0)
	• Ismailia Food Company	1,000	(4.0)	-	-
	• Small Misc. Producers (2,472)	24,000	(96.0)	3/	-
	<u>SUB TOTAL SECTOR II-A</u>	<u>25,000</u>	<u>25.1%</u>	<u>16,000</u>	<u>1.6%</u>
	B. <u>VILLAGE FLOCKS^{4/}</u>	<u>50,000</u>	<u>50.1</u>	<u>900,000</u>	<u>90.6</u>
<u>SUB TOTAL SECTOR II</u>	<u>75,000</u>	<u>75.2%</u>	<u>916,000</u>	<u>92.2%</u>	
<u>III - TOTAL ESTIMATED NATIONAL PRODUCTION</u>		<u>99,750</u>	<u>100.0%</u>	<u>993,000</u>	<u>100.0%</u>

^{1/}The above "best estimates" were made by MATHTECH, Inc's Poultry Improvement Team of 25 experts in statistics, management, poultry production operations and the poultry sciences. This was accomplished at the conclusion of an intensive 90 day analysis of the poultry sector and all relevant data in Egypt during the fourth quarter of calendar year 1978. There was no single official compilation of such data available, and this represents "best estimates" only.

(continued)

2/ This data is not for publication, and may not be reprinted in part or whole without written request and written approval from MATHTECH, Inc., Atlanta, Georgia.

3/ As of December 4, 1978, there were 2,472 private broiler growers licensed by GPC to receive chicks and feed from GPC. The size of such producers is limited to a maximum of 5,000 birds, with most producers in the less than 2,000 category.

4/ All estimates have been qualified by visual observation of production/village flock experts, with adjustments made according to actually observed and/or measured mortality rates and egg quality levels. The basis of these qualified estimates are as follows:

- a. Approximately 100,000,000 chicks are supplied each year by the native hatcheries, according to best available estimates. Of these, best estimates indicate a more than 50% mortality rate which leaves a balance of less than 50,000,000 resident birds per year.
- b. Approximately 50% of these birds are cockrels (broilers) and 50% are hens, or approximately 25,000,000 each sex. Using a growout cycle of approximately 3 to 4 months, this provides 36 to 38 million cockrels per year, plus approximately 12 to 14 million spent hens per year, for an approximate total of 50 million broiler/hen meat type birds per year.
- c. The 900 million table eggs per year is based on an average "high" lay rate of 75 eggs per year for a 12 million hen resident native layer flock.

6

TASK 020 - DATA BASE & MODEL

In order to determine the degree of accuracy of the available reports, team members of appropriate skills went to the sources of such data (GPC & private producers, hatcheries, villages, etc.) and verified accuracy of the data on the then being-processed reports to determine degrees of accuracy of those reports. (Many were found to be 20 to 30% inaccurate.) A factor was then developed and used to place data received into appropriate context.

Also, it was determined that many GOE/MOA/poultry related groups/agencies do not maintain records files. Much data was identified in the Agricultural offices of the Governorates, as an example, but was not available nor did it appear such numbers were contained in data available in G.O.E. offices in Cairo. The team members and project objectives were then expanded to include acquisition and accumulation of as much of such available data in the project files for subsequent disposition to appropriate to-be-designated sources at a later date.

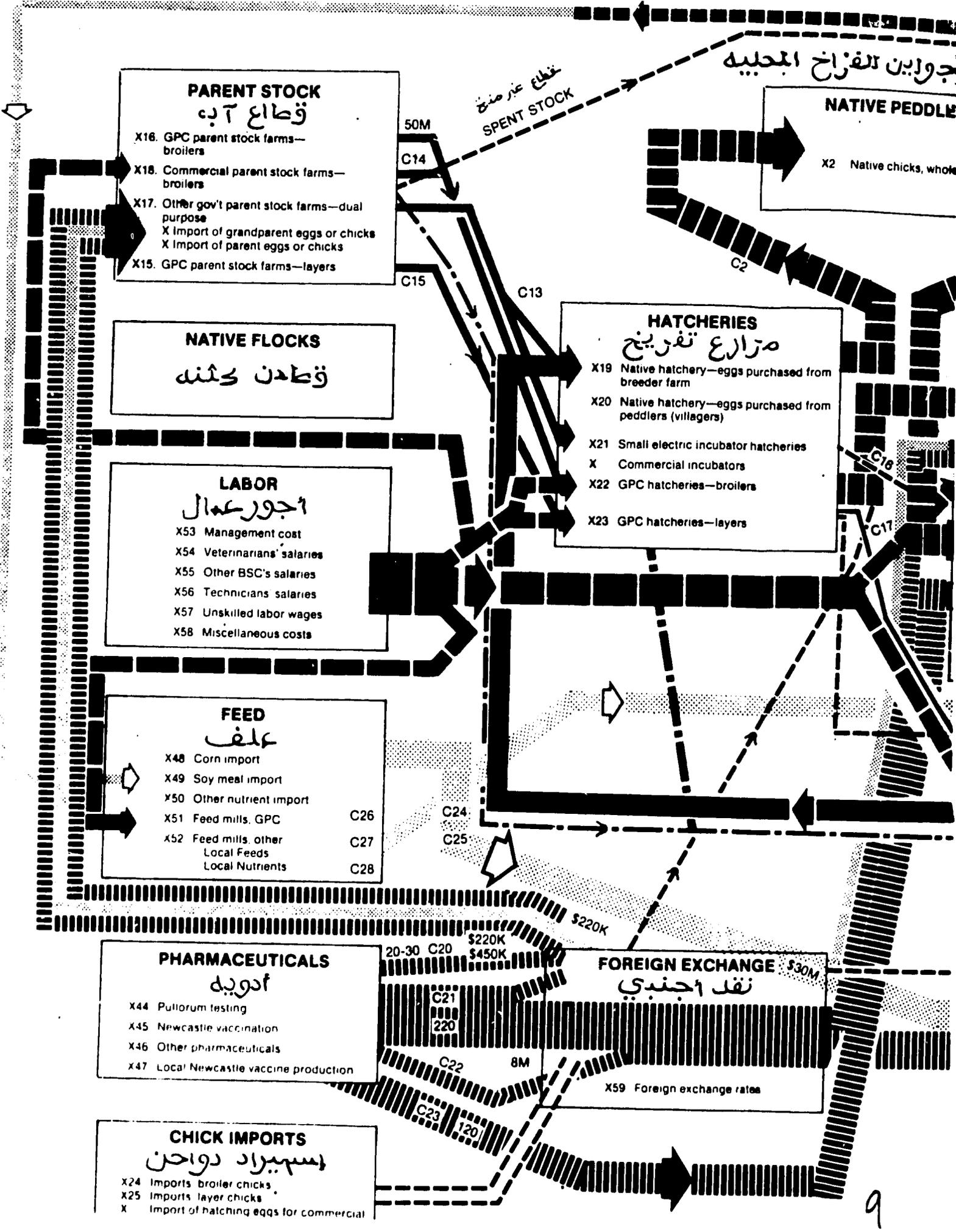
Therefore, the project has initiated development of a consolidated data base for the Poultry Sector. However, the original project paper and statement of work did not encompass sufficient work effort with which to accomplish this task. Nonetheless, project effort has produced sufficient viable data on which to design and develop a data base and sector model sufficiently accurate to be used for sectoral analysis and planning. However, this definitely needs expansion of scope to allow fulfillment of data and sectoral planning needs.

The consumer and poultry market studies, which were to be completed by the MOA Economic & Statistics Dept., have not been completed or even initiated. While this has not severely hampered progress to date, they should be conducted in the near future in order to sufficiently upgrade necessary data for econometric modelling.

SECTOR MODEL

Due to the inconsistencies of the data available, it was necessary for the team to develop a schematic model of the Egyptian poultry sector from which data inputs, relevance and impact could be gauged. This was accomplished approximately 6 months after startup, and is outlined on Exhibit 020-II on the following page.

In order to better assess the effects of increased supply of poultry products on the Egyptian economy, a study to estimate income and price elasticities was undertaken and was successfully completed in August, 1979. This will also allow projection of domestically produced poultry, as well as import requirements and other relevant factors such as price levels, etc. The results of this study will further be incorporated in the model(s) currently under construction. In the months since January of this year, most of the data gaps that existed initially have been filled in some viable form and entered into MATHTECH's computer. It cannot, however, be over-emphasized that additional good data will be required before the econometric model can be implemented in an appropriate and meaningful manner. The basic design for the theoretical econometric model has been completed and has provided for meaningful analysis and identification of certain key factors such as demand, the effects of retail prices, product availabilities on price.



المبائنون المنتجولون

EDDLERS

chicks, wholesale

REARING FARMS

مزارع تربية زواجن

- X26 Conversion: chicks to vaccinated broiler stock
- X27 Conversion: chicks to unvaccinated broiler stock
- X28 Conversion: chicks to broiler stock, local vaccines
- X29 Conversion—chicks, native—pullets, native: vaccine imported
- X30 Conversion—chicks, native—pullets, native: no vaccination
- X31 Conversion—chicks, native—pullets, native: local vaccine

BROILERS

نداري تسمين

- X40 Broilers, GPC production, standard ration
- X41 Broilers, commercial production, standard ration
- X42 Broilers, commercial production, corn-saving ration
- X43 Broilers, commercial production, soy meal-saving ration

DUAL PURPOSE

تذاري الفرض

- X38 Roosters, native, high-protein ration
- X39 Roosters, native, low-protein ration
- X36 Native eggs, high-protein ration
- X37 Native eggs, low-protein ration
- X Including Cooperatives

LAYERS

وزاخ نداء

- X32 Egg production, GPC (standard ration)
- X33 Egg production, commercial, standard ration
- X34 Egg production, commercial, corn-saving
- X35 Egg production, commercial, soy meal-saving

C10

C11

C19

C18

C9

C1

C4

C5

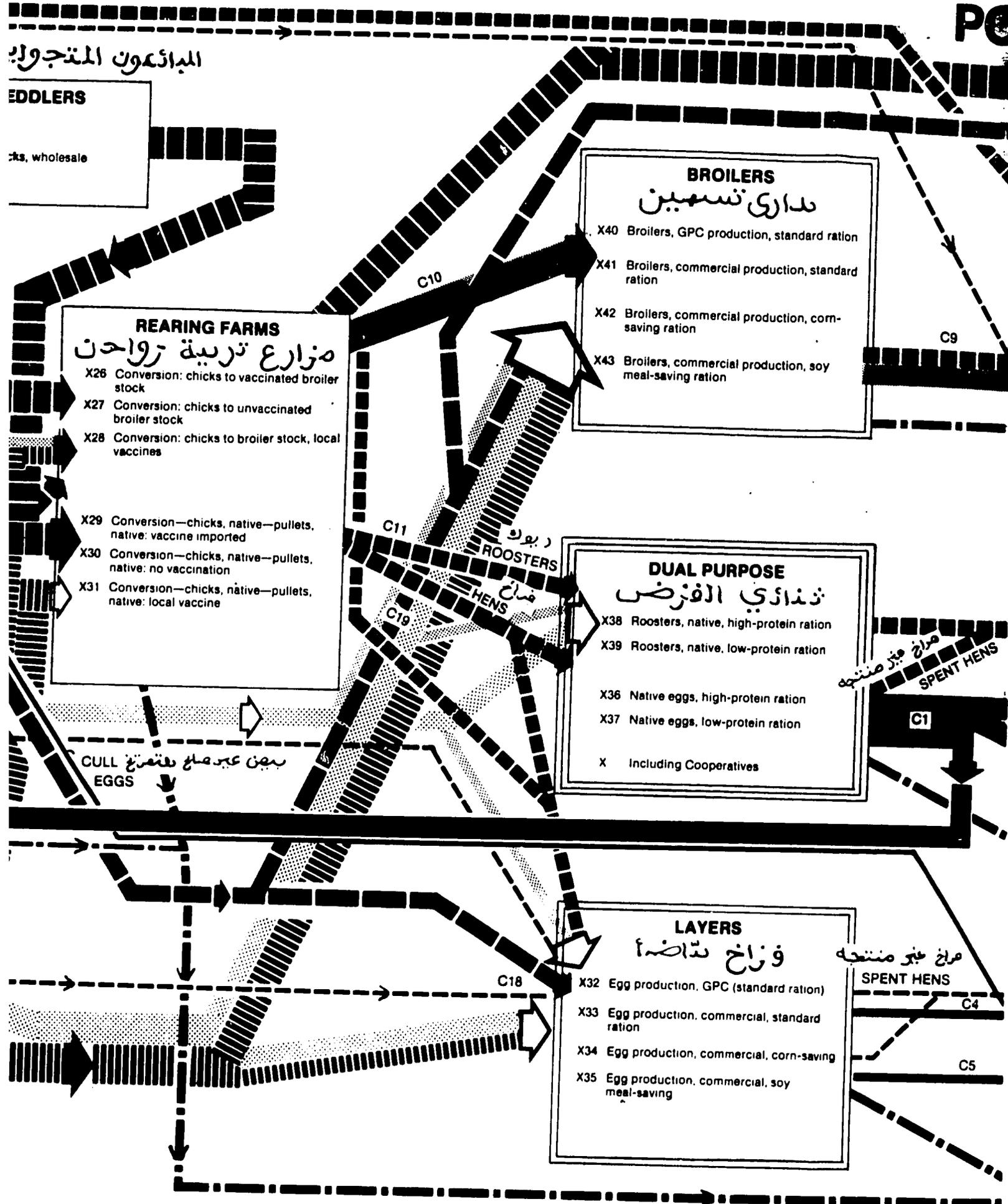
دبوك ROOSTERS

فداح HENS

مراخ مبر صنتجه SPENT HENS

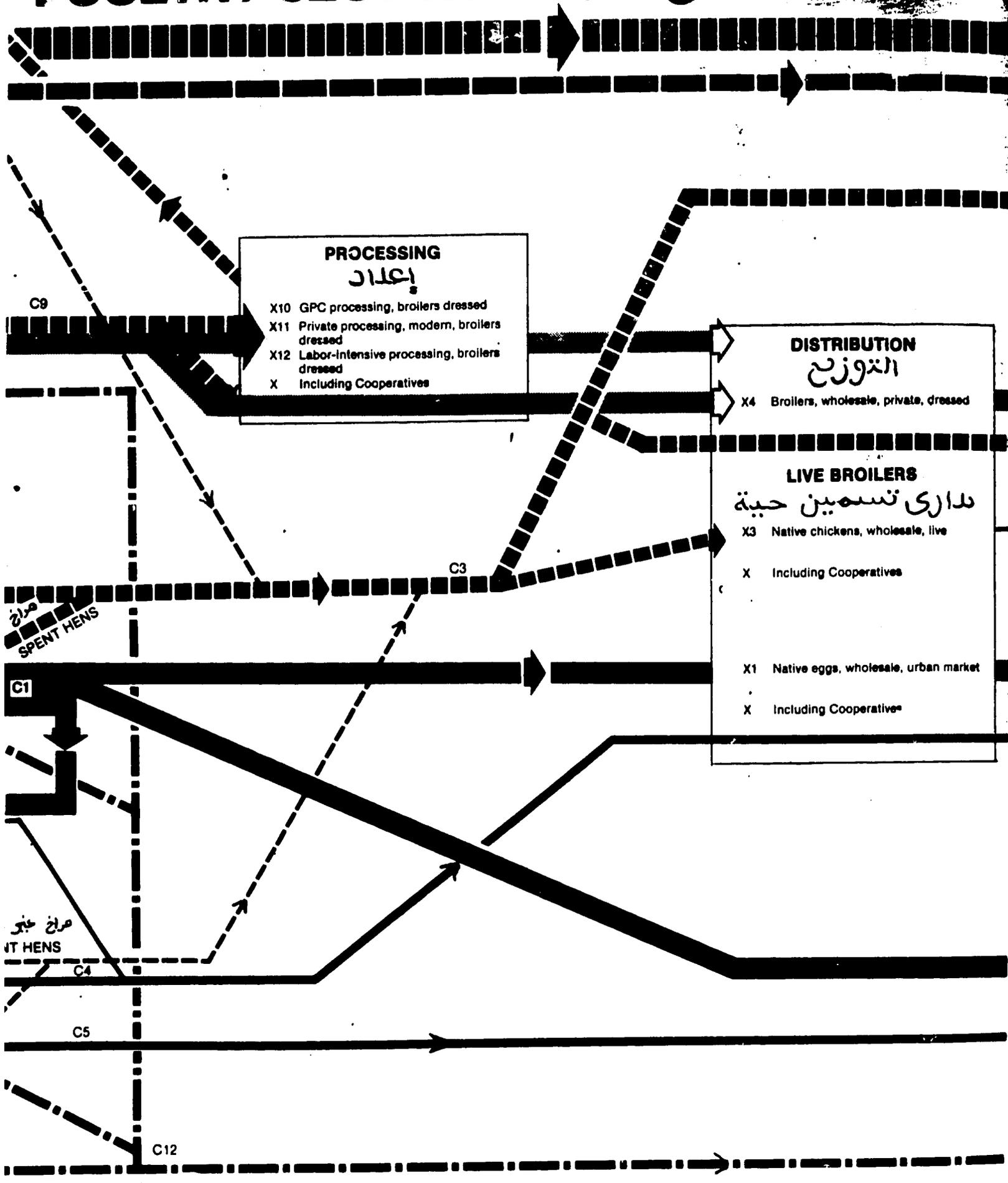
مراخ غير صنتجه SPENT HENS

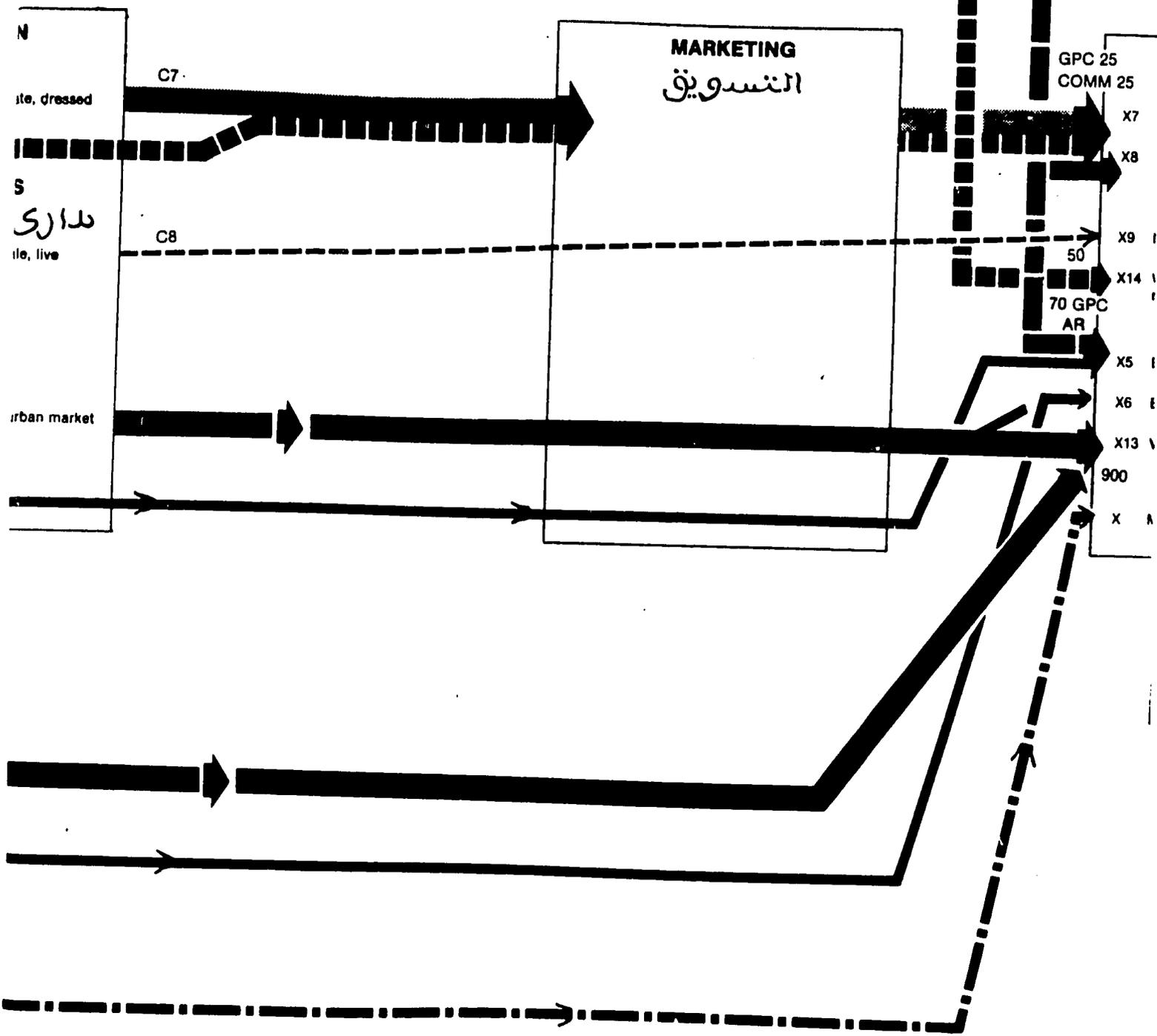
بين عبر صاخ بقتنرغ CULL EGGS



POULTRY SECTOR

قطاع الدواجن





9c

5
i 25

CONSUMPTION
الاستهلاك

X7 Broilers, retailed, rationed prices, dressed

X8 Broilers, retailed, unrationed prices, dressed

X9 Native chickens, retailed, live

X14 Village consumption, native chickens and roosters

X5 Eggs, retailed, rationed prices

X6 Eggs, retailed, unrationed prices

X13 Village egg consumption, personnel

900

X Manure consumption

KEY

■■■■■ CHICKENS (50,000,000)
دواجن

■■■■■■■■■■ EGGS (200,000,000)
بيض

■■■■■■■■■■ BROILERS (50,000,000)
طداری نسمن

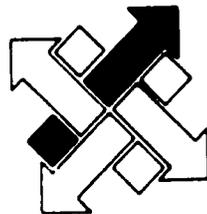
■■■■■■■■■■ FEED
علف

■■■■■■■■■■ PHARMACEUTICALS (50,000,000)
ادويه

■■■■■■■■■■ LABOR
اجور عمال

■■■■■■■■■■ MANURE
سداخ

FOREIGN EXCHANGE
نقد احنبي



Mathtech

FINDINGS AND STATUS

The estimation of income and price elasticities for Egyptian consumers from the Family Budget Study data was carried out by Drs. Tom Weins and Harry Foster. In order to assess the effects of increased supply of poultry products to the Egyptian economy, these elasticity estimates are needed. Major results are:

- Income elasticities for egg and poultry as indicated by the estimates approximates 1.20. This indicates that for each/any increase in consumer income, the demand for poultry will increase at a slightly higher (20%) rate;
- A strong consumer preference for poultry over other kinds of meat was implied by the estimates showing that elasticities (or demand) declines only for the highest income group when availability increases. A policy implication is that the rate of expansion of poultry industry capacity is better kept higher than the rate of projected increases in per capita income;
- Price elasticities on poultry meat and eggs are also large in absolute terms (in the range of 1 to 2). With the additional observation of the subsistency nature of the industry, it may be concluded that decreases in retail prices arising from improved efficiency in production will increase the aggregate level of consumption of these items;
- The commercial market for broilers and table eggs, being dominated by high income agents with higher than average price elasticities, is likely to be affected the most by policy changes regarding price subsidies.

The full Elasticities Study, which draws from the theoretical work developed by Bussink and later modified by Frishian, is included in this report.

The Poultry Sector chart (Exhibit II) closely tracks the LP model of the sector that was formulated by Dr. Weins, and is calibrated against the known macro-data concerning chick, egg, and broiler production in Egypt, as well as the feed, pharmaceutical, labor, and import data. One added feature of the chart was the provision that transparent overlays could reflect the expected consequences or policy changes in the poultry sector (e.g., GPC's provision of chicks to the private sector; the planned expansion of the Ismailia complex; etc.).

Initially, Dr. Khedr was assigned to coordinate activity for the GOE/MOA. However, this was in addition to his regular work responsibilities, and in conflict with his personal income earning needs during other than regular work hours. Subsequently because of these conflicts, Dr. Khedr resigned from this supplemental assignment and left a significant void in this essential task. During July and August of 1979, Dr. Kheireldin reassigned Mrs. Tamadr and Mrs. Nagah to fill this void. However, their assignments were also in addition to other duties, and it is anticipated comparable continuity and scope of effort and time availability problems will again occur.

Buoyed by recent developments in data base and the findings of Dr. Weins' Elasticity Study, the Modelling Task Force is now proceeding further into model refinements. A major contribution of the Elasticity Study is that if the findings are reasonably true representations of the parameters that characterize the poultry meat - egg demand equations for certain income groups, and with the assumption of no radical shifts in consumer preferences in the near future, the demand projections based on the study are usable and can be incorporated in a consistency study -- how best to satisfy these exogenously determined demands. A philosophical question is who will determine the prices.

A model, by definition, is an abstraction of reality. A successful or, more appropriately, useful model will retain sufficient elements of reality for the purposes in view. However, data and computer capacity limitations may impose severe constraints in this regard. For our purposes a model will have to

fulfill at least one of the following three functions: forecasting, consistency and optimization. Most forecasting models are of econometric variety which usually requires time series data on the aggregates of interest. An econometric model also requires a lot of theoretical guidance especially when dealing with behavioral relationships. Consistency and optimization models can be formulated via mathematical programming and/or econometrics. LP model is often preferred when the relationships are mostly technological identities or near identities, and when the constraint imposed by data limitation is strongly binding. A major constraint, therefore, is the consistency, accuracy and comprehensiveness of required data inputs.

The Demand Study aside, increasing interest has now been focused on the supply side of Egypt's poultry economy. It is in this spirit that the present models are being formulated. The models are being organized around concrete, observable or measurable variables. It happens that the data currently assembled provide a sufficiently reasonable base that motivates the model's construction. Any resulting model, or either a series of computations performed with the model, will be designed to be able to furnish valuable information about the real components of Egypt's poultry economy. Such a model will not give final, decisive answers, but it will furnish parameters and the scope of potential results if resources are used in alternative applications. Most certainly it will provide additional points of view for MOA regarding utilization of resources and the causes and effects of such applications. We will be able to measure the impact on the poultry - egg economy and its various subsectors (in both the short, medium, and long term) of changes in various key influencing factors, such as increased availability of feed (corn and soybean meal, etc.) and movements in the associated costs. Of particular interest to MOA are a weighted average of the costs of feed components, the increased availability of vaccine to all subsectors (especially the village flocks), the increased availability of better quality hatching eggs for village hatcheries, and a host of other comparative statistics and dynamic results which impact the decisions to effectively utilize resources.

It is expected that feed and vaccine constraints will be severe, thus resulting in high shadow prices for these important input factors. An even more disturbing constraint is administrative in nature. This problem is not unique to Egypt but faces most developing countries. The problem might seem trivial to some; nevertheless, it is apposite to note that no ready-made solutions for putting together an institution which can effectively and economically deliver feeds, vaccines and special services to large numbers of village farms (often in remote areas and outside the ordinary ambit of MOA and other authorities) exist within Egypt. This administrative problem tends to favor an increasing reliance on the GPC and larger commercial farms, which are more controllable than smaller independent private sector producers and village flocks. Therefore, it is imperative that a National Poultry Plan which considers such possibilities and constraints be developed, implemented and carefully monitored.

RECOMMENDATIONS

1. An improved, expanded data collection system be developed and implemented on a centralized basis for Agricultural related activities, within MOA. Those in decision making positions (such as the Minister, Under Secretaries and other management level positions) cannot make effective decisions without reasonably accurate data; data which is now somewhat deficient. Included would be a new design of input reports, documents and data collection/processing system from the lowest level of reporting to the central point of collection, consolidation and analysis.
2. Technical Assistance be provided to the Agricultural Economics & Statistics Dept. for the development of the system noted in 1 above. While this appears on the surface to be more of a management tool, the real benefit will be a further release and application of resources necessary to support the needs of the rural poor and village flock sectors, as outlined elsewhere in this report.
3. The studies originally to have been conducted by the MOA in support of this project, be implemented at the earliest possible time. It is probable that for such an effort, specialized Technical Assistance will be necessary beyond the scope of current project authorizations.
4. The MOA designate a full-time and qualified person to coordinate all necessary data/model related activities for the necessary GOE efforts. This cannot be accomplished by a part-time personnel assignment.
5. Arrangements be made for computer availability on a positive basis in Egypt for use with the Sectoral (computer) Model. This invaluable planning instrument will best be utilized through computerization, rather than manual manipulation. The latter has proven to be a major

RECOMMENDATIONS (cont'd):

problem in all areas of activity due to skill levels and availability.
A mini or micro-computer will be sufficient.

6. Various experimental econometric models should be specified and tested. A decisive factor will be data adequacy. A revised LP model should then be constructed and tested.
7. Various data sets must be tabulated and tested to avoid the use of spurious information.
8. An Egyptian counterpart must be selected. Then the MATHTECH modeller must acquaint him/her with the current directions of this effort and make available the literature pertaining to the underlying foundations -- theoretical, mathematical and conceptual. Following that, a meeting must be held to discuss computational techniques and methodology, as well as future joint MATHTECH-MOA activities regarding model use.

CURRENT/FUTURE PROJECT PLANS:

1. Continue efforts within available limited budget to fill in data gaps.
2. Continue efforts within available limited budget to complete the econometric model and train a qualified MOA person to be designated to operate/manipulate the model.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 030 - SECTOR ANALYSIS

SUMMARY

Development of a sector-wide plan is the ultimate goal of the Sector Analysis team. Quite naturally, such a plan develops slowly and depends on first adequately completing data collection, data analysis and other special studies.

Initially, the Sector Analysis team actively assisted the Data Collection and Modelling team in locating and assembling data and policy information. More recently, the two teams have concentrated on analysis of data and initiation of special studies, such as identifying marketing channels and explaining price fluctuation. At the present time, while data collection, analysis and model building continue, we are able to begin presenting recommendations and outlining the general characteristics of a National Poultry Plan.

FINDINGS AND STATUS:

Present analysis has focused on gaining a better understanding of broad demand and supply forces in the Egyptian poultry sector. Two primary goals underlie this emphasis. First, before initiating a large and accelerated expansion of poultry meat and egg production, verification of adequate consumer demand and preparation of efficient marketing channels must be completed. Second, the sudden and marked fluctuations in poultry meat prices which have been observed in current markets must be explained and the underlying problems must be corrected. Much progress has been made in achieving these two primary goals. As might be expected, the two issues are closely interrelated. Our findings to date are summarized very briefly below.

Consumer Demand:

As noted in the Task 020 report, consumer demand for poultry products is responsive to income and price changes. As incomes rise and as poultry prices can be lowered, or at least moderated relative to prices of other goods consumed, increased supplies of poultry products should be able to be cleared from the marketplace in an orderly fashion.

On the other hand, it is apparent that the marketing structure imposes severe constraints on distribution, especially that of poultry meat, which effectively limit demand. Examples of such constraints are lack of processing, storage and distribution facilities; plus lack of information channels to advise consumers of increased supplies and lower prices.

FINDINGS AND STATUS (cont'd):

Price Fluctuations:

In Egypt, we observe very sudden and marked fluctuations in prices of poultry meat (both wholesale and retail) in response to very sudden and marked changes in supply. There are a variety of forces acting to change supply, and these are generally understood, albeit difficult to measure or rank in order of importance. Smoothing supply requires the smoothing, or balancing, of these forces.

Five general forces, acting independently of each other, result in sharp day-to-day fluctuations in the supply of poultry meat in Egypt. Urban markets, and especially the Cairo market, are impacted most severely. The five forces are, in random order of importance:

1. Changes in the supply of day-old chicks by the General Poultry Company to small private growers.
2. The intermittent marketing of large batches of broilers from very large private producers. (In time, these large producer operations will complete construction of production facilities and will market at regular, frequent and predictable intervals.)
3. Irregular import and distribution of frozen broilers by the Ministry of Supply and by private or other public importers.
4. Irregular imports of day-old chicks.
5. Extreme and sudden fluctuations in the supply and prices of inputs, especially feed.

FINDINGS AND STATUS (cont'd):

Distribution of Consumption and Production:

Special studies completed during recent months show how per capita consumption of poultry and eggs varies between urban and rural populations and among the governorates and major regions of Egypt. Other studies show the distribution of native and modern hatcheries, including the thirteen (13) MOA farms. Such studies should be useful in identifying where programs might be located to achieve maximum impact on the poor, and which areas are currently less well supplied with inputs, such as chicks.

Stabilization of prices requires control and balancing of the forces noted above. Market expansion requires developing adequate processing, storage, and distribution facilities.

Tables showing the distribution of consumption of chickens and eggs are presented as examples.

--- = Not Applicable

ND = No Data

CHICKENS, CONSUMED, 1976

EXHIBIT 030-1

Page 1 of 4

GOVERNORATE	POPULATION (NOV 76)	URBAN		RURAL		TOTAL	URBAN PER CAPITA CONSUMPTION	RURAL PER CAPITA CONSUMPTION	GOVERNORATE PER CAPITA CONSUMPTION
		SELF-PRODUCED	PURCHASED	SELF-PRODUCED	PURCHASED				
Lower Egypt									
Cairo	5,084,000	1,203,500	13,972,900	---	---	15,176,400	2.9851	---	2.9851
Alexandria	2,319,000	944,100	6,281,700	---	---	7,225,800	3.1159	---	3.1159
Port Said	263,000	ND	ND	ND	ND	ND			
Suez	194,000	ND	ND	ND	ND	ND			
Ismailia	352,000	ND	ND	ND	ND	ND			
Behera	2,545,000	2,006,900	1,905,300	6,765,000	1,011,000	11,688,200	4.7651	4.5104	4.5926
Damietta	557,000	525,500	924,400	1,803,400	177,600	3,430,900	5.8230	6.4322	6.1596
Kafr-el-Sheikh	1,403,000	876,300	605,700	1,553,600	544,900	3,580,500	2.2977	2.7684	2.5520
Gharbia	2,294,000	1,887,300	3,248,100	2,242,500	273,300	7,651,200	3.8787	2.5935	3.3353
Dakahlia	2,733,000	1,944,500	2,548,000	3,330,600	756,400	8,579,500	4.0111	2.5338	3.1392
Sharkia	2,621,000	2,741,900	1,410,600	5,157,700	746,400	10,056,600	5.1584	3.2512	3.8369
Munufia	1,711,000	1,224,200	1,236,700	2,119,000	586,100	5,166,000	4.5997	2.3002	3.0192
Kalyubia	1,674,000	496,400	1,437,400	583,400	1,313,600	3,830,800	2.3103	2.2665	2.2884
SUB-TOTAL	23,750,000	13,850,600	33,615,800	23,555,200	5,409,300	76,385,900			3.3297
Middle Egypt									
Giza	2,419,000	581,700	4,017,900	401,900	598,100	5,599,600	2.9038	1.0858	2.3148
Fayum	1,140,000	1,384,900	1,104,100	2,925,800	228,200	5,643,000	4.6007	5.2655	4.9500
Beni-Suef	1,109,000	584,300	470,900	994,700	110,500	2,160,400	2.6852	1.5436	1.9480
Menia	2,056,000	586,000	1,003,200	1,725,500	628,700	3,943,400	2.1859	1.7715	1.9179
SUB-TOTAL	6,724,000	3,136,900	6,596,100	6,047,900	1,565,500	17,346,400			2.5798

--- = Not Applicable

ND = No Data

CHICKENS CONSUMED, 1976

GOVERNORATE	POPULATION (NOV 76)	URBAN		RURAL		TOTAL	URBAN PER CAPITA CONSUMPTION	RURAL PER CAPITA CONSUMPTION	GOVERNORATE PER CAPITA CONSUMPTION
		SELF-PRODUCED	PURCHASED	SELF-PRODUCED	PURCHASED				
Upper Egypt									
Asyut	1,695,000	1,304,500	972,100	874,900	280,900	3,432,400	2.4853	1.4838	2.0250
Suhag	1,925,000	1,012,600	885,300	1,634,600	321,000	3,853,500	2.5752	1.6461	2.0018
Qena	1,706,000	1,788,100	478,700	3,608,200	156,100	6,031,100	3.2291	3.7493	3.5352
Aswan	620,000	792,000	1,198,500	300,600	264,400	2,555,500	4.6616	2.9273	4.1217
New Valley	57,000	ND	ND	ND	ND				
SUB-TOTAL	6,003,000	4,897,200	3,534,600	6,418,300	1,022,400	15,872,500			2.6694
Other									
Red Sea	56,000	ND	ND	ND	ND				
Marsa Matruh	113,000	ND	ND	ND	ND				
Sinai	157,000	ND	ND	ND	ND				
SUB-TOTAL	326,000								
GRAND TOTAL or AGGREGATE PER CAPITA	36,803,000	21,884,700	43,746,500	36,021,400	7,997,200	109,604,800	3.318	2.763	3.070

GOVERNORATE	URBAN CONSUMPTION	RURAL CONSUMPTION	TOTAL	URBAN PER CAPITA CONSUMPTION	RURAL PER CAPITA CONSUMPTION	GOVERNORATE PER CAPITA CONSUMPTION
Lower Egypt						
Cairo	195,445,000	---	195,445,000	38.4432	---	38.
Alexandria	83,033,600	---	83,033,600	35.8058	---	35.
Port Said	ND	ND		ND	ND	
Suez	ND	ND		ND	ND	
Ismailia	ND	ND		ND	ND	
Behera	32,805,700	86,848,700	119,654,400	39.9582	50.3763	47.
Damietta	10,164,900	7,653,800	17,818,700	40.8230	24.8500	31.
Kafr-el-Sheikh	13,287,500	9,574,600	22,862,100	20.6008	12.6313	16.
Gharbia	60,792,700	36,013,100	96,805,800	45.9160	37.1269	42.
Dakahlia	48,437,300	45,807,700	94,245,000	43.2476	28.3991	34.
Sharkia	33,444,100	41,337,500	74,781,600	41.5455	22.7629	28.
Munufia	28,598,700	38,854,000	67,452,700	53.4556	33.0391	39.
Kalyubia	31,426,600	35,120,000	66,546,600	37.5467	41.9594	39.
SUB-TOTAL	537,436,100	301,209,400	838,645,500			36.557
Middle Egypt						
Giza	65,120,300	28,576,100	93,696,400	41.1114	31.0273	38.
Fayum	32,220,500	27,100,500	59,321,000	59.5573	45.2428	52.
Beni-Suef	10,701,500	34,342,800	45,044,300	27.2303	47.9648	40.
Menia	31,175,500	64,647,800	96,023,300	42.8824	48.6439	46.
SUB-TOTAL	139,217,800	154,667,200	294,085,000			43.737

GOVERNORATE	URBAN CONSUMPTION	RURAL CONSUMPTION	TOTAL	URBAN PER CAPITA CONSUMPTION	RURAL PER CAPITA CONSUMPTION	GOVERNORATE PER CAPITA CONSUMPTION
Upper Egypt						
Asyut	42,484,600	17,498,700	59,983,300	46.3806	22.4630	35.
Suhag	29,485,200	31,146,200	60,631,400	40.0071	26.2173	31.
Qena	36,958,100	54,785,600	91,743,700	52.6469	54.5674	53.
Aswan	33,635,900	8,832,400	42,468,300	78.7726	45.7636	68.
New Valley	ND	ND		ND	ND	ND
SUB-TOTAL	142,563,800	112,462,900	254,826,700			42.857
Other						
Red Sea	ND	ND		ND	ND	ND
Marsa Matruh	ND	ND		ND	ND	ND
Sinai	ND	ND		ND	ND	ND
SUB-TOTAL						
GRAND TOTAL or AGGREGATE PER CAPITA	819,217,700	568,339,500	1,387,557,200	41.445	35.663	38.865

TASK 030 - SECTOR ANALYSIS

RECOMMENDATIONS:

The Sector Analysis team recommends that future activities be organized to make rapid progress in three major areas of activity.

1. Completion of the Modelling Effort.

- a. Data collection, to enable measuring of all variables, must be completed during the next quarter, so that an initial run of the model can be attempted. Refinement of the measures of key indicators and updating of data shall continue.
- b. Revision of the model design to better represent the sector and to maximize its practical application to the solution of current problems.
- c. Actual operation of the model in the U.S. and in Egypt. This final step assumes solution of the Egyptian personnel and facilities problems noted in the O20 report above. Operation of the model should provide a key instrument for understanding and regulating the market destabilizing supply forces noted above.

2. Long-run Planning.

- a. Standardization of data and introduction of routine recordkeeping and reporting should begin immediately wherever possible and eventually be extended throughout the poultry sector. A program leading to an enhanced data collection and analysis capability within MOA should be seriously considered.

RECOMMENDATIONS (cont'd):

- b. Completion of a number of special or related studies is recommended. Most important is a study of the feed sector, so that economy-wide demand for and supply of basic feed grains and additives can be considered and related to the projected needs of the poultry sector.

- c. Markets - Information on hand needs to be reconfirmed concerning the locations and capacity of cold storage facilities in Egypt. Then, updated estimates need to be made of the future needs for cold storage since, if the market in Egypt is to be expanded, the consumers must have dressed birds available. Until processing and handling methods improve, and better facilities are available at the retailer level, it will probably be necessary that all birds be moved to the retailer in the frozen form. The retailer may not have frozen storage facilities available, but the birds would at least arrive in the frozen state. Since most poultry is consumed almost immediately after purchase, this is not a factor. Until some degree of sophistication in processing, distribution, and retailing is developed, relatively immediate consumption is necessary. Frozen birds would be a hedge against this problem. Careful attention should be given to the location and capacity of future frozen storage, taking into consideration the location of future processing plants.

The private sector is badly in need of processing facilities, as it now can only sell to the live bird market. This has resulted in domination of the market by a few buyers in Cairo and Alexandria. If poultry consumption is to increase, the consumer must have it available on the dressed basis, which necessitates processing plants being available to private producers.

RECOMMENDATIONS (cont'd):

Sufficient capacity in processing and refrigerated storage does not now exist. This inability to release produce to the market on a disciplined basis creates severe market imbalances, depressed and erratic prices, and negative impacts on private producers as well as on GPC and other government poultry agencies.

The Ismailia Poultry Company has made coolers available, and is distributing dressed birds to Ismailia, Port Said and Suez. These are all cities located in an area relatively close to each other, and the Ismailia Poultry Company has taken the initiative to start a distribution system for dressed broilers. This has been operative since late February or early March of 1979, so a follow-up of these results should be very valuable in market planning or distribution and the potential for retailing of dressed broilers.

There is reason to believe that there is a market for parts of and further processed poultry. This needs to be investigated to determine the potential for selling less than whole broilers. Availability of poultry parts would also tend to make the product more buyable by the poor, who now may not be able to accumulate enough cash to purchase whole chickens. Further, availability of these types of products would be an extension of the market and would make it possible for individuals who do not wish, or cannot afford, to buy whole birds to purchase parts or some processed items.

RECOMMENDATIONS (cont'd):

A study needs to be made of the flow of eggs to market and its impact on price. As the egg industry develops, it is possible there will be periods of surplus. Potentials for the solution of the short-run surpluses are either in exporting to other Arab countries, most of whom import eggs, or development of egg breaking facilities so that liquid and frozen eggs could be produced and utilized by the food manufacturing companies in Egypt.

The outline of a National Poultry Plan should begin to be defined. Various intervention policies and programs can be individually and collectively implemented to overcome the problems identified and forward the objectives of the Egyptian government. Such policies and programs will likely grow out of a better understanding of key areas of activity in the poultry sector.

For example, rural family income in Egypt is generally lower than urban family income. Per capita consumption of poultry meat and eggs in the villages is also relatively lower. Since most rural consumption of poultry products is self-produced, programs which encourage expanded village flock production will serve to increase both rural income and rural consumption of poultry products. Programs such as a Poultry Health Program and expansion of hatchery operations serving the villages will directly support this general goal. The data which has been developed displaying per capita consumption of poultry meat and eggs and the available supply of day-old chicks in each governorate can be used to direct such programs to regions where they are more needed.

SUMMARY

This report contains a summary of team findings and recommendations for the Breed Development and Hatchery Improvement and Expansion Tasks of the Poultry Improvement Project for the period September, 1978 to September, 1979.

The Breed and Hatchery Improvement Team Members have each spent a total of approximately eleven weeks in Egypt reviewing the Egyptian Poultry Industry, including both the governmental and privately controlled sectors for both meat and egg production. Most of the larger governmentally controlled stations (MOA and governorate and cooperative) were visited, as well as many private operations and several native hatcheries in the Delta and in Upper Egypt.

FINDINGS AND STATUS:

One of the first requirements for a successful poultry industry is a reliable source of disease-free chicks with high genetic potential for the production of meat or eggs. This can only be met by the use of parent stock for hatching egg production that not only has high genetic potential, but is also free from disease and fed a diet adequate for hatching egg production. Once quality hatching eggs, with at least 95 percent fertility, have been produced, sanitary and well controlled incubator conditions must be provided.

The conditions observed in the various sectors ranged from excellent to impossible. In general, the best run operations the team observed were the GPC hatcheries. One of the most discouraging aspects of the industry as a whole is the appalling 50 percent mortality in chick rearing, where mortality should be less than 5 percent. However, the team found no fundamental reason why Egypt could not develop a healthy and prosperous poultry industry. Great enthusiasm for poultry seems to exist, but much more effective management will need to be practiced in many areas.

1. Breed Improvement: Breed improvement has received only superficial attention in Egypt. The broiler sector continues to depend on the importation of Western parent or grandparent stock, and the team feels that this practice should be continued at least for the present. An extremely high correlation exists between growth rate and feed efficiency (about 60 percent), which makes it imperative that the stock used be birds that will average more than three and one-half pounds of live weight at eight weeks of age. Since intensive selection programs are being practiced by broiler breeders in the United States and Europe, and Egypt has no comparable breeding potential at this time; it is felt that the Egyptian Poultry Industry would be well advised to continue the current practice of importing broiler parent stock. The development of broiler testing facilities to compare different foreign stocks is encouraged.

Breed Improvement (cont'd):

Improved foreign-developed egg laying strains are present on several private poultry farms; however, the bulk of the egg production is from native reared breeds or strains. The Dokki IV and Fayoum breeds appear to be the most popular native birds; however, even these breeds have not been intensively selected for egg production.

Many Egyptian poultrymen feel that a stock becomes well adapted only after several generations of reproduction under Egyptian conditions. No experimental proof for this assumption exists. The team has recommended that egg laying tests be initiated on three MOA farms to compare locally available "adapted" breeds, and to compare those "adapted" breeds with improved Western strains.

The imported stock, if it proves superior, can serve as a foundation source for further expansion. It is also suggested that each MOA station limit itself to improvement efforts on only one breed, and that these breeds be continually tested as outlined above. Each MOA farm can then be supplied with parent stock of the various breeds from other MOA farms on an as-needed basis to meet local demands for chicks of different breeds.

2. Hatchery Improvement: The Breed and Hatchery Improvement Team's survey of the current Egyptian poultry industry strongly suggests that hatchery capacity is not a serious limitation to rapid development. In many locations, hatchery capacity was either being unused or underutilized. The attached table shows that, in 1978, MOA farm incubators were being used at only about one-half of their capacity. While many of these machines are old and in need of repair or replacement, they are still serviceable.

Hatchery Improvement (cont'd):

The MOA farms exist for the sole purpose of supplying better quality chicks to the village flocks. Because of lack of budget, these facilities, which are in real need of modernization, are not being fully utilized. The team feels that a change in the budgetary structure which would return some of the approximately LE 150 generated from the sale of chicks back to the farms would encourage greater chick production. Due to a lack of money to purchase feed, many farms had to sell some of their hatching egg production flocks in 1978.

The hatcheries which GPC transferred to the governorates are fairly new and efficient units; but, again, they are being only partially utilized. No clear decision seemed to have been made as to whether these units would be used to provide chicks for the villages or for further production.

A summary of the total estimated incubator chick capabilities in Egypt is attached. The table shows that the total annual chick production capacity from intensive broiler type operations is nearly 124 million chicks, while production capacity from all other sources is about 265 million chicks per year. The latter figure includes an estimated 244 million chicks per year from native hatcheries. It is questionable whether these native ovens, constructed from mud and plaster, can be sufficiently sanitized to consistently produce the high quality, healthy chicks needed to support efficient village production. Replacement of all of the native capacity would obviously occur over a long period of time; however, the team feels that this total replacement will take place. Such a change will have to rely on many other developments in the country, such as improved transportation, communication, and marketing channels.

SURVEY OF MOA FARM CAPABILITY AND PRODUCTION

<u>Location</u>	<u>Laying hens</u>	<u>FARM CAPACITY - (IN THOS.)</u>			<u>PRODUCTION</u>		<u>Chicks sold ave. 74-77</u>
		<u>Incubator</u>	<u>Hatch-er</u>	<u>Chick (1) Production</u>	<u>Hatching eggs sold 77</u>	<u>Chicks (2) sold 77</u>	
Barrage	4.5	45	7.5	405	0	174	323
Sakha	7.0	45	7.5	405	2	28	118
Inchas	8.0	45	7.5	405	2	285	309
Fayoun	4.5	45	7.5	405	2	209	222
Dokki	3.0	3.0	4.0	270	1	119	112
Borg El Arab	2.0	7	1.5	63	8	51	47
Montazah	2.0	10	2.0	90	6	49	43
Sirw	4.0	13	4.0	117	0	150	184
Gimezah	1.5	7	1.5	63	27	44	41
Mallawi	3.5	15	7.5	135	0	209	155
Sida	5.6	45	7.5	405	20	146	176
TOTALS (2)	45.6	307	58.0	2763	68	1464	1730

1. Potential annual production assuming a hatching season of 252 days and a hatchability of 75% of all eggs set
2. Chicks sold in 1971 - 72 - 73 were 1,614, 2,024, and 2,051 respectively.

Task - 040 Breeding and Hatchery Improvement By C. F. McClary
Data on Chicken Hatcheries in Egypt

<u>Organization hatchery name</u>	<u>name of incubators</u>	<u>No.</u>	<u>each capacity</u>	<u>total capacity</u>	<u>possible No. eggs/year</u>
GPC El Shams lab	Reform	47	17,200	808,400	14,600,000
(Broilers) El Sahms 2	Bokoto	10	86,400	864,000	17,300,000
" Sidy Bishr	Funky	18	19,008	342,144	6,800,000
" Amlak 9A	Optima	8	34,560	276,480	5,500,000
" Amlak 9B	Optima	8	34,560	276,480	5,500,000
" Amlak 9C	Optima	8	34,560	276,480	5,500,000
" Amlak 9D	Optima	8	34,560	276,480	5,500,000
" North Tahrir	Optima	8	34,560	276,480	5,500,000
" North Tahrir 2	Optima	8	34,560	276,480	5,500,000
" Dakahlia Optima	Optima	3	34,560	103,680	2,100,000
" New N. Tahrir	Reform	16	108,000	1,728,000	35,000,000
Ismailia Poultry Co.	Reform	10	108,000	1,080,000	15,000,000
Total broiler commercial-intensive mixed hatcheries layers broilers & baladi					123,800,000
governorates Tanta Gharbya	Funkie	14	20,000	280,000	6,000,000
from GPC "	"	6	16,000	96,000	
1/1/79 Bany Mor Asyut	?	9	8,280	74,520	1,266,000
Barout Beni Suef	Funkie	7	20,000	140,000	2,180,000
Sohag	?	9	8,280	74,520	1,266,000
GPC Helwan	Reform	12	36,000	432,000	7,344,000
MOA 11 breeding farms	various			280,000	2,763,000
Native all governorates hatcheries	native	698	35,000	24,433,000	244,330,000
All others all Egypt	varied	50	8,000	400,000	4,000,000
Total mixed broiler layer balady					265,149,000

1. Figures from 1977 MOA records
2. Estimate based upon sizes of 6 or 8 units of 5,000 eggs etc...
3. Entirely a guess some have been seen.
4. At a hatching rate of 76% the annual broiler chick production could reach 94 million chicks per year from existing incubator space.
5. At an average hatch of 56% for native hatcheries and mixed broiler and layer hatcheries, 148 million chicks could be hatched annually in Egypt now.

Note:

The foregoing figures are best estimates based on information available at this date to the breeding and hatchery improvement task group.

CM/sm

3. Breeds:

- MOA/APRI "Farms": Most of the 13 hatcheries in this category are intended to provide hatching eggs to the native hatcheries (or baby chicks to the villages) and appear to operate independently from each other and from any central control in Cairo. Various native breed development experiments have been and are being conducted which duplicate each other or comparable unsuccessful tests conducted outside of Egypt in the past. No records exist which indicate these native breed development programs have provided viable genetic improvement in the native breeds or performances which are even comparable other breeds commercially available.
- GPC/PRIVATE SECTOR: Use already proven imported stock which appear to have higher livability records than those from MOA/APRI farms, and at least comparable or higher productivity rates.
- The Hatchery Expansion program outlined in the Project Paper calls for an approximately 10:1 expansion of three of the twelve MOA/APRI Hatcheries (farms) now existing. These serve only approximately 13.5 percent of the population; 18.5 percent of the native hatcheries and 14.0 percent of the "modern" hatcheries. (See exhibits following this team report.)
- In general, the MOA/APRI Hatcheries (as they now exist) are under-utilized. Their production capacities are out of balance, with greater incubator than laying hen capacities.
- The output of the MOA/APRI farms has decreased from approximately 2 million per year in 1972-73 to 1.464 million in 1976-77. The team believes this decrease is due to the under-utilization of existing capacity; out of balance productivity factors; lack of items such as sufficient laying hens, feed, efficient management, and other correctable inputs.

TASK 040 - BREED AND HATCHERY IMPROVEMENT

Breeds (cont'd):

- The project has identified poultry health as the single most important poultry sector problem. The lack of disease-free hatching eggs being supplied to/used by the native hatcheries to the village flocks seems to be the single most important contributor to the poultry health problems in the rural sector. The team believes a major cleanup and control program, in which the MOA farms also could/should play a significant role in a turnabout program, must be initiated. Poultry health improvement cannot effectively take place until the MOA farms are "clean", have disease-free stock, and have effective, "clean" operating practices.

The MOA farms which are not being expanded under this initial project structure require only modest improvement in facilities and/or equipment, which could double their current production rate and capacity. However, to do so will require modest capital expenditures to "balance" laying pens, etc. with incubator capacities; modest physical restructuring, such as separation of pens; improved operating programs; and central coordination of all MOA farm activities. These farms also require certain specialized transport equipment to deliver disease-free stock to villages or native hatcheries, and a feed control/availability/formulation program to ensure their parent stock has adequate and proper nutrition.

RECOMMENDATIONS:

The team feels that the following actions should be initiated immediately

1. Initiation of a strain testing program for local and imported breeds, as outlined previously. This should be done under the guidance of a U.S. Technical Assistance program, and would include the importation of stock for testing purposes, such as five (5) cases of hatching eggs from each of the following: HoN Nick Chix, Shaver 288 Leghorn, Hubbard Comet, HoN Brown Nick, DeKalb X L (white), and Babcock Brown.
2. Blood test and purge all hatchery parent stock to ensure supply of disease-free eggs and chicks. This should become a cyclical program which would be mandated and monitored by the appropriate MOA department.
3. Develop and enforce government regulations concerning recycling of fertile village flock eggs through the native hatcheries.
4. Immediately implement a poultry health practices program for all hatcheries, public and private.
5. Discontinue time consuming and expensive genetic breed development activities. Concentrate on selection and testing of those breeds already available which would be most productive in the various Egyptian environments (Upper, Middle, Lower Egypt).

6. Establish a field testing program through extension services, using imported bred-to-lay and broiler strains, to determine local condition adaptability and productivity under varying support conditions which range from none to desire, practical feed, vaccination and management levels. This is necessary to determine whether or not special purpose or dual purpose birds are most effective; those strains which are most immediately more productive; the necessary contexts of a breed development program; and the degrees of support necessary for effective and practical upgrading of productivity in the rural village flocks sector.
7. MOA should consider budgetary modifications which would stimulate greater chick production, as outlined previously.
8. Immediate upgrading of the remaining 9 MOA farms not now being expanded to increase productive capacities through necessary equipment balancing (layer pens capacity, etc. versus incubator capacity). This could be accomplished in 6 to 12 months with appropriate technical assistance. The hatcheries in this category are primarily located in Upper and Middle Egypt and the rural sector, whereas those in the expansion program are located principally in Lower Egypt and closest to the urban population centers.
9. Lifting of the currently imposed heavy Import Duty on feedstuffs, pharmaceuticals, and vaccines. This would substantially increase the quantities of such materials purchased with the already limited GOE/MOA budget, and would increase the number of chickens which would benefit therefrom.

10. Reorganization, revitalization of the MOA/APRI farms and addition of one (1) full-time American hatchery operations specialist to be added to the current team to work as a counterpart to the current MOA/APRI undersecretary.
11. A corrective health and breed improvement program in all MOA/APRI farms should be initiated immediately, and coordinated central controls instituted. This would include:
 - Purging and replacement of present parent stock as needed;
 - Concentration on commercially available meat productive breeds;
 - Development and implementation of improved health practices management program.

NOTE 1: The majority of team recommendations in this segment of this report will/can have a significant beneficial impact on the village flock sector (and the rural poor), which produce approximately 50 percent of all poultry meat and up to 90 percent of table eggs in Egypt at the current time.

NOTE 2: See the APPENDIX (Volume II) of this report for details and other significant documents.

EXHIBIT 640-IV

POPULATION AND NUMBER OF POULTRY HATCHERIES BY GOVERNORATE, 1976-77

<u>AREA</u>	<u>POPULATION, NOV. 1976</u>	<u>MODERN HATCHERIES, 1976-77</u>	<u>NATIVE HATCHERIES, 1976-77</u>
LOWER EGYPT	23,750,000	32	324
Cairo ^{1/}	5,084,000		
Alexandria	2,319,000	6	2
Port Said ^{1/}	263,000		
Suez	194,000	-	-
Ismailia	352,000	-	4
Behera	2,545,000	5	58
Dahietta	557,000	1	9
Fayr-El-Shaykh	1,403,000	1	34
Charbia	2,294,000	4	63
Dokkila	2,733,000	1	59
Sharkia	2,621,000	4	51
Matruh	1,711,000	4	23
Nouha Matruh ^{2/}		1	-
Elayubia	1,674,000	5	21
MIDDLE EGYPT	6,724,000	8	200
Giza	2,419,000	2	34
Fayum	1,140,000	1	43
Boul-Saef	1,109,000	2	35
Minia	2,056,000	3	88
UPPER EGYPT	6,003,000	5	169
Asyut	1,695,000	1	97
Ishing	1,925,000	2	22
Gena	1,706,000	1	38
Assuan	620,000	-	12
New Valley	57,000	1	-

EXHIBIT IV (cont'd)

<u>AREA</u>	<u>POPULATION, NOV. 1976</u>	<u>MODERN HATCHERIES, 1976-77</u>	<u>NATIVE HATCHERIES, 1976</u>
NOT INCLUDED	179,000		
Red Sea ^{1/}	56,000		
Matruh	113,000		
Sinai	10,000		
ABROAD	<u>1,425,000</u>	—	—
TOTAL	38,081,000	45	693

^{1/} Hatchery data for Cairo and Port Said were not available.

^{2/} Population data for Mersa Matruh were not available.

^{3/} The governorates of Red Sea, Matruh and Sinai were not included since no hatchery data were available.

EXHIBIT IV (cont'd)

NUMBER OF PERSONS PER HATCHERY (MODERN HATCHERIES)

<u>AREA</u>	<u>POPULATION, NOV. 1976</u>	<u>MODERN HATCHERIES, 1976-77</u>	<u>NUMBER OF PERSONS PER HATCHERY, 1976-77</u>
LOWER EGYPT ^{4/}	18,403,000	32	575,094
MIDDLE EGYPT	6,724,000	8	840,500
UPPER EGYPT	6,003,000	5	1,200,600

NUMBER OF PERSONS PER HATCHERY (NATIVE HATCHERIES)

<u>AREA</u>	<u>POPULATION, NOV. 1976</u>	<u>NATIVE HATCHERIES, 1976-77</u>	<u>NUMBER OF PERSONS PER HATCHERY, 1976-77</u>
LOWER EGYPT ^{4/}	18,403,000	324	56,799
MIDDLE EGYPT	6,724,000	200	33,620
UPPER EGYPT	6,003,000	169	35,521

TOTAL NUMBER OF HATCHERIES, 1976-77 (MODERN AND NATIVE)

<u>AREA</u>	<u>NUMBER</u>	<u>PERCENT OF TOTAL</u>	<u>PERCENT MODERN</u>	<u>PERCENT NATIVE</u>
LOWER EGYPT ^{4/}	356	48.2%	9.0%	91.0%
MIDDLE EGYPT	208	28.2	3.8	96.2
UPPER EGYPT	174	23.6	2.9	97.1
TOTAL	738	100.0%		

^{4/} Excluding populations of Cairo and Port Said; including Meroa Matich.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 050 - PRODUCTION

FINDINGS AND STATUS:

This team interim report summarizes the activities of this task from January, 1979 through October, 1979. Individual team members were present in Egypt throughout this period. Four members spent 4 weeks each in Egypt, and John Bond and Jacey Huttar reside there with both administrative and staff duties, as well as co-leader responsibilities with specific emphasis on production needs.

The activities of this team have largely concluded the discovery phase with the General Poultry Company, Agrarian Reform, Government (Sharkia), confined production units in the private sector, and village flocks.

The team has identified that the public sector commercial poultry production units produce 24.8 percent of the poultry meat and 7.8 percent of the eggs of the total Egyptian production. Another 25.1 percent of the poultry meat and 1.6 percent of the eggs come from confined production units in the private sector. Village flocks account for 50.1 percent of the poultry meat production and 90.6 percent of the Egyptian egg production.

Each of the three primary sources have their individual problems, as well as problems which are common to them all.

Each of the sources have their own opportunities. From an overview, production in commercial confined units is more efficient in terms of input/output ratio. For example, it takes over twice as much feed to produce a pound of poultry meat or eggs in the village flocks sector than in any other. However, the village flocks sector supplied a need and market not reached by the commercial sector, and is vital to the subsistence of this segment of the population.

FINDINGS AND STATUS (cont'd):

Disease control, hatchery improvements, and feed improvements impact heavily upon the village flocks sector, but they also impact even more heavily upon the commercial units in the public and private sector by more than twice the benefit ratio of the village flocks sector.

The team has been very active in examining the weaker points in poultry housing, poultry husbandry, nutrition, disease control, hatching, breeder husbandry, processing, by-product handling, maintenance programs, product mix and product flow, and distribution. The team believes the significant opportunities exist for improvements in these areas which would substantially increase production without additional inputs. Team members propose to continue to hands-on work in these opportunities with Egyptian counterparts.

The effectiveness of the team effort may be substantially increased by the assignment of full-time technical assistants in each of the primary disciplines of breeder production, hatchery production, nutrition and feeding, processing, and records control in Egypt on a continuing basis, doing hands-on work with the commercial poultry production units in addition to periodic visits by consultants.

The team members further propose to collectively increase the quantity and quality of Egyptian poultry products by hand-on demonstrations of applied technology to characteristically and uniquely Egyptian opportunities. These opportunities are not new, since the same opportunities existed in the United States only a few decades ago, and team members have experienced triumphs and reversals with almost all of them in the past. For example, simple but effective first-line management techniques can both prevent contamination and recontamination of human food and animal feed and measurably upgrade the outputs and throughputs of the industry. Team members are working in hatcheries, feed mills, processing plants, and farms toward accomplishing some of the goals. Training is being undertaken in the United States and Egypt, and emphasis by repetition has already commenced in these regards.

FINDINGS AND STATUS (cont'd):

The team is generating several broad recommendations embracing qualitative and quantitative changes in Egyptian poultry technology at all management levels of the industry and in all sectors. These recommendations are being examined by logistics and logic for effectiveness and appropriateness. Planning, training, and implementation using existing technology is the major thrust of the team at present. Analysis of the quality of previous evaluations are continuous and, finally, some progress is beginning to become evident with the program objectives.

It is a fact that operations of commercial units are interrupted frequently, and hampered by power outages and breakdowns, and that mechanical maintenance programs are limited to fixing something that is broken down and out of order. Supply of the maintenance pipeline is seriously lacking, as are facilities. Each complex should have its own maintenance program, trained personnel, facilities and supplies.

SPECIFIC PROBLEMS:

1. Village flocks and commercial poultry production are uniquely different. Village flocks are not usually crowded at high density population levels, and the problems here are largely nutritional and with egg transmitted diseases. Conversely, in commercial production units all of the problems of nutrition and egg transmitted disease are compounded by environmental stress and high density husbandry. The effects of management are more apparent in the commercial flock, and are more immediately noticeable and measurable.

SPECIFIC PROBLEMS (cont'd):

2. Team members have observed high morbidity and high mortality, high (poor) feed conversion (pounds of feed per pound of meat produced); low egg production, low hatchability, low livability, low yields, low quality, and problems in food distribution. They have, in all cases, found reasons which contribute to the less than desirable results and have examined ways of avoiding these etiologically triggering mechanisms in the Egyptian environment.

For example, the Egyptian heat is not a significant factor to a baby chick under a shade tree in the wide open country village; however, the same degree of heat can be disastrous to thousands of baby chicks within the confines of an environmentally controlled poultry house with either a power failure or with defective temperature controls. The same effects of identical heat conditions are less damaging in open housing with natural ventilation. For these reasons and with full cognizance of the frequent and routine power outages in Egypt, the team members are directly encouraging the Egyptian thinking away from sophisticated environmentally controlled housing toward open housing. This is with the full knowledge that the former can outperform open housing, but that it seldom does over consistently long periods of time.

3. The seven (?) commercial poultry processing plants in Egypt have a capacity of 22,500 birds per hour, and process 30 million pounds of RTC poultry per year. These plants can process twice this amount with the existing facilities. By reducing losses due to stress from nutrition, disease, and husbandry practices and reaching industry norms, poultry meat production can be conservatively doubled without adding numbers of breeders and facilities and without additional feed.

SPECIFIC PROBLEMS (cont'd):

4. These opportunities are available, but require the use of applied existing technology and a rethinking of priorities. The task force, and particularly the 050 team, are exploring workable ways to cause the implementation of applied technology by their counterparts. At this point, sensitivity to gentle persuasion and resistance to change must be dealt with wisely or the efforts put forth previously will not be of much continuing value.

5. It is a fact that although 25 percent of the birds in Egypt are commercially produced, they are the most efficiently produced. In terms of feed, the village flocks use more than twice as much feed per pound of edible meat, and finally 25 percent of the recoverable protein is wasted at slaughter; whereas there is full recovery at rendering in the commercial operations. However, the village flocks are available at a place and time and become a valuable resource to the segment of the population not served by commercial production.

6. It is also a fact that only about 180,000 birds can be held in freezers in Egypt at any one time. Approximately 5 million pounds of freezer storage are required to hold a week's production of domestic poultry, plus 1,200 metric tons monthly import delivery. These freezer facilities just do not exist, and the interruption of smooth flow of edible poultry in normal marketing channels is severely disrupted by this factor. Badly needed in Cairo alone is a 5 million pound freezer facility for poultry.

SPECIFIC PROBLEMS (cont'd):

7. GPC's two major poultry production complexes at N. Tahir and Helwan are not yet productive at rates comparable to similar units in the United States. They require a modest upgrading or replacement of essential equipment, such as ventilating fans, heaters, feeders, waterers ... and a re-engineered estimate of critical poultry husbandry factors such as; air flow, numbers of chickens which can be housed effectively with available air movement capacities.
8. While the U.S. training program will tend to improve management practices in the Egyptian poultry sector, this will only partially and more slowly have the necessary impact on poultry production. Essential management techniques can more rapidly be improved by supplementing the U.S. training with full-time technical assistance to work side-by-side with Egyptian counterparts in critical areas, such as breeding, hatchery operations, broiler production, table egg production, feed and nutrition, and poultry health. Current project budget will not now permit these essential inputs.
9. There is no central control or data point at which various and critical production related data comes together or is available for decisions relating to poultry production plans. Production is erratic, at best.
10. The lack of central market and production coordination creates situations in which there are regular cycles of excess and insufficient supply of poultry on the market at various times. With such inconsistencies of supply and production of poultry, market prices tend to fluctuate widely. With essentially the marketing of live poultry as a standard practice, whenever frozen/dressed poultry is offered, the demand and prices received for live poultry drops below cost-of-production levels.

SPECIFIC PROBLEMS (cont'd):

Private producers suffer, as evidenced by such a large number who were previously licensed by the GOE no longer in operation. This market instability is a deterring factor toward the growth of private sector poultry production. The Ministry of Supply (rather than Agriculture) controls the input of imported frozen product on the market, which severely disrupts and impacts the return to the poultry production sector in Egypt.

RECOMMENDATIONS:

1. That full-time technical assistance be expanded to the entire sector, particularly to GPC where more rapid improvement is possible.
2. That a central maintenance center with regional, mobile, or location maintenance shops be established. These would inventory critical spare parts, conduct preventative maintenance on automatic and/or environmental poultry houses already existing.
3. That plans for new poultry production should become part of an overall National Poultry Plan, rather than as requested by any group, public or private. The majority, if not all, public sector housing should be re-oriented toward the kinds of appropriate open-types housing used throughout the United States industry.

EXHIBIT 050-1

TOTAL MEAT AND EGG PRODUCTION

050 Situation

PIP - Egypt

400 M People

993 M Eggs - 24.8 per capita

100 M Broiler -

220 M Pounds - 66.6% 5.5 per capita

Chickens 150 M

COMMERCIAL BROILER SLAUGHTER:

22.5 M Broilers/year (7 plants)

49.5 M Pound RTC/year (7 plants) 15% - 1.24 per capita

SHOP AND HOME SLAUGHTER BROILERS - 51.6% - 4.26 per capita

ADDITIONAL CHICKENS:

Shop and Home Slaughter

50 M Chickens

110 M Lbs. RTC/yr. - 33.3% - 2.75 per capita

TOTAL CHICKENS MEAT: 100% - 8.25 per capita

EGYPT - 11/07/79

Commercial Ready-To-Cook Poultry Production:

<u>PLANT</u>	<u>HOURLY RATE OF PRODUCTION</u>
Heliopolis	6,000/hour
Kanka	3,000/hour
Gizza	3,000/hour
Alexandria	3,000/hour
Ismalia	3,000/hour
N. Tahir	3,000/hour
Belbia	<u>1,500/hour</u>
	22,500 birds per hour

Actual Egyptian Production Is About:

22,500 birds/hour X 4 hours/day X 250 days/yr
 90,000 birds/day
 22.5 M/year
 49.5 M lbs/year RTC

Egyptian RTC Poultry Production - Commercial:

This 49.5 M lbs/year can be increased 2X or 4X by merely increasing processing efficiency and double shifting without any additional plants.

The Freezing & Holding Freezer capacity at the processing plants in Egypt is presently:

396,000 lbs. RTC
 2 M number would be required for one week total
 production storage

RECOMMENDATIONS (cont'd):

4. That a national plan for increased and regional capacity slaughterhouses with expanded refrigerated or frozen storage capacity be developed and implemented at the earliest possible time. This would allow for the disciplined release of product to the market to prevent unnecessary severe price depression. While these should be available to both public and private sectors, the most immediate emphasis should be with GPC, since they produce almost 25 percent of poultry meat which, if programmed to the market on a disciplined basis, would tend to more immediately stabilize the market prices and prevent losses on the sale of poultry product by the private sector and village flocks owners.
5. Technical assistance should be provided to ORDEV, Agrarian Reform, and to the Governorates, which also should be included and monitored as a part of a comprehensive National Poultry Plan to be developed in the remainder of this project. While the competitive aspects of diverse public and private elements of poultry production have some desired elements, resources required by such developments are scarce and must be judiciously used.

CURRENT - FUTURE PLANS:

1. Continue consultancies, particularly with GPC, as possible within current budget and as permitted.
2. Develop a basic format of a National Poultry Plan.

NOTE: See Volume II - APPENDIX for detailed reports.

EGYPTIAN POLICIES DEPARTMENT PROJECT

TABLE 351 - FEEDS AND FEED MANUFACTURING

FINDINGS AND STATE:

During the first phase of the Feeds Department Project, it became evident that feed is one of the major constraints limiting efficient and improved poultry production in Egypt. Much concern was expressed by production personnel in both the governmental and private sectors regarding the lack of a consistent supply of appropriate quality feed. Inadequate shortages resulted frequent formula changes which, in many instances, resulted in the formulation or substitution of inadequately formulated or poorer quality feedstuffs. Such formulas did not maintain nutrient balance, and in many instances contained excess protein or poorly utilized ingredients, both of which will produce negative results as concerns the nutritive value of poultry. (Our knowledge regarding analysis of feed samples performed in the U.S. by private labs remains.)

Feed ingredients and quality control procedures were found to be inadequate and quite limited in the governmental sector, and almost nonexistent in the private sector. There is also a strong tendency to produce and use only a single feed formulation for all purposes rather than appropriate variations formulated from available ingredients. There is a lack of control of the composition, allocation, and knowledge of the types and availability of such "local ingredients" with which the most productive and effective least cost formulation may be produced.

Another major factor in the quality feed situation is the lack of appropriate storage, handling and distribution facilities, including the lack of bulk handling capabilities. Ingredients and formulated feeds are generally handled in sacks, stored out of doors or in sheds, and are vulnerable to deterioration due to the elements, pests and rodents. These deficiencies result in a waste of already scarce and highly critical materials.

FINDINGS AND STATUS (cont'd):

All feedstuffs produced in Egypt, except poultry offal meal and calcium carbonate, are under government control. Farmers sell their products to a governmental agency which in turn processes them, if needed, and sells the material to other governmental agencies and private enterprises; generally, at subsidized prices. By-products from the food and fiber processing industries, such as wheat bran, rice bran, corn gluten feed and cottonseed meal, are mostly used in ruminant feeds which are also under government control and are sold to farmers on a quota basis.

Only very limited amounts of by-product feedstuffs are available for poultry feeds. Iron and copper meal, the principal constituents of poultry diets in Egypt, are also in short supply. All corn for manufacturing, and a majority of the soybean meal and fish meal, are imported and phosphate is supplied to local mills.

There are two soybean meal plants in Egypt and, at the present, the quality has been variable; at best, generally unacceptably low and well below acceptable U.S. standards. Most manufacturers in Egypt were very cautious of local ingredients due to such variability, coupled with the fact that there are no quality control laws to monitor the ingredients.

Approximately 80 percent of the manufactured poultry feed which is used in Egypt is produced in government mills. Although the private sector is growing rapidly, there is a need for improvement. Poultry feeds are not generally available in village factories and, when available, the quality is generally poor. Poultry manufacturers in Egypt indicate that quality of locally produced feedstuffs is unacceptably low. Availability of wheat feed additives, krap and micronutrients, as well as large quantity ingredients, is variable.

FINDINGS AND RECOMMENDATIONS:

Import duties are excessive, ranging from 17 to 42 percent and tend not only to inhibit importation, but to create an excessive cost and economic burden to the poultry producer. This, in turn, has a debilitating effect on the cost of producing poultry and creates an unnecessary, negative impact on the Egyptian consumer. Also, there does not appear to be any appropriate system or means of providing the most cost effective and productive utilization of feed ingredients (such as maize, sorghum, etc.) used not only for poultry, but for ruminants and human nutrition as well.

SPECIFIC PROBLEMS:

1. OPC's Milling Facilities and Milling Procedures: Through inspection of seven (7) OPC-operated feed mills, it was observed that milling facilities are inadequate. Only one of the seven can be considered to be completely adequate for milling critical type feeds, only one mill, No. 47, has a horizontal roller which is considered to be the best available roller for poultry formulation. Two of the seven mills are equipped with vertical rollers that could be considered adequate for milling certain types of critical feeds (those containing supplements such as fat). Four of the mills do not contain both rollers, but are equipped with horizontal roller mills, and two are essentially complete roller mills (No. 47 and No. 48). These mills have the serious disadvantages: 1) the lack of desired milling capacity and consistency which must be used in such mills, and 2) the increased cost from double milling and transporting a large portion of the feed to other mills.

In addition to these mill design problems, poor maintenance and a big problem is worn rollers. A number of mills were inspected in various areas and other facilities; all mills receive heavy ingredients in sacks or bins. Mill ingredients storage is needed, and roller mills are needed to mill milling rollers and feed feeds.

Milling procedures in OPC's mills appear to be about as good as possible under prevailing circumstances; however, they could be considerably improved with appropriate effort. OPC personnel are well aware of the limitations of continuous flow mills. They are presently mixing all components in the horizontal line mills and all other laboratory lines a small horizontal roller mill. Sufficient quantities of the components are used in the final mixing process to obtain adequate control of the continuous flow mills (approximately 1000). The improvement of procedures to flow control could be achieved through the use of automatic in-process control systems. Also, mill maintenance is often set up to acceptable quality standards, resulting in mill time is frequently spent in changeover.

1. Private Milling Facilities and Milling Procedures: All but one of the private mills which have been visited since 1960 were not using automatic in-process control systems. The standard of maintenance in these mills was poor. The limited space available for storage of components was inadequate. The procedures for storage and handling of components were not satisfactory. Some of the mills, such as those, were not equipped with adequate dust control systems.

Most of the private mills which have been visited since 1960 were not using automatic in-process control systems. The standard of maintenance in these mills was poor. The limited space available for storage of components was inadequate. The procedures for storage and handling of components were not satisfactory. Some of the mills, such as those, were not equipped with adequate dust control systems.

3. MHA Mills: Brooder mills maintained by MHA are provided feed which is manufactured by private companies on a bid basis. Formulation is done by the MHA nutritionist. We believe the cost could be reduced by improved, more diverse formulation of these feeds, and as usually accomplished in developed countries by computer. Also, based on some samples of brooder feed observed and some assay data, feed quality appears to be a problem. MHA should operate their own feed mill(s) in order to better control quality and formulations. It would appear the same mill could be used to make feed (concentrates and complete feeds), which could then also be made available to villagers. The team believes that a reliable supply of appropriate quality poultry feed is not available to villagers.

4. Absence of Quality Control Programs: Quality control programs seem to be virtually nonexistent in the private sector for both ingredients and finished feeds. We were advised by GH/MHA personnel that the government could obtain help in quality control from MHA laboratories located in Alexandria and Cairo and a commercial laboratory in Cairo, but very few, if any, assays were being run. The Poultry Nutrition Laboratory in MHA appeared not to have been used for assay work of any kind in months. Further, its equipment was old and deteriorated in most instances. Quality control work in the IPI laboratory also appeared to be very limited and in shabby obsolete condition. The team has been unable to locate evidence of a routine quality check program for ingredients and finished feed. The absence of adequacy of feed analysis and formulation in Egypt is not known because not enough assay checks are run. To our knowledge, there is no feed analysis laboratory in Egypt sufficiently modern or complete in which required analyses can be accomplished.

1. Ingredient Sources, Quality of Ingredients, Procurement Procedures and Supply Problems: Both government and private sources have had problems with feedstuffs - unpredictable supply, deficient quality of local ingredients, and the unavailability of alternative products and crops for long periods. The use of fish meal and fish oil has also been limited by low quality ingredients. Improper drying of poultry by-product meal and rice bran is a problem. Workers were concerned about the quality of ingredients through a chain of command caused by excessive moisture, and in safety, product integrity, or disease control measures were taken.

2. Governmental Regulation of Feedstuffs and Additives: The government has established a regulatory system to control quality. Products which are not approved for use in human food, such as wheat, have been used in feed. Very low prices of some feedstuffs such as rice bran encourage the use of such materials in many instances, causing quality problems. Further, import duties on feed additives are excessive and should be reduced or eliminated to benefit the poultry industry.

3. Quality: While there has been, and is, an apparent deficiency in the supply of quality feed, as well as a shortage of quality feedstuffs. The situation relative to availability of feedstuffs, particularly poultry by-product meal, is not as serious as it appears. It is not an important factor in the overall quality of feed available.

RECOMMENDATIONS:

1. Establish a government council for feedstuffs, in which interested agencies and sources would be involved concerning allocation and coordination of resources, materials, and funds in the most cost-effective, productive manner. This would include use of all processed materials for poultry, swine, and human nutrition.
2. Establish, under the council's guidance, a unit with capabilities for maintaining centralized knowledge of all ingredients availabilities, quantities, costs, and requirements.
3. Establish the feed control unit, utilize a well-coordinated laboratory control and formulation program similar to those used in countries such as the United States. The services of this unit would be available to all sources, public and private, to produce the most productive, least, and properly balanced formulations which can be produced from available ingredients (local, as well as imported) for which the relative risk is low. Arrangements can be made with American companies for their computer programs which can be used as available standards.
4. Upgrade existing mills to prevent problems which result from equipment malfunctions, such as grinding, to improve maintenance programs, to improve to limit moisture and, whenever possible or feasible, to limit moisture. This would also include pest, vermin, and animal feed facilities.
5. Develop a comprehensive national feed ingredients coordination program to provide the best possible supply of appropriate ingredients from both domestic and offshore sources, and to prevent possible shortages of critical ingredients.

RECOMMENDATIONS (cont'd):

6. Eliminate or reduce import taxes, duties, customs fees, etc., on feed ingredients.
7. Provide the Animal Production unit of MHA with self-operated and owned feed mills to assure adequate supply of properly formulated feeds for the poultry parent flocks in the MHA hatchery farms.
8. Develop a program with and for the Extension and Veterinary Services of MHA for expanded, accelerated support for the Village Flocks, including new and/or upgraded feed mills.
9. Utilize a special Technical Assistance program and team regarding poultry nutrition, feed, and extension programs for all sectors, with emphasis on Village Flocks and small private commercial producers.
10. Establish a rotating, in-country training program regarding effective utilization and handling of feedstuffs at two levels - operating management and individual flock owners. To be accomplished by the Technical Assistance team noted in (9) above.

CURRENT PROJECT PLAN:

1. Project to date has provided efforts necessary for inventory and assessment of feed situation in Egypt, and will continue.
2. Consultancies have been given, provided, and made available to MHA, OIC, Extension Service, other OIC and private sector persons. Programs have been recommended with only minimal follow through by OIC personnel. These consultancies will continue.

CURRENT PROJECT PLAN (cont'd)

3. Since this was an item added by NATHTECH from overall project funds, only a limited amount of specialist assistance in this area is available during the balance of this project. Within that availability, maximum input and assistance will be provided as possible.

4. Technical assistance in this area will be increased, if supplemental funding is made available.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 040 - VILLAGE FLOCKS

FINDINGS AND STATUS:

The village flock subsector of the Egyptian poultry sector consists primarily of small independent producers; under 50 chickens with some ducks, geese, turkeys and pigeons; all generally housed together in the villager's home. There are approximately 5,000 villages in the 23 governorates of Egypt.

Chickens are usually purchased from a native hatchery, either directly or from a peddler (33). Roughly 24 percent are purchased from other improved sources, such as private hatcheries; and 20 percent from eggs set and hatched by the individual farmer (fallahin) himself. Approximately two-thirds of the growers have indicated a preference for improved (government) chicks, were they more readily available. Many of the growers interviewed more specifically expressed preference for the lekki IV, Munde Island Red, and White Leghorns breeds which have been more readily available throughout Egypt, and 21-day old chicks. The preference for 21-day old chicks is based on the belief that if the baby chicks live 21 days, they are probably immune to local disease and will be able to live reasonably productive lives.

The villager usually pays from 7 $\frac{1}{2}$ to 11 piasters per day-old chick, and receives 3 to 4 piasters per egg sold. Our initial field work indicates the villager consumes 40 percent of the eggs he produces, and 74 percent of the poultry meat he produces. The remaining eggs and meat are sold. Approximately 75 of the hens produce less than 100 eggs per year, less than half of U. S. poultry averages.

Native hatcheries, as currently operated, appear to waste rather than conserve existing resources. Because of the lack of disease and genetic control practices, they perpetuate and spread falciparum through the use of infected eggs. Their average hatch ranges only from 50 percent to 60 percent, a loss of approximately 20 percent to 30 percent that if more modern hatchery methods were used.

FINDINGS AND STATUS (cont'd):

The source of eggs for most native hatcheries are the eggs produced by the villagers. The eggs are candled and, if they appear to be fertile, are hatched. This practice is a major contributor to genetic degradation, and to increased mortality, in that chicks hatched from such sources tend to be either diseased or disease prone.

Fullerum and Newcastle disease are major contributors to the village flock mortality problem. The use of chicks primarily from the native hatcheries or locally brooded also perpetuates the Fullerum problem as well as usually providing lower-production type breeds such as the Kalafi. Vaccination against Newcastle is purported to be used by 42 percent of the growers, but this cannot be adequately verified. A higher percentage (78%) of growers indicated willingness to vaccinate if vaccine were available. Village flock owners stated they were willing to buy vaccines, etc., when such were available and when they could travel to the Veterinary/Parasitology Service Health Stations or to the local pharmacies handling such materials.

Feeding generally consists of grain, greens, and table waste. Balanced poultry feed rations are usually not available to the village growers. When such feed rations are available, they are usually priced beyond the financial means of many villagers. The single most desired item of improvement expressed by village flock growers was the availability of an affordable balanced feed. There was no indication of any use that poultry feed was used for any other purpose except for poultry.

General husbandry practices are poor. Proper equipment is usually not installed and if installed, it is not used correctly. This is not only poorer than among the small growers, but similar to those in the larger commercial "commercial" type units such as village co-operatives. An urgent need exists for a more active, larger Veterinary/Parasitology Service program for the villages.

FINDINGS AND STATUS (cont'd):

Credit is almost nonexistent. Some native hatcheries offer some credit arrangements to growers, but the larger flocks operate usually on a cash system which has a depressing effect on growth.

Varying support is provided to the villagers by Extension Service (MCA), Agrarian Reform, Veterinary Services, OMDV, governorates, village councils, and CPC. Services range from providing improved breeds and flocks, to distributing how-to-do-it literature.

Briefly, problems include native hatcheries, breeds, Newcastle and Pullorum disease, feed, management, and people. The native hatcheries contribute to the continuation of Pullorum disease. The breeds developed in Egypt, Fayoum and Dokki IV, though better than Baladi, contribute to the lower egg production than could be obtained with later model high-to-day breeds which are importable. The Dokki IV and Fayoum breeds are more a matter of national pride than productivity and, therefore, they hinder progress. Lack of a complete Newcastle vaccination program contributes to mortality ~~and~~ financial loss. Availability of a balanced feed costs villagers a large amount of money, because they do spend money to give their birds grain. In addition, their local substitution of unbalanced feed is very inefficient. Management knowledge is lacking, or at least its application, in a very large percentage of village flocks. Probably less than 5 percent are managed well. (See appendix for special Village Flock reports.)

SPECIFIC PROBLEMS:

1. Native Hatcheries: By their nature and results, native hatcheries do not appear to utilize resources as effectively as believed. For example, they hatch only 50 to 60 percent of eggs set. With proper breeding, management, feeding, and incubation, at least an 80 percent hatch should be expected. Based on an estimated production of 175,000,000 eggs per year set in native hatcheries, such improvements would provide at least a 20 percent differential, or 35,000,000 more chicks per year. At 10 pilsfers each, this would provide LE 3,500,000 more income to the village flock owners... a significant increase. Admittedly, this is not all lost because many infertiles are sold as table eggs... an undesirable practice elsewhere, but accepted in Egypt. At 10 percent infertiles, and 2 P per egg sale value, these would yield about LE 35,000 thereby reducing the total loss to LE 3,465,000. However, the village sector and the rural poor can ill afford such losses. To prevent such losses, an obvious recommendation would be to phase out the native hatcheries as soon as possible, recognizing that this will not be done overnight. Hopefully, this can be accomplished by action during the next government, and it already appears to be in process through the local, village sector's use of "electric hatcheries." A government/government program providing assistance to such a trend, a strong effort to control the marketing of fertile eggs to and from the villages through the native hatcheries, and the supplying of proven, disease-free eggs to the village flocks will be of significant value to this sector. However, the program will most likely require additional technical assistance and an expanded role capability to ensure success. Another possible action could be a program by the government to closely monitor, possibly fine and/or close native hatcheries which receive village eggs.

SPECIFIC PROBLEMS (cont'd):

1. Breeds: A large number of village flocks surveyed by the team were using the Baladi breed (chicken 341) with the Fayoumi and Dokki IV in second (191) and third (141) places respectively. Production bred and mixed breed birds account for only 13 percent. The major problem of the Baladi breed is the inherently low production with comparable feed consumption. The Fayoumi and Dokki IV, although better producers than the Baladi, do not compare with the brood-to-lay breeds. Therefore, it is recommended that a program be developed and implemented which would utilize the brood-to-lay breeds much more broadly. These should be field tested in controlled village programs to determine the best producers under actual Egyptian village conditions.

2. Fallarum and Newcastle Disease: The Fallarum disease problem cannot be adequately controlled until the native hatcheries' use of infected eggs is removed. These diseased eggs are furnished to village flock producers who, in turn, furnish eggs from diseased birds to the native hatcheries who resupply the villagers... a cycle which must be broken. Efforts to inject disease free eggs into the hatching cycle have met with only limited success due to insufficient quantities of disease free eggs, lack of blood testing, and management indifference.

Newcastle Disease contributes to mortality and financial loss to the village growers. The present vaccination program falls short because:

- a. There is insufficient vaccine available to villagers, partly because of low supplies, and partly because of deficiencies in distribution;
- b. available vaccine is often poor quality, with most of the necessary vaccines being made available to the Veterinary/Inspector Service having been produced in Khartoum;
- c. There is often a shortage of staff, transportation and refrigeration;
- d. hatcheries at the rural level often change ownership for their activities, although they are not supposed to do so;
- e. There is reluctance on the part of some of the growers to allow vaccination -- a lack of education.

PROBLEMS

There is a serious shortage of fertilizer/chemicals which should be made available to the rural areas. The fertilizer industry should be asked to provide fertilizer and to be investigated. Therefore, to meet the demand, the village food bank must distribute the food significantly. Solutions for fertilizers and pesticides.

- 1. Eggs: Lack of a balanced food ration, low food availability and quality standards, contribute to lower production and income to the village people. The village's production and food bank availability, but it is usually poor rather than a balanced ration, but in the lack of quality control of balanced rations. A detailed system of professional support program provide an adequate ration, but only for emergency (E) food. Generally speaking, the supply of a balanced ration is scarce and priced above availability since the supply of the quantity of the village food bank.

Quality of available food is poor, and various food items are missing. The village food bank, for instance, has provided the fertilizer to be manufactured and distributed. With low income and low general experimentation, fertilizer/chemicals and other food items.

RECOMMENDATIONS

- 1. Fertilizer and other chemicals and pesticides should be distributed with fertilizer. The egg bank should control food. All people should supply their fertilizer should be distributed and stored. Improve fertilizer egg production by increasing storage of fertilizer/chemicals of 100 to 1,000, adequate storage, fertilizer bank, village professional program and adequate support.
- 2. Government, to meet the demand, should also use to replace the village supply bank and be used as village food bank, or fertilizer bank. However, it should be changed to a joint venture commercial project fertilizer bank which will have a storage system.

RECOMMENDATIONS, para 2

1. Increase production of better bred and disease free chicks in government farms for villages. All government pattern farms should be more spaced and proper. Provide production seed chickens, chicks for egg production or meat production, for villages the year long. Superior egg farm chicks and farm is especially important.
2. Provide more food units for the rural sector in well balanced food available to the village producers, especially the household supply farms, and also attempt to meet the demands of food for small village poultry houses. Food units could be either private, government or government owned. Encourage small private commercial enterprises who are not strictly a balanced ration for their own farm or village food production and sell to villages. The Government poultry unit at St. Francis, Kottayam, introduced a good lot of food plants, and it should be provided. Small village, Government farms at other governmental and private, and it should be encouraged to sell to these units provided.
3. Provide an adequate service to veterinary services to all villages, especially rural areas. Village animal a veterinary clinic should have adequate staff to a professional from the nearest clinic, Kottayam, and at Kottayam, Kottayam farms, Kottayam, Kottayam, Kottayam, and it should be provided. Provide an educational program of animal management for village producers and consumers.
4. Increase the educational program for better management, feeding, breeding, sanitation, health, in Government and other organizations involved in farm education. Encourage small private projects with Government, at 1-2 year. Long term are needed to health, and in a few years will be the small farms.
5. Provide long term, low cost, advances to small farmers with Government. Provide a constant advance to small and small farm management.

RECOMMENDATIONS, cont.

training can best be accomplished in the model farm program immediately in the Faculty Production aspect of this project.

- 12. An increase in technical assistance for the village sector will allow further work with agricultural schools, NGOs, and independent cooperative villages.

UNMET NEEDS List

- 1. Further study and analysis of successful projects.
- 2. Closer link of Salvadoran Faculty Villages. However, there is a need for a definite working relationship with the Salvadoran Ministry. There has been good cooperation with Agronomía-México, and Salvadoran technicians in the production, but the office of the Ministry of Agriculture and Livestock has expressed the need of an official status in the Faculty Improvement Project in order to be able to fully utilize available resources in further project efforts.
- 3. Secure more information about village priority organizations. Some, at least two and perhaps as many, work in cooperation with Salvadorans.
- 4. A more thorough study of village sociological practices. Field work in the area's rural sociological structure a number of conflicting aspects in processes which structure relating to the villages which impact this sector.
- 5. More documentation of the activities of the model Production Research Institute's working later in Village First cooperative program.

RECOMMENDATIONS (Cont'd)

6. Continued necessary support, as available within current or increased budget availability, to the village fund center and the Veterinary/Extension Service.
7. Expansion of village center support to MSU, Agrarian Service, government, and other cooperative village activities.

CHAPTER III - PUBLIC HEALTH

GENERAL PRINCIPLES

The initial objectives of this report were specified as the development of a national plan for the availability of quality vaccines and pharmaceuticals. When field office commenced, the first objective was to identify and assess community production and importation sources. This was readily accomplished.

The primary sources of production of vaccines in Egypt were still Ministry of Agriculture Production Units in Minia and Ismaia. There were no private sources of vaccine production in Egypt.

There were limited sources of community production of pharmaceuticals. Primarily these were from private sources who received materials in bulk from abroad, and reworked locally before distribution in Egypt.

Subsequently, during the course of activities in local districts in assessing the conditions within the quality sector and particularly within the quality line which vaccines and pharmaceuticals are available in Egypt, it was decided to extend the objectives of this specialized task force into that of quality health control. This was brought about by the identification of governmental high quality units in village clinics located in the area of Minia, especially within high income in government and private sector clinics due to national disease problems and the endemic nature of the problems associated with bacterial and helminthic diseases.

It also became apparent in the course of inspection of the facilities and technologies applied at the government production facilities that the quality of the vaccines produced by these facilities were unacceptable.

FINDINGS AND CONCLUSIONS:

In fact, many of those in the poultry sector realized their lack of confidence in the quality and the disease-free aspects of such vaccines, with the statement that they refused to use vaccines from these facilities. Several stated that, even using vaccines produced from these facilities, the disease problem became much more acute than had been previously. It was their opinion that the vaccines themselves were contaminated.

Also, as various production facilities in Egypt were authorized, it became apparent that there were deficiencies in the utilization of available vaccines from a variety of organizations. It was believed, when vaccines are available from multiple sources, the vaccines were not utilized on a timely or an appropriate basis which would have prevented their effectiveness. It became increasingly apparent, as the sector of the poultry sector has grown, that there was a corresponding increase in the utilization of available vaccines and products, which contributed to the poultry disease problem.

Therefore, upon consideration of the various issues involved, it was believed that poultry vaccines, as at this time, are being distributed rather than the more limited scope of the availability of vaccines and pharmaceuticals in Egypt. There would be little effectiveness gained if all the vaccines and pharmaceuticals necessary were made available, if they were not properly utilized in the field. The circumstances revealed by field survey efforts indicated that the utilization of good, quality, and appropriate vaccines and pharmaceuticals left a great deal to be desired.

SPECIFIC FINDINGS:

1. It was found that certain egg products and pharmaceuticals were available in appropriate quality and quantity, that certain of the units use of these materials was a common practice, thereby suggesting the need for a judicial program of restriction and pharmaceutical application. Furthermore, the current status of various production facilities indicated that stringent quality control standards were urgently needed. There would appear to be a need for the design and development of standards for the production of eggs and pharmaceuticals of high quality by the industry which were intended to prevent disease. A specific limitation of appropriate restriction production is the lack of HFF (high quality) egg products. Good quality egg products require that egg products be produced and processed. Observations suggest that egg products produced in the United States are not of the best quality, but in the case of HFF eggs in the production process.
2. It was the intention of these studies that the facilities in which egg products are produced are inspected and in good condition. While improvements can be achieved through better control and maintenance operations/quality control measures, the cost of bringing existing facilities up to appropriate and safe conditions, however, may be substantial and a need for a new production facility.
3. Specific and other procedures are suggested which are subject to evaluation (general) changes in acceptability. The quality control and other procedures suggested through the study are not comprehensive and require attention to a continuous control that a specific level, which generally has been

GENERAL FINDINGS (cont'd)

The case in Egypt. Quality health programs in Egypt have suffered from a lack of consistent well-financed and coordinated quality health programs. The shortages of quality vaccines have played only a part in this overall deficiency in the quality sector.

1. Specific problems which adversely affect quality production in Egypt include the following quality health programs:

- Identification and control of infectious diseases
- Immunization disease control and immunization programs
- Various vaccine production facilities
- The diagnosis of diseases and methods of treatment
- Facilities and vaccination programs

2. The lack of effective communication concerning developments in the quality industries from around the world has also contributed to the quality health problems in Egypt. There appears to be no effective coordinated means for such information within Egypt. This is a major factor which contributes to deficiencies in management and quality health control programs within Egypt.

3. A major factor in the high mortality rate experienced by the village people is the lack of availability of vaccines and pharmaceuticals to the village from which the population is relatively dependent on services of the. There are very approximately 50 quality veterinary health stations in the 77 governorates which service more than 1,000 Egyptian villages. The veterinary and antibiotic services are that they are limited to an extent that all of the doses of pharmaceuticals

RESULTS AND DISCUSSION

The various studies for the village ... are limited to ... and ... The ... are ... and ... The ... are ... and ... The ... are ... and ...

1. In addition to these ... the ... are ... and ... The ... are ... and ... The ... are ... and ...

PHILIPPINE PHARMACEUTICALS

6. There is a considerable shortfall of available materials. The following matrix identifies the estimated annual quantities of vaccines needed by type of vaccine, including the sub-type materials produced in the PHU laboratories. It will be noted by viewing the figures in the matrix, the shortfall ranges anywhere from 11 to 50%, depending upon the type of vaccine involved. Anticipating 1965 vaccine production levels, the 1964-65 period is estimated to require about 1.4 billion doses of vaccine materials to be supplied annually by 1965. All other vaccines will most probably exceed it at least double the present needs. Thus, apparently, there is a shortage of total supplies of vaccines in the country and, without the immediate expansion of production capabilities, this shortfall and their possible health problems will increase significantly in the relatively near future. The estimated production and availability of vaccines are identified in the following table.

Table 1

Type of Vaccine	Estimated Annual Need of Vaccine Doses	Amount of Vaccine Available in 1965	Shortage
Smallpox (Attenuated)	100,000,000	100,000,000	0
Smallpox (Attenuated)	100,000,000	50,000,000	50,000,000
Polio (OPV)	10,000,000	5,000,000	5,000,000
Polio (IPV)	100,000	50,000	50,000
Measles Vaccine	5,000,000	2,000,000	3,000,000
Diphtheria Vaccine	1,000,000	500,000	500,000
Tetanus Vaccine	1,000,000	500,000	500,000
Botulinum	1,000,000	500,000	500,000

SPECIAL PROBLEMS (cont'd)

4. Discussions with U.S.-based manufacturers of quality vaccines indicated a significant lack of interest in their work in establishing independent vaccine production facilities. Of particular interest to them is the possibility of investment in Middle Eastern countries, particularly as exemplified by recent events such as those which took place in Iran. A vaccine production facility would cost approximately 5-6 million dollars in a vaccine, and a pharmaceutical manufacturing facility would cost upwards of 20 million dollars. They feel the cost would be quite significant, even if guaranteed by the governments of Egypt and the United States.

They also point to the significant state of their education of personnel with which is lacking starting and running such a plant. Since they are profit-making organizations, they do not carry on courses of well qualified personnel in their staff for management purposes.

In addition to these factors, they point out that the potential production of a new vaccine or pharmaceutical plant for Egypt would be significantly higher than that which would be required for use in Egypt according to the International factors. Since this project does not address the needs of the University of Lower Egypt for vaccines and pharmaceuticals, an extra effort is made to supply the necessary information to some of the officials in various states which would cover all the plants produced with quality vaccines or pharmaceuticals. Also there is little information available on the subject potential for such vaccines and for plant production in the manufacturing countries to which exports could be made from Egypt. This project also did not address those countries,

RESULTS (continued)

The committee concluded in the United States indicated a possible situation providing that such data could be developed for them, and if funds were made available for the construction of such facilities by eliminating the need for their own facilities. The committee also indicated such as: Egypt, Algeria, and Libya; Tunisia; Morocco; and, American Scientific Laboratories. There was also some indication on the part of Egypt and Libya that they would participate in a further investigation which would include all factors which would be of general significance and could be used in a study. It was also noted that the potential to handle the output of the new facilities, and thereby increase the number of patients, was being investigated in various countries. It was further noted that the possibility of a joint venture with the government of Egypt is under a further study.

11. In addition, the program to control quality diseases in Egypt, there were a few points that were found to be of value. The committee noted that the program was very successful, but some points were noted. There were no programs in existence for implementation of quality disease program.

12. In addition, there were very limited facilities available within Egypt, comparable to those in other countries in which diagnostic tests could be made. The quality disease identification was possible. Most disease identification was made by "visual" of specimens. The committee is studying the possibility of establishing a quality disease laboratory.

RECOMMENDATIONS

and those who operate in most instances with little modern equipment. Also, there was an evidence of increasing disease control or identification programs. In most instances, my preliminary finding that was being conducted was being accomplished only in accordance with the state and university of regional personnel. A number of questions about reporting related disease symptoms and identifications. However, it was important to locate a diagnostic laboratory in Egypt capable of performing the necessary tests to diagnostic purposes.

In summary, the problems concerning poultry health and the availability of vaccines and pharmaceuticals have a number of causes and effects. There is an identification supply of vaccines and pharmaceuticals within Egypt, including importations. It appears the vaccines produced in the the production units are well and meet appropriate standards and may be contributing to the poultry disease control programs. There are limited, if any, poultry disease identification and control programs in effect in any part of a disciplined formal basis in Egypt, in either public or private sectors. There are no diagnostic laboratories in which appropriate tests and diagnostic procedures can be performed regarding poultry diseases in Egypt. Specialized planning which utilizes available resources and pharmaceuticals should be used significant reporting and improvement in order for the available materials to be effective.

TASK 070 - POULTRY HEALTH

RECOMMENDATIONS:

1. Increased availability of appropriate quality vaccines and pharmaceuticals for both public and private sectors. Due to the quality control problems indicated in GOE facilities, it is recommended that the increased quantities be imported.
2. Of highest priority should be the development and formalization of a national poultry health program which would encompass all sectors. This team has developed the basic structure of such a program; implementation cannot be carried out by team members only, or without additional technical assistance and materials.
3. Increased allocation of vaccines and pharmaceuticals to the extension and veterinary services of MOA, for village flock use. However, technical assistance will be required for the extension in veterinary services to provide the necessary assistance while their organizational capabilities are increased.
4. Immediate acceleration of the construction of new poultry health stations for service to the villages. This would include sufficient refrigeration capacity and mobility through trucks and/or motorcycles so that the vaccines and pharmaceuticals can be brought to the villages for use.
5. Establishment of a revolving fund, to which income derived from the sale of vaccines and pharmaceuticals to villagers who can afford to pay and to the private sector, for use in continuing purchase and availability of vaccines and pharmaceuticals.

RECOMMENDATIONS (cont'd):

6. Development of a program to immediately upgrade operational practices at Abbasia. This would include quality control measures and absolutely minimal physical improvements.
7. Completion of a pre-feasibility or investment study which would also include livestock, human and poultry needs for vaccines and pharmaceuticals. This should also include development of viable data concerning the requirement of countries to which such materials could be exported from Egypt. Because of political considerations currently existing, this must be selectively accomplished. U.S. vaccine and pharmaceutical manufacturers have indicated that they would participate in such a study, but would not bear the majority of expenses for which they would expect to be paid by sources other than themselves.
8. Establishment of a central control committee through which all poultry vaccine and pharmaceutical requirements would be centralized, and subsequently allocated - including materials produced in Egypt as well as imported.
9. Immediate construction and availability of at least four strategically-located regional poultry disease diagnostic laboratories for use by all sectors. (One in Cairo, Alexandria, Middle Egypt and Upper Egypt.) The centrally-located diagnostic laboratory could then handle local needs as well as referrals from the regional laboratory, conduct research on difficult cases, and provide a resource base for training

RECOMMENDATIONS (cont'd):

- diagnosticians of poultry disease. A technical assistance program should be developed and implemented to expedite such a program and ensure its continued success and application.
10. A centralized resource file and library should be developed for utilization by both public and private sectors. There is no current center of information currently available within Egypt. There has been much technology and experience developed in the poultry sectors throughout the world, but most such experiences have not been communicated or are not available inside Egypt. This central resource file should include a mobile laboratory which can bring the materials to the outlying facilities of the poultry sector.
 11. Import duties, taxes, levies and other customs fees or barriers to the importation of poultry health drugs, vaccines and pharmaceuticals should be immediately abolished. Various sources inside the poultry sector of Egypt report that the cost of such duties and fees on importation of poultry health drugs range anywhere from 10% to 150% of the cost of those materials prior to the time they arrive in Egypt. While such exact numbers are hard to verify, published documents on duties and taxes, etc., indicate a minimum range of 10%-47%. These extra costs reduce the quantities of vaccines and pharmaceuticals which can be imported, curtail expansion of the poultry industry, the price availability of necessary drugs, and contribute to the perpetuation of poultry health problems.

TASK 070 - POULTRY HEALTH

RECOMMENDATIONS (cont'd):

12. Additional technical assistance in the areas of vaccine manufacturing, diagnostic laboratory operation, and extension services use of drugs and pharmaceuticals is an urgent need and should be fulfilled as soon as possible. These should be full-time personnel stationed in Egypt for a minimum of one to three years.

13. Proceed with necessary activities which could lead to the construction of a new vaccine production plant for poultry and livestock, and a new, major repackaging facility for pharmaceuticals. These should be joint U.S. company-Egyptian ventures with long-term repayment features and/or guaranteed funding with which to encourage commercial U.S. company participation.

CURRENT/FUTURE PLANS:

1. Work with designated MOA authorities regarding development and implementation of a National Poultry Health Program.

2. Assist or conduct, as present or expanded budget permits, in the livestock-export feasibility and plant investment study.

3. Continue to provide consultancies as possible to GPC and MOA regarding their segments of poultry health programs.

*NOTE: See Volume II - APPENDIX for detailed reports on this team task and project objective.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 080 - TRAINING

SUMMARY

Despite a number of delays, 23 participants have received training in the United States and 4 more are presently being trained in Georgia. By the end of 1979, a total of 33 participants will have received training in U. S. poultry methods. This leaves a balance of 57 to be trained, of which only 23 are presently English-language qualified. The one major remaining problem in the training program is that of bringing an additional 34 participant nominees up to a sufficient level of competence in English to enable them to undertake this training.

TASK 080 - TRAINING

FINDINGS AND STATUS:

As of November 9, 1979 we have a list of 113 active training nominees. Twenty three of these have already completed their training in the United States, and four more are now here in training, as follows:

<u>Junior or Technician</u>	<u>Already Trained</u>	<u>Now in Training</u>	<u>Total</u>
MOA	12	0	12
GPC	0	0	0
 <u>Senior</u>			
MOA	6	2	8
GPC	2	2	4
 <u>Undersecretary</u>			
MOA	2	0	2
GPC	0	0	0
ORDEV	1	0	1
 TOTAL	 23	 4	 27

This leaves 57 to be trained, of which only 23 have to date been language qualified.

A group of 4 seniors (2 GPC and 2 MOA) are now in Georgia for five weeks of training, a second group of 5 seniors (1 GPC and 4 MOA) will leave Cairo on November 24, 1979 for four weeks training, and a third group of juniors will leave Cairo on January 5, 1980 for six weeks training.

TASK 080 - TRAINING

The curricula for the training programs conducted before and after the temporary interruption of training in the summer of 1979 is contained in the APPENDIX (Volume II of this report). The major differences are:

1. Emphasis has been shifted from academic and scientific to commercial and operational.
2. Basic poultry science and AID/USA orientations have been drastically reduced or totally eliminated.
3. Seminars in which trainees participate are conducted by senior team members who have worked in Egypt, and can relate or apply first-hand their experiences and the applicability of U. S. poultry industry techniques to Egyptian poultry industry situations.
4. A substantial increase of actual hands-on work by the participants in commercial U. S. poultry industry facilities and operations.
5. Weekly debriefing sessions are being held to assure that the training received is pertinent to the participants' needs and interests.
6. Assignments of a qualified poultryman team member as Technical Training Director under direct MATHTECH control.
7. Direct participation by U. S. commercial poultry firms in the training program (Gold Kist, Babcock, Hubbard, Central Soya, etc.).

TASK 080 - TRAINING

CURRENT STATUS

The revised training programs (instituted in September - October, 1979) appear to be achieving desired results, and are significantly improved over those previously experienced under the sub-contract with the University of Florida. The cancelling of that sub-contract, at the direction of MOA and AID has caused a number of problems for MATHTECH, Inc. with the University of Florida, which are now being resolved through negotiation.

Through the revised program, and use of Egypt-experienced team members as instructors in the program, emphasis is being placed on training in those most prominent problem areas which have been identified within the poultry sector of Egypt. Therefore, the training program is now providing not only an up-dating of poultry management and production technologies, but is also addressing actual operational problems which the trainees have or are experiencing in their Egyptian operational responsibility areas.

In summary, the present status is depicted in tabular form on the following page. (Exhibit 080-1)

STATUS OF TRAINING, NOVEMBER 7, 1979

<u>ORGANIZATION</u>	<u>CONTRACTED TOTAL</u>	<u>TRAINED</u>	<u>IN TRAINING</u>	<u>REMAINING</u>	<u>NOMINEES' ALIQUO REQUIREMENTS</u>	
					<u>PASSED</u>	<u>NEED TO PASS</u>
<u>GPC:</u>						
Junior	30	0	0	30	2	28
Senior	10	2	2	6	5	1
Vet.	0	0	0	0	1	-1
UnS.	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>-2</u>
	(40)	(2)	(2)	(36)	(10)	(26)
<u>MOA:</u>						
Junior	20	12	0	8	6	2
Senior	10	6	2	2	1	1
Vet.	3	0	0	3	4	-1
UnS.	<u>5</u>	<u>2</u>	<u>0</u>	<u>3</u>	<u>1</u>	<u>2</u>
	(38)	(20)	(2)	(16)	(12)	(4)
<u>ORDEV:</u>						
Junior	4	0	0	4	1	3
Senior	2	0	0	2	0	2
UnS.	<u>0</u>	<u>1</u>	<u>0</u>	<u>-1</u>	<u>0</u>	<u>-1</u>
	(6)	(1)	(0)	(5)	(1)	(4)
<u>TOTAL:</u>						
Junior	54	12	0	42	9	33
Senior	22	8	4	10	6	4
Vet.	3	0	0	3	5	-2
UnS.	<u>5</u>	<u>3</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>-1</u>
	(84)	(23)	(4)	(57)	(23)	(34)

NOTE: Negative numbers denote participants in excess of contract obligation.

SPECIFIC PROBLEMS:

The conduct of the training program has been delayed by a number of circumstances including the following:

1. The training participants were to be selected and screened by the MOA within 30 days after startup of the Poultry Improvement Project, or by September 30, 1978. The lists of names were actually received by MATHTECH between October 16 and November 22, 1978.
2. The curriculum vitae/biographical data for the training participants was to be supplied to MATHTECH no longer than 45 days after project startup, or by October 15, 1978. However, because no such data was provided to MATHTECH by the MOA by October 21, 1978, when the first ALIGU test was administered, MATHTECH personnel began at that time asking the training participants to fill out the AID Form 1380-2 right after they had completed the ALIGU exam.
3. Although the contract specifies that the MOA is to provide necessary English language training to assure that the participants are capable of absorbing the scheduled training, the Egyptian project director objected to requiring the MOA seniors to take the ALIGU test. This resulted in considerable delay in determining which candidates are language qualified and in the scheduling of tests for MOA personnel who subsequently did not report for testing.
4. Also regarding language readiness, the GPC was unable to release any of its prospective participants for language training during working hours. This necessitated USAID/Cairo negotiating for afternoon language classes, further delaying the progress of the Poultry Improvement Project training efforts. The first group of GPC nominees did not begin language training until April 2, 1979.

SPECIFIC PROBLEMS (cont'd):

5. In late July of 1979, the training program was temporarily discontinued during and immediately after Ramadan, until certain changes could be instituted in the program. These included the replacement of the University of Florida's training director, a less academically oriented program, the inclusion of significantly increased hands-on training in U. S. commercial poultry operations, and significantly improved in-country orientation and coordination of the trainees by and through the MOA prior to their departure from Egypt. The University of Florida elected to withdraw from the program rather than make the requested changes.

At this point, MATHTECH shifted the center of training to its headquarters in Atlanta and acquired the aid of the University of Georgia and the Southeastern Poultry and Egg Association (SEPEA), which is the leading and largest professional association of the poultry industry in the United States. Dr. David Thomason, a team member from the University of Georgia Extension Service for Poultry, was transferred from part-time to full-time status as the technical director for the training program, a position which has previously been provided by Dr. M. A. Boone of the University of Florida.

The training program was restarted on October 4, 1979, when Mr. Ahmed Defrawy, Undersecretary, ORDEV, and Mr. Youssef Madkour, Deputy Director, Animal Production, Research Institute, arrived in Washington, D. C. for a four-week program which was completed on November 1, 1979. A second group of four participants arrived in the United States on October 24, 1979, for four weeks of training, which is now in progress.

The lack of training nominees with sufficient English language capability to pass the AID-required ALIGU test is going to hamper the training program by April of 1980. At present there are only 23 participants left to train who are language qualified, and a need exists to accelerate the English language training at the American University in Cairo, in order to provide additional qualified participants.

TASK 080 - TRAINING

SPECIFIC PROBLEMS (cont'd):

The majority of GOE/MOA personnel who have participated in training in the U.S.A. to date have been senior level personnel. Though well-qualified in certain areas, they appear to be deficient in certain skills necessary for the maximum optimization of their training experiences when they return to their responsibilities in Egypt. These deficiencies are:

1. Most have not had specific training in management, supervisory and administrative skills. That is: How to utilize, manage and administer their material, financial and people resources for maximum effectiveness. Much of this falls even into the most basic categories of effort.
2. Most do not have an understanding or appreciation of the value of accurate data and reports. This includes how to use such materials for effective planning and management.
3. Most do not understand or have knowledge of the methods and use of planning their operating programs, then tracking/comparing progress versus agreed-to objectives.
4. Many do not know, or cannot perform, the essential functions of the people for whom they are responsible. If they do not know or understand such functions, it is difficult for them to manage such functions effectively or teach/lead/guide their employees to more effectively perform their duties.

RECOMMENDATIONS:

1. The management training program be expanded and extended. The training of only 84 management level persons from the entire poultry sector of Egypt will provide only limited success unless a wider scope of such persons is included. This should include persons from Agrarian Reform; the governorates; key relevant persons from other ministries such as Supply, Economy & Planning; an expanded number from ORDEV and the Veterinary Extension Services; and selected persons from the private sector.
2. A management training program be conducted in Egypt with concentration on discrete skills such as management, supervisory and administrative skills including the value of accurate data collection and management uses therefrom.
3. The U.S. training programs, as now being conducted, be expanded per recommendation above.
4. A model farm be constructed to include broiler, layer, breeder, hatchery, feed and health practice programs. This would become a National Training Center for Poultry (NTCP), and would be used for in-country training of secondary management and operational personnel training in English and/or Arabic. At the start it would be essential to be managed and directed by a U.S. Technical Assistance team in conjunction with an Egyptian team who would ultimately assume total control and operation. The farm would in fact be a model production unit which should produce some returnable income and would be open to both public and private sectors. It could also be used for training of persons from other Arabic speaking countries as well.

TASK 080 - TRAINING

RECOMMENDATIONS (cont'd):

5. English language training for GOE persons to be accelerated, especially for GPC personnel. The General Poultry Company faces a serious problem in meeting the English language requirement for training at the junior level. The use of an interpreter would be totally impractical, because that would double the time necessary to cover a given subject and the on-the-job training would, in most instances, require an interpreter for each participant. Obviously, the cost of using interpreters would be prohibitive.

CURRENT PROJECT PLAN:

The training program will continue as presently structured, with minor changes being made to improve fulfillment of individual participant's needs.

EGYPTIAN POULTRY IMPROVEMENT PROJECT

TASK 090 - HATCHERY EXPANSION

FINDINGS AND STATUS:

The Hatchery Improvement Team (040), after considering the general condition and ability of the 13 MOA hatcheries to perform their functions of providing disease-free hatching eggs to the native hatcheries and day-old chicks to the village flocks, initially proposed a change of emphasis from the expansion of 3 MOA hatcheries to a general improvement plan for the total 13. This change in emphasis, it was felt, would provide a more immediate and optimum benefit impact to the overall poultry sector and the village flocks in particular. This course of action was analyzed and proposed by a special report dated April 17, 1979. A copy of this special report is contained in the attached APPENDIX.

The special report was reviewed in Cairo by the appropriate MOA and USAID personnel. The recommendations of both MOA and USAID were, at this time, to continue with the original concept, as outlined in the project paper, to upgrade and expand the 3 MOA hatchery operations at Fayoum, Inshass, and Sakha.

Project personnel, upon receipt of the MOA and USAID recommendations, began the preparation of the preliminary hatchery specifications in April, 1979, and forwarded the first part, the vehicle specifications, to USAID-Cairo in the latter part of April, 1979.

FINDINGS AND STATUS (cont'd):

The preliminary hatchery specifications were reviewed with Dr. Kheireldin during his trip to the United States to get his input and recommendations. Discussions were also held with other appropriate MOA personnel during training visits to the United States. Major problems existed regarding the preliminary specifications contained in the Project Paper and as visualized by MOA personnel, such as the use of overly sophisticated, automated and expensive equipment, which required resolution. This was accomplished, and a draft of the specifications incorporating the recommendations were again reviewed by Dr. Kheireldin on June 22, 1979. The final draft of the specifications were prepared and forwarded to MOA and USAID-Cairo in July, 1979.

The vehicle and hatchery requests for bid are reportedly scheduled for publication in the CBD in December, 1979.

SPECIFIC PROBLEMS:

1. At the time of this report, we have had no further word from MOA as to the final actual site locations, which have been changed from the original specified locations, and the degree of preparation or engineering work that has been accomplished to date. If the final site selection is different from the original sites, as we have been advised, further site inspections may be needed to ensure compliance with designated hatchery and breeder farm configurations.
2. The MOA has not, at this time, designated an engineer-in-charge for the hatchery expansions, nor has a single central coordinator for all MOA activities been established for that objective.

SPECIFIC PROBLEMS (cont'd):

3. The current construction schedule for completion of the hatchery expansion is out of date and should be revised in order to coordinate all necessary actions for effective and timely completion of the startup. We believe the delay in site locations, bid publication, and other relevant activities will delay by twelve months the previously specified completion date.

RECOMMENDATIONS:

1. To obtain approval to add an Agricultural Engineer with experience in hatchery and breeder farm engineering to the project team to work with the MOA agricultural engineers during the initial phase of the site and facility engineering, to coordinate with suppliers and construction personnel on the installation, and to provide technical assistance in the startup period.
2. The MOA should designate an engineer-in-charge for these hatchery expansions, and establish a single central coordinator for all MOA activities for that objectives.
3. A new master construction, shipping, etc., schedule must be developed which will integrate and coordinate all necessary actions for the effective and timely completion of the startup of the expanded hatcheries.

CURRENT PROJECT PLAN:

1. To obtain bids from appropriate vendors at the earliest possible date in order for the team agricultural engineer to begin screening of the bids and to coordinate purchase activities between MOA, USAID Cairo, and selected suppliers in the United States.