

1'
PTD - AAY - 199
5 17 82

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

August 18, 1988

ACTION MEMORANDUM FOR THE AGENCY DIRECTOR FOR FOOD AND AGRICULTURE,
BUREAU FOR SCIENCE AND TECHNOLOGY

FROM: S&T/N, Norge W. Jerome *NWJ*

SUBJECT: Authorization of Vitamin A for Health Project (936-5116)

Problem: Your authorization is required for a follow-on project,
Vitamin A for Health (936-5116).

Background: Vitamin A deficiency has far reaching social and economic consequences for development because of the blindness caused by the deficiency as well as a suggested increased risk of mortality in affected children. A.I.D. is the leading donor agency in vitamin A prevention and control.

The project, "Vitamin A for Health" (936-5116) is based on the experience of the predecessor project for vitamin A, "Nutrition: Vitamin A Deficiency Program Support (931-0045). The predecessor project was initiated in FY 1975 and will expire on September 30, 1989. Under this project considerable progress has been made in expanding the body of information on the role of vitamin A in nutritional blindness. In addition, as a result of A.I.D. funded operational research activities, other implications for the role of vitamin A in child health have been discovered. Various vitamin A delivery systems have been attempted, including mass dosing, food fortification and social communications.

The most recent external evaluation of project 931-0045 took place in April 1988. Recommendations included: 1) that the project be extended for at least a five year period; 2) that emphasis in research on morbidity and mortality linkages be emphasized; and 3) that technical assistance to improve program management and evaluation be increased. The activities designed under the new project are consistent with the recommendations of the evaluation.

The overall public health goal to which this Project will contribute is the elimination of vitamin A deficiency as a major cause of childhood blindness and a contributing factor in child morbidity and death. This project provides a bridge for completion of activities initiated during the predecessor project and the development of field responsive operational activities. It brings disparate activities together into a comprehensive coordinated program. Field programs with vitamin A activities are essential for achieving child survival objectives in communities where vitamin A deficiency is prevalent.

Building on the gains made to date in vitamin A research and field intervention trials, the project will expand greatly the application of known vitamin A blindness prevention technologies to country nutrition programs in A.I.D.-recipient countries. Concurrent with that, the project will also continue applied field research a) to refine assessment and program implementation technologies and methodologies; and b) to determine the relationship between vitamin A deficiency and childhood mortality and morbidity. The project will promote actively the introduction or expansion of vitamin A interventions in A.I.D. country programs, through the services of a field support contractor devoted exclusively to that objective, on behalf of S&T/N and the A.I.D. regional bureaus. This expanded field support will include technical assistance and related training for a) country assessments of vitamin A deficiency prevalence; b) country strategy development; c) program and project development; and d) project monitoring and evaluation.

The project paper has been developed after extensive Nutrition Sector Council meetings on vitamin A, and has been reviewed by its members. Substantive suggestions made by reviewers have been incorporated. In particular, we have responded to the following major concerns:

1) Need for competition in awarding activities. The ongoing activities (e.g. replication studies and International Vitamin A Consultative Group) were competed when initiated. The new components (e.g. field support, assessments small grants, etc.) to be developed under this project will be competed. It is hoped that this will encourage more individuals and institutions to become involved in vitamin A related activities. This will of course be to the benefit of the project;

2) Capacity to accept Mission and Regional Bureau buy-ins. The main thrust of this new project is to develop the capacity to field well developed intervention programs aimed at eliminating vitamin A deficiency in as wide a range of geographical locations as possible. In order to accomplish this, mechanisms that allow us to be responsive to Mission and Bureau needs are included in the field support component. To this end, the project is designed to have Missions and Bureaus play a large role in helping determine the focus of this project and its activities. Overall buy-ins for this project are estimated at approximately 40%;

3) Level of funding. This project breaks new ground in bringing together disparate activities, including a heretofore unavailable large Mission and Bureau buy-in component. The total level of funding for this project has, in response to Sector Council concerns, been scaled down. In particular the amounts allocated to operations research and small grants have been reduced. The scope of activities described above is proper for the overall goals of this project. In response to Sector Council concerns about the availability of funding for vitamin A activities if there is no legislative earmark (which has been in effect since 1985), we have scaled back some of the activities and the budget. The total core S&T funding is \$19.0 million categorized as:

- a) Field Support (\$5.152 mil.)
- b) Operations Research; (\$9.632 mil.)
- c) Int'l Coordination & Dissemination (\$2.000 mil.)
- d) Other (evaluations, audit, contingency, inflation, etc.) (\$ 2.216 mil.)

Buy-ins will be accepted up to a level of \$9.626 million. This level has been determined as a result of discussions with Missions and Bureaus.

Recommendation: That you authorize the five year \$19.0 million Vitamin A For Health Project, 936-5116, by signing the attached Project Authorization and Allotment of Funds.

Clearances:

S&T/PO, D. Sheldon [Signature] Date 8/19/87
GC:STisa Jim Kinder for [Signature] Date 8/19/87

Drafted by:ST/N:FDavidson:08/16/88:3116E

PROJECT AUTHORIZATION AND ALLOTMENT OF FUNDS

COUNTRY: Worldwide
PROJECT TITLE: Vitamin A for Health
PROJECT NUMBER: 936-5116

1. Pursuant to Section 104(c) of the Foreign Assistance Act of 1961, as amended, I hereby authorize the "Vitamin A for Health" project involving centrally funded planned obligations of not to exceed \$19,000,000 in grant funds over a five year period from the date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project.

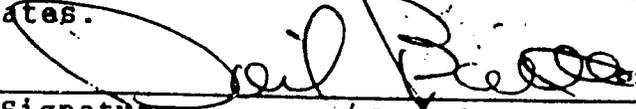
2. The project will provide technical advice and assistance to government agencies, donor organizations, PVOs, and host country counterparts to (1) determine the role which vitamin A deficiency plays in child morbidity and mortality; and (2) assist less developed countries to assess the prevalence of vitamin A deficiency among their young child populations and to develop and implement programs to overcome vitamin A deficiencies.

3. The agreements which may be negotiated and executed by the office to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate:

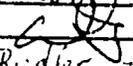
a. Source and Origin of Commodities, Nationality of Services
Commodities financed by A.I.D. under the project shall have their source and origin in the cooperating country* or the United States, except as A.I.D. may otherwise agree in writing. Except for ocean shipping, the suppliers of commodities or services shall have the cooperating country or the United States as their place of nationality, except as A.I.D. may otherwise agree in writing.

*Each country in which a project activity is conducted shall be considered a "cooperating country" for the activity conducted there.

Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only by flag vessels of the United States.


Signature _____
Date 8/19/88

Clearances:

S&T/N, N.W. Jerome		Date	<u>8/17/88</u>
S&T/PO, D. Sheldon		Date	<u>8/18/88</u>
GC/CP, S. Tisa	<u>Jim Rindler for</u>	Date	<u>8/19/88</u>

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT DATA SHEET

1. TRANSACTION CODE
 A = Add
 C = Change
 D = Delete
 Amendment Number _____

DOCUMENT CODE
3

2. COUNTRY/ENTITY
Worldwide

3. PROJECT NUMBER
936-5116

4. BUREAU/OFFICE
S&T/Nutrition

5. PROJECT TITLE (maximum 40 characters)
Vitamin A for Health

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)
 MM DD YY
 09 31 09

7. ESTIMATED DATE OF OBLIGATION
 (Under "B." below, enter 1, 2, 3, or 4)
 A. Month YY 8/18 B. Quarter 4 C. Final YY 9/2

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(19,000)	()	(19,000)	()	(19,000)	(19,000)
(Loan)	()	()	()	()	()	()
Other U.S.						
L. Buy-ins	9,626		9,626		9,626	9,626
2						
Host Country						
Other Donor(s)						
TOTALS	28,626		28,626		28,626	28,626

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
(1) FN		320				19,000		19,000	
(2)									
(3)									
(4)									
TOTALS						19,000		19,000	

10. SECONDARY TECHNICAL CODES (maximum 8 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code _____

B. Assessor _____

13. PROJECT PURPOSE (maximum 480 characters)

To promote and assist developing countries to develop, implement and evaluate national programs for the prevention of blindness, morbidity, and increased mortality in pre-school children due to vitamin A deficiency.

14. SCHEDULED EVALUATIONS

Location MM YY Final MM YY

06 10 1 2 9 3

15. SOURCE/ORIGIN OF GOODS AND SERVICES

000 F1 Local Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (Take to page 1 of a page FF Amend)

17. APPROVED BY

Signature: Norge W. Jerome

Title: Director, S&T/Nutrition

Date Signed: MM DD YY
018 117 88

18. DATE DOCUMENT RECEIVED BY AID/IV, OR FOR AID/IV DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

VITAMIN A FOR HEALTH

936-5116

Office of Nutrition
Bureau for Science and Technology

7

PROJECT PAPER
VITAMIN A FOR HEALTH

I.	<u>Project Background & Rationale</u>	
	A. Magnitude and Public Health Significance	1
	B. Associated Factors and Program Priorities	3
	C. Other Donor Agencies	5
	D. Role of A.I.D.	6
II.	<u>Project Description</u>	
	A. Project Goal and Purpose	11
	B. Project Strategy	11
	C. Project Components and Outputs	12
	1. Expanded Field Support to A.I.D. Country Programs	13
	a. Program Planning	13
	b. Program Technical Services	14
	c. Information Gathering and Dissemination	16
	d. Small Grants Program	16
	e. Women in Development	16
	2. Operations Research	17
	a. Studies on Morbidity/Mortality and Development of Assessment Techniques	17
	b. Services Delivery Alternatives	17
	3. International Coordination and Information Dissemination	18
	a. IVACG Secretariat	18
	b. Task Force Activities	19
	c. State-of-the-Art Papers	19
	d. International and Regional IVACG Meetings	19

D.	Program Oversight and Evaluation	19
1.	NAS Sub-Committee	19
2.	Technical Advisory Group (TAG)	20
3.	Steering Committee	20
4.	Output Indicators	21
III.	<u>Cost Estimate & Financial Plan</u>	22
A.	Program Planning	22
1.	Assessments	22
2.	Strategies and Program Development	22
3.	Evaluations	23
B.	Program Technical Services	23
1.	High Dose Supplement Interventions	23
2.	Food Fortification	23
3.	Gardens	24
4.	Education and Communication	24
5.	Other Short-term Technical Assistance (T.A.)	24
6.	Training	25
C.	Information Gathering and Dissemination	25
D.	Grants Program	25
E.	Operational Research	25
1.	Mortality, Morbidity and Assessment Studies	25
2.	Service Delivery Methodologies	25
F.	International Coordination and Dissemination	26
G.	Program Oversight	26
1.	NAS Sub-Committee on Vitamin A	26
2.	Technical Advisory Group	26
3.	Contingency Account	26
H.	Five Year Summary Obligation Schedule	27

IV.	<u>Implementation Plan</u>	28
	A. Procurement Plan	28
	B. Relationships within S&T, USAIDs and Regional Bureaus	30
	C. Mission and Bureau Buy-In Arrangements	30
	D. Implementor Interrelationships	30
V.	<u>Technical Analysis</u>	31
	A. Field Support To Strengthen Country Programs	32
	1. Capsule Supplement Distribution	34
	2. Nutrition Education and Communications	34
	3. Fortification	36
	4. Horticulture Approach/Home Gardens	36
	B. Operational Research	37
	1. Research on Morbidity, Mortality and Indicators of Vitamin A Status	37
	2. Operations Research on Interventions, Delivery Systems, and Management Issues	39
VI.	<u>Environmental Analysis</u>	40
VII.	<u>Evaluation Plan</u>	40
	A. Indicators and Methodologies for Measuring Performance	40
	B. Evaluation Arrangements and Methodologies	41
VIII.	<u>Logical Framework</u>	42

NUTRITION: VITAMIN A FOR HEALTH
936-5116

I. Project Background and Rationale

A.I.D. is committed to helping developing countries meet basic human needs and overcome problems associated with hunger, illiteracy, disease, and maternal and child mortality. Vitamin A deficiency has far-reaching social and economic consequences for development. This is because of the blindness caused by the deficiency as well as a suggested increased risk of mortality in vitamin A deficient children. A.I.D. is the leading donor agency in vitamin A prevention and control.

The design of "Vitamin A For Health" project (936-5116) is based on the experience of the predecessor project for vitamin A, "Vitamin A Deficiency Program Support" (931-0045). Activities funded under the predecessor project which are still current, will be completed under the new project. In this way, the project presented here represents a bridge between a former project and its activities and directions identified for a new project. The predecessor project was initiated in FY 1975 and will expire on September 30, 1989. It was evaluated by an external committee in April 1988. The evaluation team recommended that the project be extended for at least a five year period, with emphasis in research on morbidity and mortality linkages and increased technical assistance to improve program management and evaluation. The activities designed under the new project are consistent with the recommendations of the evaluation.

A. Magnitude and Public Health Significance

Eight to ten million children suffer from vitamin A deficiency each year, with an associated two to three fold increased risk of acute respiratory infection and diarrheal disease. One million children worldwide develop severe eye disease due to vitamin A deficiency (xerophthalmia) annually. One fourth of these children become blind, and sixty percent of those blinded, die within months of losing their sight. Field programs with vitamin A activities are essential for achieving child survival objectives in communities where vitamin A deficiency is prevalent.

Vitamin A deficiency is found in all A.I.D.-assisted regions. It is most widespread in Asia and Africa, with scattered foci in Latin America and the Caribbean (LAC) and the Near East. Asia has the largest number of documented cases of vitamin A deficiency, with an estimated 15 to 30 million suffering from some form of the deficiency at any one time (ACC/SCN, 1987).

However, as measles, xerophthalmia and morbidity studies now indicate, Africa may require immediate attention as well. In the Latin America and Caribbean region, xerophthalmia is common in Haiti, Northeast Brazil, and probably in parts of Bolivia, Honduras and Guatemala. Low serum vitamin A levels thought to be more widely prevalent than xerophthalmia in the LAC region, have now been found associated with high risk of child mortality and morbidity, and may require action in a number of countries. This centrally funded project will provide assistance to all A.I.D. regions in conducting field assessments of the prevalence and severity of vitamin A deficiency. It will continue operations research on refining existing and developing new field assessment techniques, and on the morbidity and mortality implications of various forms of the deficiency in diverse regional settings.

How does the deficiency of a single nutrient such as vitamin A, affect the health status of large populations? The exact mechanisms of vitamin A functioning in the body remain unknown. However, a number of metabolic roles have been identified including vision, reproduction, growth, maintenance of epithelial cells and immune properties.

- o In vision, retinol (vitamin A) combines with protein in the rod cells of the retina, resulting in a light stimulus exciting the optic nerve and allowing the person to see even in dim light. In vitamin A deficiency, a delay occurs in this mechanism resulting in "night blindness".

- o Epithelial cells are found in the mucous membranes of all surfaces on all interior surfaces of the body (i.e. alimentary, respiratory, genito-urinary tracts). Vitamin A deficiency changes the structure and functioning of these cells, causing the epithelium to become fragile and prone to invasion by pathogens aided by a reduction in the normal secretions and cilia that keep the surfaces clean.

Through the continuation of the operations research components of this S&T project, a better understanding of the interrelationships between vitamin A deficiency, changes in the functioning of the eyes, growth in young children and infectious diseases is likely to become clearer, thereby improving our capacity to design vitamin A programs and monitor them for achieving child survival objectives.

B. Associated Factors and Program Priorities

Given the present state of our knowledge, what priority areas in vitamin A nutrition should operational programs address? Vitamin A deficiency can occur due to a multiplicity of factors as follows:

- o interference with the intake of foods rich in vitamin A or its precursor (carotene), such as through insufficient breastfeeding, poor weaning practices, cultural practices relating to food intake, or the unavailability of such foods;
- o interference with the absorption of vitamin A or its precursor, such as that due to inadequate fat in the diet needed for absorption of the vitamin, diarrheal diseases;
- o interference with the utilization of vitamin A, such as that due to protein or zinc deficiency and febrile diseases.

Populations at risk of developing xerophthalmia appear to receive most, if not all their vitamin A from carotene-rich fruits and vegetables. Such foods tend to be seasonal, necessitating intake at many times the normal daily requirement in order to ensure that liver stores are adequate to cover periods of low intake.

Diarrhea, parasitic infections, and other intestinal disorders interfere with the absorption of vitamin A. Respiratory tract infections, measles and other febrile illnesses increase metabolic demands, interrupt normal feeding patterns and, thereby, reduce vitamin A intake. Severe forms of protein-energy malnutrition are also known to interfere with absorption, storage and utilization of the vitamin.

Clearly, programs need to consist of multiple interventions aimed at increasing intake, absorption and utilization. They need to be designed on the basis of a systematic identification of factors specific to each situation. The field support component of this project gives high priority to assessments, program design/analyses, and continued monitoring for this purpose. The identification of appropriate delivery systems takes into consideration: access and coverage of existing programs; multiplier effects of combined programs, such as immunizations and vitamin A; sustainability; and cost-effectiveness. For better targetting of program resources, a consideration of "who" (age, ethnic, economic classes) and "when" (seasons, weather/illness/feeding patterns) are important.

Xerophthalmia is not restricted to any age group. However, the preschool child is considered most at risk of the deficiency and its serious manifestations. Within the child population, there are periods of special risk. These include: drought, famine and emergencies; critical feeding periods such as breastfeeding, weaning, recuperation from diarrhea and other illnesses, seasonal shortages of carotene rich foods; and during and immediately following illness.

Young children are at greatest risk of developing xerophthalmia, both because their vitamin A needs are higher relatively compared to other age groups, and because they frequently experience infections (increasing their needs for the nutrient) and diarrhea (which inhibits its absorption and use). As a result, severe, blinding corneal destruction is most frequently observed in children between the ages of six months and six years. Vitamin A deficiency is the most frequent cause of blindness among preschool children in developing countries. The younger the child and the more severe the disease, the higher the risk that corneal destruction will be followed by death. Sixty to seventy percent of all untreated cases result in death within a few weeks following the onset of blindness.

With the leadership of institutions and entities launched and supported by A.I.D. under the first phase of this project, there is consensus not only on the need for a focussed global attack on vitamin A deficiency, but on a set of proven, effective interventions that can control and prevent the deficiency, and on field assessment techniques for monitoring its prevalence.

Interventions include:

- o distribution of high oral doses (200,000 I.U.) of vitamin A;
- o fortification of foods with vitamin A;
- o nutrition education to increase consumption of vitamin A-rich foods;
- o production of vitamin A or carotene-rich foods through home/community gardens.

These interventions, combined with activities to promote and preserve full breastfeeding, reduce diarrheal and immunizable diseases, and birth-spacing, are crucial to the effective and sustained reduction of vitamin A deficiency in high prevalence areas. Much work remains to be done on the relative merits of delivery systems and on identifying sustainable mechanisms to

program vitamin A activities. The new centrally funded project will encourage through grants, technical assistance, IVACG and regional workshops, the testing and evaluation of alternative delivery systems for integrating vitamin A activities into national programs.

C. Other Donor Agencies

Following a resolution of the World Health Assembly in May 1984, WHO and the Sub-Committee on Nutrition (SCN) of the United Nations Administrative Committee on Coordination (ACC) developed a strategy and a ten-year program of support to reduce the prevalence of vitamin A deficiency to levels where it no longer is a public health problem in developing countries. According to this resolution:

Safe, effective and relatively inexpensive techniques exist to control vitamin A deficiency and xerophthalmia, in particular through increased consumption of local foodstuffs rich in provitamin A, periodic mass distribution of large doses of vitamin A, and the fortification of certain foods.

The 1985 WHO proposal for a ten-year program emphasized that control of the disastrous effects of vitamin A deficiency is already within reach using existing technical resources and infrastructures. The WHO program states that support will be available to countries undertaking; assessment, prevention, treatment, training, and investigations related to program implementation.

At the request of SCN, its Advisory group on Nutrition (AGN), reviewed the results of the landmark, A.I.D.-assisted Indonesia study and stated (April 1986, AGN's Statement on Vitamin A and Mortality):

It is appropriate to advise countries mounting high dose vitamin A programs for the control of xerophthalmia that reduction of child mortality is a reasonable expectation, and is further justification for such programs. It noted that confirmatory trials are now in process, and urged that those be monitored to ensure that the experience in Indonesia is reproducible in other regions which may have different patterns of morbidity or other conditioning factors.

An important component of this project is assistance for the continuation of operations research devoted to these confirmatory trials in other countries.

The Global EPI (Expanded Program of Immunization) Advisory Group (WHO, 1987) pointed out the common features of immunization and vitamin A control programs and recommended actions for integrated programs on a large scale. Both programs target groups of young children and women of childbearing age, use delivery systems involving simple and cheap technologies with proven outcomes, and call for active community participation. A joint WHO/UNICEF statement issued in May 1987 on Vitamin A for Measles, states that:

High dose vitamin A supplementation should be provided to all children diagnosed with measles in communities in which vitamin A deficiency is a recognized problem. In countries where the fatality rate of measles is 1% or higher it is sensible on the basis of current evidence to provide vitamin A supplements to all children diagnosed with measles.

UNICEF has been involved in combatting vitamin A deficiency since the late 1940's, when cod liver oil was distributed to children in war-torn Europe. In the 1950's, UNICEF played a major role in establishing the fortification of non-fat dried milk with vitamin A in emergency feeding programs. In the 1960's, UNICEF with FAO supported programs of local food production and related education for preventing vitamin A deficiency in children. Following the formulation of the mega-dose vitamin A capsule (200,000 I.U.) in the early 1970's, UNICEF became the major procurer of vitamin A capsules for xerophthalmia control and prevention. In 1981 UNICEF supplied over 3 million capsules worldwide. In 1985 this figure was over 80 million, with 95 per cent of these sent to 9 countries, mainly to Bangladesh and Indonesia. UNICEF has also urged its country offices to submit requests for vitamin A program support where vitamin A deficiency is a known serious public health problem.

Key among other agencies active in this field are Helen Keller International through participation in operational research, supplement distribution programs, training, and assistance to other PVOs. The Royal Commonwealth Society for the Blind, International Eye Foundation, Save the Children Federation and CARE are other PVOs that have made significant contributions. Among other bilateral donors, DANIDA and CIDA provide assistance for vitamin A programs.

D. Role of A. I. D.

With the collaboration of UN agencies, including WHO and UNICEF, A.I.D. has been at the forefront of vitamin A deficiency prevention and control since 1965. The International Vitamin A Consultative Group (IVACG) was created

under the predecessor project (931-0045) in early 1976 to function as a worldwide catalyst by marshalling international expertise, collecting and disseminating knowledge of the problem and preventive methods and providing a forum for international coordination, discussion and exchange of knowledge and experience. It is a key forum for donor coordination, bringing together scientists, policy makers and program managers to review the state of the art and identify program directions. Technical and program guidelines produced by IVACG have contributed significantly to an understanding of and consensus regarding the program implications of scientific research and field experience in this area.

During the early years of A.I.D. assistance for vitamin A programs, training and technical assistance were made available through a number of discrete grants and contracts, including:

- o training to develop a cadre of vitamin A experts;
- o vitamin A deficiency surveys in several countries;
- o initial support for capsule distribution activities;
- o development and testing of fortification technologies for sugar and monosodium glutamate (MSG);
- o a large multi-faceted research program in Indonesia which revolutionized global understanding of the etiology, treatment and prevention of nutritional blindness, and provided insights into the role of vitamin A in child survival and health.

During 1980-1986, IVACG and the International Center for Epidemiologic and Preventive Ophthalmology at Johns Hopkins University (ICEPO) served as the two operational arms of the project.

These efforts focussed on assessing the magnitude and significance of the problem, testing interventions, building a critical mass of institutions with specialized expertise and commitment, coordination among donors and building consensus. As a result, WHO, UNICEF, leading countries of the developing world, and other bilateral donors have made major commitments to fighting the problem of vitamin A deficiency.

A.I.D. funding for the predecessor S&T/N project, which represented the Agency's total program in this field, averaged about \$375,000 annually prior to 1985. Late in that fiscal year, an additional \$3.5 million of child survival funds were made available to S&T/N (out of \$6 million agency-wide) for

vitamin A activities. These funds plus annual congressional earmarks (\$8 million each in FYs 1987 and 1988 for agency-wide vitamin A activities), allowed S&T/N to support the following in addition to IVACG and ICEPO:

- research in several countries on the importance of vitamin A in child survival and the relation of vitamin A to infection and immunity;
- a National Academy of Sciences (NAS) oversight committee for
review of the field study protocols and interim and final review of study results;
- testing of vitamin A-fortified MSG in Indonesia and vitamin A-fortified wheat in Bangladesh;
- testing of social marketing as an intervention approach in three countries and provision of T.A. in social marketing to several other countries;
- establishment of a nutrition-oriented garden development and training center for West Africa/Sahel, headquartered in Niger to expand home/community garden interventions for vitamin A;
- grants to ten U.S. PVOs to initiate various vitamin A programs within the context of their development work.

The Agency Strategy for Nutrition in Child Survival (1986), identifies programs for vitamin A deficiency and control as high priority in areas of high prevalence. Based on tentative findings of the mortality risks of vitamin A deficiency in young children, the U.S. Congress provided special funding for A.I.D. programs to be conducted through PVOs, bilateral projects, and operations research in FYs 1986, 1987 and 1988. In addition to S&T, the Regional Bureaus and FVA Bureau provide substantial assistance to field programs. The new S&T project is vital for providing technical support to all these activities. It should support the development of scientific guidelines and methodologies, coordination and tracking of A.I.D. assistance in this field, and institutional development as a part of the Agency's leadership role in the control and prevention of vitamin A deficiency.

Assistance provided by A.I.D. under the new S&T/N project will continue to foster the development of institutions in the U.S. and developing countries, that will be capable of mobilizing broad support and be committed to vitamin A deficiency

prevention and control.' The Agency has an established track record in this type of institutional development in the fields of contraceptive research, diarrheal disease control, agriculture, and social marketing. Also, much about vitamin A deficiency in key A.I.D. assisted countries and regions remains to be discovered. The new project should be flexible enough to respond to new knowledge on etiology, prevalence, cost effectiveness of prevention and control measures, and successful program/policy models in the field.

The current portfolio of intermediaries supported by A.I.D. have a proven track record in operations research, technical guidance and coordination. These will require continued support. However, a major priority for A.I.D. that remains to be addressed, is to support a critical core of technical personnel who can quickly, effectively, and flexibly respond to program needs from field missions, PVOs and host country entities. From the range of organizations currently working in health, nutrition and population, an appropriate entity will need to be selected and supported to fulfill the requirements of a global vitamin A field support unit. A major share of this project's resources will be devoted to funding an Agency or institution which will carry out this purpose.

In addition, the project will have the capability to authorize supplementary funds to support existing health/ nutrition intermediaries and PVOs. Many of these are currently at the forefront of health, nutrition and family planning services delivery, training, policy dialogue and operations research activities and can be mobilized quickly. A range of potential mechanisms giving flexibility to project development exist. These include limited scope grant agreements as well as the transfer of funds to bilaterals in order to integrate vitamin A components into ongoing child survival programs.

With health programs in most countries, including those most affected by the deficiency, the Agency is in a unique position to contribute to global prevention and control of vitamin A deficiency. Collaborative arrangements have already been negotiated internationally with WHO, UNICEF, FAO and with the host countries themselves. Where health, family planning, Title II and education programs are in place, additional measures directed at limiting the occurrence of vitamin A deficiency are possible without great extra effort or prolonged delay.

Recommendations of the external evaluation of the predecessor project conducted in April 1988 that have been incorporated into the design of the new project are summarized below:

- o The vitamin A project should be continued for at least a five year period;
- o Considering the child survival implications of vitamin A deficiency, in addition to effects on child well-being and blindness, substantial funding should be made available for the Agency's vitamin A program;
- o A new mechanism is needed for operational field program support that is equivalent to but different in focus from ICEPO. A new U.S.-based institutional entity should be identified that can assist with: program planning, management, evaluation; assessment of the effectiveness of interventions such as social marketing and food production/home gardens; technical assistance to A.I.D.-funded PVO programs in vitamin A;
- o IVACG should be encouraged to expand its role to include wider coverage through regional meetings, conferences and workshops;
- o ICEPO should be funded to meet its current program of activities;
- o Replicate studies of the mortality and morbidity relationships of vitamin A deficiency should be conducted in different countries by different groups of investigators;
- o A.I.D. should strengthen proposal review and project monitoring mechanisms for better coordination and quality control.

II. Project Description

A. Project Goal and Purpose

The overall public health goal to which this Project will contribute is to eliminate Vitamin A deficiency as a major cause of childhood blindness and contributing factor in child morbidity and death.

The specific Project purpose is to 1) determine the role which Vitamin A deficiency plays in child morbidity and mortality; and 2) assist less developed countries assess the prevalence of Vitamin A deficiency among their young child populations and to develop and implement programs to overcome the problem.

B. Project Strategy

This Project provides a bridge for completion of activities initiated during the predecessor Project and the development of field responsive operational activities. Building on the gains made to date in Vitamin A research and field intervention trials, the Project will expand greatly the application of known Vitamin A blindness prevention technologies to country nutrition programs in AID countries. Concurrent with that, the Project will also continue applied field research to a) refine assessment and program implementation technologies and methodologies, and b) determine the relationship between Vitamin A deficiency and childhood morbidity and mortality. The Project will promote actively the introduction, or expansion, of Vitamin A interventions in A.I.D. country programs, through the services of an entity/contractor devoted exclusively to that objective, on behalf of ST/N and the A.I.D. Regional Bureaus.

Although technical support services will be available to all A.I.D. countries, the Project will pursue a target country strategy by which particular attention will be paid to developing comprehensive assessment and intervention packages in a limited number of countries with high prevalence of Vitamin A deficiency. Specific countries cannot be firmly identified at this point, although it is anticipated that several countries in each of the three A.I.D. geographic regions will be selected. Determination will be contingent upon the support of the relevant regional bureaus. Final identification will depend on analysis of existing data, completion of some additional assessments, and discussions with host country, A.I.D. and other donor agency representatives. Countries will be selected depending upon the prevalence of vitamin A deficiency, Missions interested in programming funds and identified opportunities for operational programs as well as host country interest. Currently targeted countries include: Bangladesh, Bolivia, Guatemala, Haiti, Indonesia, Malawi, Mauritania, Niger, Philippines, and Sudan.

21

Assessments will be used as a means to promote demand for program development services and initiation of interventions by USAIDs and host country counterpart agencies. Where possible vitamin A assessments will be integrated with other on-going survey activities such as those being carried out through DHS or other. These are intended to be practical in nature, quite rapid and inexpensive. These assessments will provide us with knowledge regarding the thus far undetermined scope of the problem and assist us in determining priorities for emphasis countries and regions in which to work. They will be very flexibly adapted to specific country situations because they can be applied on a national level or on a smaller scale to regions and sub-regions to correspond to a counterpart agency's mandate, such as a PVO, or to a suspected high prevalence area.

Research work will be concentrated at JHU, through ICEPO and the Institute for International Programs. Several ongoing research activities, to replicate the Indonesia study, will continue for two more years and then completed. Other research to address specific issues confronting expansion of prevention programs will also be conducted by ICEPO, IIP and affiliated institutions. The exact nature of these cannot be determined in advance and would depend upon the findings from currently ongoing studies. However, it is expected that they would include analysis of the role of vitamin A in a range of childhood infectious diseases and operationally feasible preventive programs. The project steering committee with discussions internally at A.I.D. would determine future directions.

Applied research and technology development will also be pursued by the Technical Services contractors/institutions (potentially USDA, AVRDC, etc.) on issues related to strengthening food fortification, gardens and education/communications interventions in field programs. The ratio of research to programs would be continually reviewed and it is anticipated that after the first two years of this new project, the overwhelming share of resources would be directed towards programs applying the knowledge gained through research.

C. Project Components & Outputs

Project components and outputs include the following, each of which will be individually described below:

1. Expanded Field Support
2. Operations Research
3. International Coordination and Information Dissemination

26

1. Expanded Field Support to AID Country Programs

The Project will provide field support services to USAIDs and their host country institutions to expand the application of proven Vitamin A interventions in AID recipient countries. Services will include technical assistance and related training for 1) country assessments of Vitamin A deficiency prevalence; 2) country strategy development; 3) program/project development; and 4) project monitoring and evaluation.

In addition to this program planning (and evaluation) service, the Project will provide technical assistance for design and implementation of four specific Vitamin A interventions: high dose supplement distribution; food fortification; gardens; and community education/social marketing. At the present time these services are provided to some extent by USDA (food fortification), AVRDC (gardens), Manoff International (social marketing) and ICEPO (supplement distribution).

a. Program Planning

The new Field Support Contractor (The Contractor) will be responsible for providing Vitamin A program planning and design assistance to USAIDs and their counterpart agencies, at the request of ST/N including information from other A.I.D.bureaus. Mission and regional bureau buy-ins for these activities are anticipated. The objective of this assistance will be to generate a greater awareness and definition of the problem through assessments followed by preparation of concrete strategies and programs to address the problems identified.

- Assessments: Approximately 50 prevalence assessments will be carried out with Project support from the Contractor during the Project life (1989 to 1994). An assessment may cover an entire country or a region within a country and require two months to complete, on average. The Contractor will provide one expatriate consultant to assist with the design, planning and execution of each assessment, depending on national personnel to actually perform the work. Training will be provided as required. Each assessment will yield the following information:

- Strategies/Program Development: The Contractor will provide expert consultants to assist with the preparation of 20 country (or sub-national) strategies and related program plans for combatting Vitamin A deficiency. The Project will focus especially on target countries that have been identified already as having high levels of Vitamin A deficiency. This phase of program development will precede detailed intervention-specific feasibility analysis, unless circumstances warrant inclusion of that phase at this stage.

23

Normally, countries and USAIDs will want to consider recommendations and alternative strategies for a while before entering into detailed intervention design work. Mechanisms for monitoring changes in population status and program effectiveness will be integrated from the start of any new programs.

- Evaluations: The Contractor will also be responsible for providing teams of experts to perform periodic evaluations of field programs at the request of ST/N based on information from USAIDs, PVOs or other organizations. Approximately 20 such requests are anticipated.

b. Program Technical Services

The Project will contract with one or more organization(s) to provide specialized technical services for each of the following Vitamin A interventions:

- (1) high dose supplement distribution
- (2) food fortification
- (3) Vitamin A rich gardens
- (4) community education

These services will normally be provided to a country following the program planning stage described above, or at a comparable stage of a country's, or region's, program definition process. However, these technical services will only be provided when ST/N is satisfied that appropriate program planning work has been done and that detailed intervention feasibility and design work is warranted. ST/N may ask The Contractor to review specific situations and recommend appropriate courses of action to it. The technical services contractors will not promote, or market, their services directly to USAIDs or others. Priorities will be developed by ST/N in collaboration with other Bureaus in order to design guidelines for action.

As recommended in the vitamin A project evaluation (1988), before any further efforts are made to expand the social marketing and gardening intervention activities of this project, an evaluation of the current activities will be carried out early in FY 89. Depending upon the results of this evaluation, S&T's priorities, and in collaboration with interested Bureaus, a competition for new implementors may be held.

The Project will initially continue to rely on USDA and AVRDC to provide technical services for food fortification and gardens respectively as currently funded. ST/N will arrange for a thorough evaluation in 1989 of social marketing work performed to date by Manoff International through a sub-contract from ICEPO in Indonesia, Thailand and Bangladesh. The evaluation, recommended by the external evaluation team for the current Vitamin A project in April 1988, will be used by ST/N to determine the exact nature of community education/social marketing activities to be supported by this Project. In particular, ST/N recognizes the urgent need to go beyond research and focus on applied programs. It is anticipated that some assistance will be required for this aspect of country programs.

Projected output indicators for these services are as follows:

- Assistance for design and implementation of capsule distribution interventions will be provided to 10 countries.
- The USDA group will assist with feasibility analysis and pilot food fortification projects in five countries.
- AVRDC will initiate, or significantly expand, garden programs in 10 countries.
- The community education/social marketing contractor will develop Vitamin A education programs in 10 countries.

Project assistance in these four interventions will include a small amount of working capital, in addition to technical services, to permit the contractors to purchase essential supplies and materials such as capsules, seeds, Vitamin A powder or food fortification vehicles, and educational materials, if otherwise unavailable.

In addition to technical services for the four specific interventions described above, The Contractor, or one of the technical services contractors, will also provide a limited amount of short-term technical assistance and training on an ad hoc basis to USAIDs and others at the request of ST/N. It is anticipated that approximately 50 person months of these services will be provided to 20 countries during the course of the project. The distribution of these will be in based on the extent of deficiency problems, support from Missions and other bureaus. The actual distribution will depend upon identification of problem areas, interest and capacity to implement the results.

15

c. Information Gathering & Dissemination

The Project Contractor will provide several information-related services focussed on A.I.D. Vitamin A programs and persons involved in them. The Contractor will develop a system for collecting information about Vitamin A - related programs sponsored by A.I.D. (and others) and a program for disseminating it. The latter will include periodic publications/newsletters and workshops. One workshop will be held each year for AID staff and counterparts in a region or worldwide. The tracking system devised will be compatible with current systems such as that provided by ISTI.

d. Small Grants Program

In order to take advantage of opportunities to extend Vitamin A intervention and applied research activities beyond what can be done through USAID bilateral projects and the FVA PVO grants program, the Project will provide small grants to PVOs, LDC institutions, U.S. universities and private companies, on a competitive basis, to undertake research and pilot intervention projects in various countries. Projects can include capsule distribution, food fortification, gardens and community education. The Project Contractor will administer this program according to guidelines provided by ST/N. Approximately 15 grants of a varying duration will be awarded each year totalling approximately \$1.2 million. The technical advisory group reviewing these will include representatives of interested bureaus similar to the recently competed grants program jointly administered by the Offices of Health and Nutrition with the International Center for Research on Women. A detailed implementation plan and guidelines will be developed following Project authorization.

e. Women in Development

The project will be especially interested in encouraging activities which reflect the distinct roles and functions of LDC women and their pivotal role in addressing the prevention of vitamin A deficiency. Since the most vulnerable group for vitamin A deficiency is pre-school aged children, the role of their health providers, most often their mothers, in developing long term sustainable solutions to the problem will be emphasized. This includes opportunities for increased income generation which will benefit the entire family as well as assistance to women engaged in agricultural activities, both of which have considerable potential for improvement of nutritional status. In assessing proposed activities under this Project, we must ensure that new technologies in assessment and production reach women. Further, opportunities for training and implementation of programs must recognize and involve the important role of women and their development.

2. Operations Research

The technical analysis/lessons learned section of the Project Paper contains a more detailed review of operations research issues and possible topics/activities that are likely to be supported under the project.

a. Studies on Morbidity/Mortality and Development of Assessment Techniques

The need for confirming the results of the Indonesia study in other locations has been identified through A.I.D. and UN reviews, for the purpose of improving the state-of-the-art in vitamin A programming for child survival. Varying patterns of morbidity and other conditioning factors may alter the mortality and morbidity outcomes of vitamin A interventions. These studies will be undertaken through grants and cooperative agreements with ICEPO, IIP, and country institutions. Funds will be provided for baseline and post-intervention assessments, field investigators, laboratory support, intervention design and implementation, data analyses, T.A. and reports. An important outcome of these studies in some sites is expected to be new/modified assessment techniques that are sensitive, specific and easy to administer in the field. NAS will continue to be requested from time to time to review methodologies and proposals for ensuring technical quality. Participation of investigators from host countries and U.S. institutions at IVACG and regional meetings will be encouraged for sharing methodologies and results.

b. Services Delivery Alternatives

Evaluations of existing programs have already identified a number of operational issues related to the cost-effectiveness of interventions, channels for delivery of services, vitamin A coverage rates and food composition. These issues will be developed into operations research activities conducted by universities in the U.S. or developing countries, PVOs, Nutrition Institutes or Centres, Ministries of Health and others. The project Contractor for field support activities will be asked to develop a proposal solicitation and review mechanism, will Regional Bureau participation, to prioritize research issues and select proposals. Buy-in funds will be sought for these projects. Many are expected to relate directly to integrating vitamin A services into mission-funded child survival projects. The following is an illustrative list of research topics:

- o development of protocols for vitamin A integrated with diarrheal disease control programs;

- o protocols for combined vitamin A supplements and immunization programs;

27

- o relationship of vitamin A with other micronutrients, e.g. zinc, iron;
- o updating food composition tables using new, more accurate analytical techniques, and testing for bioavailability of betacarotene on a regional basis;
- o testing lower dose vitamin A supplementation to reduce side effects;
- o testing the feasibility of local formulations of high dose supplements such as syrups;
- o feasibility of providing vitamin A capsules and training to midwives, other TBA, and health para-professionals to increase coverage;
- o feasibility of utilizing trained medical technologists, pharmacists, compounders, sanitarians and other types of para-medical personnel available in host countries for vitamin A assessments;
- o development of computerized monitoring of coverage and prevalence.

From time to time other topics will be identified and subjected to field study. The primary objective of this component, however, will remain increasing the effectiveness, coverage and sustainability of vitamin A activities for enhancing child survival and blindness prevention.

3. International Coordination and Information Dissemination

IVACG sponsors international meetings, scientific reviews and convenes task forces to analyse issues related to etiology, treatment and prevention of vitamin A deficiency. Examination of these issues facilitates the establishment of public policy and action programs.

a. IVACG Secretariat

The Secretariat is the central point for managing all IVACG activities and operations. Functional activities include: executing IVACG-approved policies and directives; recommending of agenda items, participants, meeting sites; managing and accounting for A.I.D. and other support/funds; awarding and monitoring travel and consultant grants and contracts; identifying contributors and editors for publications; maintaining mailing lists and distribution of reports; maintaining IVACG records, and providing support services to IVACG members. The Secretariat consists of an Executive Director, usually from one of the participating UN agencies,

and a secretary, usually the A.I.D. vitamin A project manager, in addition to support staff funded by the project. The Nutrition Foundation is completing the first year of a newly competed cooperative agreement. The vitamin A project external evaluation concluded that considerable growth had taken place over this year. As the vitamin A program grows and develops, there is scope for an increase of activities by this group.

b. Task Force Activities

Task Forces are convened to address specific areas in vitamin A scientific research or programming from time to time. Requests for IVACG position papers or scientific reviews are received from international agencies or members, and those considered significant are assigned to task forces established for the specific topic. Examples include: methodologies for monitoring and evaluation of vitamin A interventions, use of vitamin A in ORT programs, dietary assessment methodology, methodology for assessment of provitamin A in foods and vitamin A in emergency relief operations.

c. State-of-the-Art Papers

IVACG produces a series of guidelines and monographs on topics that require review and clarification. These may be methodological issues, research-oriented or program/policy guidance.

d. International and Regional IVACG Meetings

Up to the present time, IVACG has convened international meetings of 100-150 participants, approximately every 18 months to discuss scientific and program issues in vitamin A. These have been held in different regions and countries, and served to exchange information, highlight important new advances, draw attention to the problem of vitamin A deficiency, and obtain commitment and motivation for action programs. There has been a growing recognition that a larger constituency needs to be reached than is possible through these meetings. The establishment of regional IVACGs will therefore be supported under this project to enable broader and more frequent developing country participation/information exchange on vitamin A issues. This will support the expansion of operational programs at the country level more effectively than international meetings alone can.

4. Output Indicators: See chart on page 21.

D. Program Oversight & Evaluation

1. The NAS Sub-Committee on Vitamin A will be retained to provide periodic technical guidance to ST/N on specific issues that will arise during the course of the Project, as it has

done under the current project. The guidance will be in the form of scientific reports in which the Sub-Committee expresses its collective opinion and recommendations on the technical issues presented to it by ST/N for consideration. This will be done approximately one time each year for a total of six reports.

2. A Technical Advisory Group (TAG) will be formed to provide continuous oversight and technical guidance to the Project. In contrast to the current NAS role, the TAG will meet on a regular basis (semi-annually or annually) to review progress and respond to technical and management questions posed to it by ST/N.

3. A Steering Committee composed of A.I.D. representatives of each regional bureau, ST/H, FVA and ST/N will meet quarterly to review progress, discuss future plans and ensure that the needs of each region and bureau are being met.

Output Indicators

	89	90	91	92	93	94	TOTAL
<u>Field Support</u>							
A. Program Planning (Entity)							
Assessment Strategies 10 target countries	2	8	10	10	10	10	50
Program Dev't Evaluations	0	2	3	5	5	5	20
	1	2	4	4	5	4	20
B. Program Technical Services							
Capsule Distribution (Entity)	0	2	2	2	2	2	10
Fortification (USDA)	0	1	1	1	1	1	5
Gardens (AVRDC)		2	2	2	2	2	10
Social Marketing		2	2	2	2	2	10
Other Technical Assistance (Entity)	4	8	9	9	10	10	50
C. Information Gathering & Dissem. (Entity)							
Workshops		1	1	1	1	1	5
Publications		3	3	3	3	3	1
D. Small Grants Program (Entity)							
II. <u>Operation Research</u>							
A. Morbidity & Mortality Studies (ICEPO, IIP, others) Assess. Methods	1	2	2				5
B. Service Delivery Methodologies (Entity)							10
III. <u>International Coordination & Dissemination</u>							
IVACG - Task Force Report.	1	2	1	2	1	2	9
- State of Art Papers	0	1	0	1	0	0	3
- International Meetings	1	0	1	1	0	1	4
- Other	0	1	0	1	0	0	3
IV. <u>Training (Entity)</u>							
V. <u>Program Oversight</u>							
A. NAS - Sub-Committee							
- Scientific Reports	1	1	1	1	1	1	6
B. Other - Oversight group							

III. Cost Estimate & Financial Plan

The total cost over the Life of Project (LOP) is \$33,302. million. This includes buy-ins at an approximately 40% level overall and cost sharing where appropriate. Five Year Summary Obligations Schedule summarizes the obligations and levels of buy-ins projected for different categories of activities. ST/N core support of this project is estimated at \$3.6 million for each year after FY 88 which is budgeted at \$4.2 million. It is estimated that this level of funding will be adequate for a comprehensive vitamin A project. All obligations are subject to the availability of funds. In this project funding may be accepted from all accounts including the ESF account and the African Development Fund.

A. Program Planning

1. Assessments: Each country assessment will require an expatriate expert consultant to assist HC institutions design the assessments and train personnel in assessment techniques. This will require approximately one month. In addition, two weeks will be required for prior planning and two weeks for post assessment analysis and report writing - 2 person months (pm). Approximately \$25,000 will also be budgeted for operating costs, supplies and materials for each assessment as contingency in the event the USAID or Host Country institution will be unable to provide for all local costs of the assessments.

Summary:

Assessment Expert	2 pm @ \$15,000	=	\$30,000
Technical/Lab. Support	\$25,000	=	25,000
Total			<u>\$55,000</u>

LOP: 50 Assessments @ \$55,000 = \$2,750,000

2. Strategies/Program Development: The Contractor will provide teams of two expert consultants to work with host country representatives to develop Vitamin A strategies and program proposals. The teams will devote approximately one month to each assignment in the field and two weeks at headquarters for preparation and report writing.

Summary:

Expert Consultants	3 pm @ \$15,000	=	\$ 45,000
--------------------	-----------------	---	-----------

LOP: 20 Strategies/programs @ \$45,000 = \$ 900,000

32

3. Gardens: The AVRDC teams in Taiwan and Niger will provide technical support for 10 country Vitamin A-rich garden interventions. Each intervention will involve several visits by expert consultants from those field stations to the collaborating countries, training of host country technicians at the regional stations, and provision of some essential materials and supplies. Host country institutions, USAIDs, PVOs, or others will pay the major operating costs of the in-country garden programs assisted by this Project through AVRDC.

Summary:

Expert Consultants - 6 pm @ \$7,000	= \$	42,000
Training	=	15,000
Materials & Supplies	=	10,000
Total	=	<u>\$ 67,000</u>
LOP - 10 interventions	= \$	670,000
Core Support - \$120,000 x 5 years	=	600,000
Total	=	<u>\$1,270,000</u>

4. Education/Communication: The contractor will assist with the development and testing of education activities in support of 10 Vitamin A programs encompassing one or more of the three interventions - capsules, food fortification and gardens/consumption. The social marketing/education activities will involve field research, message development and testing, delivery and evaluation, and will take place over an extended time period. Expert consultants will be engaged intermittently in each activity for one to three years for an average of six months for each consultant. One consultant will work on each activity, normally, and the contractor will provide additional technical and management support. Approximately \$10,000 will also be allocated for each activity for local operating costs contingency.

Summary:

Expert consultant - 6 pm @ \$15,000	= \$	90,000
Contractor support - 2 pm @ \$10,000	=	20,000
Operating costs	=	20,000
Total	=	<u>\$ 130,000</u>
LOP - 10 activities @ \$130,000	=	\$1,300,000
Core support-4pm @ \$10,000 x 5years	=	200,000
Total	=	<u>\$1,500,000</u>

5. Other Short-Term T.A.: The Contractor will provide ad hoc consultant services in response to an estimated 50 USAID or PVO requests during the course of the Project, in addition to all of the services described above. Each assignment will be handled by the equivalent of one person for one month.

Summary : 50 pm @ \$15,000	= \$	750,000
----------------------------	------	---------

6. Training: The Contractor will provide specialized training courses in the U.S. and in regional sites for HC technicians in Vitamin A deficiency assessment and intervention methodologies. One course will be conducted each year for approximately 15 participants each time.

Summary	15 participants @ \$10,000	= \$ 150,000
LOP	5 years @ \$150,000	= \$ 750,000

C. Information Gathering & Dissemination

The Project Contractor will provide the services of an information specialist to manage this component, including arranging for the annual workshops for AID staff and HC counterparts.

Summary -	Info. system @ \$100,000 per year	= \$ 500,000
	Five annual workshops	= 250,000
	Total	= \$ 750,000

D. Grants Program

The Project Contractor will manage the solicitation, review, approval and monitoring of these grants for ST/N. This will require the equivalent of one full-time professional staff member. Approximately 9 grants will be awarded each year.

Summary -	45 grants @ \$100,000	= \$4,500,000
	Grants management - \$100,000 per year	= 500,000
	Total	= \$5,000,000

E. Operational Research

1. Mortality, Morbidity & Assessment Studies

ST/N will contract directly with ICEPO and IIP of Johns Hopkins University, and several other institutions, to conduct a total of five studies. Each study will last approximately 3 years and cost approximately \$650,000.

Summary -	5 studies @ \$650,000	= \$3,250,000
-----------	-----------------------	---------------

2. Service Delivery Methodologies

The Project Contractor will manage the solicitation, review, approval and monitoring of 10 study grants to be awarded to a variety of research institutions. Two-three grants will be awarded each year during the first four years of the Project.

Summary -	10 grants @ \$100,000	= \$ 1,000,000
	Grants management - \$50,000 per year	= 250,000
	Total	= \$ 1,250,000

35

F. International Coordination & Dissemination

The IVACG will manage this expanded program of technical reports, papers and meetings at an anticipated cost of \$300,000 per year.

G. Program Oversight

1. NAS Subcommittee on Vitamin A:

One scientific report per year @ \$75,000 per year = \$375,000

2. Technical Advisory Group (TAG)

Semi-annual TAG meetings and reports = \$100,000

3. Contingency Account

Project evaluations and other contingencies will be funded out of this allocation amounting to 8.25% of total project funds.
= \$2,370,000

H. Five Year Summary Obligation Schedule

		88	89	90	91	92
		(\$ millions)				
I.	Field Support					
	S&T					
	Buy-ins	.500	1.182	1.164	1.292	1.
		0	1.830	1.746	1.594	1.
II.	Operations Research					
	S&T					
	Buy-ins	3.517	1.998	1.566	1.288	1.
		0	.420	.440	.600	.
III.	International Coordination & Dissem.					
	S&T					
	Buy-ins	0	0	.580	.650	.
		0	0	0	0	.
IV.	Other (Program Oversight, Evaluation and Contingency)					
	S&T					
	Buy-ins	.183	.520	.390	.370	.7
		0	0	0	0	.7
	Total					
	S&T/N					
	Buy-ins	4.2	3.7	3.7	3.6	3.8
		0	2.25	2.186	2.194	2.9
	Total					
	S&T					
	Buy-in		19.00			
			9.626			
	TOTAL		28.626			

31

IV. Implementation Plan

A. Procurement Plan

This Project will be implemented through cooperative agreements, competitive contracts and grants, limited scope grant agreements, RSSAs and other appropriate mechanisms. Gray amendment organizations will be encouraged to apply for activities under this project. Procurement by AID under this Project will be limited to technical services. ST/N will be responsible for arranging for, through SER/CM, the services of several organizations for the purposes described below:

- Field Support Contractors, selected through open-competition, will assist with the Program Planning components, Program Technical Services components (including Supplement Distribution, Ad Hoc T.A., and Training), Information Systems and Grants Program components, and Services Delivery Alternatives Operations Research components.

- The USDA Food Technology Group, which will continue to provide food fortification technical services under the Program Technical Services component through a RSSA, as in the current project. A Section 621(a) of the Foreign Assistance Act predominant capability waiver is requested for this procurement because the group has developed the methodologies which must be used. These activities represent a carryover from the previous project and terminate in 1989. Re-assessment of the Agency's food technology needs will be made before that time.

- AVRDC will continue to provide the horticultural/garden technical services through a grant agreement, as under the current project. A waiver is also appropriate in this case because AVRDC was established with AID support for this purpose, and has established a new Africa field station expressly to respond to this Project's requirements. The current activities, jointly developed by Africa Bureau and FA Directorate have two more years of implementation left. Decisions on the continuation or re-focusing of activities will be made jointly, following evaluation as described above.

- An education/communications firm will be contracted to provide supportive services to expand public participation in the other interventions. Manoff International is currently providing such services in three countries through a sub-contract with ICEPO which ends December, 1989. That effort will be evaluated early in FY 1989 and ST/N will base its procurement decision on its findings and recommendations. The wide range of available options for this type of activity will be evaluated and competition for implementation will be arranged.

- ICEPO of Johns Hopkins University will be asked to continue its Vitamin A research and development support to this Project through a cooperative agreement, as they have done under the current one. ICEPO has a clear predominant capability to do so based on the fact that they pioneered many of the methodologies now being used around the world to assess and combat Vitamin A deficiency. Dr. Alfred Sommer of ICEPO led the Indonesia research work which identified the link between Vitamin A deficiency and mortality now being pursued under its guidance in several other countries.
- The Institute for International Programs of JHU will be asked to manage operations research projects on morbidity links and assessment techniques to be conducted by a variety of U.S. and foreign institutions. This institution has had a cooperative agreement (CA) with ST/H. ST/N has bought into this CA for the past three years. This agreement has one year remaining. Given the need for combining the studies they are capable of performing with the other applied aspects of this project, a more direct monitoring of their activities under a direct cooperative agreement with ST/N seems advisable.
- Current grant agreements with Harvard and Cornell Universities will be extended and funds added under this Project in order to finish ongoing research projects which they are conducting.
- Similarly, a limited scope grant agreement with Mahidol University in Thailand will be initiated to permit the completion of research work it is conducting under the current project.
- The cooperative agreement with the Nutrition Foundation to operate the IVACG will be renewed and expanded by this Project. In response to recommendations in the external evaluation, increased consultant technical assistance will be included in the IVACG activities. AID created the IVACG to perform the critical international coordination and dissemination functions which no other organization was capable of providing at that time. This activity is part of an umbrella cooperative agreement (including INACG and SUSTAIN) which was competed in FY 1987.
- The current grant to the NAS to provide the scientific support of its Subcommittee on Nutrition, funded under the predecessor project, is currently being evaluated and its continued role in this Project is under discussion.
- Most of the contractual arrangements with organizations already working under the current project will be renewed during FY 1988 because additional funding must be provided this fiscal year. However, the major new procurement, for the Field Support Contractor, will be initiated in FY 1989.

24

B. Relationships within S&T, USAIDs and Regional Bureaus

Under the direction of the ST/N project officer, the Field Support Contractor will establish and maintain close liaison with the three regional bureaus and their Missions with respect to identifying requirements and opportunities for providing the services called for in its contract. Once ST/N, regional bureaus and Missions have concurred with the annual work plans and the way in which they are to be implemented, the Contractor will be authorized to deal directly with the respective USAID, or PVO, in the performance of its responsibilities without needing to obtain concurrence of SER/CM, ST/N and regional bureaus for each action such as sending individual consultants. However, the Field Support Contractor must obtain country clearance from each respective USAID for travel of consultants and its own staff.

Project coordination among interested AID offices will be effected through the regular quarterly meetings of the Steering Committee referred above in section II.D.

C. Mission and Bureau Buy-Ins

Buy-ins by Missions, regional bureaus and AID/W central bureaus will be encouraged. ST/N regards this Project as a unique resource which should be used by all AID units to provide specialized technical services in this critically important segment of the health and nutrition sector. Approximately 40% of the total services is available to buy-ins. Buy-ins are expected to be concentrated in the Program Planning and Program Technical Services activities of the Field Support component. They are most closely related to USAIDs' concrete project development and implementation requirements. It is anticipated that there will be funding through buy-ins from the Africa Development Program and ESF funding sources.

In newly undertaken activities, appropriate agency cost-sharing language will be included. This will allow for contributions by the recipient toward allowable costs of A.I.D. assisted projects. At the time of funds replenishment, the project officer will verify that the recipient has met the cost-sharing provisions for additional A.I.D. funds.

D. Implementor Interrelationships

The Field Support Contractor will not be expected to include on its staff, nor provide directly, experts in all of the technical subjects for which it will provide services. Its contract, and those of the other institutions participating in the Project, will call for the former to arrange for appropriate teams or individuals to perform tasks, and for the latter to provide appropriate individuals when called upon to do so by the Field Support Contractor, to the extent possible. A team approach will be required to make most efficient use of the relatively small pool of specialized expertise experienced in these Vitamin A deficiency activities.

In order to ensure collaborative working relationships among the various implementor institutions ST/N will sponsor regular periodic meetings of their representatives to review performance and plan for future assignments, especially those which will require sharing of expertise. The Field Support Contractor will arrange those meetings on behalf of the ST/N project officer. A.I.D. Steering Committee members will be invited to attend these meetings.

V. Technical Analysis

The centrally funded vitamin A project has been operating since 1974, although adequate funds became available only since 1985, following the Congressional ARDN, Vitamin A earmark. Due to the global significance of the activities supported under the first decade of this project, A.I.D., host countries, UN, other bilateral donors, PVOs and private sector firms now have the capability to launch major field implementation and applied programs that have a reasonable chance of preventing or controlling vitamin A deficiency. Accordingly the new project will build a major field support component into A.I.D.'s portfolio of assistance in vitamin A programming. A number of key operations research and global coordination activities must be continued to ensure an adequate technical basis for operational programs.

A number of reviews have recently been completed by, or with the assistance of, A.I.D.-supported institutions and experts in the vitamin A field. Lessons learned from these reviews form the basis for the design of this project. These lessons are summarized below. The reader is asked to refer to the following documents for more detail:

- Evaluation of the Vitamin A Deficiency Project. John McKigney, Larry Clark, Jim Olson, Susan Pettiss. April 1988. JSI Report, S&T/N Washington D.C.
- Vitamin A Deficiency and Childhood Morbidity and Mortality: Scientific Background and Implications for Child Survival. Anne Gadomski and Chris Kjolhede. February 1988. Draft. IIP/JHU.
- Vitamin A Deficiency Strategy. Frances Davidson. Draft June 1988. S&T/N Washington, D.C.
- Evaluation of Vitamin A Intervention Programs: Focus on IEC/Social Marketing. Academy for Educational Development. 1988. S&T/N Washington D.C.
- Vitamin A Deficiency and Xerophthalmia. Recent Findings and Some Programme Implications. Susan J. Eastman. 1987. Assignment Children, UNICEF.

41

- Delivery of Oral Doses of Vitamin A to Prevent Vitamin A Deficiency and Nutritional Blindness - A State-of-the-Art Review. Keith P. West Jr and Alfred Sommer (with discussion by G. Arroyave, E.M. De Maeyer, R.P. Devadas, S.J. Eastman, K. Vijayaraghavan and V. Reddy on other interventions). June 1987. UN ACC/SCN Nutrition Policy Discussion Paper No. 2.
- Vitamin A Supplementation - Methodologies for Field Trials. Subcommittee on Vitamin A Deficiency Prevention and Control, CINP, NRC. 1987. National Academy Press.

The technical analyses are summarized below under two sections:

1. Field Support to Strengthen Country Programs
2. Operational Research
 - a. Morbidity and Mortality Studies
 - b. Alternative Delivery Systems, Planning Management

A. Field Support to Strengthen Country Programs:

Significant strides have been made during the past five years in our understanding of the magnitude and significance of the vitamin A deficiency problem in the various A.I.D. regions. Much experience has accumulated regarding program implementation issues, such as the importance of a focussed strategy and the need to better integrate vitamin A activities in broader sectoral programs, whether it is capsule distribution through immunization programs or home gardens through agricultural extension.

Extensive field support is now needed to ensure that the lessons learned from operations research, morbidity and mortality studies, establishment of centers of excellence and other resources, are well utilized to meet country program goals.

This type of support will be provided under the new project through technical assistance, funds, limited supplies, training, and analyses to help in assessments, development of country and organizational strategies, training modules, monitoring and evaluation, establishment of tracking systems, laboratory support, development of components of mission PIDs and PPs, Action Plans, and CDSS requested by missions, Regional Bureaus, PVOs and host country institutions.

Based upon the lessons learned to date, steps in the formulation of a strategy or plan of action for vitamin A deficiency prevention and control involves:

- 1) Assessment of the magnitude of the problem, areas and population and age groups likely to be at greatest risk, seasons or cycles of high risk, and associated conditions that a program would have to address.
- 2) Identification and establishment of the most appropriate (sustainable and high coverage) interventions and delivery systems to provide the vitamin A to groups at high risk. These may range from capsule or syrup distribution combined with nutrition education, conducted through MOH health services system at a minimum, to a complex and comprehensive program that involves a multi-intervention (including fortification, home gardens, breastfeeding promotion, immunizations, ORT, etc.) strategy run through the public and private sectors.
- 3) Delineation of a policy framework and identification of an appropriate organizational plan for the program to be successfully implemented and supported.
- 4) Training at all levels in the technical/medical aspects, in communications and information systems, as well as management training.
- 5) Procurement and logistics to ensure the uninterrupted supply of capsules or locally formulated syrup and measuring devices, as well as other critical supplies.
- 6) Monitoring and tracking of:
 - the prevalence of vitamin A deficiency,
 - vitamin A intake of high risk groups through coverage in capsule/supplement distribution programs or behavior change regarding consumption of naturally rich or fortified foods,
 - of the delivery of services, training given, capsules distributed, etc.

In countries where national or organizational strategies have already been developed, or where strategies will evolve from greater experience with specific interventions, A.I.D. will need to provide intervention-specific assistance through specialized intermediaries. The major interventions that are most often proposed for raising vitamin A intake include: capsule/supplement distribution, nutrition education/communications, fortification and home gardens.

1. Capsule/Supplement Distribution

Global protocols have now been developed based upon operational research and scientific review supported by the predecessor project. These need to be incorporated within national programs appropriately. Key issues identified in programs reviewed to date include:

- Evaluation and monitoring is rarely incorporated into programs, although assessments have been conducted on an ad hoc basis.
- Coverage of populations identified at high risk is limited by the coverage capacity of delivery systems selected such as, existing health services which may average 40-50%.
- High coverage of this potentially "reachable" group is achieved initially, with progressive reduction through each cycle, with a plateau at around 60-65% of targeted individuals reached.
- Supplies of vitamin A are heavily dependent upon requisitioning from UNICEF, and efficiencies in port entry, inland transportation, stocking and distribution to community level.
- UNICEF supplies an estimated 21% of global needs for vitamin A capsules. Local production is established in only one country, India.
- Personnel in charge of diagnosis and administration of supplements are often not adequately trained or skilled.
- The quality of nutrition education that should accompany supplement distribution is often inadequate.

2. Nutrition Education/Communications

Maternal and infant feeding practices are key determinants of vitamin A status. Because breast milk is generally an excellent source of vitamin A, full and exclusive breastfeeding needs to be established as soon after birth as possible. Breastfeeding throughout the first two years of life can provide significant amounts of vitamin A, energy and protein, and should be continued as long as possible, while mothers ensure an adequate intake of foods containing vitamin A and carotene. As breastfeeding tapers off or when it has stopped altogether, the most likely source of vitamin A for children in developing countries is likely to be carotene-containing foods

such as, vegetables, fruits, cereals, tubers; relatively few families being able to afford retinol-containing foods of animal origin. Even when these foods are available to members of the household, traditional customs and beliefs may prevent them being eaten.

Lessons learned from vitamin A programs and other health/nutrition programs regarding the role of nutrition education suggest that this intervention is indispensable, along with the capsule/supplement distribution component in areas of high prevalence, not only to encourage the consumption of locally available and culturally appropriate foods, but also to motivate high risk groups to participate in capsule/supplement distribution programs, and as a way of information dissemination/motivation of the workforce involved in the delivery of vitamin A services, which may span several sectors and ministries and be located in remote areas of the country. In addition, fortification and home garden projects require nutrition/education support to promote the consumption of newly fortified or grown products, before the full potential of these interventions can be realized.

A review of lessons learned also demonstrated that:

- most projects intending to conduct nutrition education, lack: baseline research, concept and message research, pretesting of materials, field testing training modules, process evaluation and feedback, mid-course correction, and evaluation of behavior change;

- nutrition education should be better targetted and custom-designed for each of the various target audiences to be served;

- behavior change can only be expected when these groups have the initiative, resources and ability to act, as well as access to media/information, and have some incentive or motivation to adopt the desired behavior.

- mechanisms should be built into the program for community level reinforcement and support of individual actions.

The previous project supported field testing of social marketing approaches in vitamin A programs. This type of technical assistance and support will continue to be available to missions, PVOs and host country entities.

3. Fortification

Fortification of foods with vitamin A has been the most significant intervention of the developed world in preventing vitamin A deficiency as a public health problem. In some developing countries, fortification is a promising vehicle to increase vitamin A intake among those at risk. Lessons learned to date include:

- development of two new technologies supported under the predecessor project (through the USDA/OICD RSSA): 1) coating of wheat grains with vitamin A which can then be mixed with a larger supply in-country, and 2) vitamin A particles that do not discolor MSG;
- the importance of broad-based policy support from a variety of sectors, offices, consumer groups and others that have influence and interests in the area of fortification of national food supplies, that do not usually come within the purview of health and nutrition activities;
- industry compliance, monitoring, subsidies/costs, vitamin A supplies.

4. Horticulture Approach/Home Gardens

This intervention has not been successfully applied to the vitamin A field for the following reasons:

- Most horticultural research has been directed toward crops of cash value and varieties which produce high yields, have standardized color/shape, and withstand handling in marketing channels, rather than considering nutritive content, either interns of total carotene content or the bioavailable carotene content.
- Promotion has often encouraged use of vitamin A rich foods appropriate for developed countries and high income groups rather than low-cost, acceptable, traditional food sources. Extremely little effort has been addressed toward understanding which foods can be promoted cost-effectively based on local growing conditions, food habits and preferences, especially for feeding young children.
- There has been little attempt to integrate this type of intervention into strategic planning for vitamin A control, to identify delivery systems for their propagation and sustainability.
- Imported seeds have often been inappropriate for local crop conditions.

46'

Increasing the availability of carotene rich foods through increased production of fruits and vegetables in communities and households at risk of vitamin A deficiency, is being promoted as an intervention, where availability appears to be a major constraint.

The Asian Vegetable Research and Development Center (AVRDC), with funding under the predecessor vitamin A project, has developed the following approach:

- Food preferences, and production patterns of carotene and provitamin A -containing (and fat and protein-rich) foods among high risk households is determined.
- A mix of plants is chosen for propagation which grown in a 4 x 4 meter area, will contribute the maximum amount of nutrients with minimum requirement for fertilizers, insecticides, and labor.
- Once the viability of the garden is determined for the priority area, AVRDC's outreach program works with counterparts to assure adequacy of quality of seeds and promote gardens through extension agents.

AVRDC works from a station in Asia (in Taiwan) and a newly opened station in Africa (in Niger) to better serve regional needs. AVRDC will continue to receive funds under the new project.

B. Operational Research

Though much has been learned in the past decade about the significance and magnitude of the vitamin A problem, much remains to be determined that can have major programmatic implications. It would be cost-ineffective for A.I.D. to ignore these questions and proceed without a mechanism to continue to better define some of these issues.

1. Research on Morbidity, Mortality, Indicators of Vitamin A Status Studies in Indonesia by Sommer et al (1983, 1986) First suggested that vitamin A supplementation may substantially reduce child mortality in populations with a high prevalence of mild and moderate vitamin A deficiency. The ACC/SCN's Advisory Group on Nutrition and the National Academy of Science's (NAS) Sub-Committee on Vitamin A Deficiency Prevention and Control recognized the contributions made by these studies in enhancing global understanding of the vitamin A deficiency problem. Both bodies urged that these studies be replicated to assess the broader implications of these findings, especially for other countries, where the patterns of morbidity, clinical and biochemical manifestations of vitamin A deficiency and confounding factors may

be different from those in Indonesia. The NAS emphasized the need to better understand implications for populations such as in the Latin America region, where subclinical forms of the deficiency may be more prevalent.

In August 1986, the NAS subcommittee on vitamin A conducted a workshop at the request of A.I.D., and made recommendations on the design of replicate studies on the consequences of vitamin A supplementation (National Research Council, 1987). These include:

- o studies should be conducted for a duration of at least 2 years and not less than 1 year;
- o baseline determination of mortality, serum vitamin A combined with some other measure such as xerophthalmia and morbidity should be included;
- o both morbidity and mortality should be carefully followed during follow-up assessments in addition to vitamin A nutriture;
- o use of randomization of villages rather than households or individuals is acceptable, and stratified randomization is not essential for mortality assessments since stratified analyses after simple randomization will be adequate;
- o use of standardized baseline measurements by different groups of investigators will facilitate comparisons among the various studies.

In April 1988, the the NAS subcommittee met again at A.I.D.'s request to identify research priorities and strategies on the mechanism of action of vitamin A in affecting childhood morbidity. The subcommittee urged further research on the following topics:

- o immunocompetence: relation of marginal vitamin A deficiency and supplementation on epithelial tissue integrity, barrier function, secretory immunoglobulin and cell-mediated immunity;
- o morbidity: differential effects of vitamin A deficiency on different types of infections, interaction of vitamin A deficiency and socio-economic factors (including environmental sanitation) and other deficiencies such as protein-energy/zinc/iron, impact of varying dose levels of vitamin A supplementation on morbidity;
- o indicators of vitamin A status: ways of improving the field practicality and quantitative interpretation of currently recognized indicators of marginal vitamin A status which include - serum concentrations, the relative dose-response test, and conjunctival impression cytology.

10

2. Operations Research'on Interventions, Delivery Systems, and Management Issues

A number of operational or program implementation issues need to be urgently addressed through operational research. Primary among these are finding ways to increase coverage, effectiveness/quality and sustainability of programs. Activities included among operational research cover information collection through surveys and surveillance, testing complementary activities involving child survival technologies such as immunizations and ORT in combination with vitamin A, monitoring and evaluation of pilot programs with innovative components and refining assessment techniques and interventions through intensive feedback and monitoring. An anticipated list of activities to be supported includes:

- experimental and demonstration projects to help determine optimal supplementation protocols and combinations of long- and short-term interventions;
- assessment of vitamin A deficiency and incidence/prevalence rates and identification of high risk groups through epidemiological surveys;
- development of key indicators for baseline program assessments, progress monitoring, and impact evaluation of vitamin A deficiency control programs;
- case histories and clinic-based studies of vitamin A deficient patients to assess predisposing factors and manifestations in different communities and geographical locations;
- knowledge, attitude and practice surveys, focus group research, market research techniques and other social science approaches for identifying potential points for intervention to increase vitamin A intake;
- identification, adaptation and feasibility testing of in-country, local production of vitamin A supplements;
- assessments and field trials aimed at integrating vitamin A activities into ongoing programs of immunization, control of diarrheal and respiratory diseases, family planning, agricultural extension, Title II food distribution;
- development of surveillance systems to track the emergence of marginal and severe forms of the deficiency;
- studies on cost implications of alternative vitamin A deficiency prevention, control and treatment strategies;
- studies on alternative modes of financing the added costs of vitamin A deficiency prevention, control and treatment programs.

44

VI. Environmental Analysis

The recommended Threshold Decision is that the project will have no foreseeable negative impact on the physical environment. The probable impact on the human environment would be to improve the health conditions for people at risk of vitamin A deficiency.

VII. Evaluation Plan

A. Indicators and Methodologies for Measuring Performance

The field support component of this project is innovative. As such it may need periodic readjustment of policies and procedures. Continuing internal evaluation of this component of the project will be required, as well as overall project evaluations. The internal evaluation process will be a prime concern of the steering committee. External evaluations of the Project will be conducted in FY 90 and 93.

The annual internal evaluations by the steering committee will assess Project and subproject progress, serving as the basis for annual work plans and budgets and subsequent funding requests. The evaluations will update and consolidate the information from semi-annual evaluations by the steering committee and subproject principal investigators. The internal evaluations will focus on:

- 1) impact on local, regional, or national development problems;
- 2) interaction between the identified end-user and the contractors/grantees, etc.;
- 3) contributions of the end-user to subproject activities;
- 4) implementation of sub-project activities results;
- 5) effectiveness of linkages;
- 6) contributions of technical assistance agents;
- 7) unresolved problems, operations procedures, constraints and issues;
- 8) cooperation and support by counterparts;
- 9) effectiveness of the field support component in proposal solicitation, screening, project monitoring, support services, future planning, coordination among subprojects; and
- 10) future planning and direction.

B. Evaluation Arrangements and Methodologies

As discussed above, ST/N will arrange for evaluations of the social marketing and gardening components of the project early in FY 89. ST/N will arrange for two major evaluations of the overall project mid-term and final. The mid-term evaluation will be conducted in FY 90 and the final evaluation in FY 93. Monitoring will be conducted on a continuing basis and will include collection of information on purpose and goal level achievements as well as information on inputs and outputs. For example, the ongoing evaluation of administrative data will be able to inform us about project management, e.g., is there sufficient technical assistance available, how is it being allocated, is it appropriate, etc. If the answers to any of these concerns are in the negative mechanisms will be in place to readjust emphasis areas and activities. Teams of appropriate experts will be used for each evaluation, who have not had direct involvement in the project implementation. Both evaluations will address project management (process) issues and technical impacts issues.

LOGICAL FRAMEWORK: OVERCOMING VITAMIN A DEFICIENCY (936-5116)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><u>Goal:</u> To overcome vitamin A deficiency.</p>	<p>1.Reduction in nutr. blindness. 2.Reduction in low serum vit.A. 3.Adequate consumption of vit. A.</p>	<p>Clinic records and population-based surveys.</p>	<p>Political, economic and social conditions will not detrimentally affect target groups.</p>
<p><u>Purpose:</u> 1.Assist countries in formulating and implementing expanded and improved vitamin A programs. 2.Determine the role of vit.A in child morbidity and survival.</p>	<p>1.Increase in the number, coverage and quality of vitamin A programs. 2.New knowledge on the impact of vit. A on child health.</p>	<p>1.Project/program evaluations. 2.Project implementation reports.</p>	<p>Sufficient host country and donor resources remain available.</p>
<p><u>Outputs:</u> 1.Assessments of vit. A defic. 2.Strategies and program plans. 3.High dose supplement programs. 4.Nutrition ed./communications. 5.Home/community gardens. 6.Fortification of foods with vitamin A. 7.Morbidity/mortality studies. 8.Operations research on interventions/delivery systems. 9.Information on vitamin A gathered and disseminated.</p>	<p>1.Fifty preval.surveys completed. 2.Twenty multi-intervention strategies developed. 3.Ten supplement distribution programs strengthened. 4.Ten nutrition ed./communicns. programs for vit. A completed. 5.Ten home/commun.garden programs designed and launched. 5.Five food fortification programs designed and piloted. 7.Five n/m studies funded/staffed. 8.Ten ops.res.projects funded and staffed. 9.Three IVACG and four regional IVACG meetings held, nine task force reports and three state-of-the-art papers published and mailed.</p>	<p>1.Survey/study reports. 2.PVO/host country and Mission project plans, implementation reports. 3.Reports on studies, NAS reviews. 4.Project evaluation at mid-term and end of project.</p>	<p>1.Vitamin A remains high funding priority in AID and Missions. 2.Sustained commitment of resources by host countries, other donors and A.I.D. 3. Availability of technical assistance.</p>

52'

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

ACTION MEMORANDUM FOR THE SENIOR ASSISTANT ADMINISTRATOR
BUREAU FOR SCIENCE AND TECHNOLOGY

THRU: S&T/FA, William Furtick *William Furtick* MAY 4 1988
FROM: S&T/N, Nicolaas Luykx *Nicolaas Luykx*
SUBJECT: Concept Approval for a Project on "Overcoming
Vitamin A Deficiency (936-5116)"

Requirement: Your approval is needed on the following two requests:

(1) Your approval of this Concept Paper is necessary in order to proceed with the remainder of the project design and approval process for the Office of Nutrition (S&T/N) project on "Overcoming Vitamin A Deficiency (936-5116)".

(2) Your approval is further needed to permit going directly to the Project Paper (PP) stage.

The Problem to be Addressed by this Project: Vitamin A deficiency, long known as a major cause of blindness in children, has recently been shown to be a potentially important aspect of child survival. The principal thrust of this proposed project is to help eradicate nutritional blindness due to vitamin A deficiency. This will be implemented through research into the cause of the illness and through interventions involving application of the knowledge gained. It is estimated that worldwide a million preschool-aged children develop severe eye diseases due to vitamin A deficiency. This is frequently due to inadequate consumption of vitamin A rich foods. Of the affected children one quarter become blind for life. Over 60 percent of those blinded die within a few months of losing their sight. The blind survivors suffer from social and economic deprivation for life and exact a huge economic toll on affected countries. An additional 8-10 million children develop mild vitamin A deficiency each year which is associated with an estimated 30 percent greater risk of respiratory disease and diarrhea than is found among children who are not vitamin A deficient.

Awareness of the magnitude of the problem and its cost to society is limited because:

1. Affected children are mainly in families of low socioeconomic status, often living at great distances from health facilities;
2. The onset of xerophthalmia (the "dry eye" condition) is frequently associated with protein-energy malnutrition and/or measles or diarrhea, and is thus often overlooked;
3. Health and nutrition staff have traditionally not received training in the diagnosis of eye disease;
4. High mortality rates among children suffering xerophthalmia have obscured the actual numbers of blind children and deaths due to vitamin A deficiency;
5. Methods for assessing early stage vitamin A deficiency are still lacking; and
6. Traditional eating habits often do not include vitamin A rich foods for the most vulnerable age groups.

Research activities aimed at confirming and expanding the findings of recent studies which showed an association between vitamin A deficiency and high rates morbidity and mortality need to be carried out in selected countries. Assistance needs to be provided in order to help governments and private voluntary organizations (PVOs) carry out operational activities that use these research results to effectively combat deficiency disease. Overall, the encouragement of service delivery linkages will go far in promoting long-term eradication of vitamin A deficiency.

Summary of Achievements to Date: For the past 13 years, A.I.D. has led efforts to better assess the nature, magnitude and location of vitamin A deficiency. Research and development of appropriate delivery techniques have been funded. The International Vitamin A Consultative Group (IVACG), an inter-agency consultative body was established and serves to assess scientific findings, provide technical guidance to international operating agencies and LDC governments, and help in the mobilization of resources behind these efforts. An operational and scientific center of excellence, the International Center for Epidemiologic and Preventive Ophthalmology (ICEPO), has been established at Johns Hopkins University. In addition, A.I.D. promotes action by UNICEF, WHO and PVOs, and actively assisted many countries to develop strategies and programs.

54

A comprehensive A.I.D. funded study in 1975-77 by the Government of Indonesia, Helen Keller International and Dr. Alfred Sommer of Johns Hopkins University, demonstrated that vitamin A was the common pathway to xerophthalmia -- the ocular manifestation of vitamin A deficiency. The inadequate consumption of vitamin A rich foods was also found to be strongly associated with the clinical signs of the deficiency. Indonesian children with mild signs of vitamin A deficiency appeared to have increased mortality and were more prone to diarrhea and respiratory disease. In 1982 a study examining vitamin A supplementation in Indonesia, showed oral doses of oil-miscible vitamin A preparation provided therapy for and prevention of active xerophthalmia in young children.

The Concept: This project will serve as A.I.D.'s centrally funded program to develop and promote capabilities to reduce vitamin A deficiency. This program will expand to include activities aimed at discovering and demonstrating the broader consequences of vitamin A deficiency and benefits of improved vitamin A nutrition in child health. It will also develop a wider collaborative network within the international health community committed to prevention of vitamin A deficiency. In carrying out this purpose, the project will work through A.I.D. field missions, private voluntary organizations (PVOs), universities, the private sector, and collaborating government agencies.

In order to more fully explore the association between vitamin A deficiency and high rates of morbidity and mortality among young children in less developed countries, studies need to be carried out in selected countries. Additionally, assistance needs to be provided in order to help governments and private voluntary organizations (PVOs) carry out operational vitamin A interventions.

This Concept deals with a priority concern because increasing vitamin A intake has promise of being a cost-effective general health intervention that contributes to child survival. Failure to give adequate attention to deficiencies of vitamin A in development programming in the food and agriculture sector in developing countries can lead to needless loss of sight, life and human potential.

Project Objectives

In order to undertake this project, the efforts of several institutions will be coordinated in order to:

1. Determine through replication studies, the magnitude of effect of vitamin A on childhood morbidity and mortality (first suggested in the Indonesia studies);
2. Test the cost effectiveness of vitamin A programs, recognizing the differences in vitamin A epidemiology in different areas of the world;
3. Establish methods of vitamin A assessment, especially early stage development, which are applicable, reliable, valid, and inexpensive in the field;
4. Determine how to improve through analysis of institutional and managerial situations the distribution of vitamin A capsules to high risk, difficult to access populations. Assess the question of toxicity in mass dose intervention programs;
5. Identify foods appropriate for fortification and determine the best methods of distribution;
6. Establish how best to achieve results with dietary education and horticultural training efforts applied to high risk groups in differing geographic and cultural settings; and
7. Include realistic program evaluation for each undertaking, emphasizing process indicators as well as impact indicators.

Project Techniques

In order to continue long-standing, productive relationships developed between the Office of Nutrition and various collaborating institutions, funds would be awarded to current efforts (Johns Hopkins, Harvard, HKI/Cornell), as well as to other organizations in order to:

- Assist LDCs to carry out prevalence surveys more accurately locating and describing the extent of the vitamin A deficiency problem at the national and regional level in countries where documentation is scanty or non-existent;
- Assist LDCs to develop strategies that build on already on-going health and planning programs to integrate vitamin A assessments and interventions in a sustainable fashion especially with regard to the most in need and most difficult to reach portions of the population;

Sp

-- initiate programs that reinforce linkages and support collaboration between U.S. and developing country institutions in order to integrate results of prior work with new information;

-- provide relevant technical assistance and training services to the field in the design, implementation and evaluation of assessment and intervention systems; and

-- promote the global dissemination of the findings under this project through workshops, seminars, training courses, networks, publications and other similar means.

Operational research and interventions will be complemented by training programs for indigenous health workers, workshops and conferences will be organized for country leaders and the operating agencies to set goals, measure progress, discuss problems and solutions, refine techniques and disseminate information on successful models as they develop. This will be aided by the establishment of a Vitamin A Clearinghouse that will act as a repository of all documented experience in vitamin A activities, both research and intervention. This clearinghouse would also be available for use by other interested groups.

Target Countries

The Project will have a worldwide focus with emphasis on Sahelian Africa and Southeast Asia. These are regions that have a documented prevalence of vitamin A deficiency. (See attached WHO map.)

Budget Level

This will be a five-year project with proposed S&T/N funding in the amount of \$19 million as follows:

FY 1988 - \$4.2 million	FY 1991 - \$3.6 million
FY 1989 - \$4.5 million	FY 1992 - \$3.6 million
FY 1990 - \$4.0 million	

This project will continue several existing activities that were initiated under the Vitamin A Deficiency Program Support project (931-0045) as well as initiate selected new activities that will increase the number of potential beneficiaries and strengthen selected countries' institutional capabilities to implement and sustain vitamin A programs.

DISCUSSION: There are several additional points which relate to this Concept:

1. This proposed project continues evolving priority elements of a pre-existing S&T/N project, "Vitamin A Deficiency Program Support (931-0045)."
2. Selected components of the pre-existing project were evaluated in March 1988. The external evaluators will debrief A.I.D. on their findings at an open meeting in June 1988.
3. There are no major project design questions arising from the terminating Vitamin A Project which warrant the requirement for a PID. The evaluation of Phase I, which has been completed and is described as favorable, will be provided to S&T/N in June. It is expected to provide a sound basis for developing Phase II.

RECOMMENDATIONS:

(1) That you approve this Concept.

J. R. Brady

 Approved

Disapproved

 Date *6/17/88*

(2) That you authorize the preparation of the Project Paper (PP) without going through the Project Identification Document (PID) state.

J. R. Brady

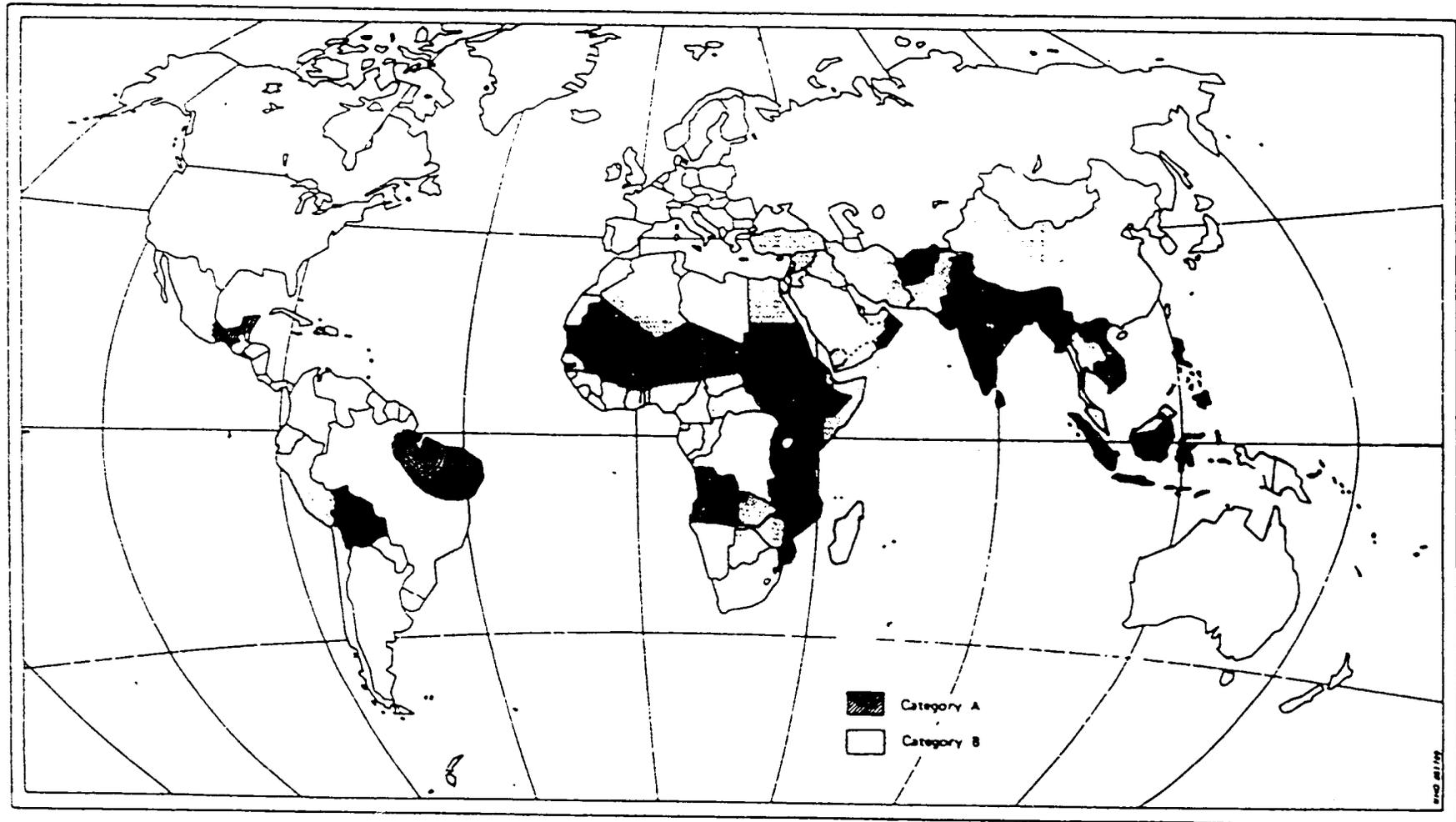
 Approved

Disapproved

 Date *6/17/88*

Clearances: S&T/PO, D. Sheldon _____ Date _____

FIGURE 12: The Geographical Distribution of Xerophthalmia in 1986.



(Source: DeMaeyer, 1986)