

IMPROVING THE NUTRITIONAL STATUS OF WEANING AGE CHILDREN IN EGYPT:
A REVIEW OF EXISTING PROJECTS AND RECOMMENDATIONS FOR NEW PROJECTS,
IN CONJUNCTION WITH OR SUPPLEMENTARY TO THE PRESENT CRS/MCH TITLE I
FOODS PROGRAM

by

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Cairo, Egypt
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October, 1982

A HOVIPREP Consultant's Report

Home and Village Prepared Weaning Foods Project
of the Harvard/Massachusetts Institute of Technology
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OBSERVATIONS AND RECOMMENDATIONS SUMMARIZED

- A. Senior Egyptian health personnel in Cairo and two Governorates, Minya in Upper Egypt and Beheira in Lower Egypt, stated to us in clear terms that, in their opinion, Egypt must reduce dependence on imported donated foods and must develop indigenous weaning foods. By the latter, they referred to foods centrally-processed or locally prepared in homes and villages.
- B. Many of the persons interviewed stated that weaning foods in Egypt must conform to traditional ideas about the nature of such foods, in order to be acceptable to mothers and children. They said a number of traditional weaning foods are in declining use because ingredients are becoming in short supply or too expensive, and this was viewed as a serious problem.
- C. Surveys in different parts of Egypt report relatively high levels of second and third degree malnutrition among children in the range of ages 6-24 months or 6-36 months, regarded as the "weaning age," using the Gomez weight-for-age classification. In the two national GOE/CDC surveys, combined second and third degree malnutrition levels for the aggregate of children aged 6 months up to 6 years of about 9 percent (1978) and 11-19 percent (1980) were reported. If one extracts only the data for weaning age children (6-24 months), the figures reported in these surveys are about 16 percent for 1978 (2 percent third degree and 14 percent second degree) and about 30 percent in 1980 (4.6 percent third degree and 25 percent second degree, with upper limits of 11 percent third degree and 31 percent second degree in some categories). Whatever the effects of seasonal variations and diarrheal disease may be, these are high levels of malnutrition for this age group of severities comparable with other Third World countries

and suggest the need for more intensive nutritional interventions for weaning age children in Egypt. 1/

- D. Based on the limited data we were able to obtain on a three-week visit, our impression is that present weaning diets in Egypt are inadequate and perhaps greatly inadequately. Children appear to receive a variety of foods on a hit-or-miss or "snack" basis during the day, rather than regular feedings four to five times a day of specially prepared diets that are nutritionally adequate. From the limited young-child food consumption studies available, there appears to be both inadequate calorie and protein intake for this age-group. These weaning diet deficiencies, if real, would account for the weaning age growth deficiencies shown in the survey data.
- E. The largest existing weaning foods program in Egypt at present is the AID-sponsored Mother Child Health (MCH) Program administered by Catholic Relief Services, which distributes PL-480 Title II foods targeted to an estimated 500,000 children aged 6-36 months and their mothers. We have the following observations to make about this program:
1. Egypt's Title II Food Distribution and Nutrition Education Program has various unique and positive aspects: (1) Food distribution within

1/ While a more detailed discussion of infection and inadequate food intake will be presented in the report, it is important to note here that the relative effects of seasonal diarrhea and poor food intake cannot be determined by the surveys, and thus poor food intake cannot be ruled out as a significant problem in Egypt. In one of the areas surveyed in 1980 (during the month of high diarrhea), 47 percent of children who had diarrhea were malnourished; 35 percent who had no diarrhea were also malnourished. Interestingly, the 1980 survey data also show that fewer children were receiving food supplements in addition to breast milk. This is compatible with the wellknown practice of withholding food from infants both during and after diarrheal episodes. In this connection, one of our informants, the principal health officer in Minya Governorate, stated that further study must be made of foods given children aged 6 months to two years, "the most critical time of life," of feeding practices, and of the interaction between diet and disease among weaning age children. These issues have not been adequately studied in Egypt and the Reconnaissance Team strongly supports these recommendations.

the Ministry of Health, not in other non-health organizations; (2) a system, albeit imperfect, of record-keeping which is in place; (3) nutrition expertise which is plentiful, and good coordination between **nutritionist** and health professionals; (4) an extensive system of existing clinics which along with current food distribution levels (Title II or non-Title II) have the potential (long-term) to reach a significant proportion of Egypt's malnourished children.

2. The present Title II Program suffers from inadequate targeting to reach Egypt's malnourished children, and from poor utilization of the Title II foods in the homes. Presently there is no adequate system for nutritional screening and for setting clinic beneficiary levels which correspond to relative nutritional needs in the country. Clinics are under-utilized and outreach programs are not yet in place. Lack of nutrition education in the vast majority of clinics, bi-monthly food distribution not directly linked to education (occasionally the distributions, because of logistic problems, are four months apart or longer), and the nature of the Title II foods (currently ICSM, oil, and Non-Fat Dried Milk, each of which because of different preceptions by mothers about their real purpose and utility find widely divergent uses in Egyptian homes), affect the under-utilization of these commodities or weaning foods.
3. The proposed expansion of the GOE/CRS Nutrition Education Program is ambitious in comparison with its planned technical assistance and financial inputs. Additionally, the estimated three-year time frame to cover one half of Egypt's health clinics seems over-optimistic.

At the same time, we should state that it does appear that the nutrition education approach (conducted either through, alongside of, or outside of, the MCH clinics) seems the most appropriate means for approaching the weaning diet problem in Egypt and this should be encouraged. On the less ambitious but perhaps more practical scale, CRS is preparing a proposal for a pilot education and community action nutrition project in one Governorate, and we feel that this should be given serious scrutiny by AID (as a project to be carried out either within or outside of the Title II framework).

4. Despite its serious problems, we estimate the CRS/MCH Title II Program is reaching 10-20 percent or more of Egypt's malnourished children (children in second and third degree malnutrition; see page 29 of report). This compares with rough estimates of 6 percent of Morocco and 2 percent of Cameroon, and suggests that the current program be continued at least until rational alternatives are underway. (By "reaching" we mean, reaching correctly identified mothers of these children; absolutely no data exist on what proportion of foods are then given to children in appropriate weaning mixes, and what proportion find other widely divergent uses in the households).
5. Establishing the weighing system with growth charts under the GOE/CRS nutrition education program has wider implications for Egypt's economic development. The excessive drain, indeed elimination, of Egypt's foreign exchange earnings from its large system of subsidies make it imperative that approaches which establish criteria (in this case the criterion of malnutrition) for providing subsidized foods be tested. Thus, the proposed weighing program can be viewed as an important

means of better targeting food to those in need as well as measuring the effects of any future changes in Egypt's food subsidy policies.

F. A second existing weaning foods activity in Egypt is the processing, packaging, and distribution of the weaning food "Supramine" by a public sector firm, the El Nil Pharmaceutical Company, one of the largest pharmaceutical companies in the Middle East. We have the following observations about this activity:

1. For reasons detailed in our report, the plant still produces a minimal amount (about 350 tons per annum) after 10 years of operation. A rough breakdown indicates that about 30 percent of Supramine packets are sold on the open market at a heavily subsidized price, and about 70 percent are distributed free on a physician's prescription through MCH clinic pharmacies.
2. The product has never been sufficiently field tested for taste and acceptability. We were told the product is acceptable because of its white-flour appearance, but is not acceptable because it becomes gummy in the mouth, may become contaminated or infested with bugs because of deficiencies in preparation, packaging, and shelf-life, and is not "instant" (requires cooking) so that imported commercial cereals are preferred. Studies also show, regrettably, that some families do not "trust" Supramine because it is locally rather than foreign made.
3. New forms of Supramine including pre-cooked mixtures have been developed by the National Research Center but not yet field tested. The new director of the Nutrition Institute and the present UNICEF director in Egypt are among those thinking the Supramine option should be given a new trial, possibly with outside private sector assistance.

- G. A number of nutritionally adequate weaning diets which can be prepared from locally available foods have been developed and tested in laboratories in Egypt, but none have as yet been properly field tested.
- H. As a mechanism for distributing prepared weaning foods (as in the current CRS/MCH Title II Program), or for promoting the use of new locally prepared weaning diets (via other approaches discussed in our report), the MCH clinics present what might best be described as a mare's nest of sociological problems as they are currently set up (we feel that CRS should be complimented for doing as good a job as it does under the circumstances). The medical training and career structure of the young doctors posted to these units mitigate against their having a strong interest in what they view as "extra-curricula" activities such as weaning foods promotions in the community. Other clinic staff in general are viewed (and view themselves) as lower-trained persons compared to the doctors, and are hesitant to become leaders in promoting important behavioral changes in the community (for example, new weaning diets or the proper utilization of current Title II foods). Egyptian medical leaders are aware of these problems, are recommending broad revisions in medical school curricula, and have prepared new programs of career incentives for young doctors in the MCH units, in order to build toward the situation where doctors will take leadership roles in these programs. We believe that these changes will not begin to have an impact for several more years, possibly five years.
- I. In the meantime, it is necessary to examine alternative promotional mechanisms. A large number of proposed projects in Egypt are designed to explore the potential for "community development" mechanisms involving village leaders, village clubs, traditional midwives, and the like. We

visited several of these project sites during our mission and review some of these alternatives in our report.

F. The points of view of several key individuals were stated to us as follows:

1. Osman Galal, newly-appointed director fo the Nutrition Institute:
He supports the development of an indigenous weaning food in Egypt and considers this a priority for the Nutrition Institute. He favors a Regional approach on a trial basis (i.e. at the Governorate level or District level) through the use of extruders, but is prepared to look at other approaches, including other central-processing techniques, and home or village prepared foods.
2. Andrew J. Kovall, CRS Director for Egypt: He supports the development of an indigenous weaning food. If a rational program can be developed, CRS would welcome the chance to work in this program and will support a concurrent phase-down of Title II foods.
3. William Oldham, Chief Health Officer, USAID/Cairo: Recognizing current Mission emphasis on health and population projects, he nevertheless has been promoting nutrition components in the health projects, and would like the Mission to formulate a nutrition strategy which could likely include an intervention in the area of weaning foods and practices.
4. Various Senior Health Officials in Cairo: Concern was expressed to us several times that if there is to be a phase-down of Title II foods in Egypt, this should be timed to fit into the concurrent development of alternative programs including the development of alternative indigenous weaning foods, rather than vice versa (i.e. rather than cut off Title II foods and then make an effort to develop alternatives).

RECOMMENDATIONS

- A. We support the apt phrase of the Harvard/MIT International Food and Nutrition Program (Nevin Scrimshaw and Richard Lockwood) that "the appropriate mix of weaning food strategies at the country level" be first identified, before specific interventions are chosen, and recommend that GOE, USAID, relevant PVOs, and possibly further T/A personnel, meet to review this important set of issues as a next step.
- B. We recommend the examination of possible options at the national, regional, and local levels as follows:
1. National. Certain Egyptian health officials and international agencies active in Egypt think the Supramine option should be re-examined. This might be in the form of a joint foreign and Egyptian private sector venture supported by the USAID private sector development program.
 2. Regional. The new director of the Nutrition Institute stated that he favors a regional (Governorate or District level) approach to the development of indigenous weaning diets, possibly involving the use of extruders or other central-processing mechanisms on a trial basis in several areas of Egypt. We recommended AID consider providing technical assistance to make a feasibility study of this approach.
 3. Local. The Team also recommended while in Egypt that consideration be given to examining the potential for home and/or village preparation of indigenous weaning diets, and that AID consider providing technical assistance to the Nutrition Institute, possibly in association with CRS, in this area.
- C. We recommended while in Egypt that a next step must be the identification of suitable weaning diets that are nutritious, can be locally prepared from foods available in sufficient quantity in all seasons, and are acceptable to mothers and children; that this forms a prelude to any intervention at any level; that such a project requires the following

elements which might be carried out as a single project or as individual but coordinated sub-projects:

1. Baseline studies of food availability, weaning practices in homes, family income, and related socioeconomic data;
2. Laboratory testing of the nutritional content of potential diets;
3. Field testing on a pilot basis of these diets in selected communities, to determine acceptability to mothers and children. This preparatory set of projects might require about one year to carry out. The Reconnaissance Team has noted that with respect to a number of potential weaning diets identified in Egypt (i.e. new forms of Supramine, several diets worked out by nutritionists in the country), only Step 2 has been carried out up to now.

- D. As one option, the Reconnaissance Team recommends studies of mixes resembling the traditional weaning food "Mahalabya" (cooking starch, sugar, and buffalo milk), which is in declining use reportedly because of shortages of buffalo and other milks in the country. We saw a version of this food, made of noodles, sugar, and Title II NFDM, being prepared and fed to weaning age children. Galal stated that one of his priorities as director of NI will be to restore milk production in Egypt (he is conducting studies of buffalo milk production in Giza through the National Research Center). One might envision a project for the promotion of a mix utilizing NFDM, phasing over to local milks as production improves. In addition, other vegetable protein weaning food mixes should be explored.
- E. When suitable weaning diets are identified (i.e. after a research and field test period of about one year), the Team recommends that in addition to any central or regional activity, preparation of the new foods be

promoted at the household level. This promotion may be carried out along several complementary lines as follows:

1. Through MCH Units as at present;
2. Through a parallel activity involving Village and Local Councils and other existing District and Village Level groups. This activity would be supported by directives from the Governorate and District level through existing government channels, and through the personal intervention of existing cadres of nutrition educators already on government payrolls, including Nutrition Organizers in the current CRS/MCH Program, Nutrition Inspectors in the current CRS/School Lunch Program (these might be phased into a new program), and various other categories of persons ranging from members of mothers clubs to traditional midwives. These categories are being trained in nutrition education under various projects including the ILA/ODA Second Population Project, the AID-supported Urban and Rural Health Projects, indigenous PVO-supported projects such as CEOS (Coptic Evangelical Organizational) in Minya Governorate, and several others.

- F. With respect to the current CRS/MCH Title II Program, detailed recommendations which we believe would result in improved targeting and food utilization under the proposed Phase II portion of the program are as follows:
- a. Suitable scales for both clinic and outreach work must be selected, ordered, and delivered as soon as possible since the entire program depends on adequate nutritional screening.
 - b. Weight charts must be distributed to clinics and the decision on how they will be used must be made, i.e. will they be kept in the clinics or by mothers.

- c. Length of enrollment in the program should be kept at the one year limit with flexibility for newly malnourished children; however,
- d. When the weighing and charting system is in place, consideration should be given to beneficiary selection based on second and third degree malnutrition, with length of enrollment contingent on nutritional improvement and maintenance of this status.
- e. When weighing is underway and nutritional levels at different clinics can be determined, Title II beneficiary levels should be adjusted to reflect nutritional needs of particular areas. In the interim an assessment of demand for food (through regularity of attendance) could be done to begin to lower beneficiary levels at clinics where mothers are not regularly attending.
- f. GOE and CRS should begin experimenting with some home and village visits by nurse educators from the clinics. This could include contact with mothers, dayas, influential village women, Village Councils, etc.
- g. The nutrition education program under Phase II should be simplified and expanded to new clinics gradually. (A more detailed discussion of this follows in the next section.)
- h. Plans for making nutrition education classes a requirement for receiving Title II foods should proceed under Phase II as planned. Serious consideration should be given to monthly food distributions.
- i. Evaluation of acceptability of all the Title II commodities (ICSM, NFDM, oil) should be undertaken to determine how they are used in the home and whether nutrition education can improve upon this.
- j. Operations research which tests the effectiveness of different Title II commodity amounts should be undertaken. The quantity

of oil could be reduced to see if this affects incentive for program attendance. If less oil proves acceptable, the dollar savings for the program could be put into higher blended food rations.

- k. Plans to repackage ICSM in smaller quantities should include a package which identifies the food as a complementary food for infants and young children, e.g. picture of baby on package, pictures showing proper preparation. When the nutritional status screening program becomes operational, GCE and CRS could experiment with placing Title II foods in the clinic pharmacy along with Supramine. This is more compatible with the ongoing clinic system, would be less time consuming and bothersome for those who presently distribute food to groups of mothers en masses and would better assure that only malnourished children receive foodstuffs.
 - l. As screening for nutritional status improves, evaluation of the age groups most affected should be done and program beneficiaries age limit adjusted accordingly. Since the national surveys show that the most vulnerable age of malnutrition is between 6 and 24 months, it seems probable that beneficiaries could be safely limited to this age group with possible increases in ration size for the smaller number of total beneficiaries.
- G. The following recommendations concern the CRS Phase II proposal, training, coverage, management, evaluation and funding.
1. The nutrition education curriculum should be streamlined with a set of nutrition messages developed.
 2. Numbers of field supervisors of nutrition organizers and nurse educators should be increased.

3. In order to maintain quality and still achieve coverage of half of Egypt's health centers, the Phase II Program should expand gradually from clinics already in the program to new clinics. A life-of-project longer than three years is recommended.
 4. Additional short and long term management and technical assistance in nutrition and evaluation will be necessary at the current Phase II level of planned outputs.
 5. The records and evaluation system must be consolidated and designed to fit evaluation objectives. To this end, we would recommend that GOE and CRS consult with others knowledgeable in this area.
 6. To achieve proposed Phase II outputs, significantly more funding and an increase in service program staff is recommended.
- H. In order to achieve a phase-down of Title II foods which results in a workable and affordable program for the GOE, sufficient development aid is required to:
1. Streamline and target the program and improve food utilization;
 2. Explore payment mechanisms to help lower government outlays;
 3. Develop low-cost food alternatives to Title II foods.
- The Phase II proposal which CRS as the VOLAG implementing agency is preparing, appears to be the primary means of achieving a rational phase-down. Development of low-cost food alternatives could be accomplished in various ways, -- through CRS, the private sector, government-to-government projects, etc.
- I. If nutrition activities as recommended are undertaken by USAID/Cairo, a person with specific focus on nutrition should be added to USAID/Cairo staff, either as direct hire or on contract.

I. Purpose of Reconnaissance Team Trip and Various Perceptions of the Weaning Age Nutrition Problem

We were asked by USAID/Cairo and AID/Washington to visit Egypt August 13 - September 3, 1982, as a "Reconnaissance Team," to make a preliminary assessment of the potential for using locally available and locally prepared foods to improve the diets of weaning age children, and to make recommendations for the development of programs to introduce and promote the use of these foods and better weaning practices in Egyptian homes.

The largest existing weaning foods program in Egypt at present is the AID-sponsored Mother Child Health (MCH) Program administered by Catholic Relief Services, which distributes PL-480 Title II foods targeted to an estimated 500,000 children aged 6-36 months, and their mothers. Our reconnaissance was to be made with a view to developing programs complementary to or supplementary to the existing CRS/MCH program. (Cable Cairo 10699).

The Mission also requested technical assistance for the better targeting of MCH program foods to badly malnourished children. (Cairo 19601). A considerably broader Scope of Work was outlined in cables from Washington, including examination of the relationships of any potential program to the MCH services generally of the Ministry of Health and the activities of other PVOs; the role of the CRS Nutrition Education Program in conjunction with the MCH Program; the roles of home weaning practices, seasonality of food availability, diarrheal and other diseases, ORT and other health programs, mass media utilization, and so on (cables State 107128 and 17805). The Mission (William Oldham, Chief Health Officer) stated that we should take as broad a Scope of Work as we thought we could handle during a three-week visit.

However one may define the terms "weaning age" and "weaning diets," there was general agreement that our concern was with children aged approximately 4 to 6 months up to 24 months or older, the period when the child must receive specially prepared supplementary foods in addition to mother's breast milk in order to maintain proper growth. Weaning diets therefore cover this critical transitional period in the young child's life, beginning at about 4 to 6 months when the Mother's milk can no longer satisfy an infant's nutrition needs and must be supplemented with other foods, up to the time when the child can eat normal family foods. Nutritionists of course strongly recommend that breast-feeding continue throughout this critical period, and apparently this is the common practice in Egypt, but studies of child-feeding throughout the world clearly show that breast milk is not enough. It is ironical that in most societies in the developing world, and in parts of the developed world as well, this period when the young child is in the continuous care of a loving mother is nevertheless the period when the largest number of deaths occur.

Whether these deaths are precipitated by malnutrition, by disease, or by some combination of both, it is clear that a large proportion of weaning age deaths are nutrition-related. Demographic data for the precise ages 6-24 months or 6-36 months are unfortunately not kept in most countries, including Egypt. The best readily available indicator we have of the nutrition and health status of very young children in most countries is the Infant Mortality Rate (deaths of children aged up to one year, for every 1,000 live births). The Population Reference Bureau in Washington estimated that the IMR for Egypt in 1982 is 103, compared with figures of 10 to 20 in the more developed world. Other estimates in Egypt point to

IMRs as high as 180 per 1,000 in the rural areas.

The Reconnaissance Team was assisted, usually on a day-to-day basis, by the AID Food for Peace Officer, Ernest Petersen; by his assistant, Laila Boutras, who also acted as our interpreter; by Marilyn Mayers, a medical sociologist on AID contract who prepared an invaluable annotated bibliography of documents and publications in Egypt relating to weaning foods (see Appendix A); by CRS personnel and in particular George Ropes, Nutrition Program Supervisor; and by Dr. Amin Kamel Said of the Nutrition Institute, a branch of the Ministry of Health in Cairo. Robert W. Morgan, Team Leader, is a medical sociologist with experience in implementing and evaluating nutrition, health and population projects in Africa. Carol Adelman, a public health nutritionist, is former Nutrition Advisor for the AID Near East Bureau in Washington. Names of persons interviewed during our mission appear in Appendix B.

A. The Problem as Viewed by Health Officials in Egypt.

Senior Health personnel in Cairo and two Governorates, Minya in Upper Egypt and Beheira in Lower Egypt, stated to us in clear terms that, in their opinion, Egypt must reduce dependence on imported donated foods and must develop indigenous weaning foods. By the latter they referred to foods centrally-processed or locally prepared. Many of the persons we interviewed also made a point of emphasizing that weaning foods in Egypt must conform to traditional ideas about the nature of such foods, in order to be acceptable to mothers and children.

During the final days of our visit, we participated in three debriefing sessions with Ministry of Health personnel including His Excellency Mamdouh Gabr, former Minister; Almoz Mubarek, First Under-Secretary; Loutfi El Sayad, Director General for MCH Services; and

Osman Galal, newly-appointed Director of the Nutrition Institute. At the final of these sessions, Dr. Gabr presented what we believe to be a summation of the group's views, as follows:

1. Egypt "must get away from reliance on outside foods."
2. "We must improve whatever is locally done by mothers in villages. This is not as difficult as you may think. If somehow we can improve the use of local foods without too much cost to mothers or the government, this will be good."
3. With respect to centrally-processed weaning foods: "What worries me is who is going to pay the cost of the final product. We need a mass campaign, well-organized, to convince the public (to use these foods). We should think of smaller factories at the Governorate level."
4. With respect to locally-prepared weaning foods: "We used to have local products. "Seven Seeds" (a traditional weaning food) used to be sold in the rural drug stores. We don't see that now."
5. There must be a new focus on nutrition education via the MCH units, including (a) implementation of the weighing of children and recording of growth and (b) clearly developed nutrition messages. Furthermore, (c) "we must convince the doctors to lead" (something many of them are not now doing) via "new incentives" (the Ministry is implementing broad changes in the medical school curricula in Egypt to emphasize nutrition and preventive medicine, and has prepared a program to initiate a new range of career incentives for young doctors posted to the MCH units). "I am convinced we can do this."

6. In addition to MCH units, there must be nutrition education programs via other channels in the villages.
7. Better use must be made of the mass media in nutrition education.
"We are in full control of this in Egypt, and yet they are very badly used for the improvement of our society."

Dr. Galal added that his priorities include the following:

1. Nutrition education.
2. A further effort to improve the nationally manufactured product "Supramine," with respect to the nature of the product and the methods of manufacture and distribution.
3. Regional production efforts, including examination of the potential use of extruders.
4. A new look at locally-prepared traditional weaning foods which appear to be in declining use, and in particular a traditional weaning food called "Mahalabya" composed of cooking starch, sugar and buffalo milk (other ingredients such as wheat flour, noodles or ground rice are sometimes substituted for the starch, and other milks including Title II Non-Fat Dried Milk are sometimes substituted for the buffalo milk which he claims is becoming in short supply).
5. Improved shelf-life and storage of prepared weaning foods.
6. Organized and effective evaluation of programs.

MINYA GOVERNORATE

In Minya, the Under-Secretary of Health (senior health office in the Governorate), Dr. Abdelsamie Omran El Sherif, stated his priorities as follows:

1. Further study must be made of the foods being given children aged 6 months to two years, "the most critical time of life," and of the

feeding practices involving not only children but also pregnant and lactating mothers.

2. Further study must be made of the interaction of diet and disease, among weaning age children.
3. The role of MCH centers and their staffs must be reviewed. A program of weighing and the use of the new weight charts will be implemented in one district and nurses are being trained in this pilot project. Young doctors receive a special two-month training program in rural practice including weaning and nutrition problems before being posted to the MCH units and this program may have to be strengthened. Many centers believe the weight cards should be kept at the center because it is impractical to have the mothers keep them, but he personally believes that each mother should keep her card as the program directors recommend. He claims that home-visiting by MCH unit nurses plus the weighing and nutrition education program is "going like a train" in the pilot area, but in many areas the nurses find serious problems in home-visiting and this part of the program may have to be reviewed and strengthened.
4. Most mothers do not recognize the importance of their children's diets, "are not worried when the child is OK, seek help only after the child gets sick or has diarrhea. Our major problem is to convince people about the prevention of these major health and nutrition problems and how to act on these. It is the number one problem in our country."
5. Programs must have a target of behavioral change, i.e. the improvement of weaning diets.

BEHEIRA GOVERNORATE

It is probably true that most of the health officials we interviewed were briefed in advance about the purpose of our visit, and directed their remarks toward weaning foods. At least one person, however, knew nothing about our visit and his remarks were entirely extemporaneous. In Damanhur, the capital of Beheira Governorate, we were en route to an interview with the health officer involved in CRS/MCH programs and entered by error the office of the Under-Secretary of Health, Dr. Esmail Monieb abd-El-Kader. He asked us to sit down and describe the purpose of our mission.

Reconnaissance Team: "We are here to look at weaning diets and weaning practices in Egypt."

Under-Secretary: "You mean you are here to give us foods that our mothers should feed their children?"

Reconnaissance Team: "No. We want to look at the foods already available in villages, to see if they can be better used."

Under-Secretary: "You mean you want to look at the foods that our mothers are accustomed to using, and show them how to use them better? That is what Egypt needs! How can I keep in touch with you?"

B. Further Aspects of the Problem as Noted by the Reconnaissance Team

In addition to these comments by health officials, which in general pointed to a felt need for improved weaning diets and weaning practices in the country, the Reconnaissance Team explored some further aspects of the weaning problem, as follows:

1. Data from a large number of local surveys in Egypt point to under-nutrition among children aged 6-24 months, as measured by weight-for age deficits. The two AID-sponsored nutrition status surveys

in 1978 and 1980 also point to undernutrition in this particular age-group, with a substantial proportion of weaning age children in the second and third degree categories of malnutrition. These levels of undernutrition are roughly comparable to those found in other Middle-Eastern and Latin American countries.

The surveys show less undernutrition in older children (age 3-5 years) although stunting (low height-for-age) and anemia reach levels comparable to other developing countries. This may reflect the general belief of Egyptian nutrition and agricultural professionals that sufficient food is available in the Egyptian households but it is not being distributed well within the family, particularly in the vulnerable weaning age group. Our analysis of the survey data is presented in Chapter 3.

2. Based on the limited data we were able to obtain in a three-week visit, our impression is that present weaning diets in Egypt are inadequate and perhaps seriously inadequate. Many respondents told us that traditional weaning foods are being used less frequently or possibly not at all. This situation was attributed to decreasing supplies of the ingredients, or increasing cost of the ingredients.

Our impression is that weaning age children receive a variety of foods on a hit-or-miss basis during the day, sometimes in the form of chance snacks, rather than being given consistent feeding of some suitable calorie-dense porridge with adequate protein, or some similar food three to five times a day as nutritionists recommend. A number of possible weaning diets have been identified by nutritionists in Egypt, including new forms of Supramine developed by the National Research Center. None of these foods has been field tested, including the new Supramines. These weaning diet deficiencies, if real, would contribute to the weaning age growth deficiencies shown in the data. Our material on weaning foods is reviewed in Chapter Four.

3. With respect to the nutritional status of pregnant and lactating women, factors which affect the birth weights of infants and the amount of mother's milk available for infants, the Reconnaissance Team was not able to investigate satisfactorily any available data on this subject. Some indications are that maternal mortality is relatively low in Egypt and that maternal malnutrition is not regarded as a problem area, although a few informants disagreed. One informant stated that inadequate breast milk was a serious problem among rural mothers. Nutritional surveys have reported significant levels of anemia among Egyptian women. Further study of the situation is to be encouraged, including ongoing research on anemia and intervention strategies.

C. Perceptions of Catholic Relief Services

A program to develop indigenous weaning foods in Egypt as an alternative to imported donated foods would represent a major shift in emphasis for CRS, the present Title II implementing agency. At

the same time, CRS has one of the better infrastructures in place in Egypt for participating in this development, including a trained nutritionist and close participation with Egyptian nutritionists, and a principal role in the training of nutrition educators at present, who presumably would form a key element of any new program. The present commitment of CRS staff in Egypt also goes beyond the logistics of food distribution to a broad concern for weaning age children and their families.

The CRS Program Director for Egypt stated to the Reconnaissance Team during several meetings that if a rational program can be developed for the introduction of indigenous weaning diets in Egypt, then CRS would welcome a role in this program and would support a phase-down of Title II foods.

D. Perceptions of USAID/Cairo

The Mission has an existing orientation to health and population programs and has defined child nutrition and health problems principally in terms of disease and disease control. Large segments of the USAID staff and contractors involved in projects impacting on health, population and nutrition told us they placed lowest priority on nutritional interventions. At the same time, some nutrition components are being introduced into new USAID health project and are being undertaken in several ongoing health projects.

The Chief Health Officer, William Oldham, told us that he was personally concerned that the Mission re-examine its approach to nutritional problems in Egypt, that he was impressed with the data we presented at several de-briefing sessions relating to weaning food, weaning practice, and weaning period malnutritional problems in Egypt, and that he would like to make use of this material in forthcoming discussions

in the Mission. He further expressed interest in developing a nutrition strategy which would identify key problem areas and the appropriateness of USAID involvement.

If the Mission is to consider a larger involvement in nutrition, a further set of considerations arises:

1. It is clear that the Mission feels it has a large number of health and population projects ongoing at present and a large staff committed to these.
2. There is no trained nutritionist in USAID, or person with a specific focus on nutrition. Thus any future nutrition projects would require additional nutrition expertise, either in-house or on contract.
3. Nutrition interventions might be developed within existing health and population projects. However, it might prove difficult to effect changes in weaning diets and practices unless there is a separate program emphasis.

II. RANGE OF ACTIVITIES OF THE RECONNAISSANCE TEAM

In order to introduce weaning diets, five separate sets of activities are required. These may be undertaken as a single project, or as separate but coordinated sub-projects. These activities are as follows:

1. Baseline studies of foods available including seasonal variations and the quantities and possible price variations which might be found should these foods find increasing use nationally in weaning diets.
2. Baseline studies of intra-community and intra-family food use, beliefs and practices; weaning practices; family time and income studies; and related socio-economic data.
3. Laboratory analysis of the nutritional content of potential weaning diets.
4. Field tests in homes in selected communities, on a pilot basis, of the taste and acceptability of proposed weaning diets, ease of preparation in the homes, storage if this is a factor.

We have suggested in our report that these four preparatory steps (many of which have, in part, been carried out already in Egypt at least with respect to Steps 1, 2, and 3) might occupy a time span of about one year.

5. Complementary to these steps, it is necessary to develop programs to introduce these new foods, including production, distribution, preparation, and use in homes. The above five steps are required whether the program be at the national, regional, or local level and whether the foods be processed and packaged, donated, or home and village prepared.

In the present CRS/MCH Title II program, Steps 1 and 3 were conducted abroad in advance of the program. Steps 2 and 4 have never

been carried out in Egypt, and Step 5 involving distribution via MCH has consequently suffered to some extent and perhaps to a great extent.

With respect to the Supramine program Steps 1 and 2 were minimally carried out and Step 4 has never been carried out to any satisfactory degree (the acceptability of all forms of Supramine present and proposed remains a question-mark). Step 5 is conducted via the market system or by prescription through pharmacies, supported by mass media advertising, and this step has suffered greatly as a result of deficiencies in Steps 2 and 4.

With respect to programs at any level, but particularly with respect to home and village projects, introduction and promotion of these foods usually involves some form of face-to-face contact, between nutrition education or some other form of "change agents," and mothers in homes. "Change agents" at the local level can include persons working in other projects (i.e. health and population projects, agricultural extension projects, rural education projects, etc.); community clubs such as mothers' clubs in which members are given special training in the introduction of the weaning foods; religious groups; and so on. In Egypt, a political structure created during the Nasser administration exists linking every Ministry in Cairo with every village via Governorate and District officers, and this political structure might function as a change mechanism in the promotion of new food practices in communities.

Accordingly, the Reconnaissance Team made a point of looking at institutions and interviewing persons active in aspects of these five steps;

- 1 & 2. Large-scale and small-scale survey research. Much work has been done in this area in Egypt, by the Nutrition Institute, universities and schools, government agencies, and international agencies. In

addition to the excellent literature review by Marilyn Mayers, we received information via interviews with a number of persons engaged in survey activity. (See also Appendix C for other surveys).

3. Laboratory Facilities. We interviewed personnel in the Nutrition Institute, National Research Center, and Egypt-California Project (AID-sponsored) all of whom have conducted laboratory analyses of weaning foods.
4. Field Tests of Food Acceptability. Since this has been done only in a limited way with a few foods in Egypt, we were not able to draw on previous experience. A number of institutions including the Nutrition Institute and CRS expressed interest in obtaining further technical assistance to set up such projects in order to test present and proposed weaning diets.
5. Mechanisms to Introduce and Promote Weaning Foods in Communities and Homes. A number of projects in Egypt are involved in community development or community education activities. In addition to the CRS Nutrition Education Program which instructs mothers attending clinics, we visited the sites of several health and population projects which have nutrition components, interviewed key informants who have been active in these areas, and spoke with village leaders about their development interests and activities. Brief descriptions of these projects appear in Appendix C; and a list of persons interviewed appears in Appendix B.

III. THE NUTRITIONAL STATUS OF WEANING AGE CHILDREN IN EGYPT

A large number of local nutrition surveys in Egypt as well as the Cairo University/MIT Survey in 1978 which examined children in the MOH clinics have shown high levels of malnutrition in the populations studied. For example, the CU/MIT Survey showed that among children aged 6-24 months group, 7.7 percent were third degree malnourished and 17.7 percent were second degree, levels comparable to African and some Asian countries (see Table I for data for the weaning age groups of children, from the three major national nutritional surveys in Egypt).

Some of these surveys have been criticized on methodologic grounds - accuracy of weighing, sample size and selection. The majority of the local studies have been conducted by senior nutritionists and while they cannot claim to be nationally representative, they do indicate the severity of the problem in particular areas.

The 1978 GOE/CDC National Nutrition Survey, conducted during the season of less diarrhea, showed relatively low levels of second and third degree malnutrition for 6 months to 6 year old children. The 1980 Survey, conducted during the period of higher diarrhea, showed significantly greater under-nutrition for this same age group. These levels - two percent of children in third degree malnutrition and 13 percent in second degree malnutrition - while not as high as African and some Asian countries, are comparable to other developing countries in the Middle East and Latin America. When the 6 - 24 month age group is extracted, the levels are even higher - 4.6 percent of children in third degree and 25 percent in second degree malnutrition.

Table 1 Weight-for-age levels by Gomez Classification, children aged 6-24 months only, in Egypt.

SURVEY	3 ^o	2 ^o	1 ^o	NORMAL	TOTAL
1978 CDC National Survey	53(2.0)	370(14.0)	1149(43.8)	1053(40.2)	2625(100)
1978 CDC Survey, Universes 1 & 5	12(2.0)	94(15.7)	282(47.2)	210(35.1)	598(100)
1980 CDC Re-Survey, Universes 1 & 5	29(4.6)	159(25.0)	267(41.9)	182(28.6)	637(100)
1978 CU/MIT Survey	107(7.7)	245(17.7)	549(36.6)	484(34.9)	1285(100)

Notes:

1. CDC used NCHS Reference Population.
CU/MIT used Boston Reference Population.
2. Universe 1 = Damietta and Kafr El Sheikh; Universe 2 = Giza (rural), Fayoum, Beni Suef and Minya.
3. Gomez Classification
Normal = 90% and above of Reference Median.
First Degree = 75-89.9%
Second Degree = 60-74.9%
Third Degree - Below 60%

Note should be made that for one of the two areas surveyed in 1980, levels of malnutrition in children 6-11 months are exceedingly high by any comparison - third degree malnutrition was 11 percent and second degree, 31 percent.

Both the local surveys and the national surveys have also shown that anemia is a significant nutritional problem in young children. In addition, stunting (low height-for-age), the result of bouts of nutrition and disease stress over time, is highly prevalent in young children. Some micro-nutrient deficiencies, zinc, vitamin D, vitamin B₆ have also been noted although their relatively lower prevalence places them in the lowest priority for nutritional intervention.

As a result of these particular survey results, the personal observations of some health professionals in Egypt and the large variety of subsidized foods available to families, two interpretations of Egypt's nutritional status have been advanced by some over the past years: (1) there is virtually no significant infant and young children nutrition problem in Egypt; and (2) the undernutrition apparent in the second national survey (during the season of high diarrhea rates) suggests that the cause is mainly, if not solely, diarrhea. Thus, the Mission policy decision to focus on diarrheal disease and its treatment could be regarded as one of the most cost-effective ways of reducing undernutrition and the high percentage of deaths also caused by diarrheal disease.

The two national surveys do indicate that diarrhea contribute significantly to acute undernutrition. They do not suggest that it is the only contributing factor to undernutrition in Egypt. In 1978 there appears to be no difference in mean weight for height and mean weight for age between those with diarrhea and those without. This suggests that children may be better nourished at this time of the year and/or that diarrhea may be less severe.

In 1980 there was significantly higher malnutrition in those with diarrhea than those without. This may well be a combined result of diarrhea and inadequate food intake. For example, in one of the two areas studied in the 1980 survey, 47 percent of children who had diarrhea were malnourished (second and third degree). Thirty-five percent who had not had diarrhea were also malnourished. One might argue that those without diarrhea may have been malnourished from previous attacks which fell outside the survey's definition of diarrhea (diarrhea was reported only if it was a recent attack). Even if this were so (and we have no way of determining this from the survey), those thirty-five percent of children who were malnourished despite the absence of a recent diarrheal attack, were obviously not being fed appropriately to allow them to recuperate from weight loss during diarrhea.

Interestingly, in support of this, the 1980 survey data showed that fewer children in the 6-11 month age period were receiving a food supplement compared to children in the 1978 survey. This supports findings in Egyptian studies on feeding practices which show that mothers withhold food from children not only during diarrhea but many times well after the diarrheal episode has ended. In addition, the 1978 survey did show a modest correlation between less amount and variety of food consumed and lower nutritional status. Limited data from other young child consumption and feeding practices surveys suggest that caloric and protein requirements are not being met.

From the available data we cannot, however, determine the relative contribution of diarrhea and inadequate food intake to undernutrition. Indeed, the GOE/CDC Survey reports are careful to point out that their cross sectional methodology prevents the identification of the specific

causes for seasonal changes in nutrition.

The synergistic relation between poor nutrition and diarrheal infection in weaning age children is underscored by Egypt's infant mortality rates, possibly as high as 180/1000 in rural areas. Diarrheal disease accounts for some 50 percent of infant deaths and it is reasonable to assume, in the absence of data showing specific etiology, that undernutrition is associated with these deaths, as it is in other developing countries. The association operates through: (1) reduced food intake either culturally determined by withholding food or by decreased appetite; (2) decreased food absorption during diarrhea; and (3) greater susceptibility to diarrhea of malnourished children.

The significantly higher rates of malnutrition in weaning age children (see Table I for summary) and evidence of inadequate consumption, suggest that interventions addressing problems of inadequate weaning foods and practices would contribute substantially to lowering malnutrition and nutrition-related disease and death.

IV. WEANING FOODS AND WEANING PRACTICES IN EGYPT

Knowledge of what traditional weaning foods are actually used in the home, in what quantities, with what frequency and when they are introduced is limited. Although a number of studies exist, they vary in type of information gathered and methodology for defining exactly what constitutes a complementary food to breast milk. Various family and young child consumption studies are presently underway or in the process of being analyzed (WHO, World Bank, IFPRE, AID's Rural Health Household and Diarrhea Surveys). When these are completed and some better overall assessments conducted, our knowledge will be greatly improved. Nevertheless, existing studies and observations provide a general picture of weaning food consumption in Egypt today.

Current foods used in weaning diets include:

Cereals: Wheat, rice, corn, and barley, including locally milled wheat and Title II bulgur wheat. Egypt is a large wheat and corn producer, the crops being grown alternately in the annual cycle in many areas. Locally milled wheat flour is available in great supply as a subsidized commodity. Title II bulgur wheat is distributed in the present CRS School Lunch Program. Despite high production levels, Egypt is a net importer of wheat (the largest outside of the Soviet Bloc). Because Egypt would have a comparative advantage on the world market if a shift from wheat to rice production was made, economists recommend this but doubt that it will occur. In the meantime, wheat flour and bread are so plentiful in Egyptian homes that they are sometimes thrown away or fed to animals.

Legumes: These include chick peas, lentils, fava beans, sesame, cottonseed, and some soybeans.

Chick peas and lentils which would be invaluable in weaning diets have increased so greatly in price that they probably must be ruled out. Fava beans were said to be in good supply in rural homes and might be considered as a weaning diet component (the availability if the beans became widely used in weaning diets on a country-wide basis has not been determined nor has their digestibility and suitability for infants been extensively studied).

A potential legume source for weaning diets is cottonseed flour. This would have to be much more extensively studied with respect to the type of cotton grown in Egypt (long staple) and the need for either removal of gossypol or use of gossypol-free cottonseed. Soybeans can be grown, although their production is now low because of government production priorities. We were told that oil extraction plants exist so that soybean flour could be made available.

Dairy Products: Buffalo milk has long been one of the basic ingredients of both adult and weaning diets, and we were informed, becoming in short supply in Egypt. We were told that traditionally about 60 percent of the buffalo milk has been used to make soft white cheese which is a favorite especially of Egyptian men and is sometimes fed to children from the age of about one year. We were also informed that families are accustomed to pouring salt into each day's milk supply to preserve this until enough milk has accumulated to warrant the making of cheese. The salty whey byproduct is then thrown away. The Egypt-California project is testing different production approaches to modify the salting procedure so that an unsalted whey could be recovered for reuse. From one of our visits in an Egyptian village, a process which provided unsalted soft cheese for young children and salted for adults was being used. Since the soft cheese is the only source of affordable

animal protein for the poor, these methods should be examined further with respect to the type of whey produced from skim milk, the contamination levels of both the cheese and whey, and whether this indigenous food and widely used process would be an important area for development and promotion.

Reasons for the decline in buffalo milk were listed as follows: (a) general increase in population in Egypt; (b) shift from a predominantly rural to what will become a predominantly urban population, so that fewer families can keep buffalo; (c) infertility among buffalo (a problem being studied by the National Research Center). The new director of the Nutrition Institute has listed as one of his priorities the restoration of buffalo milk production to former levels, and he is presently involved in a study of infertility among buffalo in a Giza village project conducted by NRC.

Supramine: The history and problems with this centrally-processed weaning food are detailed in Chapter Six.

Other Title II Foods. These include ICSM (Instant Corn Soy Milk), NFDM (Non-Fat Dry Milk), and Soy Oil. Serious problems seem to exist in the proper utilization of each of these commodities in weaning mixes, although this matter as previously noted has not been studied and no direct data exist. Many respondents told us the ICSM because of its "yellow flour" appearance is not acceptable to Egyptians, who in cultural matters are extremely conservative and who expect weaning mixes to be "white" or "resembling milk" or "resembling white products". This "yellow flour" problem may be more serious than Title II project personnel suspect, and should be studied much further.

The oil was described to us as probably used for general family cooking, since oil is expensive and difficult to get in Egypt. Title II

project personnel tended to view the oil as an incentive to bring women to the clinics, and recommended against discontinuing its use. The importance of oil as an incentive for clinic attendance requires further study.

The NFDM is popular because it is milk, and this may be the only one of the three items given *moreso* to weaning age children. Our impression is that NFDM was not interfering with breast-feeding, but this, as well as how all the Title II foods are being consumed, should be examined further.

Traditional Weaning Food Mixes: Two such foods were described to us, and both were said to be in declining use or not used at all, as a result of the supply and price problems of ingredients.

"Mahalabya": We did not find a single respondent who did not insist that he or she had been given Mahalabya as a child, and one respondent stated that this weaning food went back to Pharaonic times. The usual ingredients are cooking starch, sugar, and buffalo milk, although other commodities are frequently substituted. As noted elsewhere, we saw Mahalabya being prepared from noodles, sugar, and Title II NFDM and fed to weaning age children. Ground rice or wheat flour may also be substituted for the cooking starch. The importance of the color of weaning foods should be reviewed since it is unknown how mothers regard non-white cereal based mixes.

"Seven Seeds": This was described by many respondents as a once popular weaning food, composed of four cereals (rice, wheat, barley and maize) and three legumes (fenugreek, lentils, and fava beans). The availability of these ingredients in sufficient quantity in Egyptian households is questionable.

The ingredients were said to be ground together and boiled in water or milk. A doctor in Cairo was said to have packed and sold a "Seven Seeds" product about ten years ago (a nutritionist who analyzed this commercial product raised some doubts about its actual composition, stating that the protein content was only 7 percent). Several respondents told us "Seven Seeds" was never widely used and is seldom used today.

From the point of view of this report, an interesting aspect of "Seven Seeds" is that it could hardly have been white in color, and yet it seems to have been used more frequently at one time.

Some Proposed New Weaning Mixes: In addition to 11 new forms of Supramine mentioned in Chapter Six, two other weaning mixes were described to us, which have been developed by nutritionists in the Nutrition Institute.

"Arabena": Composed of wheat flour, fava beans, and chick peas in equal proportion, with added vitamins.

"Sesamina" or "SLW2": Composed of 60 percent wheat flour, 30 percent lentils and 10 percent sesame, with added vitamins. While these have been analyzed in the laboratory, neither of these products nor the modified Supramine mixes have been extensively field tested.

From the point of view of this report, we were impressed to learn that interested nutritionists and food technologists with laboratory facilities are available in Egypt, and will be invaluable in subsequent weaning food trials.

Breast Feeding: Prevalence and duration of breast feeding is high both in urban and rural areas. It is frequently viewed by mothers as a contraceptive as well as a dietary measure. There is limited exclusive bottle

feeding in both urban and rural areas. A feeding practice which should be studied further to determine its prevalence and effects is that of using milk in bottles (either buffalo or NFDM) as a complementary food to breast milk. Some mothers we interviewed and supported by one study in Alexandria used milk in bottles at the same time they were breast-feeding. While mothers told us they boiled water and bottles, the Alexandria study indicated that this was not always the case and the same milk was left in bottles for consecutive feedings. It is unknown whether this is a highly practiced or relatively infrequent mode of infant feeding in Egypt, but the implications for Egypt's high diarrhea rates should be looked into further by both the Title II program and other USAID health projects. If a child gets diarrhea, many mothers stop breast feeding, both during and sometimes well after the diarrhea episode.

Weaning Practices: Precise data on this extremely important subject are difficult to obtain, possibly because weaning practices do in fact follow no set pattern in Egypt. We were told variously that mothers give the child milk, tea, mashed fava beans, bits of cheese, rice water, scoops of whatever might be left over in the family pot. Feeding was also said to take place 3 to 5 times a day, although one study indicated that low frequency was a problem. The national surveys suggest that late introduction of substantial amounts of complementary foods is a problem. While we discovered no information on hygiene practices in weaning food preparation, given the high prevalence of disease and infection in Egypt and low availability of refrigeration, we would assume that weaning food contamination levels are substantial.

Though questioned closely, no informant (whether professional or lay person) was able to name any widely used weaning diet. Whether this is

a long-standing situation, or results in the present day from rising prices and scarce items, we could not determine. It does appear, however, that a serious weaning diet problem exists in Egypt, and that some form of calorie-dense porridge or similar, with adequate protein, for regular feedings 3 to 5 times a day, must be identified and promoted.

V. EGYPT'S MCH TITLE II PROGRAM - REVIEW AND RECOMMENDATIONS

A. Introduction

The Reconnaissance Team held extensive discussions with the three entities responsible for the MCH Title II feeding program. These are the Nutrition Institute (NI) in the Ministry of Health, Catholic Relief Services (CRS) and USAID's Food for Peace Office. This section of the report examines some unique characteristics of the existing MCH Title II nutrition education and feeding program in relation to other Title II programs. Problems in targeting to malnourished children and the efficient use of Title II foods are discussed followed by recommendations for improvements in the existing Title II program.

B. Unique Characteristics of GOE/CRS/AID Title II MCH Program

1. The Egypt Title II programs differs from most in Africa and the Middle East as it is implemented by the Ministry of Health, not Social Affairs or other relief/welfare-oriented agencies. Thus, there is good potential for linking Title II foods to health education, and programs. Familiar problems of duplication of services and concerns by Ministries of Health over the appropriateness of nutrition being handled by non-health agencies are non-existent in Egypt. Important nutrition-related health education and services (diarrhea treatment, immunizations, pre and post-natal care, family planning) are all offered at the same health facility

where food is distributed. Identification of children at risk through weighing, growth charts, and counselling of mothers is also part of the same health system (in theory, if not in practice).

2. Along with the Title II food distribution records, there is a system of record-keeping including attendance at clinics, immunizations, births, deaths, and diseases in place, albeit imperfectly. Thus there exists at least a base for targeting and evaluating Title II programs.
3. In contrast to many developing countries, particularly in Africa and the Middle East, nutrition expertise is plentiful in Egypt. Since the Nutrition Institute is part of the MOH, there is frequent contact between nutritionists and other health professionals. Decisions on nutrition issues, e.g. weight charts, scales, education, etc. can be and are coordinated fairly well. The Nutrition Institute itself has capabilities in food analysis and can do metabolic studies for assessing protein value. The new Director, Dr. Osman Galal, is competent and oriented to operations research. Since he will continue some work with his former group, the National Research Council (NRC), he can easily draw upon other NRC expertise in food technology and evaluation for MOH programs. His interest and experience in food technology are especially advantageous for any weaning food program.
4. The MOH system of urban MCH centers and rural health units and centers includes some 2,400 facilities, all of which receive Title II foods for distribution to underprivileged mothers and children. As USAID health sector papers point out, this provides

extensive coverage which approaches recommended WHO standards of physician/population ratios and population coverage. Despite the well-known problems with an under-utilization of this system (a rough estimate is that only 5-25 percent of the population uses the units and centers), the system is one of the few widespread delivery systems at present. 1/

5. Using percentages of malnourished from the 1978 GOE/CDC National Nutrition Survey and demographic information from the 1976 Census of the Governorates, there are an estimated 432,000 second and third degree malnourished children aged 6-36 months. Title II beneficiary levels for children aged 6-36 months number 500,000 at present. Thus in Egypt, unlike any other AID Title II MCH program, there exist sufficient food commodities to potentially meet 100 percent of the most nutritionally vulnerable people. The word "potentially" is stressed because meeting 100 percent of need is unlikely in any country. We must compare the Egypt program to what is possible with Title II programs given the paucity of outreach programs and generally low clinic utilization in developing countries. In addition, virtually none of the Title II programs provide sufficient foods to cover the total malnourished. In Morocco, only 6 percent of the total 0-5 year malnourished population is covered by the Title II program, and in Cameroon only 2 percent.

If we assume a clinic utilization of 25 percent (from the Rhoda-Callier Report), then some 825,000 children are using Egypt's

1/ This does not imply that other mass media, private sector, community development or outreach approaches to health delivery are less likely to reach Egypt's undernourished infants and children, but simply that an extensive, admittedly, imperfect, system is in place.

MOH clinics. If we further assume that 25 percent of these are second and third degree malnourished, (1978 CU/MIT survey of clinics), then 206,250 or roughly one-half of Egypt's second and third degree malnourished are using MOH clinics. Since the Title II program provides food for some 500,000 through the clinics, (well over the 206,250 malnourished using the clinics), there is a possibility that a good percent of the malnourished in the clinics are receiving food--perhaps from 30 to 50 percent of Egypt's total second and third degree malnourished.

The 25 percent clinic utilization may well be a high estimate. If we lower this to 10 percent utilization and use the same 25 percent of malnourished, then some 19 percent of Egypt's total second and third degree malnourished are attending clinics. The Title II program may possibly be reaching from 10 to 19 percent of Egypt's total malnourished.

If we assume that Title II programs at best (assuming sufficient Title II food commodities) can reach 50 percent of a country's malnourished children, then the range of 10-50 percent in Egypt is certainly comparable to the best of other programs. With improvements in clinic screening, adding outreach programs, and maintaining food commodities (Title II or other) for 500,000 children, the Egypt program might thus reach anywhere from 35 to 75 percent of Egypt's total malnourished 6-36 month aged population.

C. Improved Targeting and Utilization of Title II Foods

1. Background: While it is not possible in this report to provide a full description of the present Title II food and nutrition

education program, a brief summary of the present and proposed program is necessary in order to understand the issues and recommendations. Since August 1979, the GOE Ministry of Health and CRS have implemented a Phase I Nutrition Education in Health Centers Project (NECHP) in conjunction with the distribution of Title II foods to mothers and children ages 6 to 36 months. Funding in the amount of L.E. 218,075 was provided by USAID under a Section 204 Grant. The goal of the NEHCP was to improve family health, particularly nutritional status of young children by strengthening the government's MCH services in practical nutrition education and identification of children at risk. Twenty-eight nutrition organizers (MOH employees with backgrounds in nursing and home economics) were selected by the Nutrition Institute and trained for four months in nutrition and nutrition-related subjects. They, in turn, were assigned to 165 urban and rural health units and centers where they trained 192 nurses. These 165 MOH facilities encompassed 18 Governorates and Cairo. The nurses were trained for two weeks and then returned to their clinics where they began instructing mothers in nutrition, health, child care and preparation of weaning foods from Title II commodities and indigenous foods. An estimated 20,000 mothers received nutrition education lessons of whom many were also recipients of Title II foods (an accurate breakdown is not available).

Eight professionals from the Nutrition Institute (Regional Nutritionists and Senior Supervisors) supervised the training courses and field operations. Other project inputs included equipment and materials for food demonstrations, supplies and vehicles.

Funding for Phase I of the NEHCP has expired and the GOE and CRS have submitted to USAID Cairo a new three year program for expanding Phase I to new centers and improving ongoing participating clinics. Plans are for the NEHCP to expand from 165 to 1,400 clinics (half of the total 2,800 MOH health clinics projected for the end of 1984). Some 60 new nutrition organizers will be trained who, in turn, will train 2,800 nurses (two per clinic). Other changes to be incorporated in Phase II include requiring that mothers attend education classes in order to receive food, providing new scales, introducing the now-approved Egyptian growth chart, and considering a variety of other changes to improve targeting, utilization of Title II foods and program evaluation.

The proposed Phase II of the NEHCP requests roughly L.E. 1 million from USAID funds which would cover CRS project management salaries, some local per diem, travel, workshop expenses, educational supplies, vehicles, computer and overseas travel for GOE/CRS officials to assess other Title II programs. The GOE contribution over the life of project is estimated at some L.E. 3 million. These monies are to fund salaries and incentive payments for GOE project personnel, travel, per diem, housing allowances, secretarial support, drivers, growth charts, and new scales.

2. Improved Targeting

The Rhoda-Callier evaluation of the MCH Title II program in 1981 correctly noted problems in targeting, i.e. insuring that food is given to mothers with malnourished children.

a. Beneficiary selection: The present system of beneficiary selection does limit food to children age 6 to 36 months, the most nutritionally-vulnerable age group. Food appears to be fairly well targeted to lower income families as well. In all the clinics we visited, there was a system, involving the social worker, doctor, and often Village Council members, to select the lower income families as food recipients. While most of the doctors we spoke with said they also used the criterion of malnutrition for beneficiary selection, it is highly doubtful that this criterion is being applied in any systematic fashion. The scales in clinics are old and it is questionable whether they are used very often, and, if so, correctly. The newly designed Egyptian weight chart (similar in appearance to the WHO weight chart) has not been distributed to the clinics. Nor has there been any training of nurses in how to use it or decisions made by the MOH on whether mothers will keep the charts themselves or if the charts will be kept in the child's health folder at the clinic. In several clinics we did find that an old weight chart which covers only the first year of life was being used. Thus, aside from doctor's observations and occasional use of an older/limited weight chart, there is no adequate system at present for identification of children at nutritional risk.

Current Title II program guidelines allow mothers to remain in the food distribution program for one year. It was not possible to determine if this rule kept any or many newly malnourished children from receiving food when food

beneficiary lists were already full. In several clinics it appeared as though doctors were flexible enough to drop some non-malnourished beneficiaries in order to accommodate a newly malnourished child. Limiting duration in the program to one year is an adequate approach to achieving maximum turnover and coverage given the current lack of screening by nutritional status. Ultimately, however, when the weighing and use of charts improves, a system which allows all malnourished children to receive food and to continue receiving it until nutrition status improves and is maintained, should be considered.

- b. Beneficiary levels: Especially pertinent to the issue of targeting food to the malnourished is the establishment of beneficiary levels for the 2,400 clinics throughout Egypt which correspond to different levels of malnutrition in the country. Currently, beneficiary levels are established according to the number of persons theoretically served by different-sized MOH clinics.

Thus, while large MCH centers in urban areas may serve populations of 300,000, they only handle food for 300 beneficiaries. This may be offset by the fact that malnutrition is lower in urban areas but at present there is no way to adequately target for geographically concentrated malnutrition. As the Rhoda-Callier Report found, there is a favorable de facto bias toward program concentration in the areas of greatest need. Thus, the four Governorates with relatively high Physical Quality of Life indices had the lowest program concentrations.

Whether the demand for food aid is less in urban areas has not been determined. However, in one urban clinic we visited, the mothers came for food so irregularly that at every food distribution there were excess rations for some 150 recipients. Here, the social worker simply gave food to any extra mothers present on the food distribution day. In contrast to this, the demand for the Title II foods seemed to be very high in the two rural clinics we visited. It is obviously not possible to draw conclusions from such few examples, but it would make sense, as the Rhoda-Callier Report suggested, that once the weighing system is better established and levels of malnutrition for different areas can be ascertained, to target by nutrition status centers and then adjust government and clinic food beneficiary levels accordingly.

- c. Outreach and Village Programs: A third means of reaching more of the malnourished, given the low utilization of MOH clinics in Egypt, is by reaching out to communities to identify the children at risk. This is clearly the most difficult approach in Egypt as in other developing countries, for a host of well-known reasons: lack of financial incentives for outreach workers, lack of equipment, training and management for such programs and cultural barriers to the concept of home visiting by clinic personnel. Nevertheless, several health projects in Egypt are experimenting with this approach. The Nutrition Institute and CRS are interested in trying this as well. Outreach and other village promotion schemes should be encouraged and supported by AID.

3. Improved Utilization of Title II Foods

Even with improved targeting to reach more of the malnourished, if Title II foods are not used correctly and in adequate amounts, the program can not be successful. There has been virtually no evaluation of how and how much Title II foods are, in fact, being used in Egypt. The following assessment is based mainly on subjective interpretation and limited discussions with mothers, doctors, GOE and CRS officials. Overall, our impression and that of the previous evaluation team is that Title II food is widely shared among all family members and that the foods are not being prepared in appropriate weaning food mixes nor given in adequate amounts to affect nutritional status. This under-utilization by Title II food recipients can be attributed to:

- a. Lack of Nutrition Education (with the exception of the 165 clinics covered by Phase I of the NEHCP) which stresses the importance of complementary foods, when they should be introduced and with what frequency they should be used. The GOE and CRS did a small evaluation of the Phase I education program which did show some positive results in mother's nutrition knowledge and beliefs.
- b. Method of Food Distribution is every two months instead of once a month as in other Title II programs. Even in those centers with a nutrition education program, food is distributed on a different day than the lessons so there is no requirement that a mother attend a class (or have her baby weighed and charted) before she receives the food. Since all mothers come at one time for the food distribution, it is time

consuming for clinic personnel and some complain that there are arguments among mothers over dividing the bags of ICSM and tins of oil.

- c. Type of Title II foods has not been systematically studied but it appears that the ICSM, while better accepted than the previously used WSB, still has some problems. Some mothers don't like the taste and the yellow color is deemed more appropriate for chickens than children. Although we did hear this comment by doctors in several areas, it is not possible to generalize that a hefty percent of ICSM goes for feeding poultry since there has been no study of this. In one urban clinic, on the other hand, the nutrition educator said that the mothers liked ICSM and indeed fed it to their children. This clinic was one with a nutrition education program which explained that ICSM was a complementary food to breastmilk and demonstrated how to prepare it. ICSM replaced the WSB only two years ago and there may well be some confusion, even on the part of doctors, as to its value and use. In one clinic, neither the doctor nor nutrition educator knew what was in ICSM nor that it was a complete complementary food for babies. In another clinic the guidelines for distribution of ICSM (supposed to be given to children 6-18 months of age) and NFDM (supposed to be given to children 18-36 months of age) had been misunderstood so that the opposite was happening.

As for NFDM, our impression is that this is being given more to children, but that it is also highly valued as family food, e.g. for tea and other adult consumption. To

what extent NFDM may be inappropriately used in feeding bottles for infants is also unknown. The present guidelines which stipulate that NFDM be given only to children above 18 months and the existing nutrition education program which demonstrates how to use milk as one part of a weaning food mix, would appear to obviate against such misuse. Furthermore, since the vast majority of Egyptian mothers breastfeed their infants, the distribution of NFDM does not appear to be a disincentive to breastfeeding.

The third Title II commodity is oil. GOE and CRS officials believe that the oil is an important incentive for mothers to come to the clinics because of its generally low availability and high cost in the Egyptian economy. Although such an assumption is probably correct, the incentive value has never been tested. It seems clear that oil is the least consumed commodity by the young children. Discussions with mothers seemed to indicate that oil is used up too quickly to be of any nutritional benefit to young children over the two month period between food distributions. It also appears from statements made to us that much of the oil is used for general cooking in the household.

d. Ration size in the Egypt program is relatively small compared to some other Title II programs. Given the present realities of Title II food availability and the size of the Egypt program already, it seems doubtful that ration sizes could be increased over and above present Title II levels. Thus, the other methods discussed to improve targeting and food utilization will be the primary means of increasing the quality of food given to the at-risk population.

4. Recommendations for Improving Targeting and Utilization of Title II Foods

GOE and CRS officials are well aware of the previously mentioned problems with the Title II program which limit its impact on nutritional status of Egypt's vulnerable population. Many of these problems have been addressed in their Phase II grant proposal. The following options and recommendations are based on the Phase II proposed program and some additional points discussed during our TDY.

- a. Suitable scales for both clinic and outreach work must be selected, ordered and delivered as soon as possible since the entire program depends on adequate nutritional screening.
- b. Weight charts must be distributed to clinics and the decision on how they will be used must be made, i.e. will they be kept in the clinics or by mothers.
- c. Length of enrollment in the program should be kept at the one year limit with flexibility for newly malnourished children; however,
- d. When the weighing and charting system is in place, consideration should be given to beneficiary selection based on second and third degree malnutrition, with length of enrollment

contingent on nutritional improvement and maintenance of this status.

- e. When weighing is underway and nutritional levels at different clinics can be determined, Title II beneficiary levels should be adjusted to reflect nutritional needs of particular areas. In the interim an assessment of demand for food (through regularity of attendance) could be done to begin to lower beneficiary levels at clinics where mothers are not regularly attending.
- f. GOE and CRS should begin experimenting with some home and village visits by nurse educators from the clinics. This could include contact with mothers, dayas, influential village women, village councils, etc.
- g. The nutrition education program under Phase II should be simplified and expanded to new clinics gradually. (A more detailed discussion of this follows in the next section).
- h. Plans for making nutrition education classes a requirement for receiving Title II foods should proceed under Phase II as planned. Serious consideration should be given to monthly food distributions.
- i. Evaluation of acceptability of all the Title II commodities (ICSM, NFD, oil) should be undertaken to determine how they are used in the home and whether nutrition education can improve upon this.
- j. Operations research which tests the effectiveness of different Title II commodity amounts should be undertaken. The quantity of oil could be reduced to see if this affects incentive for program attendance. If less oils proves acceptable, the dollar

savings for the program could be put into higher blended food rations.

- k. Plans to repackage ICSM in smaller quantities should include a package which identifies the food as a complementary food for infants and young children, e.g. picture of baby on package, pictures showing proper preparation. When the nutritional status screening program becomes operational, GOE and CRS could experiment with placing Title II foods in the clinic pharmacy along with Supramine. This is more compatible with the ongoing clinic system, would be less time consuming and bothersome for those who presently distribute food to groups of mothers en masse, and would better assure that only malnourished children receive foodstuffs.
1. As screening for nutritional status improves, evaluation of the age groups most affected should be done and program beneficiaries age limit adjusted accordingly. Since the national surveys show that the most vulnerable age of malnutrition is between 6 and 24 months, it seems probably that beneficiaries could be safely limited to this age group with possible increase in ration size for the smaller number of total beneficiaries.

D. Issues Relating to Training, Coverage, Management, Evaluation and Funding of the Title II Program

1. Training and Supervision

The present four month training course for Nutrition Organizers (the trainers of the clinic nurses who, in turn teach mothers) while well-designed and extremely comprehensive, may be too broad for its purpose of transmitting key nutrition education

messages to mothers. Lectures are many, given by many different persons. The training program might benefit by covering less material but going into more depth on certain subjects. At the least, a set of key nutrition messages should be developed and stressed repeatedly and put into a standard booklet for all nutrition organizers. The planned use of the Cassell Visual Learning System (developed under AID's Rural Health Project) will help facilitate the streamlining of messages and standardizing curriculum for the nutrition educators. Weighing and use of growth charts will likely need more emphasis in the Phase II implementation since weights and plotting on growth charts were not done previously.

Under Phase II, Nutrition Organizers are expected to spend 20 days per month in the field making monthly visits to some 25-30 centers. They will supervise the nurses who will be weighing, plotting weights, and giving nutrition education lessons and food demonstrations to mothers. Nutrition Organizers will be supervised by ten Regional Supervisors each of whom covers roughly three Governorates. These Regional Supervisors are backed up by five Field Administrators responsible for six Governorates each. At the top there is a full-time project manager at the Nutrition Institute who is guided by a Committee which includes the Director of the Nutrition Institute, Director of MCH Services and the Director of Information, Education and Communications in the MOH. While the ratio of Nutrition Organizers to clinics and nurses seem adequate, their supervision and back-up does not seem sufficient, given their many field responsibilities. It would

seem to make sense to increase the number of Regional Supervisors and Field Administrators so that the many new activities planned in Phase II can be carefully monitored and evaluated.

2. Coverage vs. Quality

Over a three year period, the GOE and CRS plan to expand the present nutrition education program from 165 centers in 18 Governorates to 1,400 in 26 Governorates. They have also stated that they do not wish to sacrifice quality for quantity in the program. This is a monumental task given the constraints of the present MOH system and the experience of AID and other donor health projects in Egypt. While the Phase I project did successfully train 28 nutrition organizers who then trained 192 nurses, the lack of an evaluation of the process itself, e.g. summary information on beneficiary attendance, turnover, frequency and quality of lessons, record keeping and food demonstrations, etc. makes it difficult to assess both quality of the program and those components which may need revision or improvement.

The Nutrition Institute did find some favorable results from the nutrition education program. It is difficult, however, to use the Phase I experience as a "proven" justification for a large expansion in Phase II since some of the key components of Phase I were not implemented, namely weighing children and using growth charts. In addition, there are many new components in Phase II which have not yet been tested and which will require careful management and supervision on such a large scale. These include new training materials, records systems, regional and central monitoring and evaluation, repackaging Title II commodities,

making nutrition education a requirement for receipt of food, and various experiments with outreach, monthly distribution, ration sizes, etc.

In sum, Phase II is more than a simple expansion of a proven model; it is a vastly improved, yet more complex program. While we support the GOE desire to obtain a high coverage of clinics in the proposed Phase II program, we would recommend that the new program begin with the existing Phase I clinics and other clinics more easily accessible and then move gradually to include new clinics as the program proves workable. Such an approach, which stresses the quality of the program, will very likely take longer than three years to reach the planned coverage of 1,400 clinics.

3. Program Management

It is obviously difficult, indeed presumptuous, in a three week TDY to second-guess many months of planning by professionals who live and work in Egypt. We can more easily recommend, from looking at the experience of numerous other Title II programs, the kind of management and funding required to achieve the program quality and large coverage desired by the GOE and CRS.

By comparison the proposed Title II nutrition development program in Morocco has less than half the number of beneficiaries as the Egypt program. This project, however, has budgeted for considerably more in-country management and outside technical assistance than the Phase II Egypt proposal. Also, the CRS end-use evaluators in Egypt visit each clinic, on the average, once every three years or so. This, as well as regional supervision, is considerably lower than the Morocco program. Moreover, in

Morocco the weighing, consolidated records and evaluation system, food distribution and nutrition education messages are relatively well-established and have been shown to favorably affect nutritional status. In Egypt these program components have not yet been sufficiently developed. While both the Nutrition Institute and CRS project directors are very competent and well-trained, the size and complexity of the Phase II project, will require more management and technical assistance, both short and long-term.

4. Evaluation/Records System

The Phase II program envisions extensive evaluation of both process and impact variables. Here again, the need for sufficient outside technical expertise is stressed since the Nutrition Institute does not have adequate computer and evaluation capabilities for this type of program.

The present records system for the Phase I program (as seen in two urban clinics only) consists of three ledgers. The first two, one for nutrition education class attendance and one describing the lessons given each day for different groups, are kept by the nurse educator. The third, the record of food distribution and receipt, is kept by the clinic social worker. This is a cumbersome system and, because it does not easily provide summary data for the clinic as a whole, is not adequate for the planned evaluation of the program. The GOE and CRS are in the process of developing a summary form. In developing this, careful consideration must be given to: (1) the kinds of process and impact evaluation they wish to do; (2) insuring that the summary form can provide all the necessary information; and (3) coordinating the new records and forms with the existing health clinic records system.

While records must be designed to fit the Egypt program, we would recommend consideration of one summary ledger which combines the information they now record in three ledgers and which could easily add nutritional status (either by actual weight, direction of weight change, or category of nutritional status such as normal, first, second, third degree). We would urge GOE and CRS to look at other Title II program records systems and enlist the assistance of persons experienced in setting up systems which have worked. To this end, assistance from CDC or other Title II managers in different countries should be considered. It is extremely important to decide how the Title II records will mesh with existing clinic records. For example, if weight charts are kept by mothers, will weight still be recorded in existing health folders for each child? Who is responsible for keeping the summary forms, etc.

5. Funding

Since the GOE/CRS Phase II program is somewhat similar to the proposed Morocco program; it is useful to compare planned budgetary inputs. While the Morocco program is considerably smaller, it plans for more than three times the AID dollar input than the Egypt program. (Morocco = \$3.3 million; Egypt = \$1 million). To achieve the coverage and quality desired, the Egypt program will require considerably more funds, especially to cover additional management and evaluation expertise. Additional local currency funds seem to be available from USAID/Cairo should the Mission decide to support the Phase II program. CRS, as the implementing agency, believes they can ultimately manage a higher level of resources.

E. GOE Self-Sufficiency and Ultimate Phase-Down or Out of Title II Commodities

Commodities:

Both the GOE and CRS understand limited worldwide availability of Title II resources and the importance of Egypt's becoming more self-sufficient in meeting food needs, especially of its nutritionally vulnerable groups. They both desire that any eventual phase-down of Title II commodities be carefully planned and that such a plan be accompanied by sufficient development aid to make a food and nutrition education program workable and affordable by the GOE.

The GOE and CRS believe that a combination of national, regional, and local low-cost blended food production schemes make sense as the eventual replacement for costly imported foods. It is also important that the entire program (selection, education, amount of food supplements, program costs, etc.) be improved so that the ultimate financial burden to the GOE is minimized. To this end, the proposed Phase II program with its numerous program improvements and necessary additional funds, seems to be the main way of achieving a rational and gradual phase-down of Title II food commodities. Improved targeting, food utilization, streamlined education and increasing mothers' nominal payments in order to defray program costs are necessary. As the selection system improves, limiting the age group to 6-24 months or even 6-18 months would also lessen the financial burden to the GOE. Nutrition education stressing weaning preparations made from foods already available in the home as well as other low-cost food production will also contribute to a more efficient program.

It should also be emphasized that while low-cost blended food production along with schemes to promote home production of weaning foods will assist many of Egypt's poor, there will likely always be a need for subsidized (free) foods for those in extreme need. Thus, the proposed weighing system and use of growth charts provide a way of efficiently identifying those in nutritional need. This of course has broader implications for Egypt's food subsidy program which now constitutes a drain on their foreign exchange earnings and consequently, economic development. If there are changes in Egypt's food subsidy policy, the proposed approach of nutritional screening provides a useful eligibility criterion for a more limited but effective food subsidy program.

VI. OPTIONS FOR DEVELOPING INDIGENOUS WEANING DIETS

This section deals with options for Egyptian production of blended weaning foods at three levels - National, Regional-District Level, and Home and Village Level. The new director of the Nutrition Institute as well as other Egyptian health professionals have identified the need for a comprehensive strategy dealing with weaning food problems in Egypt. Thus, the following review of options is only preliminary and further development should be preceded by more in-depth discussions of such a strategy. Additionally, the following discussion of past experience with Egypt's one locally produced weaning food, Supramine, is only a brief review. A more detailed account of work in this area is available in the numerous documents we have collected and listed in the bibliography.

There has been considerable analysis and evaluation by Egyptian scientists of blended weaning foods prepared from both local and imported food commodities. None, with the exception of Supramine, has been sufficiently field tested or implemented on either a large scale industrial basis or at the village level. Dr. Hegazi, food technologist at the National Research Center (NRC), attributes this to the poor liaison between researchers and food technologists on the one hand, and industry and other potential food producers on the other. This and the lack to date of any strategy for production and promotion of blended foods complementary to breastmilk are two underlying reasons for the failure of Supramine and lack of other schemes.

A. National Level - Supramine

The GOE, UNICEF, and WFP began the Supramine project in the early 1970's. UNICEF provided the plant facility, technical

assistance and training of plant managers. WFP provided the wheat flour and NFDM, while the GOE contributed the remaining ingredients chick peas, lentils, sugar and vitamins. Production was undertaken by a public sector firm, the El Nil Pharmaceutical Company, one of the largest pharmaceutical companies in the Middle East. The objectives of the project were to produce a low-cost protein-rich food for infants and young children which could be a commercially viable product on the open market and also be distributed free-of-charge in GOE health clinics through MCH purchases. A rough breakdown shows that some 30 percent of Supramine was sold on the open market and 70 percent distributed through health clinics.

1. Problems

The Supramine plant still produces a minimal amount--347 tons per annum in the 1981-82 period--even though WFP assistance ended in 1979. This is far below the intended production levels for many reasons.

The product was never sufficiently tested for taste acceptability and many complaints of its sticking to the roof of mothers and babies mouths were heard. Infestation by bugs because of inadequate packaging and shelf-life was reported in the beginning. Contamination of chick peas and lentils (E-Coli) has been reported in NRC tests probably as a result of not precooking these ingredients as well as unsanitary handling of the product in the plant itself. Since the product is not instant (requires several minutes of cooking), it is less convenient than the imported instant cereals.

There have been serious management problems resulting in:

(1) machinery failures because of lack of maintenance and spare parts; (2) loss of UNICEF-trained managers and technicians to more profitable jobs in Saudi Arabia; and (3) inadequate operations, planning and marketing since these responsibilities were combined into one job.

Additionally, prices of local ingredients have increased dramatically. Along with a fixed product price and the failure of the MOH to purchase the agreed-upon minimum amounts, the company has experienced losses and declining production all along. Original production targets were never met since a planned second production line was never installed. A marketing survey conducted in 1979 showed that doctors and pharmacists did not recommend Supramine and middle-class mothers tried it only once.

A revival was attempted in 1979 with a change in packaging and marketing size, new price structure, education of public health personnel and a marketing campaign including radio and T.V. spots. At the same time food technologists at the NRC were experimenting with modifications of Supramine to improve taste and digestibility and new mixtures using other locally available vegetable protein sources (sorghum and cottonseed flour). Some eleven mixtures were tested for biologic value, lysine, amino acids, contamination and taste acceptability using both drum drying and extrusion processes.

While commercial sales did increase somewhat in 1979, the plant could not meet estimated demands in either the commercial or subsidized sectors. Advertising was not continued, WFP food commodities were phased out and recommendations for formula and processing changes were not implemented.

2. Conclusions and Recommendations

In their final report, WFP concluded that although Supramine seemed acceptable to its low-income recipients in health facilities, the continued lack of purchase by Egypt's middle and upper income groups limited the original objective of supporting the subsidized distribution through profits from commercial sales. WFP recommended that the project be oriented more to a subsidized social program than focusing on its commercial operations. Any efforts to make the product competitive with other imported baby foods should be from El Nil's own resources.

The current UNICEF director in Egypt believes the problems with Supramine have been administrative ones and that the concept is still workable. UNICEF would consider improving the project as part of an overall GOE strategy. They are also interested in local weaning food production and nutrition education.

Based on this history, the following four options can be considered:

- a. Let the present production stay the way it is, i.e. go on limping with minimum commercial and MOH purchases;
- b. Discontinue production of Supramine which would allow El Nil to use the plant for making biscuits or similar foods;
- c. Improve and increase Supramine production using a similar approach to the original--foreign donation of some of the food inputs, foreign aid, capital and technical assistance in management and marketing;
- d. Encourage U.S. private sector participation through a joint venture between a U.S. food company and existing or new Egyptian firm.

Since there is a need in Egypt for a processed weaning food at both lower cost than imported ones and at a subsidized level, the first two options evade the problem. Food processing has contributed in a major way to the high nutritional levels in developed countries by providing not only safe and convenient weaning foods but other nutritious, inexpensive foods for young children, e.g. pasta, peanut butter, enriched cereals and breads, etc. It is therefore reasonable to assume that, over the long run, especially for Egypt's relatively high percent of urban families, that processed weaning foods will play a key role in achieving similarly high nutritional levels in Egypt. Over the long run, indigenous production is the only way to improve the drain on Egyptian foreign exchange used for costly imported weaning and other processed foods.

There is also a need for village schemes and promotion of home-prepared weaning foods over the short and medium range (these options will be discussed later). Such programs should be tried at the same time larger scale national and regional food processing is being developed since neither can serve as a substitute for the other over the short and medium term. Centralized weaning food production can not be dismissed simply because of problems and failures in some countries. There are successful processed weaning foods in both the non-commercial sector (Thripasha, Bal Ahar, Acamil, the blend in Thailand) and commercial sector (Bal-Amul, Incaparina). The conclusion by WFP that subsidized MOH Supramine could not be supported or at least aided by a successful commercial market was true in this case

because of the serious taste and image problems as well as inadequate management and marketing of the product. This does not necessarily rule out improvements of Supramine by other methods.

The mix of public/private sector involvement and scale of operations, i.e. how large centralized production should be at national, regional and village levels will vary by country. This depends on many factors including a country's investment policies, stage of private sector development, agricultural pricing and subsidy systems, transportation, population density, amount of food aid and social-cultural organization which affects regional and village cooperative schemes. These many factors require some kind of overall strategy before launching into major projects. Our recommendations with regard to options three and four are made with this in mind.

Option three is to improve production of Supramine using a similar approach as was tried by UNICEF, WFP, and the El Nil Company. This could involve AID PL 480 grant or loan food commodities and enlist either AID or UNICEF technical assistance. The main difference from the original program would be that a new project would have the benefits of ten years of experience and could attempt to make the necessary corrections to previous problems, perhaps even changing the entire formulation and name of the product and certainly addressing the management and marketing concerns. While this option might work, particularly if the scale of operations were limited to the two major urban areas, past experience in Egypt has indeed highlighted the

difficulties of attempting large scale food processing and marketing in the public sector.

It is for this reason that we explored option four, the feasibility of private sector involvement for production at the national level. This idea had, in fact, been considered several years ago by El Nil and a Swiss baby food company. According to Mr. Afifi, Director of the Supramine plant, they estimated that they could produce a new weaning food at one-third the price of imported ones. With the name of a known foreign firm with long experience in baby foods, they projected that product taste, image, and safety concerns of Egyptian consumers could be overcome. With the necessary foreign investment in the form of capital, management and marketing, they believed they could capture a much larger market than Supramine and also be able to supply the MOH with the necessary amounts for public sector needs.

For various reasons, according to Afifi, the joint venture was not approved by the MOH. He nevertheless believes that such a venture would work, especially one with a private Egyptian firm rather than a public firm like El Nil. The Embassy Commercial Attache confirmed the possibility of such a scheme since the Egyptian Investment Authority has identified both health and agribusiness as two of five sectors in which they wish to encourage foreign private investment.

Roughly ninety percent of joint ventures in Egypt are with private Egyptian firms since there has not been much success with state-owned firms because of their inefficiencies. Egypt's Investment Law 43 provides various financial incentives for

foreign firms--five year tax holidays, duty free importation of raw materials, exemption from labor laws and guarantees on repatriation of profits at best-available exchange rates.

USAID/Cairo's private sector program provides a mechanism for exploring the possibility of a joint venture. Funds available can reimburse U.S. companies for travel and per diem to Egypt and up to 75 percent of direct costs of doing pre-investment feasibility studies. Under the existing program general surveys are being undertaken in ten industrial sectors including food processing. According to USAID private sector officer William Binns, they have experienced problems with the Egyptian Investment Authority which has delayed application approvals so that monies available have not been adequately used. If such a scheme were to be considered by USAID, it would require a certain amount of time by AID officials and the U.S. Commerce Department in contacting appropriate U.S. and Egyptian firms and overcoming the inertia of national bureaucracies involved in programs to encourage private sector development.

B. Regional and District Levels

Another approach to weaning food production, using smaller processing plants at the regional (i.e. Governorate) or district (i.e. Markhaz) levels was described to us as an attractive-seeming option by a number of senior health officials including the new director of the Nutrition Institute, Osman Galal, who placed this as his number one option.

This preference perhaps arises: (1) from disappointment with the national Supramine effort, and the feeling that smaller efforts may be

more easily managed and hence more likely to succeed; (2) from familiarity (by Dr. Galal) with the Low-Cost Extrusion (LEC) processing methodology, as a result of his visit to Colorado State University previously; and (3) from general unfamiliarity on a first-hand basis with other blended food processes at regional or local levels.

This is not to imply that extruders may not be a viable approach in Egypt, but rather to suggest that extruders be viewed as one of several regional processing mechanisms. Before deciding upon any national or regional activity, GOE should consider the following aspects of such an intervention.

1. Most of the issues discussed in the section above on a national activity are also applicable on a regional or district basis. In particular, consideration must be given to the availability of commodities, and of managerial skills. If these are difficult to obtain on a national basis, would they be more easily obtained on a regional basis?
2. Consideration also must be given to mode of distribution, whether the commodity will be subsidized, and in any event the final cost to users and GOE.
3. Consideration must be given to the basic question as to whether any indigenous central-processing operation will involve a simple transfer of the problems inherent in the current Title II program to the new situation, including the logistic problems of transporting and distributing foods and monitoring their use as appropriate weaning foods.
4. Using the private sector should not be ruled out, since there

is a network of private millers in Egypt who might play a role in smaller-scale production.

Our recommendation is that the Nutrition Institute request further technical assistance, possibly in association with CRS, to examine the feasibility of regional and district level processing approaches within the overall weaning food context. AID could play a useful role in providing technical assistance and possibly food commodity inputs (Title II or other) in such a project.

C. Home and Village Level

The five steps involved in introducing indigenous weaning foods outlined in Chapter Two and referred to elsewhere in this report, also apply in the case of a Home or Village Level activity, and it should also be emphasized that Step 5 (introduction and promotion of the new diets) normally requires a higher degree of labor-intensive, face-to-face work by nutrition educators or some form of what we have called "change agents." These persons, as previously noted, can be personnel in existing health and population projects, agricultural extension workers, members of community development groups or clubs (such as mothers clubs), rural education workers if these exist, local entrepreneurs (for example, private pharmacists or market vendors)--in fact, almost any category of person whose daily work involves dealing with people.

These "change agents" must be motivated to work in the promotion

weaning foods, must be trained in some organized program, and their activities must be coordinated and evaluated. The latter (coordination and evaluation) is done less to monitor the "change agents" and perhaps criticize their work, but rather more to assist and guide their activities and, in a very real and important sense, to render "moral support".

We have discussed at length elsewhere in this report the strengths and weaknesses of employing staff in the MCH clinics as community "change agents"--a role they have to some extent in the current CRS/MCH Title II program. This is said not so much to criticize the current program as to point out the problems inherent in any "facility-based" activity. "Change agents" function most effectively when they are able to work in the community itself with community members. In so doing, they develop a large number of persons in addition to the mother herself who see and understand the program, and who in turn give the mother "moral support".

During our mission to Egypt we made a point of visiting several projects working in the area of village or community development, attempting to promote new activities in health and population. The same kind of approach would be involved in the promotion of new weaning practices and new weaning foods. What we would recommend, at the Home and Village Level, is the identification of appropriate weaning diets as outlined in the Steps 1 to 4 described in Chapter Two, which we estimate would require about one year. During this time a further technical assistance mission to Egypt by a Home and Village Project expert to examine the best institutional frameworks for the introduction and promotion of new foods when they are identified.

These institutional frameworks may vary from district to district, and might have differing administrative coordination in differing Governorates of Districts, depending on differing social and cultural situations.

One interesting possible approach we saw on our mission involves the structure of local and village councils. Briefly there are two councils in each village, a "Village Council" appointed by the Governorate which has administrative responsibility in the village, and a "Local Council" which is popularly elected, which has a kind of legislative, advisory, and lobbying role. Policy decisions taken at the Ministry level in Cairo can be forwarded to the appropriate Governorate and District officials and then to the Village Councils. The latter meet with the Local Councils and try to promote the new policies. We were given to understand that if the villagers reject the new policies, the matter tends to end there. However, we were told that this promotional system did work--for instance, in the promotion of new strains of corn which farmers have agreed to plant. The system of course works in the other direction as well--Local Councils can make their views known and start a request upward through channels to the higher levels of government. The Village and Local Councils are large and apparently very active, with sub-committees in such areas as agriculture and education, and a number of active groups including mothers' groups. The aim of a further technical assistance mission would be to explore this approach through Village and Local Councils further, as complementary to or supplementary to existing approaches through MCH units, health and population projects, and similar. One might note that the MCH doctor normally sits on one

of the councils and thus might become more actively involved in such a program if approached from this orientation as well as from his professional orientation.

The possibility in Egypt for close cooperation and coordination between the multiple projects we visited or had described to us is a positive element in assessing the potential for the testing and development of home and village weaning food interventions. A project or set of projects at this level should be given serious consideration, in addition to other interventions at the national or regional level.

VII. COMMITMENT OF USAID TO WEANING FOOD PROJECTS

Just as there are different options within the two areas the Reconnaissance team explored, (improvement of the Title II programs and development of weaning foods), there are different program options or levels of commitment for USAID. The levels and activities outlined below are merely suggestive. Obviously, USAID/Cairo could undertake none or some of the activities in different levels depending on how the Mission wishes to approach nutrition.

The recently completed USAJD health strategy (still in draft form during our TDY) and background papers deal only marginally with nutrition in Egypt. In the Phase II Health Sector Report, there is a two page section, "Notes on Nutrition" which recognizes malnutrition as a problem in Egypt but suggests there may be insufficient data to offer a precise definition of the problem. The brief summary concludes by placing highest priority on well-executed food supplementation programs for pre-school children. Based on our discussions with many and varied people in Egypt and the development of a reasonably comprehensive annotated bibliography of nutrition and weaning practices, we do not believe the data is

insufficient as the analysis of data in a meaningful way for policy makers. There exists good nationally representative nutritional status information and numerous smaller scale surveys of PEM and anemia. We were surprised by the amount of research either completed or soon to be completed in both family and young child consumption and weaning beliefs and practices.

What is needed, regardless of whatever level of nutrition commitment USAID chooses, is the analysis of the nutrition information available and the development of a nutrition strategy consistent with the Mission's health and agriculture strategies. In other words, it may be reasonable for AID to ultimately conclude that nutrition activities are not a high priority since they may not satisfy criteria established or public health problems identified in their health strategy. But since there has not been any comprehensive look at under-nutrition and its relative importance as a public health problem, such a conclusion at present does not seem warranted. We would recommend, at a minimum, that the nutritional status, food consumption and beliefs and practices data be analyzed so that the weaning age problem can be better defined even if only for USAID's numerous health activities. Ideally, however, some kind of strategy should be developed which would define key problem areas and whether they are amenable to solutions involving AID support. Such a strategy does not need to be a lengthy or excessively time-consuming activity. Sufficient information exists to easily define the key nutrition problems. As a part of PID development, USAID/Cairo could then formulate a brief nutrition strategy or nutrition component of their health sector strategy.

From our present knowledge we would presume that two problems would emerge as important enough to be included in the USAID health strategy

as categorical programs. (Presently USAID has designated diarrhea, immunizations and family planning as areas to be supported through categorical programs). The two nutrition problems would likely be weaning age undernutrition and anemia in young children and mothers. The Title II program and other initiatives in weaning food production would be consistent with the problem of weaning age undernutrition. Other programs might be considered for the problem of anemia. While additional useful information on anemia will be collected in the ongoing research project on functional consequences of iron deficiency, this should not preclude the GOE from discussing and planning the mix of interventions necessary to combat anemia, e.g. fortification, supplementation, and agricultural approaches. This planning can be assisted by the anemia research project personnel and International Anemia Center (an AID/S&T/N resource). Private sector involvement in a Supramine revival and in production at the regional level is also consistent with a major thrust of the USAID health sector strategy which is to encourage private sector initiatives.

With this in mind, the following options for USAID levels of commitment are presented:

Low Level Option

- Continue the present Title II food and nutrition education program, funding the Phase II GOE/CRS submission at the original request of L.E. 1 million.
- Analyze various nutrition data--status, food consumption, beliefs and practices--and define nutritional problems more precisely.

- Continue nutrition activities and research in ongoing and planned health projects: urban and rural health; diarrheal disease; Suez Canal University, nurse education.
- Continue to update annotated bibliography on nutrition and weaning practices.

Medium Level Option

- Develop nutrition strategy with focus on weaning foods program more or less as outlined in this report. A first step would be a meeting of GOE, USAID, and other relevant agencies to determine "the appropriate mix of weaning foods strategies at the country level".
- Develop projects or sub-projects along the lines suggested in the "Five Step" approach, outlined in this report.
- Increase funding for GOE/CRS Title II nutrition education Phase II program to achieve improved targeting and better food utilization along lines recommended in this report.
- As adjunct to the Phase II program, improve Nutrition Institute capabilities in computer analysis, evaluation, and library resources.
- Additional nutrition expertise, either in-house or contract, to assist in development and management of nutrition activities.

High Level Option

- Develop a broad nutritional intervention strategy in Egypt, including weaning and other components, operations research projects, broad-scale training programs (in general, a program on the scale of the ORT program to combat diarrheal disease). Such a program would move considerably beyond the steps outlined in this report.
- Full-time USAID Nutrition Officer to manage large-scale nutrition program.

APPENDIX A

ANNOTATED BIBLIOGRAPHY ON
NUTRITION AND WEANING PRACTICES IN EGYPT

Prepared for Nutrition Consultants

AID/Cairo

August, 1982

Prepared by Marilyn Mayers

Effects of Nutrition Education on the Dietary Patterns of 2 Socioeconomic Groups of Pregnant Females in Dakahlia Governorate, Ali el Shabrawy

Epidemiological Study of Anemias in Pregnancy and their Effects on the Newborn in Rural Communities, Farouk Shahine

An Epidemiological Study of Protein Calorie Malnutrition among Rural Population in Egypt, A. Shukry

Evaluation of Nutrition Intervention Projects, AID

Evaluation of the Nutritional Quality Storage Stability and Acceptability of Various Low-Cost High-Quality Food Supplements for Infant Feeding, El Sayed Hegazi

Female Infant in Egypt: Mortality and Childcare, al-Azhar University

Gastroenteritis in Egypt, Mohammed Gabr

Growth Retardation in the Egyptian Village, I Abdu

The Impact of Nutritional Knowledge and Practise During Pregnancy on Mothers' Hemoglobin and Newborn Anthropometry, Eid

Improved Feeding Patterns in the Prevention of Childhood Malnutrition, Samia Wahba

Knowledge and Practises among Breast and Bottle Feeding Mothers in Alexandria, S. Mekhamen

List of High Institute of Public Health theses

Maternal Knowledge and Practise of Bot+le Feeding Mothers at Children's University Hospital in alexandria, M. Hanafy

A Model for the Integration of Health and Nutrition Planning, Hector Correa

Nitrogen Balance Studies on Protein Rich Food Mixture for Preschool Children in Egypt, W. Moussa

Nutritional Conditions in Sinai, Parts I, II, I. Abdou

The Nutritionally at Risk Child, Part I, II, III, F. el Behairy et al

Pattern of Distribution of Some Protein Rich Foods in the Family and its Impact on the Nutrition of the Preschool Child, E. Amine

Physical Growth Patterns of Preschool Children in a Rural Area in Alexandria, Eid

A Program for Continuous Medical Education and Training in Maternal and Neonatal Health, proposal

Project Description for Phase II of Nutrition Health Education
Project associated with Catholic Relief Services

Protein Calorie Malnutrition in Egypt: Infants Socioeconomic Parameters, S. Yehya

Protein Rich Food Mixtures of cereals and Legumes, I. Ablou

Science and Technology Reports; More and Better Food Reports

A Study of the Nutritional Status of Mothers, Infants and Young Children Attending MCH Centers in Cairo Part I, II, III, I. Abdou

Survey of Diet in the Egyptian Village and its Seasonal Variation

Three Grams or 36 Kilos: Issues Affecting the Egyptian Government's Program of Health Education, Westinghouse Consultants

Weaning Practices in Urban and Rural Egypt, O. Darwish

Study of Feeding Practices and Weaning Patterns of Egyptian Infants, Maisa Salama

The Development of a Processed High Protein Low Cost Food, Omayma Shaltout

The Role of Commercialization of Dried Milk in Breast Feeding Habits Among Mothers of Alexandria, Aida Gaballa

Pattern of Food Distribution and its Effect on the Nutrition of Preschool Children, Soheir Bayoumi

Hospital Utilization for Inpatients of Gastroenteritis, Respiratory Illness and Malnutrition in Alexandria's Pediatric Hospitals, Hussein Saleh

Study of Nutrition Education of Mothers for Care of their Children in Urban and Rural Areas in ARE, Kadria Moustafa

Dietary Survey of Pregnant Mothers Attending Maternity Unity of Shatby Hospital, Ellen Sadek

A Study of Food Habits of Pregnant and Lactating Mothers Attending Shatby Hospital, Akila Saleh

An Epidemiological Study of Etiological Agents and Predisposing Factors of Diarrheal Disease in Children under 6 Years in Alexandria, Nada Abu Hamar

Regional Nutrition Training Project Status Report, 1973-75, EMR/WHO

Report on the Local Review of WFP Project, ARE 708: Production of Protein Rich Food Mixture for Children--"Supramine", Local WFP Review Committee

The Diet of Families with Children Having PC-Malnutrition, NAMRU

Feeding and Weaning Practices of Infants and Children Less than 2 Years at Cairo Governorate: Final Report, Wafaa Moussa

Evaluation of Food Consumption Programs in Rural Egypt, Agricultural Development Systems Project

Food Consumption in Rural Egypt Bibliography, Agricultural Development Systems Project

Review of Literature Relevant to Food Consumption Activity, Agricultural Development Systems Project

Sources of Food Supply and Consumption Patterns in Rural Areas, Agricultural Development Systems Project

Major Features of the Food Problem in Egypt: An Overview of Influential Factors and Measurements of Treatment

Government Distribution and Price Policies for Major Subsidized Food Commodities in Egypt: An Overview

Family Food and Nutrition: A Manual of Priorities for the Eastern Mediterranean Region: Messages for Mothers, WHO

The Distribution of Consumption of Basic Food Commodities in the Urban and Rural Areas of Egypt, Soby Ismail

Lactation in Islam, Fouad Hefnawi

An Epidemiological Study on the Association between some Environmental and Personal Factors and Post-neonatal Infant Mortality in Ismailia (City and District); Youssef Melek

Report of ADS Egypt-California Project Economics Workshop, "Egyptian Nutrition Problems and Programs"

Analysis of Situation of Children and Women in Egypt, August, 1981,
UNICEF

Part One provides a general profile of Egypt--including population, economic characteristics and trends; legal, environmental, social, economic health factors affecting status of women and children. Authors claim that stunting or undernutrition affects 20-25% of children in 12-47 months age range. Iron-deficient anemia is cited as the most prevalent nutrition-related disorder affecting 40% of preschoolers. Maternal mortality rate, constant since 1960, stands at 1/1,000. Female illiteracy is 71% and formal labor participation low(4.7%). Problems associated with government efforts to provide Oral Rehydration salts throughout the country and the lack of trained personnel are noted. Part Two reviews MCH services, status of child/maternal nutrition, water and sanitation conditions, education and social services. Author notes official number of day care centers increased from 1,125 in 1973 to 1,649 in 1979. By 1979 these centers covered 1.5% of eligible children in the age range 1-6 years. Half of centers are located in major urban areas. Author notes existence of 2,600 community development associations and 243 women centers, 449 family planning centers. Author identifies the major problems affecting women as illiteracy, continued seclusion and rural-urban migration.

"Anemia in Egypt: Iron Supplementation Trail", Osman Galal, 1981
Team studied 200 pregnant women and 30 anemic children. An iron supplementation program was implemented--the results are presented in a series of 18 tables. In addition, the iron content of agricultural products in an Egyptian village was determined..

"Antenatal Care: A Comparative Study" Nahid Kamel et al, Bull of HIPH, volume VII #2, 1977
Paper cites agencies providing MCH services in Alexandria and compares characteristics of users of MCH centers with those using hospitals. 150 MCH users and 100 hospital users were interviewed in 1973. Information on education, occupation of husband, income, crowding index, age, duration of marriage, number of pregnancies and living children, obstetrical history of women attending MCH centers or hospitals was obtained and compared. Services were also compared. Study showed that doctors were the main health educators. Urged that entire medical team be involved in providing health education.

"Antenatal Care in Alexandria--Extent of Coverage and Pattern of Attendance", Nahid Kamel et al., Bulletin of HIPH, volume VIII, #2, 1978

This paper briefly covers the history of MCH centers in Egypt. The aim of the paper was 1) to assess the percentage of mothers coming for antenatal care to midwifery hospitals, MCH centers or private practise in Alexandria 2) to assess the type of care available and 3) to compare non-participants and participants in antenatal sessions. A random sample of 1,100 women was chosen from the birth

records in local health offices. Findings: 42.2% mothers had some form of antenatal supervision. Of these, 35% attended MCH centers, 36% went to private practitioners and 30% went to the hospital. Tables show relationship between family size, educational and social levels, and mothers' rate of attendance. Non-participants included a higher proportion of young women (36% were under 25 compared to 24% under 25 among participants); illiterates (70% compared to 54%); wives of illiterate husbands (82% compared to 27%). Conclusions: Author speculates that high maternal mortality rate for Egyptians (5 times greater than USA) may be associated with the low percentage seeking antenatal care. Study showed that MCH and private care more sought-after than hospital care. Recommended that MCH services be maximized (since the population most at risk--mothers of low socioeconomic status--attended these centers) by improving training of personnel and by organizing antenatal sessions there; that widespread postpartum family planning program be introduced to MCH centers.

"Anthropometric Measurements and Developmental Scores of Children at One year of Age (Breast and Artificially fed for 12 months): A Comparative Study", Nahid Kamel et al, Bulletin of High Institute of Public Health, volume X, 1980

In 1975, 947 one-year olds from Alexandria were medically screened (502 were still being breast fed while 92 had never been). Differences in anthropometric measurements and teething were not statistically significant for breast fed vs. artificially fed children. Breast fed infants, however, scored significantly higher in fine motor development than the artificially fed. Recommends that breastfeeding be promoted through nutrition education.

"Assessment of the Health and Nutritional Standards of Infants and Preschool Children in a High Density Cairo Community", Safwat Shukry et al, (Undated)

695 children, 0-6 years old, were medically examined and anthropometrically measured. High prevalence of preventable infections and deficiency diseases. Tables indicate percentage of children at different weight/age levels, levels of protein-calorie malnutrition, prevalence of diarrhea. Problems of malnutrition manifest at 6 months old.

"Aswan Nutrition Survey--Diet Intake and Food Habits", Amin Said et al, Journal of Egyptian Public Health Association, 1980

This study was part of a survey of 112 families conducted in Aswan during 1971 by the Nutrition Institute. Tables provide data on daily consumption levels of protein, fats and carbohydrates for school children.

Beliefs, Practices, Environment and Services Affecting Survival,
Growth and Development of Young Egyptian Children--A Comparative
Study in 2 Egyptian Governorates, Wafik Hassouna, 1975

Field study conducted in Damiet and Qena governorates.

Questionnaires used for 1,100 children between 0 and 5 years of age, and their families. Author discusses traditional conceptions and values related to childbearing and raising--breaking of taboos, causes of infertility and illness, remedies, nursing and weaning practises. Notes that 63% of urban children and 71% of rural children in sample group had history of gastorenteritis and diarrheal diseases. Reviews functions and conditions of typical MCH and day care centers, performance of children at such centers. Provides general profile of services, environmental and social conditions in the two governorates. Recommended that more trained auxiliary manpower be used in day care and health centers to change the health behavior of the people. Suggested that the Arab Socialist Union be involved as well.

• "Birth Interval and Its Effect on Child Health", F. el-Behairy et al. Gazette of Egyptian Pediatric Association, Vol 28, #3 & 4, 1980

Part I: Effect on Physical Growth:

838 infants and children, aged 0-24 months, measured anthropometrically. From one age group to an older one, gain in body measurement was greater for infants following long birth intervals in relation to age-matched cases following short birth intervals. Statistics show significant differences between groups in second year of life.

"Birth Weight and Maternal Status", Waly et al, Gazette of Egyptian Pediatric Association, January 1977, Vol. 26

689 new mothers interviewed. Maternal pre-gravid weight, occupation and age shown to have no connection to birth weight. Birth weight show to be affected by level of antenatal care and number of antenatal visits.

Brief Description of Collaborative Research Support Program(CRSP) on Intake and Function in Egypt, Project #931-1309, University of Arizona, 1982.

Paper describes research program designed to study nutrient intake and function funded by AID in conjunction with Purdue University, Universities of Kansas and Arizona, and the Ministry of Health. The research will focus on the relationship between mild-to-moderate undernutrition and various functional outcomes. Phase I(6 months) will involve an ethnographic study of a village, determine magnitude of variation in food intake and the distribution of nutritional status in that community. Phase II(2-3 years) will involve a longitudinal study of 200 households. Core data will include information on food intake, nutritional status and changes in the disease experience and immune functions associated with mild-to-moderate malnutrition.

For more detailed information on this program see File 58-F.

"Clinical, biochemical and experimental Studies on Lactation", I. Kamel et. al., American Journal of Obstetrics and Gynecology, 1969, #3, Vol. 105

Part I: Lactation Patterns in Egyptian Women:

290 lactation periods of 120 low income women analyzed. Average age at weaning was 15.1 months. Pregnancy accounted for 30% of reasons for initiating weaning. Author stresses importance of early conception control to remedy this. Need for study on malnutrition resulting from possible interference with lactation through use of contraceptives pointed out. Relation between lactation, menstruation and contraception analyzed.

Part II: Clinical Effects of Gestagens on Lactation:

Different combination of gestagens were given to 4 groups of postpartum mothers. Follow-up evaluated age at supplementation, amount of milk yield, infant growth curve. Results inconclusive but author concludes that the pill with the smallest dose of gestagens showed best results.

Development of Protein Rich Food Mixtures Suitable for Feeding Infants and Young Children, Wafaa Moussa, Ph.D. 1973, Cairo University

Aim of research was to develop a PRFM agreeable with local food habits. Several formulae were tested biochemically. The most protein rich (SLW-II) was tested on 89 children. Other children (119) were tested on Arabena and 100 served as a control. Anthropometric measurements taken of infants over an 8 to 14 month period.

Findings: SLW-II was found to be cheaper than available milk. The cost was estimated to be 7 piasters/kg if made at home or 14 piasters/kg if manufactured. Mixture made of lentils, tehina and wheat. Tolerance and acceptance rates were high.

Diarrheal Disease Control Study, May - October, 1980, Strengthening Rural Health Delivery Project, ARE, Mobarak as principal investigator (AID 4)

From May through October, 1980, the MOH tested different oral rehydration therapy procedures on 29,000 children between 1 month and 5 years old. Initial analysis of health statistics had indicated that children under 5 (17% of the population) represented 50% of total deaths. 60% of these were due to diarrheal disease and 20% to respiratory tract infections. That mortality rates from diarrhea have not decreased even with the introduction of an ORT program in 1977 in Egypt is attributed to 1) unavailability of pre-packaged OR solutions due to low utilization rates of health facilities by mothers with sick children 2) oralyte distribution was restricted because it was distributed as a prescription drug and in insufficient quantities and 3) general unfamiliarity with ORT.

Field survey carried out on 500 families in 3 villages in Dakahlia. Tables indicate availability of sugar and salt in households, knowledge of mothers concerning proper preparation of ORT mixtures, number of referrals to health facilities for diarrheal children, treatment offered by physician, cost effectiveness of ORT program delivery. Conclusions: ORT in form of simple sugar and salt solution prepared by mothers and backed by an electrolyte solution from the health care facility is viewed as a viable, cost-effective way of reducing child mortality (since the feasibility and efficacy of Oralyte distribution was considered doubtful). Intensive maternal education is viewed as necessary for the initial diagnosis and management of diarrhea. Areas identified as critical to the success of any ORT program in Egypt are specified: (1) Home visiting must become routine part of health services (2) Health personnel need to receive training in ORT (3) Supervision of health staff needs improvement (4) Incentives must be introduced to make program successful. Authors consider commercial distribution of ORT inadequate unless pharmacists were to be specially trained and motivated.

"Effect of Antenatal Home Visiting Program", E. Eid, Bull. HIPH, volume 7, #3, 1977

It was found that 50-70% of expectant mothers in MCH centers in Alexandria in 1972 failed to use the MCH centers for their deliveries. This study evaluated the impact of a home-visiting program designed to alter this phenomena. Ninety women from antenatal clinics were selected for this study. Nursing students, responsible for the care of 2 pregnant women each, taught the women health education through home visits.

Effect of Nutrition Education and Supplementary Foods, Hoda George Damian, 1981 Ph.D. thesis, Cairo University

Method: Study focussed on 652 infants, aged 0-24 months, randomly chosen from two MCH Centers in Cairo (Masr el Kadima and Dokki). Data collected between March, 1977 and July, 1979. Sample divided into 3 groups: (1) 173 for the control group (2) 168 (ultimately) in the group with mothers attending 6 to 12 nutrition education sessions and (3) the rest, the group of infants who received supplementary foods provided by the centers (a wheat soy blend). At the beginning, all forms of protein energy malnutrition prevailed amongst all groups. Women practised similar weaning food practises, demonstrated the same nutrition knowledge and came from similar socioeconomic classes. Children examined monthly. In nutrition sessions, mothers were taught how to prepare a S&L-II (Sesamena) formula developed by Wafaa Moussa. The cost per month was determined to be 60 piasters/month/child. Sessions involved around 20 women at a time for about 1 hour in a demonstration kitchen. Results: No statistically significant difference in rate of development of infants belonging to groups 2 and 3. In both these groups, the length/month levels were higher than in Group 1. The degree of nutritional anemia was ameliorated in both. Conclusions: Author claims conducting nutrition education sessions is the most cost-effective means of preventing malnutrition.

"Effect of Supplementary Feeding on Health and Growth of Infants and Young Children of Low Socioeconomic Groups in Egypt", Hekmet Aly et al, Bulletin of Nutrition Institute, 1979

This study aimed to test the feasibility of incorporating a fish protein concentrate in weaning foods as well as to determine the nutritional status and growth patterns of preschool children. Children(83) from 4 to 24 months, were fed FPC while 55 children acted as a control group. Tables include 1) mean weight and length increments/month of the groups broken down by sex, age, breastfed or not 2) nutritive value of diets 3) weight/length increase of children. Conclusions: Supplemental protein feeding improved all nutrition status indicators tested. Author stressed availability of fish resources in Nasser's Lake, Red Sea and Mediterranean for potential FPC supplement development. Urged that FPC be introduced as a weaning food in Egypt on a mass scale.

"Effect of Supramine on Rehabilitation of Children Suffering from Different Forms of Protein EM", Hikmet Aly et al., Ain Shams Medical Journal, Vol. 30, November 1979

The efficiency of supramine, as the main source of protein during rehabilitation of children suffering from PEM, was tested on 50 cases, aged 3-24 months. Anthropometric measurements were taken; children followed for at least 6 months. Impact of infection was studied. Tables indicate effect of Supramine on weight and length. Author concludes that Supramine is more effective in age period 6-24 months. Cost of feeding a child with Supramine(if he is to get all his protein requirements from this source) is 50% of the cost of dried milk formulae.

"Effects of Nutrition Education on the Dietary Patterns of 2 Socioeconomic Groups of Pregnant Females in Dakahlia Governorate", Ali el Shabrawy, Journal of Egyptian Medical Association, #54, 1971 From 1968 to 1970, 583 pregnant women in Mansoura were interviewed regarding their food habits during pregnancy. Bread and rice were found to be the principal foods for these women. Nutrition education was found to be important in determining diet as well as socioeconomic status. Their intake of vitamins and nutrients were analyzed. The methodology for carrying out nutrition education is left unspecified. The study was not designed to measure changes in knowledge, attitudes or practice.

Epidemiological Study of Anemias in Pregnancy and Their Effects on the Newborn in Rural Communities, Farouk Shahine, 1979 Ph.D., High Institute of Public Health, Alexandria

Author studied 81 pregnant women in a village in Beheira. Fifty percent of women found to be anemic in 2nd and 3rd trimesters. Children born were measured anthropometrically. Diet and the social and physical conditions of mothers were examined. Author claims the hematological character of mother had no effect on the eventual growth of the child.

"An Epidemiological Study of Protein Calorie Malnutrition among Rural Population in Egypt", A. Shukry et. al., Gazette of Egyptian Pediatric Association, Vol. 20, #2, 1972

Two villages in Giza were selected for this study. Mothers were interviewed on feeding and weaning habits. Data collected for infants and children who were classified according to weight/age. 73.7% of infants in first 3 months fell within acceptable wt/age range. Only 20% of children in second year of life fell with an acceptable wt/age level. Prevalence of PCM calculated, other nutritional deficiencies noted. Over 90% of children in age group 12-17 months were still breast fed. Percentages of children receiving different types of food at different ages is presented in tables. Study revealed earliest principal foods given children were mehallabia (water, sugar, starch), rice, potatoes, bread, biscuits and beans. Eggs were never offered before 18 months. During attacks of diarrhea, children usually given lemonade; breastfeeding may then be withheld. Traditional remedies for diarrhea described. 67% of mothers stopped breast-feeding due to new pregnancy. Author claims 53.6% of live born children per family died. Of known causes of death, 75.8% attributable to PCM.

Evaluation of Nutrition Intervention Projects, Final Report,
AID/TA-C-1450(undated)

This paper evaluates 6 nutrition intervention projects and provides general guidelines for future, more effective, programs. Projects were reviewed in terms of the adequacy of the initial study design, evaluation procedures and analyses. Conclusion was that most projects paid little attention to selecting valid controls and that analyses were weak. Urged that multivariate analyses, proper evaluation methods be established.

"Evaluation of the Nutritional Quality Storage Stability and Acceptability of Various Low-Cost High-Quality Food Supplements for Infant Feeding", El-Sayed Hegazi, 1981

Introductory section provides background on nutrition studies conducted in Egypt. Author claims none of protein rich food mixtures derived from this research were adequately distributed on the market or manufactured on an industrial scale--blames poor liaison between research nutritionists, food technologists, marketing and production. Cites case of Supramine as unsuccessful in terms of stability, acceptability and marketing. Study aimed at developing new PRE mixtures using potential, cheap sources of dietary proteins--especially cottonseed and soybean; examining processing techniques on nutritional value; assessing stability/acceptability. Tested 7 different formulae.

"Female Infant in Egypt: Mortality and Childcare", Population Sciences, 1981, #2, International Center for Population Studies and research Al Azhar

Author provides statistics, 1950-70, which show excess of female over male infant deaths in Egypt. Author discounts arguments which suggest that the difference is due to under-reporting of girl births. Claims that nearly 1/3 of female deaths is attributable to lesser care of female child. Study addresses issues of poorer nutritional levels for girls compared to boys, handling of illness episodes, rejection of girl children. Method: 598 families in low-income districts of Cairo received monthly visits by a team of investigators for one year. Findings: Estimated that providing milk to a 6 month child would cost the average worker of this area 20% of his monthly income. Study showed sex differences in nutrition status emerged at sixth month (2/5 girls, 1/4 boys showed signs of malnutrition then). Statistical tables indicate malnutrition, mortality rates by age and sex. Recommended that economic and social opportunities be improved for women (so that girl children would be valued equally for the economic benefit they would eventually bring to their parents); that a campaign be launched to alter the attitudes towards girl-children using Quranic exhortations.

"Gastroenteritis in Egypt", M. Gabr, Gazette of Egyptian Pediatric Association, July, 1976

100 infants, aged 3 months to 2 years, suffering from diarrhea surveyed for pathogens. Of these 22 had shigellosis. Author claims that non-hygienic artificial feeding is major cause of enteral infections.

"Growth Retardation in the Egyptian Village", I. Abdu et al. Bulletin of Nutrition Institute, 1966

735 boys/355 girls aged 6 to 18 were studied in a village near Cairo in 1964. Results indicated that height/weight/age curves of these children were one standard deviation behind those of Cairo.

"The Impact of Nutritional Knowledge and Practise During Pregnancy on Mothers' Hemoglobin and Newborn Anthropometry", Emad el Din Eid, Bulletin of HIPH, volume VII, #2, 1978

Author assessed (1) nutritional knowledge and practise, hemoglobin of pregnant women classified according to class/different trimesters of pregnancy (2) effect of nutritional knowledge and practise, hemoglobin, on newborn anthropometry. Found that nutritional knowledge/practise was average or below in more than half of pregnant women irrespective of social class. Knowledge and practise improved as pregnancy advanced but the scores were higher the higher the social class. Newborn anthropometry was observed to be significantly affected by the the nutritional practise of mothers and their hemoglobin levels.

"Improved Feeding Patterns in the Prevention of Childhood Malnutrition" Samia Wahba et al., Gazette of Egyptian Pediatric Association, Vol 23, #2, 1975

Aim of study was to improve nutrition levels by introducing economical foods to infants and young children. 67 children from a village in Giza and 25 children from Mounira Children's Hospital were measured, their hemoglobin levels determined, weaning practices noted. Nutrition education was provided to mothers, possible diets suggested as a way to supply nutritional requirements

"Knowledge and Practices among Breast and Bottle Feeding Mothers in Alexandria", S. Mekhamen, Bulletin of High Institute of Public Health, volume X, 1980

239 mothers were interviewed about their breast feeding practices, bottle feeding techniques. Tables indicate percentage distribution of knowledge and practises among mothers according to age, educational level, occupation, income, child birth order. Found young, non-educated, lower socioeconomic groups scored least well in terms of correct knowledge and practise. Recommended improvements in health education effort on part of MCH personnel--including home visits and demonstrations; providing in-service training program for nurses and midwives; introducing information on infant feeding and care to secondary schools for girls.

List of High Institute of Public Health theses(unavailable at AID):

1. Nagwan el-Zagloul, A Study of Food Habits in Urban and Rural Areas in Egypt, 1976, #73
2. Maisa Salama, Study of Feeding Practices and Weaning Patterns of Egyptian Infants, 1978, #169
3. Farouk Shaheen, Epidemiological Study of Anemias in Pregnancy and their Effects on the Newborn in Rural Communities, # 173
4. Aida GAballa, Role of Commercialization of Dried Milk in Breast Feeding Habits among Mothers of Alexandria, #203
5. Naida Hamar, An Epidemiological Study of Etiological Agents and Predisposing Factors of Diarrheal Diseases in Children Under 6 in Alexandria, 1981, #269
6. Faiza Abdalla, Assessment of Postnatal Care Services in Maternal and Child Health Centers in Alexandria, 1981, #251
7. Sanaa Nour el Din Mansour, A Study of Factors Influencing Breast Feeding Patients and Problems Encountered by Different Nursing Mothers in Alexandria, 1975, #49

"Maternal Knowledge and Practice of Bottle Feeding Mothers at Children's University Hospital in Alexandria", M. Hanafy, Bulletin of HIPH, volume IX, 1979

One hundred mothers of children under 1 year old were interviewed between 1974 and 1975 about formula preparation and administration, and observed in practise. Their knowledge and practise were related to their level of education, occupation, age and the birth order of the child.

A Model for the Integration of Health and Nutrition Planning, Hector Correa and Wafik Hassouna, March, 1978, Institute for National Planning

A mathematical formula was applied to Egypt for the planning of health and nutrition among children and infants. The paper is concerned with the choice between improving nutrition of a population or treating the diseases suffered by that population. By reference to tables indicating morbidity, mortality and nutritional conditions, authors claim that 40% of deaths among Egyptian infants and children could be avoided if their nutritional status were satisfactory.

Nitrogen Balance Studies on Protein-Rich Food Mixture for Preschool Children in Egypt, W. Moussa, H. Aly et al. (Ph.D. extract)

Nitrogen balance measurements were carried out on children 5 to 30 months old. Different protein-rich food supplements given to 3 groups of children. Authors conclude that Sesamen was a suitable weaning food and best prepared by family after appropriate education of mothers.

"Nutritional Conditions in Sinai: Part I: Available Foods, Food Habits and Dietary Intake of Different Population Groups in Sinai", I. Abdou et al, Bulletin of Nutrition Institute, 1966

This study was carried out as part of a MOH campaign in 1962 to provide medical services for the population in Sinai. The physical status, diet of 800 people (chosen as representative samples of the population--Beduin, workers, school children and families) were studied. Bedouin were found to have the poorest diet, receiving 70% of recommended protein allowances and 55% of calorie allowances. School children obtained 81% of recommended protein allowance, 29% calcium allowance, 87% iron allowance, 47% vitamin A allowance, 19% vitamin C, 27% riboflavin, 60% thiamine. Deficiencies in school children's diet suggest possible comparable deficiencies in the diet of their younger siblings. No specific attention is directed to infant or mother food intake.

Part II: Nutritional Status of Population Groups:

This study compares the height, weight, nutrition deficiency signs, hemoglobin concentration of school children, and adult Bedouin and workers in Sinai. Recommendations made concern increasing quantity of flour for Bedouin, providing Sinai population with lentils, Vitamin A & C supplements, establishing fish cooperatives and factories for the preservation of fish, improving communications in Sinai and planning for agricultural development.

"The Nutritionally at Risk Child: Part I: A Study of Some Socioeconomic and Cultural Factors" F. el Behairy et al. Gazette of the Egyptian Pediatric Association, volume 24,(1 & 2), 1976
Interviews with the mothers of 208 children, between 4 and 36 months old, provided the data for this study. All women were of low socioeconomic status. Children were first clinically examined--110 were found to suffer from PEM, 98 were normal. Children were categorized according to their nutritional status using Wellcome International Classification with Egyptian weight-for-age standards (established in el-Abbassy's Growth and Development of the Egyptian Child, Birth to Five years, 1972). Tables show relationship between sociocultural, economic factors (e.g., number of wives, marital stability, density per room, per capita income) and nutritional status of children. Claims mean per capita income of families with malnourished children was 2.78 LE/month while that of families with normal children was 2.8--an insignificant difference.

"The Nutritionally at Risk Child: Part II: Study of Factors Pertinent to the Child, Siblings or Mother"

The same 208 children were weighed, anthropometrically measured. Information on birth intervals, breast feedings, incidence of malnutrition among siblings, history of gastroenteritis was gathered. Tables show relationship between age and nutritional status--malnutrition being most evident in the 6 to 12 month age range. Male to female ratio among the malnourished was 1.15:1. The mean birth interval for mothers of malnourished was 34.8 months; that for mothers of normal children was 40.1. Chart compares frequency of severe diarrhea among normals and malnourished--14% of malnourished had history of severe diarrhea whereas only 2.9% of normals did.

"Pattern of Distribution of Some Protein Rich Foods in the Family and Its impact on the Nutrition of the Preschool Child", Ezzat Amine, Bull of HIPH, 1980

Aim of study was to assess impact of socioeconomic standard of family on its purchase and distribution of protein rich foods and the subsequent nutritional status of the preschool child. 365 children were selected from childcare centers in Alexandria. Mothers interviewed to estimate purchase of PR foods; children measured for weight and height. Tables show distribution of meat, egg and milk consumption in the family. Upper class families gave 1/3 to 1/4 of the amount purchase to the children while lower class families gave 1/8 to 1/10. Upper class families not only purchased more PR food but also gave the child a proportionately larger share in comparison with the lower class families.

"Physical Growth Patterns of Preschool Children in a Rural Area in Alexandria", Emad Eid, Bulletin of High Institute of Public Health, volume XI, #2, 1981

A house-to-house survey was conducted in 3 villages. 425 children aged 2 to 6 were examined clinically, measured and compared with American standards of growth. Information on mothers' knowledge about nutrition gathered and food practises surveyed. Findings: Table I shows marked growth retardation in weight and height in comparison with US and British standards. The higher the parents' level of education, the better the weight percentile of their children. Higher crowding index correlated with lower weight and height of children. Tables provide median values of anthropometric measurements and distribution of weight, height, per capita income, parents' educational level. Found income level per se had no significant effect on any of the parameters studied. Conclusions: Nutrition education judged as critical to improving food practices for children. Found significant relation between mothers' knowledge of nutrition and weight of children. Recommendations: Recommends that health personnel receive in-service training in child nutrition and carry out nutrition education through home visits as well as in the health units. Author urges that health units be equipped with demonstration kitchens, that nurses be trained to use growth charts and records, that adult literacy classes be used to introduce nutrition education, that family planning and its relation to child health be emphasized, that the role of sanitation in preventing diseases contributing to malnutrition and growth retardation be stressed.

"A Program for Continuous Medical Education and Training in Maternal and Neonatal Health", 1982 proposal presented to AID--see Connie Collins

The Egyptian Society of Maternal and Neonatal Health prepared this project-proposal to be implemented in Giza governorate. The proposal calls for a program of health education for persons directly involved in maternal/neonatal care--including traditional dayas. MOH data concerning infant mortality rates are critically reviewed. Reviews status of daya in Egypt and health services in Giza. Proposal outlines design for the establishment of a training center and programs in maternal care--for physicians, midwives, social workers and dayas--in Giza.

Project Description for Phase II of Nutrition Health Education
Project associated with Catholic Relief Services

Proposal begins by describing Phase I of the project which involved training 28 MOH employees from 18 governorates as nutrition organizers. They trained 192 nurses working in 165 MOH centers. It is claimed that these nurses taught 20,000 mothers basic nutrition and proper preparation of Title II commodities. Project aims in Phase II to integrate NEHP and MCH programs, cover 1,400 health centers by 1984 in 26 governorates, and introduce Egyptian growth charts. This is estimated to require the training of an additional 60 nutrition organizers over the next 3 years, and modifications in administration, supervision, training and evaluation procedures. Included are preliminary evaluation reports from Sharkiyya, Ismailia, Fayoum and Aswan governorates.

"Protein-Calorie Malnutrition in Egypt: Infants Socioeconomic Parameters", S.A. Yehya, Journal of Egyptian Medical Association, 1977, #60

Study covered 232 protein-calorie malnourished infants, between 3 and 30 months old, attending Mounira Child Hospital in Cairo. Age and sex, incidence of malnutrition, weaning age and food, disease history, birth order, rates of growth presented in tables. Research revealed infants often only fed sweetened watery preparations when they fall ill. Almost all cases had history of gastroenteritis(91%) or respiratory disease(23%). Author claims incidence of malnutrition was especially high among the first offspring.

"Protein-Rich Food Mixtures of Cereals and Legumes", Ismail Abdou, Bulletin of Nutrition Institute, 1967

Five popular cereals and legumes (rice, wheat, beans, lentils and chickpeas) and various mixtures of these were subjected to chemical analysis and protein evaluation. Earlier studies had shown that Egyptians obtained c. 70% of daily calorie protein intake from cereals. Biological value of cereal proteins was raised by blending with protein of legumes or of animal protein (e.g., milk)--such as in koshari, kishk or "Seven Seeds" (traditional weaning food). Tables indicate biological value of these popular foods, the net protein utilization and digestibility coefficient of the different mixtures. Variations on the mixtures were formulated to determine the highest possible protein and nutritional values.

Science and Technology Project 263-0016 "More and Better Food Reports" (available in S & T files):

1. Food Technology Related Projects II: The Dairy Industry: Project Title: "Utilization of Dried Skim Milk in Cheese Manufacture", M.H. Abdel Salam associated with National Research Center is principal investigator. 1/3/79 to 30/9/79

Author cites changing ratios of grain, meat milk consumption per capita in Egypt relative to Europe over the past 60 years. Tables cover Egyptian consumption per capita of milk and dairy products (cow, buffalo, goat); consumption pattern of milk and dairy products; increasing amount and cost of imported dairy products; production costs of white cheese in 1977/78. Author discusses various combinations of raw, skim and butter milk in Egypt's production of cheese in terms of cost.

2. "Utilization of Dried Skim Milk in cheese Manufacture", 1/12/78 to 30/9/80, "Summary of Activities", M. H. Abdel Salam

Author discusses lab experiments which analyzed different mixtures of whole and skim milk powders in manufacture of soft white cheese. Lab results were applied in the production of dairy factories. Author recommends specific method for making soft cheese and calculated cost of local production.

3. "Improve Production and Processing of Milk and its Products under Local Conditions", undated but late 1970's.

Research team visited two villages to evaluate local milk production. Found that individual animal daily production is very low, milk was processed under unsanitary conditions, milk products sold without standard measurements, that 1/4 of milk production is consumed during calving. An economic analysis of village milk production is included.

4. "Improvement of Supramine Quality"(undated, National REsearch Center)

Supramine has short shelf-life and is often disliked by children. The Nutrition Department at the National Research Center performed some studies to increase its palatability. New food mixtures--including soybean, roasted peanut, semolina, wheat and milk protein--were formulated. No discussion is included estimating differences in cost of manufacture or whether team recommendations were implemented by El-Nil pharmaceutical company(the company which manufactures Supramine).

5. "Development of Protein-Rich Food Mixtures for Feeding Young", Morcos, (undated)

Since milk production is seasonal in Egypt, attempts have been made to introduce protein-rich vegetables as a substitute food for infants and preschool children. Author reviews briefly some milk substitutes since 1958 and discusses, in particular, problems associated with Supramine--its short shelf-life, unpalatability, cost(relatively expensive if bought in pharmacies though distributed free in MCH centers). Morcos prepared a number of PRF mixtures based on chickpea, sesame flour, peanuts and milk powder. Author cites popular traditional foods which could readily incorporate such food mixtures. The cost of these mixtures as well as their protein and vitamin values are calculated

"A Study of the Nutritional Status of Mothers, Infants and Young Children, Attending MCH Centers in Cairo", Ismail Abdou, Bulletin of the Nutrition Institute, 1965

Part I: "Nutritional Status of Infants and Young Children":
The nutritional status of 1,143 infants, under 2 years old, were measured in 1956 and 1957. The weaning practices and diets of mothers and pregnant women were studied in 4 MCH centers in Cairo. Results indicated that the average infant deviated from the normal course of growth(determined by average American infant growth) as early as the third month. 13% showed evidence of rickets, 90% of pregnant women, 80% of children and 70% of weaning mothers showed evidence of anemia. Under and malnutrition discovered to be prevalent. Author calls for supplementation studies. Figures show average wt/ht of Cairo children compared with those in USA.

Part II: "Dietary Intake and Nutritional Status of Pregnant and Nursing Mothers":

Same women as in Part I classified according to income, age distribution, parity of mothers. Diet analyzed and found to consist primarily of bread. Tables indicate nutritive value of average daily diet of different income groups. Percent of daily intake of nutrients by bread estimated. Author points out importance of supplementing flour used in breadmaking to raise nutritional levels of low income groups. Study revealed basic similarity in diet of pregnant women, nursing women and national diet--evidence, the author concludes, that women were not obtaining much nutrition education in the MCH centers.

Part III: "Weaning Practices and Supplementary Feeding of Infants and Young Children"

Tables show number and age of children studied and their families classified according to income. Kinds of weaning foods used at different ages, and methods of preparation listed. Study showed that 60% of weaned infants received anise or Senugreek water sweetened with sugar. 10-20% received supplements of external milk (fresh buffalo milk half diluted with water). Author calls for:

- 1) improvements and increase in number of MCH centers
- 2) training of medical personnel in nutrition
- 3) special demonstration rooms in MCH centers
- 4) increasing the number of beneficiaries who receive food supplementation
- 5) instituting home visits as part of a nutrition education program
- 6) developing local, cheap, nutritive, food mixtures.

"Survey of Diet in the Egyptian Village and its Seasonal Variation", Bulletin of Nutrition Institute, 1965

Survey of diet and nutritional status of 80 families (450 individuals) conducted in two villages in Qalyubiyya in different seasons. Families were stratified according to income into 3 groups. Tables indicate intake of foods, nutrients on a yearly basis. Average daily intake calculated. Bread was source of 75% of daily caloric intake. Study revealed that quantity and type of cereals consumed by the three groups in the area were very similar.

Three Grams or 36 Kilos: Issues Affecting the Egyptian Government's Program of Health Education, Health Education Consultant Report, Westinghouse, Strengthening Rural Health Delivery Systems, April, 1981

This is a report of a 3 week survey, conducted in 1981, of a number of health education offices involved in the SRHD project. Problems with health education in the MOH are identified--inadequate funding, lack of coordination and supplies, poor communication and evaluation methods, lack of community involvement--and solutions proposed. The basic organization and costs of the health education department in the MOH are discussed. Consultant found little support for health education in all levels of government. Each of 70 health education bureaus must reach 600,000 people. There exists 1 health educator for every 180,000 people. Health education bureaus have no systematic mechanism for collecting information from local communities about the effectiveness of MOH plans and programs. Author urged that new face-to-face educational aids involving learner participation be introduced. Also recommended that incentives for workers be included in any health education program. Detailed a pilot project to be carried out and tested involving new methods and materials in health education bureaus.

"Weaning Practises in Urban and Rural Egypt", Olfat Darwish, Hekmet Aly et al. Food and Nutrition Bulletin, volume 4, #1, January 1982, UN University (EPD 62)

Information was collected on 253 nursing mothers in rural areas--their income, age, weaning practises, infants' weight and hemoglobin levels, infant mortality from gastroenteritis. Tables indicate pattern and age of weaning, age at completion of gradual weaning, types of weaning foods and techniques by locality. Weaning techniques--active discouragement, gradual substitution, separation of infant and mother--as well as weaning foods are correlated with income per capita. Some traditional beliefs concerning weaning foods and techniques are noted.

Study of Feeding Practices and Weaning Patterns of Egyptian Infants,
Maissa Salama, Ph.D. 1978, High Institute of Public Health

Aim of study was to observe feeding practices and diet in first two years of life in rural and urban areas and to compare variables within the groups studied. 480 nursing mothers attending maternal and child health centers randomly selected--253 mothers(52.7%) from rural areas in Aswan, Beheira and Giza and 227 mothers(47.3%) from Masr el Qadima and Heliopolis. Tables provide data gathered on family per capita income, infant deaths in family, age, education and education of parents, and nutritional status of children.

Results: 27.2% of rural families and 25.9% of urban families had experienced at least one infant death due to gastroenteritis. Of the rural families who had infants who died, 44.3% had one infant death, 32.8% had 2 and 22.8% had more than 2. Weights of urban infants better than weights of rural infants at all ages. Section on infant feeding practices: Author investigated 3 main feeding patterns among nursing mothers:

1. Breast feeding alone(46.6% rural/27.3% urban mothers)
2. Breast feeding with supplementation(47.8% rural/43.6% urban)
3. Artificially fed(5.5% rural/29.1% urban)

Principal reasons for artificial feeding was insufficiency of breast milk(51.1% rural/63% urban), mother's work(20% rural/10.9% urban). In rural areas, weaning was typically abrupt. Infant usually introduced to adult foodd within 12 to 24 month age period. In urban areas, weaning was typically gradual replacement by semisolid foods. Author found that most common weaning technique in rural areas was active discouragement by rubbing nipple with cactus juice, spices. In rural areas, energy rich food(balouza--starchy pudding--potatoes, sweet potatoes, rice, molasses) given as weaning food(69.7%) whereas the percentage in urban areas was 30.4%. In rural areas, feeding infants meat, fish or eggs was avoided because these were believed to cause intestinal putrifaction. Fish was considered to lower infant resistance to colds and that meat is difficult for infants to digest.

Author found that during the interim period awaiting breast compassion, infants in rural areas were given special solutions:

1. Sugar solution with anise or caraway, fenugreek water intended to alleviate hunger and clean intestines.
2. "Balah malzouz"--mix of clarified butter, fenugreek seeds, dates cooked in water for some hours--is given to infant within the first 3 days of life in the belief that it will help make the baby strong.
3. Fresh butter and cow's milk mixed in mouth of mother and transferred directly to baby's mouth in the belief that this would lubricate throat and stomach before breast feeding starts.

Author found that sometimes breast milk was squeezed into a glass, and soaked in mint leaves and bitter chewing gum, kept overnight and fed to the infant by spoon --intended to clean intestines. Almond oil was also given to infants for the same purpose.

Author found that in rural areas, locally produced milk was sold for cash and the amount for infant feeding was inadequate. Those mothers dependent on MCH centers overdiluted the formula.

See tables for information on infant feeding in different localities.

The Development of a Processed High Protein Low-Cost Food, 1979
Masters in Nutrition, High Institute of Public Health, Cmagma Shaltout

Aim of study was to develop a protein rich food for infant feeding using chicken intestines(a by-product of poultry industry); evaluate quality of the protein processed. The results were tested on rats but never on children. The powder developed could be used in forming a mixture with cereals or rice of good nutritional quality and at a low price.

Role of Commercialization of Dried Milk in Breast Feeding Habits among Mothers of Alexandria, 1979 Ph.D, High Institute of Public Health, Aida Gaballa

Aim of study was to assess role of health establishment and commercial pressure on changes in breast feeding habits. Methods: 111 doctors and 89 nurses were interviewed to obtain their attitudes toward breast feeding. 200 mothers(100 breast feeding, 50 supplementing--designated as mixed--and 50 using only artificial feeding) attending MCH and Health Insurance Organization facilities in Alexandria were interviewed and visited at home. Results: Pediatricians had the highest mean score in terms of a positive attitude toward breast feeding followed by MCH physicians and GP's. All nurses had the lowest mean score. Tables present data on parents--distribution by occupation, age, education--and on infants--birth order, sex, type of feeding.

Author found that source of advice for mothers using mixed or artificial feeding was principally from MCH or private doctors--minimal from advertisement, nurses or propogandists. Author found that 65% of breast feeding, 31% mixed and 54.5% of artificial feeding mothers began lactation on the third day after delivery. Artificial feeding began in the first week among 14% of mixed mothers and 44% of artificial feeding mothers. By the sixth week of life, 96% of mixed group had introduced supplementation and 82% of artificial feeding group. During this period free samples of dried milk were being distributed in MCH centers.

Author found that among those mothers using artificial formula, 58% had overdiluted the formula, 19% had made it too concentrated and 23% had made the suitable formula.

Author also studied techniques used in cleaning bottles among those mothers who used formula. She found that among the mixed group, 44% used soap and water, 16% used water and 40% used salt and water. Among the artificial feeding group, 50% used soap and water, 22% used water and 28% used water and salt. Bottle was boiled once or twice a day by 72% of mixed group mothers, 62% of artificial feeding mothers, never boiled among 16% of mixed group and 32% of artificial feeding group. It was boiled at every feed by 12% of mixed group and 6% of artificial feeding group.

Author concludes that poor postnatal care in lactation management in Alexandria hospitals and MCH centers was responsible for mothers' lack of knowledge about and adequacy in infant feeding.

Pattern of Food Distribution and its effect on Nutrition of
Preschool Children, 1978 Ph.D., High Institute of Public Health,
Soheir Bayoumi (#127)

Aim of study was to investigate pattern of food distribution among different social classes and to develop and assess a nutrition education program for housewives. 365 preschool children (3-5 years old) and their families were studied using questionnaires, interviews and home visits. Three types of day care centers categorized according to monthly fees were the contact points for the study. A nutrition education program was established for 2 hours a day twice a week for a month. Families visited as follow up.

Tables indicate distribution of families by monthly expenditure on food, rent, education, and health as well as by other socioeconomic indicators such as crowding, educational level. 43% of sample spent less than 3 pounds per person/per month on food. Distribution of monthly food expenditure varied according to income level. All families with children of low and very low nutritional status spent less than 20 LE month on food. Upper class spent 42.2% on food, middle class 48.8%, lower 49.6% and very low class 58.1%. Food habits examined: In upper class, child given 1/3 to 1/4 amount of meat and milk purchased while among lower classes, child received 1/8 to 1/10 amount of meat and 1/4 to 1/8 amount of milk purchased. Author noted that as social standard dropped, father's share increased (reasons given by mothers for father's largest share were that their mothers had done so (22.6%), because he needs more (35.5%), or because he paid for the food and therefore deserves more (26.4%). Among the upper class, 68.9% bought special children's food (carbohydrates). 82.4% of middle class, 87.7% of lower and 99.3% of very low did not buy special children's food.

Author found that as birth order increased, the nutritional index decreased and as per capita food expenditure increased, nutritional level of preschool child rose.

Author claimed that as a result of the nutrition education program more mothers bought milk for their children but that family expenditure on food had not changed. Author had found that among the lower socioeconomic group, 10% of income was spent on cigarettes. This figure remained unchanged. Author noted that grandmother in very low income group generally controlled distribution of foods and consumed the largest share of meat--in these families, children received the smallest or no share of meat.

Hospital Utilization for Inpatients of Gastroenteritis, Respiratory Illnesses and Malnutrition in Alexandria's Pediatric Hospitals
1982 Ph.D. High Institute of Public Health, Hussein Salah

Study investigates quality of medical care in 3 pediatric hospitals in Alexandria. Data gathered during 10 months from 1980-81 on 532 cases of gastroenteritis, respiratory illness and malnutrition. Author noted that 47.2 of all cases under 2 years old were given artificial milk, 26.2% were weaned completely and 26.6% breast-fed. Among the malnourished group, 55.2% were artificially fed and 34.5% given other foods. 67.9% of mothers accompanying malnourished children did not have adequate knowledge about sterilization procedures for bottle feeding or the proper ratio of water to formula.

Study of Nutrition Education of Mothers for Care of their Children in Urban and Rural Areas in ARE, 1973 Ph.D., HIPH, Kadria Moustafa

Aim was to investigate sociocultural factors relating to child malnutrition and to develop an appropriate nutrition education program for mothers. Method: Mothers attending MCH centers within Cairo in two low socioeconomic areas--Masr el Gadima (105) and Ein el Sira(106)--and from a high level area--Heliopolis(90)-- were interviewed and their children measured anthropometrically. Investigator conducted a nutrition education program for 6 months, twice a week, to mothers of children under 1 years old. The program was evaluated by before- and after-KAP tests and infant measurements.

Results: Author found that in low socioeconomic areas, less than a quarter of mothers received information about infant feeding from doctor or nurse compared to 90% in Heliopolis. In the low socioeconomic areas, over 83% of mothers kept remaining formula in the bottle until the next feed. 29% of low income mothers used overdiluted formula. None sterilized the bottle before each feeding. Kitchen salt was used to cleanse the bottle. In the low income areas, weaning was abrupt in all cases. Whereas most children in Heliopolis were weaned by one year, in the low income areas, children were typically weaned sometime between 12 and 18 months.

The leading cause for abrupt weaning was a new pregnancy. Author noted that mothers believed breast milk of a pregnant mothers hurts the nursing infant. All low income mothers reported troubles associated with abrupt weaning--diarrhea, loss of appetite, continuous crying. Mothers used quinine or Sabra on nipple to discourage infant. Many infants were left with relatives for a week or so. Biscuits were given to placate the child.

In Heliopolis, 74% of mothers added extra food to the infant during the four to six month period. In the low income areas, 20% of mothers added food during this period. During the 6 to 12 month period, 60% of poor income mothers added extra food to the baby's diet. In the low income areas, 1/3 of mothers prepared special baby foods--the rest gave ordinary family food to infant. The food given was typically rice, macaroni or balouza. Animal protein was rarely given. In the low income areas, 47% of mothers breast fed up until 18 months supplementing with non-nutrient fluids--watery fluids, or highly diluted cow or dried milk--administered by a bottle. High protein foods during 12 to 24 month period were very limited. Infant usually sampled family food--potatoes, bread, rice, balouza(cooked starch).

Author noted that contamination of infant feeding highly likely: 20% used spoon while feeding, 60% used hand, 10% used cup and 10% prechewed the food. Prevalence of diarrhea among infants studied was 46.4%. Among low income mothers, 10% washed breast before nursing--more than 50% gave only one breast at each feeding.

Author noted nutritional status of children. Severe protein calorie malnutrition occurred in 35% of girls and 28% of boys studied in low income MCH centers. Vitamin D deficiency among children of low socioeconomic class was 13%. Severe malnutrition was found in 35.9% of children of mothers under 25 and in 23.9% of children of mothers over 25.

Author noted that in case of diarrhea as in measles or fever, infant was typically left on the breast or given non-nutritious fluids for a week or more which led to wasting.

Dietary Survey of Pregnant Mothers Attending Maternity Unit of Shatby Hospital, 1960 M.P.H., High Institute of Public Health, Ellen Sadek

A random sample of 169 out of 736 pregnant women coming to the hospital during a 10 week period in 1959-60 was surveyed. Mothers were interviewed, social data obtained, height and weight of mother determined, quantity and type of food consumed calculated and nutritional value of weekly diet estimated. Mothers were classified according to family income levels.

Results showed little significant difference in food pattern or quantity consumed among different groups but higher income groups consumed slightly more milk, eggs, meat, fresh fruit and vegetables. Diet of pregnant women is like that of national diet which is deficient in calcium and vitamins A and C. Bread was the staple food, fresh fruit was rarely consumed. Only 24% of mothers consumed meat during survey, 84% consumed small amounts of milk. All ate cheese(around 26 grams/day) most of which was skim cheese.

A Study of Food Habits of Pregnant and Lactating Mothers Attending Shatby Hospital, M.P.H., 1960, High Institute of Public Health Akila Saleh

Aim of study was to study food habits of pregnant women and mothers and to study the relationship between nutrition and milk composition. Subjects in this study were the same as in Ellen Sadek's Dietary Survey noted above. Of the 169 women, 96% were illiterate, the husbands of 85% were laborers.

Results indicated that all vegetables were overcooked which lowered vitamin content. Pregnant women had no priority in obtaining nourishing foods at meals. 13.9% of women had changed their diet somewhat because of pregnancy--drinking milk or eating more meat. During lactation, 18.4% drank fenugreek water, 15.8% consumed molasses or halawa because these were believed to increase milk production.

An Epidemiological Study of Etiological Agents and Predisposing Factors of Diarrheal Disease in Children Under 6 years in Alexandria, 1961 M. PH., High Institute of Public Health, Nada Abu Hamar

Aim of study was to study important etiological factors(agent, host, environment) of diarrhea among young children and to identify high risk group. Method: Data collected during six months in 1979. Subjects drawn from patients attending 3 pediatric hospitals in Alexandria and one rural health unit for treatment of primary diarrhea. Basic epidemiological data collected on 579 children(473 cases of diarrhea and 106 controls). Children were examined and weighed.

Results: 23.3% of cases of diarrhea fell below 6 months of age, 40% of cases occurred in 6 to 11 month age group and another 20% occurred between 1 and 2 years. Tables indicate occupation and education of parents, sanitary condition and crowding index of homes. Social indicators: 67% of fathers were manual laborers, 50% fathers illiterate, 80% mothers illiterate, 94% mothers were housewives. 26% had no water inside home. Clinical/laboratory exam: In 82.7% of the diarrheal cases, no bacterial pathogens were isolated; among 70.8% of cases no parasitic agents were found. In 8.9% of cases, shigella was isolated and in 5.7%, enteropathogenic coli were found. Among the children, 72.6% were underweight. 48.6% of cases of under two children were breast fed only. Concludes that no definite relation between parasitic infection and diarrhoeal disease could be established.

Regional Nutrition Training Project: Status Report by Dr. H. Ghassemi, Project Director, 1973-75, EMR/WHO January 1975--EM/NUTR/67

In 1970 the first EMR seminar on food and nutrition was held. A shortage of qualified personnel trained in nutrition was then considered an impediment and so this project was established under the auspices of FAO/WHO/UNICEF and later UNESCO.

This report notes the major activities of the project between 1970 and 1975 as providing multidisciplinary courses to sensitize top-level officials and technicians to problems of nutrition, offering fellowships, giving intensive short courses on nutrition, holding seminars and conferences.

Report on the Local Review of WFP(World Food Program), Project ARE 702, Production of Protein Rich Food Mixture for Children "Supramine", May 24, 1979, Prepared by the Local Review Committee(including members from the Nutrition Institute, El Nil Pharmaceutical Company, UNICEF)

This extensive report evaluates the project's targets and shortcomings since 1976. Reasons for low production of Supramine during 1979 are examined--production for commercial sales was kept low, Ministry of Health direct purchases were below the minimum target due to budget constraints, promotion efforts were uncoordinated and tardy and production bottlenecks were caused by heavy loss of working days. Report indicates MCH share in distribution of total Supramine output between 1976 and 1978. The report refers to 18 training sessions held in 1977 by the Nutrition Institute for 180 physicians and nurses working in MCH centers. In 1978 8 field training courses were administered by the NI involving approximately 100 doctors.

Conditions specified early in the project are set out and evaluated in terms of what actually transpired. This evaluation covers cost of production, administration, distribution, food losses during storage and production, transportation problems, promotional activities and guidelines for nutrition education.

General conclusions: Project results were poorer than expected because:

1. Supramine plant could not fulfill increased pro-rated demands from MCH--although average monthly production increased from 1978 to 1979.
2. Absorption capacity of commercial market for Supramine in Alex and Cairo more limited than expected--competition from Nestle's Cerelac especially was strong.
3. Cost of raw materials and packaging had increased.
4. Factory operations were not flexible due to administrative regulations
5. Production levels were kept low

Annexes cover number of working days lost from production, schedule of weekly training programs for MD's, production losses of WFP food, cost of new Supramine, translation of MOH guidelines for distribution of Supramine at MCH Centers, programs and services carried out by MCH centers in nutrition, basic data on attitudes about Supramine

The Diet of Families with Children Having PC-Malnutrition, 1971,
NAMRU III, UAR

49 mothers of Protein-calorie malnourished infants admitted to Ain Shams University Hospital were interviewed for information on their social status and nutritional intake. Typical meal pattern shown to consist of breakfast(tea, beans, cheese), lunch(staple of bread, cooked vegetables--mostly onions and tomatoes--2 or 3 times a week, beans, potatoes, egg plant, cheese, eggs and salad), and dinner(remains from lunch). Tables indicate frequency of consumption of various food groups; contribution of these to total protein and calorie intake; correlation between income and calorie-protein intake, and height/weight deficits. Animal protein estimated to take 22% of food budget but contribute only 16% of the protein and 10% of calories consumed.

Feeding and Weaning Practices of Infants and Children Less than 2 Years at Cairo Governorate: Final Report, 1982, Wafaa Moussa

Sample of 274 infants under 2 from low socioeconomic background studied. Report provides general data about family--size, number of live births, nutritional status of children based on weight for age data. Author tried to determine factors which threaten breast-feeding. Of sample, 13% never breast fed. Reasons for starting supplementary feeding and types of supplements were reviewed. 72% used commercial baby foods, 45% used buffalo milk, 20% used cow milk, and 30% used powdered milk. 68% used fresh milk diluted with water in ratio of 1:1.

"Evaluation of Food Consumption Programs in Rural Egypt", DRAFT, June, 1981, Carlos Benito, Agricultural Development Systems Project

Paper reviews methodology for evaluation of food consumption programs--their cost-effectiveness, framework of reference for evaluating impact, transportation and operation costs. Econometric and optimization approaches to evaluation urged.

"Food Consumption in Rural Egypt Bibliography", Economic Working Paper #27, June 1981, Sylvia Lane et al, Agricultural development Systems Project

Bibliography is arranged by author and by topic--animal production, land; population, resources, crop prices, input prices, wages, technology, household income, etc.

"Review of Literature Relevant to Food Consumption Activitiy", May, 1982, Amin Abdou, Agricultural Development Systems Project

This excellent annotated bibliography reviews articles and books, many in Arabic on the following topics: food security and food storage; income and food expenditures, food consumption, Egyptian diet, protein problem in Egypt, nutritional value studies of particular foods

"Sources of Food Supply and Consumption Patterns in Rural Areas", Amin Abdou, June, 1982, Agricultural Development Systems Project,

Households in 10 villages surveyed.. Author found that consumption of their own produce is common among the fellahin, especially among small landholders and that production patterns affect per capita consumption.

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"Major Features of the Food Problem in Egypt: An Overview of Influential Factors and Measurements of Treatment", Amin Abdou, June 1982, Agricultural Development Systems Project

Author argues that despite the rapidly growing volume of wheat and corn imports, the average Egyptian diet is below nutritional requirements--short of protein, minerals and vitamins. Author notes factors influencing food consumption patterns--landholdings, production patterns, length of pay periods, price changes, size of households. Suggests tentative measures for dealing with the food problem--developing an integrated plan for agricultural production which would include increasing the production of corn, soybeans, meat, rice, increasing credit to farmers and input subsidies, income redistribution in favor of the poor possibly through a food-stamp system.

"Government Distribution and Price Policies for Major Subsidized Food Commodities in Egypt: An Overview", June, 1982, DRAFT Economics Working Paper #23

Author argues generally that government policy favors consumer at the expense of producers. Claims that farm prices depressed by administrative decrees, in effect, provide urban consumers with subsidized foods and that this in turn accounts for the stagnation of Egypt's agricultural sector. Author notes that during 1980 while agricultural output increased by 2.0% annually, the annual growth rate was 2.3%. Author argues that current policies to achieve equity through food subsidies and rationing are incompatible with economic efficiency and cause general economic loss. Notes that 80% of commodities subsidized are foods--sugar, oil, tea, rice, beans, lentils, imported frozen meat and poultry, flour and bread. Author explains food distribution system in Egypt: Each neighborhood has designated grocer to handle rationed commodities. Each family in the area is registered with the grocer and receives rationed food. Author notes current amount and price of rations. Author divides food commodities into three major types:

1. Subsidized and rationed foods where quantities per individual are guaranteed--oil, sugar, rice, tea
2. Subsidized and semi-rationed foods designated for families--beans, lentils, frozen meat and poultry, flour
3. Subsidized but not rationed foods--bread

Author argues that government policy tends to determine farm income by affecting cropping patterns and delivery of specified quotas to government at fixed prices. Reviews major perceived benefits of present system--as guaranteeing minimal level of food consumption, control spatial distribution of basic foodstuffs, ensure political and social stability. Claims consumption of bread, tea, rice, sugar and oil has increased by 5-8% a year--two or three times faster than population growth.

Family Food and Nutrition: A Manual of Priorities for the Eastern Mediterranean Region: Messages for Mothers", WHO, April, 1977 by Saranya Reddy and Michael Curvey

Manual is intended to serve as a guideline for frontline workers -all categories of health care personnel who come in contact with mothers and families. The manual details the proper method for introducing weaning foods and specifies what local foods are suitable. Manual stresses the importance of regular weighing of infant.

"The Distribution of Consumption of Basic Food Commodities in the Urban and Rural Areas of Egypt", Soby Ismail and Dyaa Abdou, Economics Working Paper #59, Agricultural Development Systems Project

Aim: Paper addresses issues regarding per capita consumption among different income levels in urban versus rural areas; direction of per capita consumption trends during the period between 1964 and 1975; whether distribution of consumption is related to subsidy rationing policies of government. Method: Study is based on data from 2 Family Budget surveys, 1964-75/1974-75. Author found that per capita expenditures were higher for urban areas than for rural in both periods and in absolute terms. However, as a percentage of total expenditure, per capita food expenditure was higher for rural areas than for urban. In both areas, real per capita total and food expenditures increased between 1964 and 1974. Author found that those commodities which were subsidized and rationed (sugar, tea, vegetable oil and rice) tended toward equality of consumption as were those which were subsidized but not rationed (wheat flour and bread).

"Lactation in Islam", Fouad Hefnawi, Population Science, 13, 1982, International Islamic Center for Population Studies and Research, Al-Azhar University

Author notes Quaranic verses recommending 2-year lactation period and expounds on the child's right to breastfeed on the basis of the Quran. Author also notes sunnah touching on lactation. Claims that the belief that milk of pregnant women is thought to be risky to the nursing child is a pre-Islamic belief. Author concludes by noting that the Center is studying effects of hormonal and non-hormonal contraceptives on lactation.

"An Epidemiological Study on the Association between some Environmental and Personal Factors and Post-neonatal Infant Mortality in Ismailia (City and District), MA thesis, 1981, Ain Shams Faculty of Medicine, Public Health, by Youssef Melek

Method: A random sample of 176 post-neonatal deaths and 176 surviving births were selected for study from 527 registered births in 4 urban health offices and 7 rural health offices in Ismailia. Families were interviewed so as to determine whether there were any significant differences between the groups regarding personal or environmental factors. Findings: Author found that 45.5% of mothers of deceased infants had a history of previous infant loss compared with 26.1% of mothers of surviving infants. Found that risk of neonatal death increased with progression to higher birth orders (i.e., first born had best chance of survival) and the shorter the birth interval. In this study, 45% of deceased infants were breast fed while 76% of surviving infants were breast fed until at least the end of the first year. No significant differences were found between partially and exclusively bottle fed infants--but author claimed risk of post-neonatal death was 20 times higher for bottle fed than breast fed. No significant differences between the two groups were found concerning use of ante or postnatal services, provider of birth delivery or occupation. Significant differences were found, however, between cases and controls in regard to housing conditions--especially overcrowding. 89.2% of cases were overcrowded (2 or more persons/room) compared with 67.6% of families of controls.

Report of ADS Egypt-California Project Economics Workshop, "Egyptian Nutrition Problems and Programs", June 14, 1982

The workshop included the following presentations:

1. Amin Abdou, "Major Features of the Food Problem in Egypt"
2. Osman Galal, "Prospects of Nutritional Intervention Programs in Egypt"
3. A. Goueli and I. Soliman, "Food Security in Egypt: The Socio-Economic Implications of Dietary Protein Energy Interrelationships"
4. A. Mohammed, M. el Shennawy, "Pattern of Food Consumption and Nutritional Value of Human Diets in Four Egyptian Villages of the Rice Zone"
5. A. Abdou, "Sources of Food Supply and Consumption Patterns in Rural Areas"
6. H. Ali, "Impact of Small Scale Poultry Sector on the Nutritional Status of Inhabitants"

The following articles, documents and reports now form a part of the Health Sector Assessment collection currently in the Documentation Information Center at USAID/Cairo. The alpha-numerical code to the right of each item indicates its placement within this collection for purposes of retrieval.

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- Arab Republic of Egypt: Nutrition Status Survey (AID 10)
1978, AID and Nutrition Institute
- Arab Republic of Egypt: Nutrition Status Survey II, 1980 (NUT 29)
Nutrition Institute and AID
- Aswan Nutrition Survey: IV--Diet Intake and Food Habits (NUT 42)
Amin Said et al, Journal of the Egyptian Public Health
Association, Volume LV, 1980
- "A Case History: Replacing Imported Foods with Local Foods" (NUT 23)
League for International Food Education Newsletter, March, 1979
Miriam Krantz
- "Classification and Definition of Protein-Calorie (NUT 18)
Malnutrition", British Medical Journal, 2 September 1972
- "Clinical, biochemical and experimental Studies on (NUT 27)z
actation: Part I: Lactation Pattern in Egyptian Women"
American Journal of Obstetrics and Gynecology, 1969, volume 105, # 3
I. Kamal, F. Hefnawi et al
- Control of Diarrheal Disease Project(263-0137) (NUT 25)
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Malnutrition", C. Waslien, US Naval Medical Research Unit # 3,
Cairo, Article #49
- "The Distribution of Consumption of Basic Food (NUT 1)
Commodities in the Urban and Rural Areas of Egypt",
Economics Working Paper #59, Agricultural Development
Systems Project, January, 1982

Economics of Supplemental Feeding of Malnourished Children: (NUT 36)
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451, April 1981, Odin Knudsen

"Effect of Nutrition Education on the Dietary Patterns of (NUT 41)
two Socioeconomic Groups of Pregnant Females in Dakahlia
Governorate(Egypt)", M. El Shabrawy Ali, Journal of Egyptian
Medical Association, 1971

"Effect of Supramine on Rehabilitation of Children (NUT 26)
Suffering from Different Forms of Protein EM", from
Ain Shams Medical Journal, Vol. 30, #5 & 6, November 1979
H. Aly, W. Moussa and A. Hemmam

"Egypt: Traditional Midwives Advise Experts" (NUT 34)
(short newspaper article)

Egypt's Food Subsidy and Rationing System: (NUT 28)
An Analytical Description (WORKING DRAFT--final probably
available in November, 1982), Harold Alderman, Joachim von Braun, and
sagr Ahmed Sakr, May 1982, IFPRI -- also includes questionnaire forms

"An Epidemiological Study on the Association (NUT 2)
between Some Environmental and Personal Factors and Post-
Neonatal Infant Mortality in Ismailia(city and district)
MA thesis, Faculty of Medicine, Ain Shams, 1981 by Youssef Melek

"Estimated Engel Functions for Wheat and Wheat Products: (NUT 14)
Testing for Urban-Rural Differences and Flexible Functional
Forms", Rasmia Moustafa et al, January, 1982, Agricultural
Development Systems Project

"Evaluation of Food Consumption Programs in Rural Egypt (NUT 11)
Methodological Considerations", Carlos Benito,
June, 1981, Agricultural Development Systems Project.

"Evaluation of the Nutritional Quality Storage (NUT 3)
Stability and Acceptability of Various Low-Cost
High Quality Food Supplements for Infant Feeding", M. Hegazi, 1981
(includes up-dated addition to paper)

"Family Food and Nutrition: A Manual of Priorities
for the Eastern Mediterranean Region: Messages for Mothers"
WHO, April 1977--Saranya Reddy and Michael Gurvey (NUT 4)

"Feeding and Weaning Practices of Infants and
Children less than 2 years at Cairo Governorate"
Wafaa Moussa, August, 1982, Nutrition Institute (NUT 15)

Final Report: Analysis of Community-Level Nutrition
Programs, William Drake et al, October, 1980, USAID (NUT 24)
(Project on Analysis of Community Level Nutrition Programs)

"Food Consumption in Rural Egypt--Bibliography"
Sylvia Lane et al, Agricultural Development Systems Project (NUT 12)
June, 1981

"Food Policy and Nutrition among the Fellahin"
Sylvia Lane, Agricultural Development Systems Project, May, 1981 (NUT 8)

Gazette of the Egyptian Pediatric Association (JRN)
Editor, M. Gabr
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"Government Distribution and Price Policies
for Major Subsidized Food Commodities in Egypt:
An Overview", Dyaa Abdou, DRAFT Economics Working Paper #23,
Agricultural Development Systems Project, June, 1982 (NUT 5)

The Impact of PL 480 Title II in the Philippines 1970-80 (NUT 31)
Report of a Program Evaluation DRAFT--July, 1981,
Stewart Blumfeld et al

"Improved Feeding Patterns in the Prevention
of Childhood Nutrition", Sania Wahba, Osman Galal et al (NUT 9)

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University of al Azhar

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Development Systems Project, Ministry of Agriculture
and University of California (NUT 7)

Ministry of Health Infant Growth Chart
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Morocco: Food Aid and Nutrition Education (NUT 32)
AID Project Impact Evaluation Report # 8, August 1980, AID

Nutrition Programs in Sri Lanka Using U.S. Food Aid (NUT 38)
(An Evaluation of PL 480 Title II Programs) DRAFT, Drake et al,
February, 1982

"Protein Rich Food Mixtures of Cereals and Legumes" (NUT 21)
Ismail Abdou and Fikri el Nahry, Bulletin of the Nutrition
Institute, volume III, # 1, 1967

Report of ADS-California Project Economics Workshop (NUT 33)
"Egyptian Nutrition Problems and Programs", June 14, 1982

Report on the Local Review of WFP Project ARE 708 (NUT 8)
Production of Protein Rich Food Mixture for Children
"Supramine", May, 1974, prepared by the Local Review Committee

"Review of Literature Relevant to Food Consumption (NUT 13)
Activity", Amin Abdou, May 1982, Agricultural Development
Systems Project

"Sources of Food Supply and Consumption Patterns (NUT 7)
in Rural Areas, Amin Abdou, June 1982, Agricultural
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This bibliography has been compiled to assist nutrition consultants visiting AID/Cairo in August, 1982. As such, it supplements the material found in The Maternal and Infant Reviews: Egypt: A Guide to the Literature, published by International Nutrition Communication Services.

The annotations included here cover the following articles, reports and books:

Analysis of Situation of Children and Women in Egypt, UNICEF

Anemia in Egypt: Iron Supplementation Trail, Osman Galal

Antenatal Care: A Comparative Study, Nahid Kamel

Antenatal Care in Alexandria--Extent of Coverage and Pattern of Attendance, Nahid Kamel

Anthropometric Measurements and Developmental Scores of Children at One year of Age, Nahid Kamel

Assessment of the Health and Nutritional Standards of Infants and Preschool Children in a High Density Cairo Community, Sarwat Shukry

Aswan Nutrition Survey, Amin Said

Beliefs, Practices, Environment and Services Affecting Survival, Growth, and Development of Young Egyptian Children--A Comparative Study in 2 Egyptian Governorates, Waiik Hassouna

Birth Interval and Its Effect on Child Health, F. el Behairy

Birth Weight and Maternal Status, Waly

Brief Description of Collaborative Research Support Program on Intake and Function in Egypt, University of Arizona

Clinical, Biochemical and Experimental Studies on Lactation, I. Kamel

Development of Protein Rich Food Mixtures Suitable for Feeding Infants and Young Children, Wafaa Moussa

Diarrheal Disease Control Study, ARE

Effect of Antenatal Home Visiting Program, Eid

Effect of Nutrition Education and Supplementary Foods, Hoda Damian

Effect of Supplementary Feeding on Health and Growth of Infants and Young Children of Low Socioeconomic Groups in Egypt, Hekmet Aly

Effect of Supramine on Rehabilitation of Children Suffering from

APPENDIX B

Persons Interviewed Before and During Reconnaissance Mission to Egypt

MINISTRY OF HEALTH, CAIRO

1. His Excellency Mamdouh Gabr, Former Minister of Health
2. Almoz Mubarek, First Under-Secretary of Health
3. Loutfi El Sayad, General Director for MCH Services

A. Nutrition Institute (MOH Cairo)

4. Osman Galal, Director
5. Hekmat El Said Aly, Former Director
6. Amin Kamel Said, Nutritionist (Former Acting Director)
7. Wafaa Moussa, Nutritionist (Weaning Food Studies)
8. Hoda George-Demian, Nutritionist (Weaning Food Studies)
9. Farouk Sheheen, Deputy Director, NEHCP

B. MCH Centers (MOH Cairo)

10. Doctor-in-Charge and Staff, Bab El Sharkeya
11. Doctor-in-Charge and Staff, El Daher
12. Doctor-in-Charge and Staff, El Fagala

C. CRS Nutrition Education Program (MOH Cairo)

13. Fikrya Saleh, Nutrition Organizer

D. Second Population Project (MOH Cairo)

14. Nabil Nasser, Director (Village HPN Projects)

E. Population & Family Planning Board (MOH Cairo)

15. Aziz Bindary, Directory (Village HPN Projects)
16. Moustapha H. El-Saman, Deputy Director (Village HPN Projects)

MINISTRY OF EDUCATION, CAIRO

1. Tewfik Ghorab, Under Secretary for Central Services

MINISTRY OF AGRICULTURE, CAIRO

1. His Excellency Ramses Kamel Stino, Advisor
(Former Minister of Supply)

NATIONAL RESEARCH CENTER, CAIRO

1. Anmed M. Kamel, President
2. El-Sayed M. Hegazi (Supramine Project)
3. Onsi Metwalli (Kafr El Khadra Village Projects)
4. Gamal N. Gabriel (Kafr El Khadra Village Projects)
5. Fawzi El Smobaki (Iron Deficiency Anemia Projects)
6. Aly Zein Il-Abdin (Giza Village Projects)

USAID/CAIRO

1. Owen Cylke, Acting Director
2. Keys McManus
3. William Oldham
4. Ernest Petersen, Food for Peace Officer
5. Laila Boutras, FFP Office
6. Marilyn Mayers (Medical Sociologist, Special Projects)
7. Douglas Palmer (Rural Health Projects)
8. John Wiles (Urban Health Projects)
9. Connie Collins (HPN Projects)
10. Thomas Reese (Population & Development Projects)
11. Emily Leonard, Program Officer (Economist)
12. Raymond Forte, Assistant Director for Agriculture
13. Graham Kerr (Basic Village Services Projects/Title III)
14. William Binns (Private Sector Development).

U.S. EMBASSY, CAIRO

1. Edward Ruse, Commercial Attache

CATHOLIC RELIEF SERVICES, CAIRO

1. Andrew J. Koval, Program Director for Egypt
2. George H. Ropes, Nutrition Program Supervisor
3. Mary K. Tauras, Nutrition Assistant 1/c Program Development
4. Thomas Tauras, Program Officer 1/c Title II Foods Distribution

MINYA GOVERNORATE

1. Abdelsamie Omran El Sherif, Under Secretary of Health
2. Doctor and Staff, Beni Mohammed Suntan, Rural MCH Unit

A. Second Population Project (Minya MOH)

3. Kamal Mikhail, Director (Rural HPN Projects)
4. Mahadia El Fully, Program Director (Pediatrician)
(Rural HPN Projects)
5. Nicola Ruck, Program Director (Nutritionist)
(Rural HPN Projects)

COPTIC EVANGELICAL ORGANIZATION FOR SOCIAL SERVICES (CEOSS) MINYA

1. Nabil Samuel Abadeer, Deputy Director of Development Programs
(Rural HPN Projects)
2. Suad A. Fam, Head of Health Unit (Rural HPN Projects)

BEHEIRA GOVERNORATE

1. Esmail Monieb Abd-El-Kader, Under Secretary of Health
2. Adel Mashaly, Director General for Treatment
(re Preposed CRS Markaz Development Project)

KAFR EL-KHADRA VILLAGE (MINUFIA GOVERNORATE)

1. Mohamed Abd-El-Ati AbdEl-Rahman, Head of Village Council
2. Doctor-in-Charge and Staff, Rural MCH Unit
3. Several farmers and land-holders
4. Cheese-maker
5. Furniture-maker
6. Woman with TV set
7. Carpenter
8. Bee-keeper
9. Bee-keeper's wife and family
10. Rug-maker
11. Persons at Mosque

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4
EGYPT-CALIFORNIA PROJECT (CAIRO)

1. John T. Rowntree, Associate Director
2. Talaat E. Shehata, Program Director

(Food Consumption Studies; Production in Villages of
Sweet White Cheese and Sweet Whey)

WESTINGHOUSE SRFD PROJECT (Strengthening Rural Health Delivery)

1. Shuskum Bhatia, Chief-of-Party
2. Clayton Ajello, Program Officer

(Village ORT, Health, Nutrition and Other Projects)

IFPRI PROJECT (Impact of Subsidies on Nutrition)

1. Harold Alderman (Economist) (Food Consumption Studies)

CAIRO UNIVERSITY FACULTY OF MEDICINE

1. Dr. (Senator) Shafika Nasser, Professor of Public Health

ISLAMIC CENTER FOR POPULATION STUDIES, AL AHZAR UNIVERSITY, CAIRO

1. Fuad Hefnawi, Director
2. Ahmed Wajihuddin, Project Advisor

(Sharkya Governorate Village Studies)

HARVARD/MIT INTERNATIONAL FOOD & NUTRITION PROGRAM

1. Nevin Scrimshaw, Director

(Iron Deficiency Anemia Study, Bortoes Village, Sharkya)

DAMES AND MOORE, WASHINGTON

1. Clay Wescott, International Development Programs
2. Hans Guggenheim, Consultant

(Sinai Development Project)

PRIVATE CONSULTANT

1. Roger Hardister, Social Anthropologist, Cairo

AID NEAR EAST BUREAU, WASHINGTON

1. Barbara Turner, HPN Officer
2. Arthur Braunstein, Technical Office, Nutrition

AID EGYPT DESK, WASHINGTON

- 1. Bert Porter, Desk Officer

FOOD FOR PEACE PROGRAM (AID) WASHINGTON

- 1. Robert Pooley
- 2. Carolyn Weiskirch
- 3. Max Williams
- 4. Ray Hoehle
- 5. Paul Rusby (FFP Officer Designate. Egypt)

CARE (CAIRO)

- 1. Alan Turnbull, Program Director for Egypt

UNICEF (CAIRO)

- 1. Ulf H. Kreuger, Country Representative
- 2. Christine S. Tennant, Program Planning Officer
- 3. Nawal El Messiri Nadim, Social Anthropologist

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APPENDIX C

Many of the following projects involves an element of nutrition education, either ongoing or projected, via face-to-face communication between "change agents" and mothers of weaning age children. Some of the projects involve this nutrition education communication within organized facility settings, i.e. in MCH Clinics. Others involve activities or research within the communities themselves, i.e. in villages or urban neighborhoods.

I. NUTRITION EDUCATION PROGRAM (Within CRS/MCH Title II Foods Program)

This activity focuses on cooking demonstration programs in MCH Clinics where Title II foods are also distributed. There are three tiers in this program:

1. A cadre of "Nutrition Organizers" (recruited from among dieticians, social workers, nurses, etc.) are trained in this nutrition education activity at the Nutrition Institute in Cairo;
2. These in turn train a cadre of "Nurse Educators" (nurses in MCH clinics at the Governorate level;
3. These in turn hold classes for small groups of mothers at the clinics. At present, 192 Nurse Educators have been trained and work at 165 MCH Clinics (some clinics have two NE's).

We were present at a cooking demonstration for about a dozen mothers at one of the urban clinics in Cairo, which lasted about one-half hour. The mothers seemed very interested, exchanged comments with the Nurse Educator, fed the cooked food to their babies, but did not take part in the actual cooking. About 100 other mothers were at the clinic, in the outdoor waiting area, and one of our observations was that the same demonstration could have been held outdoors so that all the mothers could look on. Mothers selected for the class were not necessarily the mothers receiving Title II foods.

2. SECOND POPULATION PROJECT (Supported by Six Governorates by IDA and in One Governorate by ODA)

This HPN project is supposed to have four components: (1) an outreach program involving clinic nurses, traditional midwives, and other care; (2) an "information, education and communication" program conducted by the outreach workers in villages; (3) construction of simple facilities for MCH activities; and (4) training of MCH doctors and outreach workers. We visited the project headquarters in Minya Governorate and spoke with three of the principals. We were told that to date the activities had been training of nurses and construction of some buildings. Each nurse is supposed to visit 250 families on a regular basis, with HPN messages. To date this was taking place in one pilot area, which we were not able to visit. Traditional midwives were not being trained. Another component of the program, to train MCH doctors in the objectives of the program, had not commenced. An important element of the program, introduction of weighing scales and growth charts, had been initiated in the pilot area, and we were told this was going well. One of the principals told us that the focus of the outreach program seemed to be mainly family planning, less health and nutrition.

3. CEOSS (Coptic Evangelical Organization for Social Services) VILLAGE DEVELOPMENT PROGRAM

This activity by an Egyptian PVO was taking place in five new villages plus 45 follow-up villages in Minya Governorate. We visited the project headquarters and interviewed two of the principals. A cadre of community development workers are trained in the teaching of literacy, home economics, primary medical care, nutrition, family planning, and agriculture. We were told they live in villages 3 to 5 years, work with village leaders and families, with the focus

obviously being on personal contact. For many of the young persons in the program, we were told that this was viewed as an opportunity to develop a career, or to hold a first job while waiting the normal period of several years for a job appointment by government.

4. MORE AND BETTER FOODS (an activity of the National Research Center)

Among the many facets of this project is a program of agricultural development in several small villages, using appropriate technologies and with an aim to generating new income-producing sources, together with baseline survey and evaluation activities. A projected phase of the project will involve nutrition education and a program to combat anemia with a focus on children. We visited one of the villages in Minufia Governorate, and interviewed the Village Council Head and some of his staff, the MCH doctor and his staff, and a number of village residents. Agricultural activities included cheese-making, bee-keeping, and improved production of tomatoes.

5. STRENGTHENING RURAL HEALTH DELIVERY (GOE/AID)

This large project in 4 Governorates has focused on MCH/FP services including improved treatment of a few specific diseases and ORT. A nutrition component had been added that includes a weighing program and interviews with mothers on child-feeding practices (no data output yet with respect to the latter). We interviewed a number of the principals.

6. RURAL POPULATION DEVELOPMENT PROJECT (AID)

This project in 700 villages in 12 Governorates works through village councils and about 1,500 outreach workers to promote various development activities, usually in agriculture, as well as family planning.

7. UNICEF AREA DEVELOPMENT PROGRAM

This project in 6 Governorates involves pilot activities to promote the training of traditional midwives, formation of womens' clubs, income-generating activities, ORT, bilharzia control, immunizations, and development of nutritional messages.

8. CARE (Sinai Title II Food Program and Lake Nasser Development Program)

The Title II program is designed to reach a largely nomadic population. Recipients are assembled for periodic distributions by local government and religious leaders.

In the Lake Nasser project, 21 agricultural and fishing village communities have been created for migrant workers who go to these sites 9 months in the year.

9. ISLAMIC CENTER FOR POPULATION STUDIES, AL AHZAR UNIVERSITY, CAIRO

This group has established a "field laboratory" in a complex of villages in Sharkya Governorate, for a study, among other things, of the development of new forms of nutrition education, in association with CRS.

10. EGYPT-CALIFORNIA PROJECT

This complex of 21 projects focuses on economic and agricultural studies, also a food consumption study, and a study of the impact of food subsidies in Egypt, conducted by staff from the California University system in association with Egyptian professionals. A small workshop on nutritional problems and intra-familial food use patterns was held which produced some evidence that Egyptian men tend to eat alone and to consume the better foods in households, with poor distribution to mothers and children. Unfortunately none of the food consumption data have yet been analyzed.

11. IMPACT OF FOOD SUBSIDIES ON NUTRITION SURVEY (Ford Foundation/JFPRI)

This longitudinal study in 1,500 families (about 8,000 persons) has produced data on intra-familial food consumption, but the data have not yet been analyzed.

12. NUTRITION INSTITUTE FEEDING AND WEANING PRACTICES STUDY

This study conducted in five areas of Egypt by leading Egyptian nutritionists is being readied for publication, possibly by the end of the year.

As a note on the above projects, the Reconnaissance Team was impressed by the range of their activities, and by the expressed desire of project principals to work together in different aspects of any forthcoming programs to develop indigenous weaning foods.