AID 1020-1 (9-71) (PACE SHEET)

NONCAPITAL PROJECT PAPER (PROP)

Attachment A to M.O. 1025.1
(TL 2:172)

PAGE 1 OF PAGES

93102277 (2)

I. PROJECT IDENTIFICATION

1. PROJECT TITLE

Combatting Iron Deficiency Anemia

931-11-560-997-

PD-AAC-694-B1

APPENDIX ATTACHED: ☐ YES ☒ NO

2. PROJECT NO. (FOR REVISED)

3. RECIPIENT (specify)

☐ COUNTRY

☐ REGIONAL ☒ INTERREGIONAL

4. LIFE OF PROJECT: BEGINS FY 76 ENDS FY 80

5. SUBMISSION: ☒ ORIGINAL 2/28/75 DATE ☐ REV. NO. DATE

CONTR./PASA NO. DATE

II. FUNDING (000) AND MAN MONTHS (MM) REQUIREMENTS

A. FUNDING BY FISCAL YEAR	B. TOTAL $	C. PERSONNEL (1) $	C. PERSONNEL (2) MM	D. PARTICIPANTS (1) $	D. PARTICIPANTS (2) MM	E. COMMODITIES $	F. OTHER COSTS $	G. PASA/CONTR. (1) $	G. PASA/CONTR. (2) MM	H. LOCAL CURRENCY RATE $ US DOLLARS: (1) U.S. GRANT LOAN	(2) COUNTERPART (a) JOINT	(b) EXCLUSIVE
1. PRIOR THRU ACTUAL FY												
2. OPRN FY												
3. BUDGET FY 76	440	430	138			10						
4. BUDGET +1 FY 77	1290	1260	300			30						
5. BUDGET +2 FY 78	1290	1260	300			30						
6. BUDGET +3 FY 79	855	835	200			20						
7. ALL SUBSEQ. FY 80	680	675	162			5						
8. GRAND TOTAL	4555	4460	1100			95						

12p.

9. OTHER DONOR CONTRIBUTIONS

(1) NAME OF DONOR	(2) KIND OF GOODS/SERVICES	(3) AMOUNT

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER: Dr. Samuel G. Kahn	TITLE: Senior Nutrition Advisor, TA/E	DATE
2. CLEARANCE OFFICER: Dr. Martin J. Forman	TITLE: Director, TA/E	DATE

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

2. CLEARANCES

REF OFF.	SIGNATURE	DATE	REF OFF.	SIGNATURE	DATE

3. APPROVAL AS AN OFFICE RECORD

SIGNATURE DATE

4. APPROVAL AS AN AID/W PROJECT

SIGNATURE DATE

TITLE

TITLE

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

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

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

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

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

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

(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) 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.

(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 for field evaluation.

(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 to lead to the incorporation of iron nutrification activities into national nutrition programs.

(2) **B U D G E T**

COMBATTING IRON DEFICIENCY ANEMIA

FY	76 (X1000)	77 (X1000)	78 (X1000)	79 (X1000)	80 (X1000)	Grand Total (76-80) (X1000)
Program Planning and Coordination	30	30	30	30	30	150
Prevalence Surveys to Determine Iron Deficiency Anemia	120	360	120	- -	- -	600
Developmental Food Fortification Research	120	150	130	- -	- -	400
Radio-Iron Tests	30	100	100	- -	- -	230
Pilot Supplementation Trials	40	100	60	- -	- -	200
Field Demonstration Trials (Supplementation & Fortification)	- -	400	600	600	400	2000
Education (KAP)	50	100	100	100	50	400
Evaluation and Preparation of Project Compendium	25	25	75	100	100	325
Consultant Group(s) (including experts)	25	25	25	25	25	125
Workshop & Conference	- -	- -	50	- -	75	125
TOTAL	440	1290	1290	855	680	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 (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 28, 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 PROP 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 opprotunities 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) During FY 76 a determination will be made of LDCs interested in initiating programs to overcome iron deficiency anemia.

(c) 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 77, 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, two in FY 77 and in FY 78 and one in FY 79. Implementation of programs in 3 countries will be initiated, one each in 77, 78 and 79. At the completion of the initial studies (in FY 77 or 78) and remaining studies in FY 79 conferences will be held to summarize the results of the projects to further promote implementation of iron projects.

As the project proceeds and as managers meet to review progress 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 resolutions 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." Specifically, after the first and third years of project activities an informal evaluation (Option A) 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 (Option B) will be conducted at the end of the second and fifth years. This will be a two-step, comprehensive and intensive review and will include outside experts as members of a review panel.

LOGICAL FRAME-WORK MATRIX - PROP WORKSHEET

Summary	Objectively Verifiable Indicators	Important Assumptions
G.O. Goal To minimize the effects of malnutrition as a stifling impediment to the delivery of absorbable iron to the population groups that are suffering from or vulnerable to iron deficiency anemia.	[illegible] a. Additional evidence of the prevalence of iron deficiency anemia in various population groups.	[illegible] a. Iron fortification is a feasible and acceptable technique. b. Technique is applicable to vulnerable populations. c. Technique available or can readily be developed for fortifying food staples. d. Iron supplement or fortified food accepted by consumer. e. Iron supplementation and fortification of foods will cause a reduction in prevalence of iron deficiency anemia. f. Nutritional status of population improved & prevalence of iron deficiency anemia reduced.
P.O. Purpose To assist LDCs in implementing programs for alleviating iron deficiency anemia.	P.O. End of Project Status a. Assessment of iron deficiency anemia in approximately 20 selected LDCs. b. 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 3 of these selected LDCs.	P.O. Important Assumptions a. Iron deficiency anemia found prevalent in countries selected for assessment. b. Anemia due to iron deficiency can corrected & prevented through proper use of existing technologies and procedures. ~~[illegible] in reducing [illegible] iron deficiency~~ c. Efforts of donor groups coordinated to achieve maximum benefit at relative small cost
P.O. Outputs a. Data establishing prevalence of iron deficiency anemia in the selected LDCs. b. Development of appropriate techniques and procedures for delivery of absorbable iron to vulnerable populations in LDCs. c. Data evaluating nutritional effectiveness of delivery system needs. d. Data reporting cost benefit and cost/effectiveness of delivery systems. e. Cadre of trained LDC personnel. f. Overall methodology that can be used in developing and implementing other iron delivery programs.	P.O. Magnitudes a. Clinical and biochemical procedures b. (I) Ease of implementing, (II) population acceptance and (III) dosages has 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.O. Important Assumptions a. Clinical & biochemical methods to be employed are capable of differentiating levels of iron deficiency anemia. b. Iron supplements or fortified foods in preparations used definitely have effects. c. Reduction in the prevalence of anemia attributable to iron deficiency supplementation. d. Adequate analytical support that is available and proper conditions to implement exist to yield valid cost/benefit/effectiveness results that will be applied to LDC situation. e. Data collected will be of quality to be accepted by nutritionists, clinicians and public health experts and of kind to be accepted by national planners and policy makers.
P.O. 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 clinical iron products for use in selected LDCs, (IV) conduct pilot and field demonstration studies, (V) draw up iron educational materials for field evaluation, (VI) evaluate country programs. b. Training programs for LDC personnel: a. Nutritionists (iron preparations may be supplied by LDC and private donor sources). b. Intelligence (LDC gov't. contribution of personnel, time, facilities, utilities & possible commodities). f. Conference of experts planned to be held during final year of project activity.	P.O. Major Schedule [illegible] * ($1000)	P.O. Important Assumptions 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 gov'ts., LDC public sources, IGO and donor private sources and IO agencies. f. Training programs can be developed as integral parts of the iron delivery systems project.

FY 76	77	78	79	80	Total
440*	1290	1290	815	480	4315

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