

A.I.D. EVALUATION SUMMARY - PART I

PL-101-861
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1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS.
2. USE LETTER QUALITY TYPE, NOT "DOT MATRIX" TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit: Mission or AID/W Office <u>USAID/Indonesia</u> (ES# _____)		B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes <input checked="" type="checkbox"/> Slipped <input type="checkbox"/> Ad Hoc <input type="checkbox"/> Evaluation Plan Submission Date: FY <u>89</u> Q <u>2</u>		C. Evaluation Timing Interim <input checked="" type="checkbox"/> Final <input type="checkbox"/> Ex Post <input type="checkbox"/> Other <input type="checkbox"/>	
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D. Activity or Activities Evaluated: (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date of the evaluation report.)

Project No.	Project /Program Title	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
DAN-0045-G-SS-7116-00	Fortification of MSG with Vitamin A in Indonesia - Phase II				

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
1. The nature of white vitamin A degradation needs to be thoroughly investigated locally by a team of technical experts, for the purpose of developing a more durable white vitamin A (WVA).	Wilbur/HKI in conjunction with CSF Coordinator Brinch (under supervision of Chief/Dy., VHP)	July 1990
2. AID and HKI should conclude a "bridge" grant which would carry this activity beyond current Phase-II expiration (9/30/90), to: (a) establish commercial/technical feasibility with an improved WVA; and (b) address cost recovery issues/design and implement related financial system. Mission endorsement of bridge grant concept was cabled in "JAKARTA 15905" dated November 2, 1989.	CSF Coordinator Brinch under supervision of Chief/Deputy, VHP.	March 31, 1990.

Attach extra sheets if necessary

APPROVALS

F. Date Of Mission Or AID/W Office Review Of Evaluation: _____ (Month) _____ (Day) _____ (Year)

G. Approvals of Evaluation Summary And Action Decisions:

Name (Typed)	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director
William M. Carter	Steve Wilbur	PPS:NGreeley	David N. Merrill	
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	
Date	7 MARCH 1990	March 6 '90	3/8/90	

A B S T R A C T

H. Evaluation Abstract: (Do not exceed the space provided)

This is a pilot project to test the commercial manufacture and marketing of MSG-F (MSG fortified with Vitamin A) in 3 diverse kabupaten (counties) containing 3 million people in Indonesia. The purpose is to reduce Xerophthalmia and other morbidity and mortality related to vitamin A deficiency in young children. It is a joint public/private project primarily involving the Indonesian Department of Health (Depkes), HKI and the 3 major MSG manufacturers. The mid-term evaluation (7/14/89) was conducted by a leading vitamin A biochemist, a food science technologist, HKI's Director of Vitamin A Programs and a local Depkes official. It involved extensive interaction with the project manager, interviewing various Depkes officials and technical personnel, interviewing corporate MSG management in Jakarta, visiting the MSG factories in Surabaya and a field trip to observe local test-market conditions. Major findings include:

- o Despite getting off to a late start due to uncontrollable delays, MSG-F production and distribution was underway by all 3 manufacturers.
- o That within 2-4 months of blending the specially-coated white vitamin A (WVA) with MSG, the WVA begins to physically deteriorate, causing the MSG-F to become yellowish and clumpy. This is due primarily to the high humidity prevalent in Indonesia. (Fortification has since been temporarily suspended while project scientists work to develop a more moisture-resistant vitamin A coating).
- o That one of the major objectives--determination of a cost recovery mechanism to make the program financially self-sustaining when it expands nationally--cannot be finalized in the current Phase II. This is because the MSG manufacturers want to first establish commercial and technical feasibility of fortification before further discussing cost recovery and national implementation.

As a result of the above factors, the evaluation team recommended that the nature of WVA degradation be thoroughly investigated locally by a team of technical experts, for the purpose of developing a more durable WVA. In addition, the evaluation recommended that a bridge grant be instituted beyond current Phase II expiration (9/30/90) so as to give the project sufficient time to 1) establish commercial/technical feasibility with an improved, more durable vitamin A and 2) address cost recovery issues and design and implement related financial systems.

C O S T S

1. Evaluation Costs

Evaluation Team		Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
Dr. James Olson	Iowa State University	9	N/A	HKI
Dr. John Erdman	University of Illinois	9		USAID
Ms. Susar. Eastman	HKI/New York	9		HKI
Mr. Sukarno Noer	Department of Health	9		DEPKES

2. Mission/Office Professional Staff

Person-Days (Estimate) -0-

3. Borrower/Grantee Professional

Staff Person-Days (Estimate) 36

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)

Address the following items:

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| <ul style="list-style-type: none"> • Purpose of evaluation and methodology used • Purpose of activity(ies) evaluated • Findings and conclusions (relate to questions) | <ul style="list-style-type: none"> • Principal recommendations • Lessons learned |
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Mission or Office: USAID/Indonesia	Date This Summary Prepared: December 7, 1989	Title And Date Of Full Evaluation Report: "Fortifying Monosodium Glutamate with Vitamin A: Phase II, 14 July 1989"
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Purpose of the Activity Evaluated:

With a population of 170 million, Indonesia is the fifth most populous country in the world. Despite its tropical climate and often-fertile soils, cultural beliefs and child taste preferences often prevent green leafy vegetables from being grown and consumed in amounts necessary to provide young children with sufficient vitamin A. The result is increased susceptibility to respiratory and intestinal infections (the 2 leading causes of child morbidity and mortality in Indonesia) and, in severe cases, xerophthalmia, which can lead to blindness and death. The latest data indicate that 60,000 children go blind each year, and of these, half die.

Monosodium glutamate is the most widely consumed consumer product in Indonesia. With the smallest sachet priced at Rp.5 (1/3 cent), even the poorest of the poor can afford one luxury to enhance the flavor of their otherwise bland diets. Following evaluation of various possible vitamin A fortification vehicles in the early 1980's (in which MSG emerged as the top candidate), the Department of Health (Depkes) and HKI decided to pursue a national program of MSG fortification. With assistance from USAID, a limited field trial in the Bogor area in 1985 involving one MSG manufacturer proved the biologic efficacy of this intervention. Subsequently the current Phase II grant was made in September 1987 for all 3 MSG manufacturers to commercially produce and distribute MSG-F (F = fortified) to 3 geographically and culturally diverse kabupaten (counties) in West Java, West Kalimantan and South Sulawesi. The total population covered approximates 3 million, including 500,000 children under 6.

The objective is to provide these children with an average of half the RDA of vitamin A (700 International Units) daily. Fortification of only the 3 smallest sachet sizes (5 grams and less) allowed highly efficient targeting to the at-risk (i.e. poor villager) population. In between the Bogor field trial and Phase II, a special white titanium dioxide coating was developed for the vitamin A in response to complaints of the MSG manufacturers that the vitamin A used in the Bogor field trials (coated with MSG dust) was not white enough and discolored their product. This new coating (1) made the color of normally yellow vitamin A more consistent with white MSG (for commercial acceptability purposes) and (2) agglomerated vitamin A particles to be consistent with the size distribution of MSG crystals so as to avoid settling or separation during blending or in the package. This coating also provided somewhat of a barrier, prolonging the potency of the white vitamin A (WVA).

By March 1989 the 3 manufacturers had received and installed their grant-provided 10 cubic foot pharmaceutical blenders and their first quarterly shipment of 1,800 kg WVA. Production and Quality Assurance Guidelines had been developed, baseline MSG consumption and biologic efficacy studies had been completed, and a formal working agreement governing roles and responsibilities of Depkes and the MSG manufacturers been negotiated and signed.

Fortification began in April/May and MSG-F was being distributed to the 3 kabupaten in June by all 3 manufacturers. Originally scheduled for March, the mid-term evaluation was delayed until July so that the team could see fortification in action.

Purpose of the Evaluation and Methodology Used

The evaluation was undertaken as a scheduled part of project activities to monitor progress and provide mid-course corrections. The team employed a variety of resources in researching progress to date. These included reviewing the project documents, reports, and correspondence; extensive interaction with the project manager; personal interviews with key Depkes management and scientists; personal interviews in Jakarta with corporate management of 2 of the MSG companies, Ajinomoto and Sasa (the director of Miwon does not speak English); visiting the Miwon and Ajinomoto factories in the Surabaya area to observe MSG-F blending and packaging in operation; and a field trip to Kabupaten Cianjur, one of the test-markets, to observe the existence and marketing of MSG-F in the field.

Findings and Conclusions

The team found that operational aspects of the project were proceeding as planned (although somewhat behind schedule due to uncontrollable delays). The MSG manufacturers were cooperative and commercial fortification and MSG-F distribution was underway in all 3 kabupaten.

The team also found that one of the major objectives of Phase II--identification of an agreeable cost recovery mechanism to make a national program financially self-sustaining -- cannot be finalized during the grant period. This is because the MSG manufacturers recognize it probably implies a MSG price increase and decline to discuss this issue until the commercial and technical feasibility of the program is conclusively proven.

Coincidentally, while the team was in Indonesia, problems with the WVA surfaced. The first MSG-F had been blended about 3 months previously and sachets returned by a manufacturer's field agent as well as experimental samples hung in a local foodstall were found to be yellowish and clumpy. (Over the following weeks, the problem worsened and at a meeting of the Steering Committee in early August, field testing of fortification was formally suspended until a more durable vitamin A could be developed and tested.)

Principal Recommendations

Numerous technical recommendations offered by the mid-term evaluation included:

- o develop standards for WVA whiteness.
- o sub-package WVA in lot-size, airtight plastic bags to enhance freshness.
- o determine local light, heat and humidity conditions to which MSG-F is exposed.
- o determine WVA stability as a function of exposure time.
- o determine required shelf-life of MSG-F.
- o develop an improved new coating technique to enhance whiteness and reduce hydroscopicity.
- o analyze water permeability of MSG-F packaging material.
- o explore alternate modes of packaging and sealing.

S U M M A R Y (Continued)

(In accord with the above a evaluation recommendations, a 3-person technical team visited Indonesia the following month to evaluate the WVA problem and devise ways to solve it. Evaluation of climatic exposure during storage, shipping and retailing suggests the problem is largely a function of the high humidity prevalent in Indonesia which gradually permeates the MSG-F package, the white coating and finally the vitamin A itself. The gum acacia binder in which the vitamin A drops are suspended is somewhat hydroscopic (moisture absorbent) and gradually deteriorates as moisture invades it, releasing its vitamin A onto the MSG. The team is now developing new, more moisture-resistant WVA prototypes and hopes to have them tested and ready for full-scale production by mid-1990. Relatedly, Hoffmann LaRoche, expects to have a new vitamin A commercially available next year which uses a much less hydroscopic fish gelatin binder, so prospects are optimistic).

Because of resistance to the project from the Indonesian consumers' union related to the use of controversial MSG, Depkes would not allow the MSG manufacturers label or promote MSG-F as containing vitamin A. This was allowed in a failed MSG fortification project in the Philippines in the 1970's and has been a source of resistance from the manufacturers. It is also inconsistent with "truth in labeling." The team recommended that this policy be re-evaluated and supported the allowance of labeling, but not promoting, MSG-F as containing vitamin A.

As this is a multi-agency project involving no fewer than 7 organizations, the team recommended that communications be strengthened so that all parties are more aware of project status and activities.

Because the suspension of fortification will cause a 1-year delay in the project, commercial and technical feasibility (which will require an additional year of actual fortification) and development of cost recovery policies and systems cannot be established until the second year after Phase II grant expiration. Therefore, a recommendation of the evaluation team was to provide a bridge grant or extension to enable sufficient time to accomplish these activities.

ATTACHMENTS

K. Attachments (List attachments submitted with this Evaluation Summary; always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation, if relevant to the evaluation report.)

Report of mid-term evaluation, Fortifying Monosodium Glutamate with Vitamin A: Phase II, 14 July 1989; Olson, James A., et.al.

COMMENTS

L. Comments By Mission, AID/W Office and Borrower/Grantee On Full Report

COMMENTS BY THE GRANTEE:

The evaluation thoroughly and comprehensively addressed all the project's needs. It was highly fortunate that the WVA problem surfaced while the team was here, so they could develop recommendations for addressing and solving it.

One recommendation has met with resistance in Indonesia--that of reducing the dosage of vitamin A in MSG from 3,000 to 2,000 IU/gram MSG. While it is recognized that 2,000 IU/gram is adequate for program needs, it is also felt that a margin need be built into the dosage requirement to allow for loss of potency between the time of blending and the time of consumption (typically 3-4 months). Thus if the 3,000 IU/gram standard is maintained at the time of blending, it is hoped that 2,000 IU/gram will be provided at the time of consumptions.

COMMENTS BY THE MISSION:

Despite the many challenges this project has faced Helen Keller International is firm in its commitment to supporting a mechanism for the fortification of MSG with Vitamin A. Its staff has shown utmost tact and sensitivity in dealing with government officials and MSG manufacturers. With continued support for research and development of this fortified product the concept of "fortification" of foods for health can become more readily accepted and commonplace and thereby improve the nutritional status of children.