

AGENCY FOR INTERNATIONAL DEVELOPMENT  
PROJECT AUTHORIZATION AND REQUEST  
FOR ALLOTMENT OF FUNDS PART I

1. TRANSACTION CODE

C  
A ADD  
C CHANGE  
D DELETE

①

FAP

2. DOCUMENT CODE  
5

3. COUNTRY ENTITY  
S&T/Nutrition

4. DOCUMENT REVISION NUMBER

1

5. PROJECT NUMBER (7 digits)

931-0227

6. BUREAU/OFFICE

A SYMBOL S&T/N B. CODE  6

7. PROJECT TITLE (Maximum 40 characters)

Nutrition: Iron Deficiency Program Support

8. PROJECT APPROVAL DECISION

ACTION TAKEN

A APPROVED  
D DISAPPROVED  
OK DEAUTHORIZED

9. EST. PERIOD OF IMPLEMENTATION

YRS. 1 | 3

CTRL

10. APPROVED BUDGET AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 82		H. 2ND FY 83		K. 3RD FY 84	
		C GRANT	D LOAN	F GRANT	G LOAN	I GRANT	J LOAN	L GRANT	M LOAN
(1) FM	320	320		300		350		350	
(2)									
(3)									
(4)									
TOTALS				300		350		350	

A. APPROPRIATION	N. 4TH FY 85		O. 5TH FY 86		LIFE OF PROJECT		11. PROJECT FUNDING AUTHORIZED (SEE INSTRUCTIONS) 1 - LIFE OF PROJECT 2 - INCREMENTAL LIFE OF PROJECT	C. PROJECT FUNDING AUTHORIZED THRU FY 8   5
	G. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN		
(1) FM	350		1,003		3,933		2	
(2)								
(3)								
(4)								
TOTALS	350		1,003		3,933			

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED (\$000)

A. APPROPRIATION	B. ALLOTMENT REQUEST NO.	
	C. GRANT	D. LOAN
(1)		
(2)		
(3)		
(4)		
TOTALS		

13. FUNDS RESERVED FOR ALLOTMENT

TYPED NAME (Chw/, SER:FM/FSD)  
SIGNATURE  
DATE

14. SOURCE/ORIGIN OF GOODS AND SERVICES

300  341  LOCAL  OTHER

15. FOR AMENDMENTS, NATURE OF CHANGE PROPOSED

Thru 9/30/81, \$1,580,000 had been authorized and obligated for this project. This PAF Revision authorizes an additional \$1,350,000 in funding over the next four years of the project from FY 1982 to FY 1985. (The Life of Project Funding of \$3,933,000 which was authorized in the Project Paper remains unchanged.)

BEST AVAILABLE DOCUMENT

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

ENTITY: Office of Nutrition  
Bureau for Science and Technology

PROJECT: Nutrition: Iron Deficiency Program Support

PROJECT NUMBER: 931-0227

Incremental funding in the amount of \$1,350,000 is hereby authorized for the continuation of this project from October 1, 1981 to September 30, 1985. (The Life of Project Funding of \$3,933,000 which was authorized in the Project Paper remains unchanged.)

Bernard Chapnick  
Approved:

Disapproved:

5/28/81  
Date:

Clearances:

S&T/N, M. J. Forman	<u>M. J. Forman</u>	Date: <u>21 Dec 81</u>
S&T/N, N. Luykx	<u>N. Luykx</u>	Date: <u>21 Dec 81</u>
S&T/PO, A. Silver	<u>A. Silver</u>	Date: <u>8 Jan 81</u>
S&T/PO, B. Chapnick	_____	Date: _____

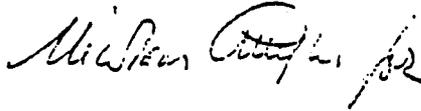
Drafted by: S&T/N, S. Kahn/R. Brown

August 27, 1981

ACTION MEMORANDUM FOR SENIOR ASSISTANT ADMINISTRATOR (ACTING)  
BUREAU FOR SCIENCE AND TECHNOLOGY

THRU: S&T/PO, Bernard Chapnick

FROM: S&T, Martin J. Forman



Problem: To authorize incremental funding in the amount of \$1,350,000 for the continued implementation of this project for FYs 1982-1985.

Background: This project consists of a series of activities that work toward implementing appropriate systems for alleviating iron deficiency anemia in developing countries.

Under the project, extensive and detailed studies of new food iron fortificants have been undertaken, including clinical research to determine the bioavailability of food iron from diets and iron fortified foods. These studies are important because the amount of iron that may be present in a food is not an indication as to the iron nutriture that a person will get from its ingestion.

A.I.D. supported research has permitted basic investigations into the biological impact of iron deficiency in respect to muscle function and performance and the ability to maintain body temperature.

Through the International Nutritional Anemia Consultative Group (INACG), organized by A.I.D. in conjunction with WHO and other international agencies, a systematic collection and dissemination of current information on the bioavailability of iron has been conducted and programs to prevent and treat iron deficiency have been encouraged. In some instances, this exchange of information and ideas fostered by INACG has accelerated the advance of iron fortification and supplementation strategies through the necessary stages of technology, field testing and implementation.

To date, the project has responded to specific country requests by arranging for appropriate experts to make short-term visits and consultations. Countries who have collaborated in these exchanges of data and expertise include: Guyana, Cameroon, Philippines, Indonesia, Thailand, Egypt, Guatemala and the Caribbean.

The project was reviewed intensively in January, 1980 by a team of non-A.I.D. experts who found that "A.I.D.'s project on Combatting Iron Deficiency Anemia was outstanding in scope and quality" (see PES, Attachment III). They recommended that the program be continued for four years and that technology of iron fortification of food and field testing of iron deficiency systems be accelerated.

The project's course of action remains the same as described in the originally authorized Project Paper (Attachment II); namely, that: (1) the numerical extent and distribution of iron deficiency anemia be determined; (2) suitable technologies for overcoming iron deficiency anemia be developed or adopted; (3) iron delivery systems tailored to fit the specific constraints and opportunities for reaching the most vulnerable population groups, i.e., women of childbearing age and preschool children, be developed.

Plans for the future include continued support for INACG and applied research in iron bioavailability. The iron bioavailability facility and staff at Kansas University Medical Center (KUMC) will have its responsibilities broadened through an appropriate arrangement which will employ KUMC as a resource for: (a) training of developing country professionals, (b) directly assisting host governments in the use of appropriate techniques for the determination of the bioavailability of iron in indigenous foods and diets, (c) assisting developing country governments in assessing the extent, severity and cause(s) of their anemia problems, and (d) advising and technically assisting governments in planning, development, implementation, monitoring and evaluation of programs to combat iron deficiency anemia. These new efforts would include applied work in diet modification, techniques of nutrition education, and food iron technology. Currently, KUMC has collaborative ties with institutions in the Philippines, Caribbean, Guyana and Egypt.

The need for this project will continue as long as iron deficiency anemia remains the most widespread nutritional deficiency in the world with its greatest prevalence among women of childbearing age, particularly pregnant women and young children.

The project's authorized funding level is \$3,933,000. Through FY 1981, \$1,580,000 of this amount has been obligated. This PAF revision seeks authorization to obligate an additional \$1,350,000 for the next four years of project implementation.

Recommendation: That you sign Part II of the attached PAF which authorizes the obligation of an additional \$1,350,000 in funding for the project for FYs 1982-1985.

Attachments:

- I. PAF - Parts I and II
- II. PP As Amended
- III. PES Dated 1/80

AGENCY FOR INTERNATIONAL DEVELOPMENT <b>PROJECT PAPER FACESHEET</b>		1. TRANSACTION CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">C</div> A = ADD C = CHANGE D = DELETE		2. DOCUMENT CODE									
3. COUNTRY/ENTITY S&T/Nutrition		4. DOCUMENT REVISION NUMBER <div style="border: 1px solid black; display: inline-block; padding: 2px;">1</div>											
5. PROJECT NUMBER (7 digits) <div style="border: 1px solid black; display: inline-block; padding: 2px;">931-0227</div>		6. BUREAU/OFFICE A. SYMBOL S&T/N	B. CODE <div style="border: 1px solid black; display: inline-block; padding: 2px;">6</div>	7. PROJECT TITLE (Maximum 40 characters) Nutrition: Iron Deficiency Program Suppo									
8. ESTIMATED FY OF PROJECT COMPLETION FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">8 8</div>		9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">76</div> C. FINAL FY <div style="border: 1px solid black; display: inline-block; padding: 2px;">88</div> B. QUARTER <input type="checkbox"/> (Enter 1, 2, 3, or 4)											
10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -													
A. FUNDING SOURCE		FIRST FY		LIFE OF PROJECT									
		B. FX	C. W/C	D. TOTAL	E. FX								
AID APPROPRIATED TOTAL					3,933								
(GRANT)					3,933								
(LOAN)													
OTHER													
U.S. 1.													
2.													
HOST COUNTRY													
OTHER DONOR(S)													
TOTALS					3,933								
11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)													
A. APPROPRIATION		B. PRIMARY PURPOSE CODE		PRIMARY TECH. CODE		E. 1ST FY <u>82</u>		F. 2ND FY <u>83</u>		G. 3RD FY <u>84</u>			
						H. GRANT	I. LOAN	J. GRANT	K. LOAN	L. GRANT	M. LOAN		
(1) FN		320		320		300		350		350			
(2)													
(3)													
(4)													
TOTALS						300		350		350			
A. APPROPRIATION						N. 4TH FY <u>85</u>		O. 5TH FY <u>88</u>		LIFE OF PROJECT		12. IN-DEPTH EVAL. SCHEDULED	
						P. GRANT	Q. LOAN	R. GRANT	S. LOAN				
(1) FN						350		1,003		13,933		<div style="border: 1px solid black; display: inline-block; padding: 5px;">MM YY 05 83</div>	
(2)													
(3)													
(4)													
TOTALS						350		1,003		13,933			
13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PIO FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PFP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PIO FACESHEET.													
<div style="border: 1px solid black; display: inline-block; padding: 5px;">1</div> 1 = NO 2 = YES													
14. ORIGINATING OFFICE CLEARANCE										15. DATE DOCUMENT RECEIVED IN AID/4 OR FOR AID/4 DOCUMENTS, DATE OF DISTRIBUTION			
SIGNATURE		<i>Alvin P. ...</i>											
TITLE		Director, Office of Nutrition Science and Technology Bureau											
		DATE SIGNED											

AID 1330-4 (3-78)  
Thru 9/30/81, \$1,580,000 had been obligated for this project.

## PROJECT PAPER REVISION NARRATIVE

ENTITY: Office of Nutrition  
Bureau for Science and Technology, A.I.D.

PROJECT: Nutrition: Iron Deficiency Program Support

PROJECT NUMBER: 931-0227

This Project Paper Revision extends the duration of this project from FY 1982 through FY 1985. No additional funding authority is required. The basic scope of this project has not changed.

This project was last evaluated in January, 1980 (see copy of PES attached). The evaluation team recommended that the project be continued without change for four years.

BUDGET (ESTIMATE)

Nutrition: Iron Deficiency Program Support

---

	<u>82</u> <u>X000</u>	<u>83</u> <u>X000</u>	<u>84</u> <u>X000</u>	<u>85</u> <u>X000</u>	<u>Total</u> <u>X000</u>
Prevalence Surveys to Determine Iron Deficiency Anemia	\$ 50	\$ 50	-	-	\$ 100
Developmental Food Fortification Research	75	75	\$ 75	\$ 50	275
Radio - Iron Tests	50	50	-	-	100
Pilot Supplementation Trials	50	50	-	-	100
Field Demonstration Trials (Supplementation Fortification)	50	75	100	100	325
Education	-	25	50	50	125
Evaluation	-	-	50	50	100
Consultants	25	25	25	25	100
Workshops and Conferences	-	-	50	75	125
	<hr/>				
TOTAL	\$300	\$350	\$350	\$350	\$1,350
	<hr/> <hr/>				



Notations

1. This project was reviewed and endorsed by the Research and Development Committee (R&DC) at its December 16, 1975 meeting.
2. This project paper describes the Agency's program in iron deficiency anemia, consisting of both technical services and research activities. However, research activities under this program will be presented as discrete projects according to normal procedures for the centrally financed research program. Funds for these activities are not included in the estimated total cost on the attached PP facesheet. This facesheet shows the funding level for GTS activities for the transitional quarter and FY 78.
3. The first research proposal, "Fortification of Sugar with Iron - Field Study Prior to Implementation at a National Level" was endorsed and approved by the Research and Development Committee and the RAC which approved the proposal at its March 22, 1976 meeting subject to the incorporation of its suggestions into a revised project proposal. The anticipated cost of this research proposal is \$621,000.
4. The budget for the total iron program will be reviewed during the in-depth evaluation scheduled in late FY 78 and a revised Project Paper prepared as necessary and appropriate.
5. Activities initially proposed for FY 77 funding have been deferred to permit full funding of other portions of TAB's proposed program for that fiscal year.

Project Authorization

1. Conditions of Approval

Pursuant to the recommendations contained in the PPC/DPRE memorandum dated 4/15/76, this Project Paper is approved for obligation through FY 78 and for implementation from approximately FY 1976 through FY 1979. A PP amendment will be submitted following an in-depth evaluation in late FY 78, which addresses the recommendation contained therein.

A. Originating Office

DRAFTER: Dr. Samuel G. Kahn, TA/N [Signature] date 4/16/76

B. Clearance

TA/PPU, [Signature] Carl R. Frit: [Signature] date 4/29/76

C. Approval

AA/TA, Curtis Farrar [Signature] [Signature] date 4/3/76

(A) Project Goal

(1) Goal Statement

The goal is to minimize the effects of malnutrition by instituting appropriate systems for the delivery of absorbable iron to LDC population groups that are suffering from or vulnerable to iron deficiency anemia.

(2) Measurement of Goal Achievement

A significant decrease in the prevalence of iron deficiency anemia in vulnerable population groups.

(3) Assumptions of Goal Achievement

(a) The iron supplement or fortified food will be accepted by the public consumer.

(b) Iron supplementation and fortification of foods will cause a reduction in the prevalence of iron deficiency anemia.

(c) The nutritional status of the population will be improved and the prevalence of iron deficiency anemia will be reduced.

(B) Project Purpose

(1) Purpose Statement

To assist LDCs in implementing programs for alleviating iron deficiency anemia.

(2) Conditions Expected at End of Project

(a) The assessment of iron deficiency anemia in approximately ten selected LDCs.

(b) The development of appropriate techniques and procedures for delivery of absorbable iron to vulnerable populations in several of these selected LDCs.

(c) Implementation of appropriate iron programs in at least three of these selected LDCs.

(d) Evaluation of effectiveness of programs.

(3) Assumptions About Achievement of Purpose

(a) Iron deficiency anemia will be found to be prevalent in the countries selected for assessment.

(b) Anemia due to iron deficiency can be corrected and prevented through the proper use of existing technologies and procedures.

(c) Procedures exist for administering absorbable iron supplements (tablets, capsules, elixirs, drops and injectables) to vulnerable populations.

(d) Effective systems to deliver iron supplements to vulnerable groups exist or can be developed.

(e) The efforts of concerned groups can be coordinated to achieve maximum benefit at relative small cost.

(C) Project Outputs

(1) Outputs

(2) Output Indicators Statement

(1a) Data indicating prevalence (numbers, region) of iron deficiency anemia in the selected LDCs.

(2a) Verified by clinical and biochemical procedures.

(1b) The development of the appropriate techniques and procedures for delivery of absorbable iron to the vulnerable populations in LDCs.

(2b) Verified by: (i) ease of implementing, (ii) population acceptance and (iii) demonstrable effect in reducing severity of anemia as measured clinically and biochemically in pilot trials.

(1c) Data evaluating the nutritional effectiveness of the delivery system need.

(2c) Verified by clinical and biochemical procedures in field trials.

(1d) Data reporting cost/benefit and cost/effectiveness of delivery systems.

(2d) Verified by proper analysis.

(1e) Cadre of trained LDC personnel.

(2e) Verified by their performance in the field.

(1f) An overall methodology that can be used in developing and implementing other iron delivery programs.

(2f) Verified by the success of this project as determined by systematic evaluation of project.

(3) Assumptions About Outputs

(a) Clinical and biochemical methods to be employed are capable of differentiating levels of iron deficiency anemia.

(b) The iron constituents of all formulas or preparations used will be relatively well absorbed.

(c) A reduction in the prevalence of anemia attributable to iron deficiency will be achieved by iron fortification or supplementation.

(d) Adequate economic information is available and proper analytical techniques exist to yield valid cost/benefit/effectiveness results that will be applicable to LDC situations.

(e) Techniques are available or can readily be developed for fortifying food staples by the addition of absorbable iron to foods and beverages.

(D) Project Inputs

1) INPUTS

(a) Teams of experts who will do the following:

(i) Determine prevalence of iron deficiency anemia in selected LDCs.

(ii) Develop specific country programs (iron delivery systems).

(iii) Formulate appropriate efficacious iron products for use in selected LDCs.

(iv) Conduct pilot and field demonstration trials.

(v) Develop iron educational materials f

(vi) Evaluate country programs.

(b) Training programs for LDC personnel.

(c) Research needed to expedite implementation of programs.

(d) Commodities (iron preparations) may be supplied by LDC and private donor sectors.

(e) Anticipate local LDC government contribution of personnel time, facilities, utilities and possibly commodities.

(f) A minimum of two "workshops" for key personnel involved in different "iron" programs to meet in order to communicate findings, discuss problems, etc.

(g) A minimum of two conferences to be held during the life of the project to bring together scientists and key LDC personnel in a position to implement programs. Inputs from this meeting or lead to the incorporation of iron nutrition activities into national nutrition programs.

B U D G E TCOMBATTING IRON DEFICIENCY ANEMIA

	FY	76 (X000)	TQ (X000)	77 (X000)	78 (X000)	79 (X000)	80 (X000)	81 (X000)	Grand Total (76-81) (X000)
Program Planning and Coordination		--	--	--	30	30	30	30	120
Prevalence Surveys to Determine Iron Deficiency Anemia		60	--	--	300	180	--	--	540
Developmental Food Fortifi- cation Research		30	30	--	150	130	--	--	340
Radio-Iron Tests		30	--	--	100	100	--	--	230
Pilot Supplementation Trials		--	--	--	100	100	--	--	200
Field Demonstration Trials (Supplementation & Fortifi- cation)		110	155	--	400	600	600	300	2165
Education (KAP)		--	--	--	100	100	100	100	400
Evaluation and Preparation of Project Compendium		--	--	--	35	75	100	100	310
Consultant Group(s) (including experts)		20	5	--	25	25	25	25	125
Workshop & Conference		--	--	--	--	50	--	75	125
TOTAL		250	190	0	1240	1390	855	630	4555

(3) Assumptions About Inputs

- (a) Technologies exist that can be adapted to LDC situations.
- (b) Experts exist who can conduct the necessary project activities.
- (c) Support from USAID Missions, LDC governments, LDC public consumers, LDC and donor private sectors and UN agencies.
- (d) Training programs can be developed as integral parts of the iron delivery systems program.

(E) Rationale

Anemia is reported to be one of the more prevalent nutritional deficiency diseases in the world. Nutritional anemias are those deficiency states that are precipitated by either individual or combination of insufficient iron, vitamin B12 and folic acid. However, survey reports indicate that the more prevalent cause of anemia is an inadequacy of iron, per se. Iron deficiency anemia occurs most frequently in infants, growing children, adolescents and pregnant women. In the latter group, a combined deficiency of iron and folic acid is often observed in certain LDCs.

Iron deficiency anemia also is precipitated as a result of combined insufficient available dietary iron aggravated by the additional load of parasites, such as hookworm. Though elimination of parasites is most desirable, the administration of iron itself will benefit the individual by mitigating the anemic condition to an extent dependent on the degree of parasite infestation.

There is evidence that severe anemia impairs work capacity and recent studies suggest that even mild reduction in hemoglobin may result in decreased performance of near maximal efforts. Severe degrees of anemia in pregnant women increase maternal morbidity and mortality and carry an increased risk to the fetus. Milder degrees of anemia during pregnancy can result in reduced birthweight of offspring, ~~in addition to anemia of newborn.~~ The anemic infant does not thrive and death may result because of general aggravation from other diseases. There is increasing evidence that anemia and iron deficiency may play a role in the ability of an individual to resist infection. Studies suggest that iron deficiency results in impaired humoral antibody response as mediated through white cell activity. The amount of iron that may be present in a food is no indication as to the iron nutriture that a person will get from its ingestion. The iron absorbed by the body depends on several factors: (1) the total amount in the diet, (2) its absorbability, and (3) the regulation of its absorption through the intestinal wall. The availability of food iron is related to chemical properties of an iron salt, such as its chemical association

with other substances in a food or diet. Usually these other substances "tie-up" the iron molecule making it not readily available for absorption. Thus, a food with a high iron content may be a relatively poor source of food iron. Overcoming this problem may involve: (a) the addition of iron to a food at a level that exceeds that of the complexing substance, (b) proper processing of the food and (c) addition of other chemicals that favorably influence the increased absorption of the iron.

The existing procedures used to evaluate a population for iron anemia are standardized. With careful epidemiological techniques a population can be surveyed for prevalence of iron anemia. The difficulty has been in making absorbable iron available to the population that needs it. Thus the priority problems to be solved include the delivery of absorbable iron to (1) the population groups suffering from severe iron deficiency anemia and (2) the groups that are most vulnerable to iron anemia. The severely anemic should receive immediate treatment with daily therapeutic levels of iron in the form of tablets, capsules, etc. Iron fortification is not intended as a therapeutic treatment but as an addition to the daily diet in order to prevent the development of iron deficiency anemia. Effective procedures of iron supplementation need to be worked out for the severely malnourished, and suitable fortification procedures must be developed, particular attention being paid to (a) the form of iron used, (b) the foodstuff to which it is added, (c) the amount of that foodstuff consumed by different segments of the populations, (d) the adequacy of iron absorption from the fortified diet, and (e) the acceptability of the procedure to the consumers and the indigenous food industry. At the (1970) WHO/IAEA\* consultants meeting on the prevention of iron deficiency anemia, it was stated that "the implementation (fortification) of foodstuffs with iron is likely to be the most practical preventative measure for use on a national scale".

On October 23, 1974 in Geneva, AID, in cooperation with WHO and IAEA, sponsored a conference on Nutritional Anemia. The experts gathered represented both LDCs and developed countries. They concluded that nutritional anemias are very prevalent in many countries, and that there is sufficient knowledge concerning the causes, implications, and public health significance of nutritional anemias to justify action for control and eradication of this nutritional disease problem. Recommendations were: (a) continued research to improve laboratory methodologies that will more accurately define types of anemias, (b) continued studies which will more precisely define the adverse effects of mild anemia, (c) studies that will enable reasonable cost-benefit analysis of action programs, (d) collection of more information regarding bio-availability of iron from different diets, (e) continued and expanded prevalence surveys, (f) initiation of iron and folate supplementation and fortification studies that would lead

\* IAEA - International Atomic Energy Agency

to national programs for those segments of the population most at risk, (g) education and training programs to combat nutritional anemias in those countries with insufficient specialized personnel to carry out these programs. This PROSP outlines those areas of activity for which AID/W will mount an effort. In principal, AID is interested in participating in all areas recommended for action to the extent that they contribute to the development of iron supplementation and/or fortification programs for those groups in need. This position is supported by Dr. Kissinger's statement before the World Food Conference in Rome of last year, which specified that action be taken to eradicate both iron deficiency anemia and Vitamin A deficiency, and that up to \$10,000,000 would be made available for this purpose.

(F) Course of Action

(1) Narrative Statement

The steps required to implement a program for the alleviation of iron deficiency anemia in a country or region include the following:

- (a) an analysis of the numerical and geographic extent of iron deficiency anemia,
- (b) adoption or development of suitable technologies for overcoming iron deficiency anemia in the specified area, and
- (c) developing iron delivery systems tailored to fit the specific constraints and opportunities existing within the area for reaching the most vulnerable groups, i.e. preschool children and women of child bearing age.

The first step -- the determination of the extent of iron deficiency anemia not only locates the regions in a given LDC where the problem is most serious but also provides a baseline for measuring the effectiveness of programs as interventions are introduced. Quantitative baseline data is, however, seldom available in LDCs; and in most cases, it will be necessary to conduct surveys to obtain the required data.

Surveys to determine the magnitude and location of iron deficiency anemia will be coordinated to the greatest extent possible with surveys underway or planned, to measure other parameters such as nutritional status, Vitamin A deficiency, etc.

(An illustrative example: In Sri Lanka, AID/W through A CDC RSSA is assisting the GOSR in conducting a nutrition survey based on core anthropometric measurements. Vitamin A deficiency may be a serious problem in Sri Lanka and the GOSR proposed initiating a massive Vitamin A campaign. It was suggested that the magnitude of the problem be ascertained prior to initiating a program and a Vitamin A component has been added to the nutrition survey.)

The second step -- the mix of technologies to be used may include one or more of the following:

(a) Supplementation of diets with pills, capsules, elixirs, etc. to be used as an emergency measure where deficiency is critical.

(b) Fortification with iron of food staples which are widely available to vulnerable groups. Fortification would serve as long term preventive measure that if "doable" requires no action on the part of the consumer.

(c) Education to encourage the production and consumption of foods with high iron content. Measures designed to modify food habits require cooperation on the part of the consumer, and the major impact may be considered long range.

The third step -- the choice of delivery system(s) will wherever possible piggy back existing health delivery systems, utilize commercial distribution systems and coordinate with existing fortification schemes.

#### Implementation Plan

In 1974 a joint WHO/AID conference (funded by AID) was held. The implementation plan is a follow up to these initial efforts. (The proceedings of this conference will be published as a joint WHO/AID Technical Bulletin.) Its purpose was to bring together experts in the field of iron deficiency anemia to summarize the state of knowledge and develop specific recommendations that would serve as a basis for Vitamin A programming and research by AID and multilateral and other bilateral agencies.

#### Plan

(a) During FY 76 "An Iron Deficiency Consultative Group" patterned in the Model of the "International Vitamin A Consultative Group" will be established. Included in this group will be UN agencies, bilateral agencies and individuals with specific expertise in iron deficiency anemia research and applied programs.

The goals of the group include the following:

(1) To encourage the coordination on a worldwide basis of applied programs and research for combatting iron deficiency.

(2) To provide a body of experts that can help evaluate proposed programs.

(3) To provide a mechanism for the collection and dissemination of information on activities involving iron programs.

(b) LDC Involvement and Commitment: Implementation of iron delivery systems for the alleviation of iron deficiency anemia in lesser developed countries or regions requires the planned sequencing of specific project activities and careful coordination of special teams of experts and their LDC counterparts. Particularly important is the laying of groundwork regarding the integration of LDC personnel into the activities of special teams. Active LDC participation must be in (a) the initial survey of iron deficiency anemia, (b) the in-country planning of an iron delivery system program, (c) conducting of pilot and field demonstration trials, (d) developing effective programs of education, (e) the evaluation of delivery systems, (f) participating in conferences and workshops that will review the outcome of all these activities. Success of the project will depend on the extent of involvement of LDC government, LDC consumer, and LDC private food producers, marketers and distributors. It is hoped that a formal agreement with each host government securing these commitments can be negotiated.

Criteria for Selection of an LDC: An invitation to design, organize and implement a project within an LDC carries with it a commitment of participation by the LDC. This commitment includes involvement of LDC personnel, equipment and funds, if the latter are available. The local government must also indicate that it intends to continue the program, if proven successful, and replicate it in other areas. A program of surveillance of the problem should be part of this program of continuation.

Selection of an LDC will be based on: (1) LDC invitation to conduct work in-country, (2) LDC commitment to participate in the project and strong indications that it will continue the program if proven practicable, (3) Mission and region concurrence, and (4) assessment of the technical feasibility of conducting a project at the LDC site.

During FY 76 a determination will be made of LDC interest in initiating programs to overcome iron deficiency anemia.

(c) Educational Component: A functional part of both supplementation and fortification programs will be certain general education activities. These activities will include gathering the necessary knowledge, attitude and practices (KAP) data in order that an effective iron information-education program can be mounted parallel with the delivery of iron.

Education programs to encourage the production and consumption of foods containing readily available iron will be conducted. Measures designed to modify food habits require cooperation on the part of the consumer, and the major impact should be considered long range.

A formal educational training component is not planned for the project. It is intended that all professional personnel will receive on-the-job experience during the execution of the project.

(d) Research Component: Support will be given to research that is needed to expedite implementation of the program. Applied areas such as product formulation and stability may require research efforts in developing satisfactory iron products for field use. Closely linked into these project activities will be centrally funded research to evaluate the biological effectiveness of unique iron compounds and research to perfect, if needed, field sample collection and analytical techniques.

(e) A contract will be established with an appropriate institution to provide, upon AID request, an expert team(s) to determine in a given LDC any or all of the following:

(1) Incidence of iron deficiency anemia, (2) geographical areas where the deficiency exists, (3) appropriate short and long term measures to be instituted, (4) the most appropriate delivery system(s) for reaching the target groups and (5) methodologies for evaluating the efficacy and cost/effectiveness of programs.

Institutions being considered to serve in the above capacity include the National Academy of Sciences, an appropriate arm of HEW, the Federation American Societies, Experimental Biology, Research Triangle and several universities active in this field. The PVOs afford a particularly effective mechanism for reaching populations that may be difficult to reach thru normal government sources and every consideration will be given to working with PVOs in developing appropriate delivery systems.

Two or three countries will be surveyed in each of FY '76, FY 78, and FY 79.

(d) Through an appropriate contract not necessarily with the same institution demonstration projects will be established to evaluate the effectiveness of the proposed intervention program. It is assumed that a minimum of 2 years will be required for each study. As stated, evaluation will include a determination of the cost effectiveness of the program.

Six such demonstration projects will be initiated - one in FY 76 and the TQ, two in FY 78 and 79, and one in FY 80. Implementation of programs in 3 countries will be initiated, one each in 78, 79 and 80. At the completion of the initial studies (in FY 78 or 79), conferences will be held to summarize the results of the projects to further promote the implementation of iron activities.

As the project proceeds and as managers meet to review progress and identify problems, R&D needs will be identified and will form the basis for the R&D effort to be supported.

It is recognized that the success of the project will be measured by the number of countries continuing and initiating their own program to combat iron deficiency anemia. It is essential that at all stages of project development and implementation, LDC governments, LDC consumers, and LDC private enterprises be involved.

The Plan as outlined will support the Secretary of State's position formulated at the November 1974 World Food Conference in Rome and will implement the recommendation to actively combat iron deficiency anemia included in the resolution adopted at the conference.

#### EVALUATION

Periodic reviews of the project will be carried out in accordance with TA-1026.1 Manual Order on "Instructions and Guidelines for the Annual Evaluation of TAB Technical Services Projects." During the FY 77 and FY 80 an informal evaluation of project activities will be conducted by TA/N. The matrix included with the PP, updated as necessary, will be used along with the issues paper and the contractor's reports as the basic documentation for the review. An in-depth evaluation will be conducted in late FY 78 and a revised Project Paper will be prepared as necessary and appropriate. This evaluation will be a comprehensive and intensive review and will include outside experts as members of a panel. Funding beyond FY 78 will be adjusted, if required. The sub-projects carried out under this activity will conform to the guidelines for projects outlined in Project Handbook 3 (Project Assistance), Chapter 6. This will enable evaluation of the project to determine its success in meeting its purpose within the total project.

## LOGICAL FRAMEWORK MATRIX - PROP WORKSHEET

Summary	Objectively Verifiable Indicators	Important Assumptions																
<p><b>A.1. Goal</b> To minimize the effects of malnutrition by initiating appropriate systems for the delivery of absorbable iron to IDC populations groups that are suffering from or vulnerable to iron deficiency anemia.</p>	<p><b>A.2. Measurement of Goal Achievement</b> A significant decrease in the prevalence of iron deficiency anemia in vulnerable populations groups.</p>	<p><b>A.3. (as related to goal)</b> a. Procedures exist for administering absorbable iron supplements to vulnerable populations. b. Techniques available or can readily be developed for fortifying food staples. c. Iron supplement or fortified food accepted by consumer. d. Iron supplementation and fortification of foods will cause a reduction in prevalence of iron deficiency anemia. e. Nutritional status of population improved &amp; prevalence of iron deficiency anemia reduced.</p>																
<p><b>B.1. Purpose</b> To assist IDCs in implementing programs for alleviating iron deficiency anemia.</p>	<p><b>B.2. End of Project Status</b> a. Assessment of iron deficiency anemia in approximately 10 selected IDCs. b. Development of appropriate techniques and procedures for delivery of absorbable iron to vulnerable populations in several of these selected IDCs. c. Implementation of appropriate iron programs in at least 3 of these selected IDCs.</p>	<p><b>B.3. (as related to purpose)</b> a. Iron deficiency anemia found prevalent in countries selected for assessment. b. Anemia due to iron deficiency can corrected &amp; prevented through proper use of existing technologies and procedures. c. IDCs &amp; donor agencies interested in reducing prevalence of anemia caused by iron deficiency d. Efforts of concerned groups coordinated to achieve maximum benefit at relative small cost.</p>																
<p><b>C.1. Outputs</b> a. Data indicating prevalence of iron deficiency anemia in the selected IDCs. b. Development of appropriate techniques and procedures for delivery of absorbable iron to vulnerable populations in IDCs. c. Data evaluating nutritional effectiveness of delivery system need. d. Data reporting cost benefit and cost/effectiveness of delivery systems. e. Cadre of trained IDC personnel. f. Overall methodology that can be used in developing and implementing other iron delivery programs.</p>	<p><b>C.2. Output Indicators</b> a. Clinical and biochemical procedures b. (i) Ease of implementing, (ii) population acceptance and (iii) demonstrable effect in reducing severity of anemia as measured clinically and biochemically in pilot trials. c. Clinical and biochemical procedures in field trials. d. Proper analysis e. Performance in field. f. Success of this project as determined by systematic evaluation of project.</p>	<p><b>C.3. (as related to outputs)</b> a. Clinical &amp; biochemical methods to be employed are capable of differentiating levels of iron deficiency anemia. b. Iron constituents of all formulas or preparations used relatively well absorbed. c. Reduction in the prevalence of anemia attributable to iron deficiency supplementation. d. Adequate economic information is available and proper analytical techniques exist to yield valid cost/benefit/effectiveness results that will be applied to IDC situation. e. Data collected will be: (i) of quality to be accepted by nutritionists, clinicians and public health experts and (ii) of type to be accepted by national planners and policy makers.</p>																
<p><b>D.1. Inputs</b> a. Teams of experts who will do the following: (i) determine prevalence of iron deficiency anemia in selected IDCs, (ii) develop specific country programs, iron delivery system, (iii) formulate appropriate efficacious iron products for use in selected IDCs, (iv) conduct pilot and field demonstration studies; (v) develop iron educational materials for field evaluation; (vi) Evaluate country programs b. Training programs for IDC personnel; c. Commodities (iron preparations) may be supplied by IDC and private donor sectors; d. Anticipate local IDC govt. contribution of personnel, time, facilities, utilities &amp; possibly commodities; f. Conference of experts planned to be held during final year of project activity.</p>	<p><b>D.2. Budget/Schedule</b></p> <table border="1" data-bbox="829 1123 1419 1255"> <thead> <tr> <th>FY 76</th> <th>1Q</th> <th>77</th> <th>78</th> <th>79</th> <th>80</th> <th>81</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>250</td> <td>190</td> <td>0</td> <td>1240</td> <td>1390</td> <td>855</td> <td>630</td> <td>4555</td> </tr> </tbody> </table> <p>A (X000)</p>	FY 76	1Q	77	78	79	80	81	Total	250	190	0	1240	1390	855	630	4555	<p><b>D.3. (as related to inputs)</b> a. Technologies exist that can be adapted to IDC situations. b. Experts exist who can conduct the necessary project activities. c. Support from USAID Missions, IDC gov'ts., IDC public consumers, IDC and donor private sectors and UN agencies. d. Training programs can be developed as integral parts of the iron delivery systems program.</p>
FY 76	1Q	77	78	79	80	81	Total											
250	190	0	1240	1390	855	630	4555											