

I. PROJECT IDENTIFICATION

1. PROJECT TITLE
 NUTRITION PLANNING **PD-AAB-861-A1**

APPENDIX ATTACHED
 YES NO **65p.**

2. PROJECT NO. (M.O. 1095.2)
660-11-560-0515

3. RECIPIENT (specify)
 COUNTRY Republic of Zaire
 REGIONAL _____ **INTERREGIONAL** _____

4. LIFE OF PROJECT
 BEGINS FY FY75
 ENDS FY FY79

5. SUBMISSION 1/15/75
 ORIGINAL _____ **DATE** _____
 REV. NO. _____ **DATE** _____
 CONTR./PASA NO. _____

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

A. FUNDING BY FISCAL YEAR	B. TOTAL \$	C. PERSONNEL		D. PARTICIPANTS		E. COMMODITIES \$	F. OTHER COSTS \$	G. PASA/CONTR.		H. LOCAL EXCHANGE CURRENCY RATE: \$ US <u>2=81</u> (U.S. OWNED)			
		(1) \$	(2) MM	(1) \$	(2) MM			(1) \$	(2) MM	(1) U.S. GRANT LOAN	(2) COOP COUNTRY	(A) JOINT	(B) BUDGET
1. PRIOR THRU ACTUAL FY													
2. OPRN FY													
3. BUDGET FY75	101	65	10	4	2	30	2	65	10			100	120
4. BUDGET +1 FY76	803	516	86	58	56	220	9	516	86			200	130
5. BUDGET +2 FY77	956	559	86	62	56	330	5	559	86			150	140
6. BUDGET +3 FY78	1,004	630	84	50	38	320	4	630	84				150
7. ALL SUBQ. FY	413	390	52	18	13		5	390	52				150
8. GRAND TOTAL	3,277	2,160	318	192	165	900	25	2,160	318			450	690

9. OTHER DONOR CONTRIBUTIONS

(A) NAME OF DONOR	(B) KIND OF GOODS SERVICES	C AMOUNT

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER Carol Adelman (Draft) <i>[Signature]</i>	TITLE Assistant Prog. Officer/USAID	DATE
2. CLEARANCE OFFICER Joseph C. Guardiano (Draft) <i>[Signature]</i>	TITLE Acting Director/USAID	DATE

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

Approval for funding through FY1977 is hereby authorized. Funding approval for FY1978 and beyond may be authorized by AID only if revised PROP/PP is resubmitted for approval and such revision includes an AID evaluation which recommends continued AID funding.

USAID/Kinshasa is hereby authorized to approve all community level test nutrition/health interventions to be undertaken under the funds provided by this PROP approval.

2. CLEARANCES

BUR./OFF.	SIGNATURE	DATE	BUR OFF.	SIGNATURE	DATE
AFR/CWA	D. Griffith <i>[Signature]</i>	1/16/75	PPC/DPR	A. Handly <i>[Signature]</i>	
AFR/DP	R. Huesmann <i>[Signature]</i>		GC/AFR GC	E. Dragon A. Gardiner <i>[Signature]</i>	1/24/75 2/11/75
AFR/DS	P. Lyman <i>[Signature]</i>	1/16/75	TA/N	M. Forman <i>[Signature]</i>	1/15/75

3. APPROVAL AAs OR OFFICE DIRECTORS

SIGNATURE Samuel C. Adams, Jr. <i>[Signature]</i>	DATE 1/27/75	SIGNATURE John S. Murphy <i>[Signature]</i>	DATE 2/16/75
Assistant Administrator, Bureau for Africa		Deputy Administrator	

4. APPROVAL A/AID (See M.O. 1025, VIC)

NUTRITION PLANNING

660-11-560-054

TABLE OF CONTENTS

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for 7/1/74

<u>SECTION</u>	<u>PAGE NO.</u>
Face Sheet	1
Summary	i-iii
I. Rationale	2
A. Introduction	2
B. Malnutrition in Zaire	2
C. Project Description	5
1. Project Goal	5
2. Project Purpose	6
3. Project Outputs	8
4. Project Inputs	8a
II. Project Approach	9
III. Course of Action (time-phased US/GOZ Outputs)	12
A. Narrative	12
B. Summary of Actions/Outputs	30
IV. U.S. and GOZ Inputs	34
U.S. Inputs	34
GOZ Inputs	35
V. FOMECC and The National Council of Health and Well Being	38
VI. AID Activities in Zaire that Relate to this Project	41
VII. Logical Framework Matrix	45
Annex A - Project Cost Estimates	
Annex B - Evaluation Plan	
Annex C - Causes of Malnutrition in Zaire	

C. Project Description

1. Project Goal

The GOZ's stated objective is to reduce Zaire's crude mortality rate from its present level of over 20 per 1,000 persons presently to 10 per 1,000 persons by 1980.* Health sector managers within the GOZ realize that reaching this goal by 1980 may not be realistic, however, they feel that if statistically significant trends are expected to be reached by 1980 and that such a goal may then be attainable in the not too distant future thereafter that continued financial and administrative support will be forthcoming for the health/nutrition sector.

Management personnel within FOMECO, the medical arm of the Office of the Presidency, are aware of the age/sex structure of Zaire's population and the relatively high death rate among children from 0-5. They know that if the infant death rate can be drastically reduced, the country could achieve a very low overall death rate because of the relatively young age structure of the population.

Page three of this PROP notes how a large reduction in children (0-5 yrs) mortality rates would affect the country's overall mortality statistics. Both AID and GOZ health sector managers are aware that fully reliable baseline statistical data has to first be collected and analysed before any completely accurate planning and/or programming can be made on possible target group mortality reductions needed to reduce the overall crude death rate to 10 per 1,000. Moreover, both are aware that the administrative and financial resources needed to reach and sustain such a goal cannot be fully predicted at this time. AID is satisfied, however, that the GOZ is fully committed to this goal and will make the necessary concentrated efforts and resource allocation to achieve it.

The indications of goal attainment can be checked when more reliable statistics are collected and analysed by the Nutrition Planning Unit. This will be one of the major tasks under this activity.

The continued data collection, data analysis and planning efforts of the Nutrition Planning Unit, coupled with a sufficient level of effective, nationwide nutrition/health interventions which are being continually improved and modified from feedback from the Nutrition Planning Unit, are the most critical assumptions made towards which ^a affect directly the ability of the GOZ to achieve its stated goal. (On a jointly agreed-on modified goal set during the implementation of the project.)

Accurate mortality statistics do not presently exist in Zaire. The probable mortality rate is now estimated to be about 22.5 per 1,000 persons.

The phase "a sufficient level of effective, nationwide nutrition/health interventions" in itself implies certain important assumptions which will have to be met if the GOZ is to reach its stated or modified goal. One is that concentration on reducing malnutrition in the key target groups, i.e., children (ages 0-5) and pregnant/nursing mothers (thus their children), will have the predicted effect of reducing their mortality rate. From there the follow-on assumption is that the malnutrition reductions will be achieved nationwide.

In addition, another implicit assumption but one that is central to the systems approach to nutrition - is that malnutrition is closely interrelated in Zaire to preventable diseases which inhibit the absorption of nutrients or cause rapid absorption of nutrients thus leading to individuals (especially children) weakened not only from lack of proper and sufficient nutrients but also from continual bouts with preventable diseases which exacerbate their malnourished condition

The systems approach linked through the Nutrition Planning Unit with effective feedback from the interventions in the demonstration areas will concentrate on breaking the strongest but most easily broken links in the malnutrition/morbidity/mortality chain and should result in rapid decreases in child mortality in the demonstration areas. (This has already been shown possible in the Candelaria, Columbia experiment). When this is achieved we feel it is statistically time that crude mortality rates in the demonstration area will also show dramatic declines.

However, to achieve the overall nationwide GOZ goal of a reduction in mortality to 10 per 1,000 by 1980, or within a few years thereafter, a most critical assumption is that the GOZ, AID, other donors, the Zaire private sector and PVO's will make substantial and well directed inputs into the key nutrition related sectors such as public health, sanitation, agriculture and transportation as well as massive efforts to reduce malnutrition in children (ages 0-5) and pregnant/nursing mothers.

At the same time we assume the GOZ will be following policies and programs which will result in a higher level and more equitable distribution of all types of nutrition/health related services as well as concentrating on children (ages 0-5) and pregnant/nursing mothers.

2. Project Purpose

The main purpose of this project is to assist the GOZ to

formulate a National Nutrition Strategy. . . Such strategy to be based on reliable properly analysed data from all sectors with direct or close causal links to nutrition both at the national (macro) level and at the local (community; micro) level. (The latter data will be derived from the experience of the test interventions in the intervention demonstration area(s)).

Concurrently the project has the purpose of training a sufficient number of Zairians to understand the strategy and how to implement and continually refine this strategy. This is important, for their ability to take over and run things will be the deciding factor in the longer term success of the strategy and the action programs resulting therefrom. The GOZ is aware of this and in informal discussions with the USAID and AID/W people, they have mentioned their desires to place the most highly qualified local candidates they can find in the positions.

The most important purpose of the project in any case is to achieve statistically significant and sustainable mortality rate reductions in the key target groups in the intervention demonstration areas and to establish methods to replicate successful interventions on a nationwide scale.

The successful completion of the project will be checked by verifying that there is an effective National Nutrition Strategy, that the systems approach to combatting malnutrition has been carried out and has been successful in reducing mortality in the key target groups in three to five demonstration areas, that at least fifteen Zairians have been trained in nutrition systems planning and related fields and are working in key positions in carrying out the National Nutrition Strategy and/or carrying out local level interventions, that procedures are established for continually measuring the nutritional/health status of Zaire's population and such information is fed back into the strategy and that the Nutrition Planning Unit is making continuing evaluations of the nutrition related interventions and using that and other (mainly macro type) information to make action program recommendations and to prescribe policies for national and local level Zairian decision makers. In addition, verification should be made that the GOZ is funding and administering the program in an effective manner.

These indicators of successful project completion will be checked by examining the National Nutrition Strategy, by checking that trained Zairians are working in key positions and are achieving results, by checking that a National Nutrition Survey and Food Balance Sheet and related data exist, are reasonably accurate, are

widely disseminated and are effectively used by the GOZ, by checking the nutrition/morbidity/nutrition records in demonstration areas; by reviewing and appraising nutritional surveys and studies and their recommendations and by examining plans and projects of other GOZ Departments for consideration of nutritional objectives.

Meeting the purpose of this project depends upon certain assumptions. One is that the recommendations of the Nutrition Planning Unit and the Program Action Team(s) will be accepted and implemented by the GOZ, local communities, PVO's, donors and the private sector (as applicable). Another is that relevant GOZ Departments will successfully coordinate and implement projects and conduct analyses which relate to the nutritional/health status of the country's population.

Another assumption, most important to the eventual success of the project, is that the systems approach to combatting malnutrition will be successful in reducing and maintaining lowered rates of malnutrition, morbidity and mortality in the key target groups in the demonstration areas and in other areas that are brought into the expanded program coordinated by GOZ decision makers.

3. Project Outputs

The project will result in seven basic outputs by the project completion. These outputs are discussed below and are grouped by functions in separate paragraphs. Output indicators and means to verify these indicators plus important assumptions are noted for each output.

An operating and useful GOZ Nutrition Planning Unit will be created. This Unit will have completed the description and analyses of Zaire's "Nutrition System" and related sub-systems. (See Annex C National Level Nutrition System and Nutrition Sub-Systems in Demonstration Areas). The Nutrition Planning Unit should have enough of the fifteen Zairians who will be trained under this project to be able to function effectively. An evaluation team will look at the staff of this Unit to verify this. The Nutrition Systems and Sub-Systems Analyses will flow from accurate Nutritional/Health status baseline data for the entire country, accurate and continuing nutritional health surveys, a national food balance sheet, and various related reports. (The reader is referred to page 46 of this PROP for more detail on reports and analyses.) All this information can be verified by an experienced evaluation since it will be in published form. In order for the Nutritional Planning Unit to complete these important functions, we are assuming that the GOZ will have acquired the "in-country" capability to assist in conducting surveys and studies and take over more and more of this work as the project advances. (We feel the GOZ has already demonstrated this capability with the 1974 measles survey and other efforts.)

The Nutrition System/Sub-System analyses mentioned above will be compiled from data collected from the systematic periodic data collected by the unit and other GOZ agencies. (Such things as food production and consumption data, etc.) Added to this will be data collected from AID financed and non-AID financed nutrition/health activities in Zaire. The number of reports and the type of data expected is mentioned on page 47. These reports and data will be reviewed and evaluated.

Major assumptions implicit in the above paragraph are that all connected GOZ agencies will collect and disseminate enough of the right types of data, and that the Nutrition Planning Unit itself, will get financing and staff support from the GOZ and AID.

The project will also produce an experienced, effective Program Action Team. This team will have close communication and interaction with the Nutrition Planning Unit. The data generated by the Unit from all sources will be fed not only to the Program Action Team but also to GOZ, PVO, private and donor decision makers. The projects outputs are in a sense all rather interrelated and feed on each other, this will flow from this effort as a direct result of the systems approach used therein.

Naturally, the existence and the effectiveness of the Program Action Team working with the Nutrition Planning Unit and everyone working together will be checked out, i.e., verified. Another important assumption to make is that AID can help get this thing off the ground by providing for inputs; i.e., commodities, contractors, consultants, etc., when needed. AID's ability to achieve this appears limited in light of its response to this project so far, but perhaps it could be done. There will probably be delays in finding the right people and getting them to the field. To avoid too much delay, efforts are now beginning to judge who can do the work. At this time we are going a bit on faith that we will find people as good as Dean Wilson, but many things are articles of faith, such as the U.S. FY76 Budget.

4. Project Inputs

This project calls for a careful, timely, and well selected blend of inputs. The inputs are noted on page 48 (D-1) and in Section IV and Annex A.

We cannot stress too strongly that every effort must be made to integrate these inputs properly. We choose not to reiterate what is said about inputs (especially in the Matrix - page 48) but just to point out that the project design will not end with the signing of the PROP.

The financial inputs for the PROP are noted on the PROP face sheet and the commodities are costed out as noted in the Course of Action section.

Some estimating was done on the major AID project cost, U.S. consultants/contractors. Their services will not come cheaply especially since Zaire is an expensive place for "Westerners", and their man month cost could vary from the estimate depending on if they are independent consultants or work for a firm, etc.

All these inputs will be verified from records and from the third year evaluation. (See the Evaluation Annex). Again the timely availability of enough good U.S. contract personnel, enough good Zairians and plenty of commodities is essential to the success of this project.

II. PROJECT APPROACH

Although the problem is complex, requiring expertise in various disciplines and coordination of various government departments, the Government of Zaire recognizes that efforts can be made in the short run through new technologies and approaches to the planning and implementation of programs which will permanently reduce malnutrition. Integrated national planning is just beginning in the health and nutritional fields. Most nutrition interventions for the nation as a whole, as a result of this new national planning, will proceed slowly because of the size, tribal diversity and infrastructure of the country.

In the meantime the capacity for combatting malnutrition exists at the community level given modest resources and, more importantly, a systematic approach to the problem.

In view of this, the project will include two concurrent thrusts: 1) development of a national nutrition planning capability for data gathering and analysis on a) nutritional status of the population, b) supply and flow of nutrients and c) relevant constraints in the nutrition system. The analysis will include cost/benefit studies of possible interventions with recommendations for least-cost methods of reducing malnutrition and mortality. The above information will be used in developing national policy guidelines and programs, i.e., Zaire's National Nutrition Strategy. 2) Initiation of operational programs in demonstration areas. The continual evaluation of these programs with regard to cost and effect on malnutrition will provide the necessary feedback to national planners on the feasibility of particular projects and approaches. In brief, the systems approach for the operational programs involves the following steps:

1. Description of the malnutrition problem - measurements of weight for age, food production and consumption, disease and sanitation, etc.
2. Analysis of the causes - determination of where nutrient losses occur, misallocations among groups, effects of disease and sanitation on nutrient requirements, effects of agricultural production, beliefs, practices, etc. on nutritional status.
3. Detailed design of interventions - specific programs which will include identification of action agents (community, government, private, donors, etc.), details of cost estimates for carrying out the program, a time-phased plan for its implementation, and predictive and evaluative procedures to quantify the results for continuous feedback to planning and design.
4. Implementation of the interventions - with continual evaluation and feedback of results.

In at least one demonstration area, the contractors may be held accountable for the reduction of malnutrition by a stated percent. In effect, they will be put on a performance contract and rewarded for surpassing the goal or penalized for failing to meet the goal. The goal or stated percent reduction of malnutrition as well as a maximum cost per person in the key target groups to achieve this goal, will be agreed upon in advance by FOMECO, the USAID Mission, and the contractor. The measurements used to determine the rate of malnutrition in the area before and after the interventions will similarly be agreed upon. While the specific terms of this part of the contract will be negotiated by the A.I.D. Contracting Office and the contractor, further discussions with nutrition systems analysis will be held prior to attempting this idea.

PROJECT NO. 660-11-560-054	SUBMISSION <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION	DATE 7/1/74	PAGE <u>11</u> of <u>63</u> PAGES
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it may involve a percent increase or reduction in the final fee paid to the contractor in relation to the percent of malnutrition surpassing or falling below the agreed goal. Various procedures will be used to assure the reliability of the measurement of malnutrition after the intervention has taken place, as agreed upon by the contractor, FOMECA and the USAID Mission. Every effort will be made to assure that reasonable requests for commodities and personnel be made available for successful implementation of the determined intervention(s).

To help carry out the purpose of the project AID will provide financing for several project components; mainly funding for (1) US (Foreign) personnel assisting the project; (2) Zairian participant training and (3) the US (FX) cost of commodities used in the project's test interventions. The GOZ will finance directly and in-kind related project costs including salaries of Zairian counterparts office space etc.; the remaining project components.

The course of the project is broken down, as shown in the table following this narrative, into six separate phases which proceed in a logical way to allow each succeeding phase to build upon the actions, information and experience of the proceeding phase. While in theory no succeeding phase would begin until the actions indicated in the proceeding phase were successfully met, the dynamics of the project implementation will obviously cause some fuzzing of the phases.

The building block approach allows however for indicators to be set prior to full implementation of each proceeding phase.

For example major Phase II actions will not get underway until actions noted under Phase I in the Program Action Table are successfully met. (This process is explained in more detail below).

The US (foreign) contractor personnel working under the program will be experienced in fields directly related or closely linked to nutrition. We envision two US nutrition systems planners and four U.S. contract people with exposure to nutrition systems planning but with special expertise in one or more of the below listed fields; operational research; public health; sanitation; agriculture,

endemic disease control, medical economics and transportation. These latter will work with the program action intervention teams that will be also composed of about five Zairians with experience/education in similar fields. Of course actual implementation of test interventions will likely include numbers of lower-skilled Zairians. The two US nutrition planners mentioned earlier will also be supplemented by Zairian counterparts with some experience/exposure to the program.

These full-time US personnel will be supplemented by US consultants/instructors brought in from time to time to deal with specific problems and situations.

During the life of the project a total of fifteen Zairians will work with the US contract personnel who will be running the action intervention teams. Of these fifteen individuals, eight will receive long term training in the US and will form the trained nucleus of the Nutrition Planning Unit within FOMECO. All fifteen will have overseas short term training/site visitation exposure and will also work at the national planning level in the formulation of Zaire's national nutrition strategy.

Thus during the life of the project all fifteen Zairians will have on the job experience with the demonstration teams and with the national planning unit, all will have short-term overseas training and the eight slated for permanent assignments in the national planning unit will have had long term nutrition education in the US. The other seven will form the nucleus of the Program Action teams which will be continuing certain of the interventions with prove to be most effective.

A successful building block course of action approach at both the national and community levels is dependent not only on the quality and commitment of the contractor and Zairian personnel involved and the validity of the ideas in the first place but also the commitment of the GOZ to the program. The GOZ's involvement and commitment will have to grow and mature as the project progresses.

As noted it has only been recently that the GOZ began to recognize the need to concentrate a reasonable amount of its health resources on preventative rather than curative health.

In late November 1974 the GOZ assigned the overall Health Sector coordinating role to the National Council of Health and Well Being (NCH). We expect this council, under the able leadership of the Commissioner of Health, Dr. Ngwete Kikhela will provide the fibre needed for a coordinated and well instrumented assault on Zaire's health problems. The full success of this project will be partially dependent on the coordinating role of the NCH, specifically its ability to help elicit interministerial and interagency cooperation at the national data collection nutrition planning level and to break logjams at the demonstration area intervention level.

The following broadens out specific actions by phases noted in the Course of Action table at the end of this section.

Phase I (Phase I actions should be completed by the end of month three)

Community Level

The project time clock begins with the arrival in Zaire of the two US nutrition planning specialists who will devote most of their time in assisting with the formulation of the National Nutrition Strategy. However one of their first acts will be to work with the GOZ (FOMECO) in preliminary identification of at least one community level demonstration area, refinement of the best composition of the program action team, help with the selection of the five Zairians for the demonstration action team and the expansion and refinement of criteria for selection of intervention demonstration areas and test interventions. Their initial review of national level health problems and data will assist them in these determinations.

Obviously FOMECO and NCH management will have the last word on areas picked and types of interventions selected throughout the life of the program, thus it is also very important for these two people to establish their credibility with the GOZ and to begin to get feel of political/social problems which could effect the success of test interventions.

National Level

These same two individuals will, in their function for the National Nutrition Planning unit, begin to review the health/nutrition and health/nutrition related statistics that exist. They will probably concentrate at this point on data indicating nutritional status for the entire country, noting regional tribal and economic class differences problems in the key target group and begin the preliminary analyses as to the causes for malnutrition and the interrelationships among key determinants. They will also review

nutrition-related activities and plans of Government organizations and PVO's; undertaking the review of agricultural production statistics, food consumption studies, reports on water and sanitation, etc.

Phase II, (Phase II actions should be completed by end of Month 15)

Community Level

The action intervention team (four US contractor/consultant personnel) arrive and begin to measure the nutritional/health status of key target groups in the first demonstration area. Five Zairians who have been preselected in Phase I by FOMECO begin work with the action intervention team. Local people are recruited as required and key individuals in the community are advised of the work of the action intervention team.

The team then begins preliminary analysis of the causes of malnutrition and the measurements of nutritional/health status in the first demonstration area. The team then designs the interventions for the first intervention area. The team may call on the AID-financed short term consultants for refinement and analysis of the design of the interventions in the first area. (Perhaps economic cost/benefit analysis or assistance with sanitation problems, etc.)

The team will be assisted by National Nutrition Planning Unit personnel from time to time, particularly if the unit picks up any information which would be useful. The planning unit people will provide information to the action intervention team so it can begin selection of intervention areas two and three.

At the same time the action intervention team will be feeding the information it is gathering to the National Nutrition Planning Unit. This back and forth feedback should not only strengthen the information base of the program but should also help to provide a catalyst between the more passive information and evaluation activities and the action oriented intervention activities. This linkage should provide the experience to show GOZ officials that action programs without good information backup are not fully effective and also, perhaps more importantly show these same officials from the information being generated how well conceived action programs can be effective in reducing malnutrition/health problems in large numbers of people with minimal financial/administrative cost.

The detailed design of the actual intervention(s) for area one should be completed prior to the end of Phase II or month fifteen. This period should be long enough to allow good design and short enough not to cause discouragement among interested officials and for that matter people in the target intervention area. Each intervention design will consider at least the following key elements: (a) time and capital and human resources required to meet its malnutrition, morbidity and mortality reduction objectives (b) the actual method for carrying out the intervention and the logistics thereof i.e. a portable water intervention or a nutrition/health visitation team; etc. (c) and predictive and evaluative procedures to quantify and qualify progress and provide for realistic intervention modifications.

National Level

The National Nutrition Planning Unit with the active advice of the two U.S. consultants will begin the planning for an annual national nutrition/health survey. The unit will make recommendations as to whom should be the implementor of the survey and how the survey should be run what information should be collected and in what form it would be disseminated. It is expected a unit of the National Council of Health will be responsible for this survey once it is operating.

2. The nutrition planning unit will complete similar work leading to an annual food balance sheet for Zaire.

The unit will analyze on-going private/donor/GOZ financed nutrition programs for possible replication to assist these efforts and to gain insight into the problems/prospects in Zaire. The unit should look at such efforts as the Catholic Relief Services (CRS) Title II nutrition education program, the soybean flour/nutrition education program in Kananga, the Bwaki Committee's work in Kivu,* the public health nurse nutrition education program of OXFAM and the new mother nutrition education run by the AID financed MCH/FP center in Kananga. These analyses will include basic cost/benefit considerations with a view to determining a) the effectiveness of the program(s) in reducing malnutrition morbidity or mortality (b) the cost per person (c) the administrative burden of the program (d) its political/social acceptability (e) its replicability.

*BWKI (KWASHIORKOR) Committee is an interdisciplinary government/private group combatting severe malnutrition in Kivu.

Consideration will be given to accepted nutrition programs in other developing countries and the National Planning unit will begin at this stage to make effective international contacts to broaden the the exposure of its own people and others in the GOZ.

The unit will begin to draw upon Zairian economists and graduate students at the National University of Zaire to perform some of these outside studies. The latter may be able to develop thesis topics from the work. The project also includes funds to hire professionals to do some of the analysis work.

The Nutrition Planning unit will, in a preliminary way, consider what types of nutrition related laboratory analysis is needed and what other types of basic or applied research is needed. The project provides for a small amount of basic research equipment, but not enough to undertake any massive research effort.

By the end of Phase II (month fifteen) at least one Zairian member of the unit will have been sent on long term overseas training (most likely at U.S. University) and two other qualified Zairians will have been selected and will be working full time with the unit.

Phase III (Phase III actions should begin by month sixteen and end at the end of month twenty-one).

Community Level

The demonstration action team will begin the intervention(s) in the first test area right away. These initial interventions will be partially funded by the GOZ counterpart funds generated under prior AID activities. Direct AID funded commodities will be

provided after their need has been identified by the action team. The arrival of all commodities will be timed to coincide with the intervention(s).

The measurements of nutritional status will begin in demonstration areas two and three in the same way as done in area one (with realistic refinements).

Teachers and consultants will be provided for short periods as required and at least two Zairians will be sent overseas for short term training /site visitation. In addition, about five Zairians will be selected as counterparts to work with the action team in the demonstration area(s).

National Level

The Nutrition Planning Unit will continue the review of on-going nutrition/health programs, particularly the AID project intervention(s) and will help the program action team establish preliminary recommendations for modification and/or replication of interventions. The unit will concentrate on setting preliminary replication criteria for interventions.

The unit will begin the description and analyses of the nutrition systems and subsystems necessary for the development of the National Nutrition Strategy. It will be preparing reports and analyses of key determinants of malnutrition (probably centering on economic issues, health and sanitation problems, agricultural and transport deficiencies, administrative and fiscal policies, etc.)

The unit will order equipment and commodities needed to operate the CERENA nutrition research laboratory. It is anticipated that CERENA will be appropriately staffed by the O.N.R.D. and equipped

by project funds in order to perform nutrition related research in Zaire.

In addition two more Zairians will be selected and sent on long term overseas training.

Phase IV

(Begins when actions under Phase III completed. Phase IV activities probably last from month 22 through 27.)

Community Level

The intervention designs are completed and intervention(s) in the second and third demonstration area get underway. The intervention(s) in the first demonstration area continues.

A complete evaluation of the effect of the intervention(s) in the first demonstration area will be undertaken.

Although there will be continual on the spot evaluations and refinements of the interventions and feedback between the community level and national level, this evaluation will be the first to see how, over the longer term, the intervention(s) are effecting the nutritional/health status of the key target groups in the demonstration area. The evaluation will also look at cost and administrative factors.

Funding requests from other community areas and organizations are considered. They are reviewed by the Nutrition Planning Unit as well as the community level action intervention team. Those

that fit may be funded if funds allow.

Two Zairians sent on overseas short term training and or site visitation. The Zairians who went on earlier overseas instruction visits are becoming fully integrated into the work of the community action team.

National Level

At the national level, Phase IV, analysis of the data from the National nutrition/health survey begins. A first cut at a national food balance sheet is attempted. The nutrition planning unit also continues its analysis of the "nutrition system" in Zaire with approximately three studies made on key determinants in the system. The determinants studied might include the effects of malaria on nutrition, the relationship between transport, location and nutritional status or the effects of cash income on nutrition.

On-going nutrition interventions are modified, based on a cooperative effort of analysis by the community level team and national nutrition planning unit and then implementation of the modifications in the requisite intervention(s) is undertaken.

On-going intervention(s) that can be replicated in the demonstration areas are replicated based again on the cooperative efforts of the community action team and the nutrition planning unit. On-going interventions, other than AID sponsored, which have been reviewed for effectiveness and replicability are also implemented in approximately three demonstration areas, after community action team-nutrition planning unit review.

Approximately three nutrition system analyses of key sectors (agriculture, health and transportation) on a countrywide basis are still continuing.

Two qualified Zairian personnel of the nutrition planning unit are sent on long-term overseas training. Zairians returned from long-term training are reassigned to the nutrition planning unit. Care is given to insure effective training of Zairian counterparts.

Phase V (Begins when Phase III activities completed; months 28 thru 39)

Community Level

The intervention(s) continue in demonstration areas one two and three. Evaluations are made on the effectiveness of the interventions in these areas. Evaluations concentrate on (1) effectiveness of interventions in reducing morbidity, mortality and malnutrition. (2) The links between malnutrition morbidity and mortality are uncovered by analyses of the interventions. For instance, a malaria control intervention may not necessarily reduce malnutrition in the classic sense it may in fact reduce morbidity and associated mortality to a much greater degree than it reduces malnutrition. At the same time, however, a side benefit may well be some reduction in the malnutrition level since it is expected that people free of malaria will not require as many nutrients to attain a reasonable level of body nourishment as people continually affected by malaria require. (3) The intervention(s) are tested for ease of replicability and for probability of effectiveness on a wider scale. (4) The interventions are tested for cost effectiveness and administrative ease in implementation. (5) They are also

and pregnant/nursing mothers, since it is probable that the easiest and cheapest way to reduce the crude mortality rate is to improve the nutritional/health status of these key target groups. This thesis, in itself, will be doublechecked. (6) An overall ranking of the effectiveness of the various interventions will be attempted.

When results from the above evaluations begin to come out, the community action team, now expanded and strengthened by the inclusion of the Zairians who have received short term training and by the now more effective national planning unit inputs begins measurement, analyses, design and preliminary implementation of intervention(s) in demonstration areas four and five.

US teachers and consultants are provided on a short-term basis as required to help with the work noted above.

Approximately five more Zairian counterparts are sent for short term overseas training and site visits.

National Level

The nutrition planning unit institutes the national nutrition/health survey on an annual basis and publishes and disseminates the information. The first survey is published after the results of two national nutrition/health reports are completed and two national food balance sheets are completed. Expected publication date is thirty-six months after project begins. The report will probably include yearly comparisons of the national nutrition/health reports and the national food balance sheets. This means sufficient reliable data has to be available for comparison. If

not enough comparison data is available a report, noting any statistical gaps, will be published.

The nutrition planning unit will continue to evaluate and suggest modifications to on-going interventions. Close working relationship with the community level action team continues.

The nutrition planning unit continues to work on the Zaire National Nutrition Strategy. A draft strategy will be finished near the end of Phase V which will include recommendations to GOZ departments (Ministries) involved in nutrition/health related activities. At this point, the GOZ, AID and other donors and PVO's will review the strategy and recommendations as well as review the published reports mentioned above, and consider the feasibility of large scale technical/capital assistance in the nutrition/health sector.

The unit will continue to analyse the "nutrition system" in Zaire and make further detailed studies on two key determinants of nutrition.

A special AID funded evaluation of all aspects (both at national and community levels) of the nutrition project will begin at about the end of month thirty. The results of this evaluation will be factored into the work at both the national and community levels with appropriate redesigning carried out at once.

Two Zairian counterparts are sent on long-term overseas training. Zairians completing training are integrated back into work of unit.

Phase VI (Phase VI actions last from completion of Phase V until project completion; estimated to be month 60)

Community Level

Reduction of malnutrition, morbidity and mortality by stated percent achieved in demonstration areas one, two, and three. Some downtrends in mortality, morbidity and malnutrition noted in demonstration areas four and five.

At this time, however, we feel the interrelationship and the causes of malnutrition, morbidity and mortality at both the micro and the macro level in Zaire are too complex to quantify a goal of reducing mortality by any stated percentages. Nevertheless as noted elsewhere in this PROP, we would hope to achieve a 63% reduction in mortality in children 0-5 in the demonstration areas through the nutrition/health interventions.

In the report "Nutrition Programs for Preschool Children" prepared by Jelliffe and Jelliffe after the August 1973 international conference on nutrition held under the auspices of the U.S. Department of Health, Education and Welfare there is a summary of the Candelaria, Columbia experience in the systems approach to nutrition related interventions at the community level. The Candelaria experiment showed very positive results; child mortality dropped from 80 per 1000 to 40 per 1000 in two years. Most severe cases of malnutrition in children were eliminated in the same period. The experiment involved only a small number of children, about 750, but it did show the feasibility of achieving a rapid reduction in child deaths through effective nutrition interventions. (The same program encouraged family planning and the reported birth rate

dropped from 47 per 1000 to 40 per 1000 in the two year period.)

Columbian health authorities have expanded the program to cover 100,000 people now and if this is successful, will expand it further to coverage of the entire state of Valle (2,000,000 population).

The cost per person decreases as the numbers of people reached increases.

No direct comparisons can be made to Zaire. However, as noted earlier, certain malnourishment and preventable disease problems are known to be the major causes of child mortality in Zaire. It is also speculated that reducing the incidence of certain of these problems could cause very large reductions in child mortality rates. In this sense the project being proposed is of slightly wider scope than a straight nutrition planning project since some of the probable interventions may deal with easily preventable disease problems.

The preventable diseases that are the likely target of intervention actions further exacerbate malnutrition among children. The problem of preventable diseases and malnutrition is closely linked).

These issues will be the subject of study during the implementation of the project. Interventions which are not directly linked to nutrition, but/are indirect, such as malaria control, may be shown through analysis to be the most effective in reducing mortality in other areas, if the systems intervention approach has been successful and has been accepted in the communities where it has been tested. Also private organizations, with the approval of the GOZ, begin replicating successful interventions in other areas. All

areas selected have first received the approval of the Nutrition Planning unit.

Short term consultants and teachers are still called upon as necessary and three more Zairian counterparts are on short term overseas training or site visits.

National Level

The National Nutrition Strategy will be completed near the middle of this Phase. It will be reviewed by GOZ and donor decision makers who may begin the design and implementation the more effective interventions on a larger scale. From experience in other countries it is probable that some of the interventions may be applicable to the entire country while others will be more area specific. While country wide replicability is important, area specific interventions which can result in significant reductions in mortality may be implemented.

The Zairian capacity for national nutrition planning developed: By end of the fifth year eight Zairians will have completed long-term training in Nutrition planning and related fields

and will have returned to Zaire to work in the Nutrition Planning Unit or the Program Action Team community nutrition intervention projects. At least fifteen Zairians (including the eight above) will have completed short term overseas training/site visitation and are working in the National Planning Unit or the Program Action Team (community level). In addition GOZ decision makers have had exposure to training/lectures in the systems approach to nutrition and are familiar with the objectives of the project.

National nutrition/health surveys and food balance sheet established, published and disseminated on a continuing basis.

Nutrition Planning Unit continues to carry out studies, analyses and evaluations of nutrition programs, makes continual recommendations for action programs and prescribes policies for GOZ decision makers, decision makers at community level and to PVO/donor community decision makers.

One Zairian selected and sent during fourth year for long term overseas training.

National planning unit becomes a effective body fully integrated into the GOZ health/nutrition planning process.

COURSE OF ACTION TABLE

-30-

Phase I

Community Level
(Program Action Team)

National Level
(Nutrition Planning Unit)

Months - 1-3

The timing of all phases of this project are dependent more on completion of the earlier phases than on any specific month to start or finish) Project reporting will indicate slippage problems.

1. Arrival of US Contractor Nutrition Planning Unit Consultants
2. Preliminary Identification of Demonstration Areas(s) (By Nutrition Planning Unit).
3. Refinement of Program Action Team Composition (By the Nutrition Planning Unit).
4. At least five Zairians selected as counterparts for US team in first demonstration areas.
5. Expanding and refining criteria for future interventions in demonstration areas.

1. Planning Unit started baseline data collection on nutritional status, analysis causes of malnutrition and review programs of existing agencies.
2. Begin recruitment and hiring of GOZ counterparts.

Phase II

Begins when actions noted in Phase I essentially completed probable timing Phase II months 4-15

1. Arrival of US contractor program action team members.
2. Measures of Nutrition/Health status in first demonstration area.
3. Preliminary analysis of causes of malnutrition and design of interventions in first demonstration area.
4. Identification of demonstration areas two and three completed.
5. S.T. consultants/teachers as necessary for analysis/design of interventions in first demonstration area.

1. Recommendations for nat'l nutrition/health survey.
2. Recommendations for establishing food balance sheet.
3. Begin analysis of ongoing nutrition/health programs, (other GOZ or privately financed).
4. Determination of laboratory and other analysis needs.
5. Two Zairians selected and sent on long term overseas training (by end of twelve month). At least one other Zairian selected and working full time with unit.

COURSE OF ACTION TABLE

Community Level
(Program Action Team)

National Level
(Nutrition Planning Unit)

Phase III

Begins when actions noted in Phase II essentially completed probable Phase III timing months 16-21

1. Interventions underway in first demonstration area.
2. Measures of nutrition/health status and analysis begin in demonstration areas two and three.
3. Short term consultants/teachers as necessary for analysis in demonstration areas two and three.
4. Approximately two Zairians selected and sent for short term overseas training/site visitation.
5. Five Zairians selected as counterparts for U.S. team in demonstration areas.

1. Implementation of nutrition/health survey and survey for establishing food balance sheet begin.
2. Continue analysis of other ongoing nutrition/health programs (primarily AID sponsored first intervention) with preliminary recommendations for modification and/or replication [including setting preliminary replication criteria].
3. Description and analyses of nutrition system and sub-systems begin. (approximately 3 studies/analyses.
4. Order equipment/commodities for laboratory and other research needs.
5. Two Zairians selected and sent for long term overseas training.
6. Feedback from other sectors and demonstration areas begin.

Phase IV

Starts when Phase III essentially completed. (Months 22-27)

1. Continuation of Interventions and evaluation of effect on malnutrition in demonstration area one.
2. Design completed and interventions started in demonstration areas 2 and 3 (near end of Phase IV).
3. Funding requests from other communities and organizations considered.
4. Approximately 2 Zairians sent for overseas S.T. training/site visitation.

1. Analysis of Nat'l nutrition/health survey and data for food balance sheet.
2. Implementation of modifications or replication of ongoing projects.
3. Continuing analysis nutrition system approx. 3 studies made on key determinants.
4. Two Zairians sent for long term overseas training.

Community Level
(Program Action Team)

National Level
(Nutrition Planning Unit)

Phase V

Probable timing months 28-39, will begin when actions noted in Phase IV are essentially completed

1. Continuing interventions and evaluation in demonstration areas 1, 2 and 3.
2. Begin measurements, analysis, design and implementation of interventions in areas 4 and 5 (near middle of Phase V).
3. S.T. consultants/teachers as necessary.
4. Approximately 5 Zairians sent for S.T. overseas training and site visitation.

1. Institute nat'l nutrition/health survey and food balance sheet survey.
2. Continuing implementation and evaluation of modifications/replication of ongoing projects.
3. First Recommendations for action programs and policies prescribed for GOZ decision makers, communities and donors.
4. Continuing analysis nutrition system, approx. 2 studies made on key determinants of malnutrition.
5. Nutrition Planning Project Evaluation (towards end of year three)
6. Two Zairians sent for long term overseas training.

Phase VI

Probable timing of Phase VI is 40-60 months, will begin when Phase V essentially completed

1. Reduction of malnutrition and mortality by stated percent achieved in demonstration areas 1-5.
2. GOZ begin replicate approach in new demonstration areas.
3. S.T. consultants/teachers as necessary.
4. Approximately 3 Zairians sent for S.T. overseas training and site visitation.

1. National Nutrition Strategy completed.
2. GOZ and donor design and implementation of large scale interventions based on nutrition strategy.
3. Zairian capability for nat'l nutrition planning developed.
4. National nutrition/health survey and food balance sheet survey established on continuing basis.

COURSE OF ACTION TABLE

Community Level
(Program Action Team)

National Level
(Nutrition Planning Unit)

Phase VI

5. Nutrition planning unit carrying out studies, analyses and evaluations of nutrition programs continuing to make recommendations for action programs and prescribing policies for GOZ decision makers, donors and communities.
6. One Zairian for long term training overseas.

U.S. AND GOZ INPUTS

A. U.S. INPUTS

1. Personnel

A.I.D. will provide 6 U.S. contractor personnel experienced in systems analysis techniques used in support of nutrition planning. Four of these contractors will have experience in systems approaches in the fields of nutrition, health and sanitation, economics and agriculture and will assist the Zairian program action team in the demonstration areas over a 4 year period (192 man-months). Additionally, two experts, one full-time and one part-time, in systems analysis will work with Zairians in FOMECO to establish a nutrition planning unit which will gather baseline data and undertake the outputs described under Course of Action at the national level. These contractors will be provided for a total of 90 m.m. or one full-time contractor over the 5 year project and one for approximately 6 months per year over the 5 year period.

Although the four U.S. contractors in specialized fields will work primarily in the demonstration areas, their expertise in the systems approach to nutrition planning will enable them to work interchangeably between the community level demonstration areas and the national planning level. Similarly, the two systems analysts will participate in some of the field work in the demonstration areas.

Short-term contract consultants/teachers and technicians will be called upon as special teaching, analysis and study needs arise in the analysis and design of interventions in the demonstration areas. Additionally, they will perform special studies as necessary on various constraints in the entire nutrition system of Zaire. Funds are also provided for an independent project evaluation team at the end of third year of project activities. Approximately 36 man months of short-term assistance will be required over the life of the project in the fields of nutrition, economics and statistics, health and sanitation, agriculture and transportation as well as for the evaluation team. The above personnel requirements for technical assistance are based on the recommendations of a consultant provided by AID/W.

2. Training

Eight Zairians will receive long-term overseas training in nutrition planning and nutrition-related fields for a total of 120 man-months. The training will consist of integrated approaches to

PROJECT	SUBMISSION	DATE	PAGE of
660-11-560-054	<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION		

national nutrition planning as well as public health and general nutrition training. The Zairians will be selected by the GOZ and the U.S. contract team after having worked on various aspects of the project. They will return to form the nucleus of a nutrition planning unit with FOMECA.

Fifteen Zairians (including the eight above) will receive short-term training in Universities and other institutions overseas in specialized fields such as biochemistry, statistics and surveys, computer programming and analysis, public health and nutrition as special problems arise. Funds are also provided for observation visits and site work at ongoing nutrition/health projects and research and planning organizations throughout the world, both government and private. Forty-five man-months of such training is provided for in the project. (3 man-months of training/site-visitation for each of the 15 selected Zairians).

The work at the community level or demonstration areas will provide field experience for the Zairians in the systems approach to combatting malnutrition and will complement the national nutrition planning effort. The fifteen Zairians will work interchangeably at both levels of analysis. In addition to the field experience/on-the-job training in working with the U.S. contractor team, the Zairians will also work with the planned short-term consultants and technicians who will be carrying out special studies on the nutrition system of Zaire and conducting special courses for technical problems which may arise in the analysis and design of interventions for the demonstration areas. The team will further draw upon Zairian economists and graduate students at the National University of Zaire, encouraging the latter to undertake nutrition and nutrition-related analyses as these topics.

3. Commodities

Commodities will be provided to support both the national planning effort and the various demonstration programs. Re the latter, although the scope and nature of the selected interventions will be specifically costed out by the program action team during the design phase in each area, USAID has estimated maximum requirements based on the best present knowledge of the causes of malnutrition and realistic interventions for the test areas. AID/W consultants assisted in preparing cost estimates for malaria control (spraying) and soy bean interventions (flour milling), and USAID obtained price figures from the Kinshasa General Hospital on preventive medicines for the major malnutrition-related

PROJECT 660-11-560-054	SUBMISSION <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION	DATE	PAGE ___ of ___ PAGE
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diseases: measles, gastro-enteritis and malaria. In addition, experience data from self-help projects in rural agriculture production and potable water systems has been used in estimating commodity requirements and costs.

3. Commodities

Commodity requirements were generally calculated for interventions in five demonstration areas with a total target group population of 150,000 children under five and pregnant and nursing mothers. These include medicines and vaccines for preventing such diseases/infections as malaria, gastro-enteritis measles, iron deficiency anemia, worms, and DDT (\$465,000); equipment and materials for nutrition education (health/weight charts, scales, teaching aid, etc.--\$2,000); equipment and supplies for potable water systems (pumps), malaria control spraying (DDT, spray pumps, tools) as well as production equipment for soy flour or other processed food interventions (\$400,000); laboratory research requirements for C.E.R.E.N.A. such as equipment and biochemical determinations for evaluation of various nutrition programs (\$15,000--based on cost estimates in report prepared by an AID/W consultant on the development of a biochemistry nutrition component for C.E.R.E.N.A.); four vehicles, twenty motor bicycles and miscellaneous field work equipment (\$18,000).

4. Other Costs

Funds are provided for books, publications and reference material for project activities. This includes the publication of surveys, studies and nutrition planning documents as they are generated. Also included in other costs are operational travel and per diem for the contract team, some initial procurement of local goods and services such as supplies, local-hire staff, vehical maintenance, and other miscellaneous project support costs.

GOZ INPUTS

1. Personnel

The GOZ will provide 15 Zairians with experience and/or education in the fields of research, nutrition, health and sanitation, agriculture and enonomics. They will work in program action teams of five each in the demonstration areas as well as at the national planning level. (900 man-months over five year project period). The GOZ will also provide part-time personnel who will assist the Zairian/American team in various aspects of community and national level nutrition planning. (Approximately 200 man-months over the project period). This personnel will be

PROJECT

660-11-560-054

SUBMISSION

ORIGINAL REVISION

DATE

PAGE

of

PAGES

drawn from various government organizations such as FOMECO, the National Office of Research and Development (O.N.R.D.), the National University of Zaire and the Department of Agriculture.

2. Commodities and Other Costs

In-kind commodity and other cost contributions by the GOZ include office space and furniture, project support personnel and services, research studies and surveys carried out by O.N.R.D. and other miscellaneous supplies and equipment in support of the project activities. In-kind contributions are estimated at Zaires 345,000 (\$690,000) over a five year period. Additionally, a block sum of GOZ counterpart funds in the amount of 2225,000 (\$450,000) is reserved for necessary personnel, commodities and local costs. These funds will provide for salaries of the fifteen Zairian team members and in-country travel for them and other Zairian researchers and economists working on project activities. The funds will also provide for local purchase of part of the supplies for the surveys, studies and analyses as well as the commodities and equipment which can be locally purchased for the recommended interventions in the first three demonstration areas.

The Z150,000 will be used as start-up financing for the first two years of nutrition and nutrition-related activities under FOMECO or the proposed National Health Council. During the third year of project activity, GOZ national budget funds will be appropriated to continue the local costs of this project as well as the other activities in the nutrition/health sectors contributing to the overall goal of reducing mortality by fifty percent by 1980. The total GOZ in-kind and cash contribution is presently calculated to be 2570,000 (\$1,140,000) which is 25.8 percent of total project costs over the period of active A.I.D. involvement. The written assurance to this effect will be received from the GOZ as part of the project agreement. With future GOZ appropriations and in-kind contributions as expected, the GOZ contribution will substantially exceed this 25.8 percent.

FONDS MEDICAUXDE COORDINATION (FOMECO) AND THE NATIONAL COUNCIL OF HEALTH
AND WELL BEING (NCH)

FOMECO is the operating arm of the Medical Services of Zaire's Office of the President. FOMECO carries out medical /health policies set by this central and powerful Office. FOMECO is well financed, receiving approximately 50% of the direct national health budget, or about \$10,000,000 of the \$20,000,000 budget. (The actual amount of public funds spent in the health sector is probably twice the latter figure since significant but as yet unrecorded amounts are allocated through the defense ministry and provincial allocations, etc.) The remaining \$10,000,000 of direct budget funds for medicine/health are primarily allocated to the Ministry of Health.

FOMECO'S main responsibility is the operation of six medical facilities. These are the 1800 bed Mama Yemo Hospital in Kinshasa, two MCH/FP clinics in Kinshasa (which are primarily funded by AID), a hospital/nursing school in Bobobo (about 200 KM NE of Kinshasa), a river boat hospital and a pediatric hospital in Kinshasa.

The major concern of the Medical Services of the President has begun to turn from curative medicine to a more systematic approach to providing low cost preventative health services. It has become obvious, that despite FOMECO's shown capabilities to provide curative services to a large and growing number of people, the demand for such services is overwhelming and is mostly made up of people seeking repeated help of preventable diseases.

FOMECO is proving itself in the curative medicine field. Mama Yemo Hospital handled 44,000 births in 1973 and lost only 44 mothers. It handles up to 2,000 out patients a day. The first AID financed MCH clinic, Burumbi, is handling 5,500 births a year. Even at these facilities there is still

a high percentage of babies born underweight or with other problems primarily caused by preventable health problems of the mothers. They also see many sick children with preventable diseases and nutritional problems. Their record appears to be better, on the average, than the General Population of Kinshasa; this can only be surmised because of the lack of adequate statistics. Nevertheless, these facilities especially the MCH clinic, are beginning efforts in preventative health and nutrition.

FOMECO, through the guidance of the Medical Office of the Presidency, is the most perhaps the only real innovative force in the health sector in Zaire. (Certain small privately funded medical/health/nutrition agencies and services are attempting innovative programs but have very limited budgets) FOMECO'S efforts in the preventative health/nutrition field coupled with its well organized approach to curative medicine and its high visibility make it the likely candidate for the administrative control of the community action team part of this project, even if the Nutrition Planning Unit is under the direct control of the National Council of Health and Well Being. (NCH)

The NCH was first proposed in President Mobutu's 1973 annual address a year ago November. It has now been given a legitimate role in Zaire's health sector with a November 1974 decree assigning it overall control and coordination for all aspects of a national health planning, setting health priorities in Zaire, establishing working commissions for national health problems and preparing and supervising budgets for all public health programs and medical/paramedical education in Zaire. The NCH is comprised of high officials of Zaire namely the President, the Commissioners of State for Public Health, Education and Social Affairs, the director of the Medical Services of the Presidency, the Director of FOMECO, and the Dean of Medicine at the University of Zaire. It is obvious to any close observer of Zairian

affairs that this body will have considerable administrative, political and budgetary power. We therefore would hope and, in fact, expect that the Nutrition Planning Unit will operate within the aegis of the NCH.

The most immediate effect of the establishment of the NCH is a new dialogue among the disparate health organizations in Zaire. Former communication problems led to widespread inefficiencies, waste and duplication. While the establishment of the NCH does not automatically solve these problems; the NCH has already drawn the most effective leaders in health in Zaire into a cohesive unit.

We expect that the NCH will delegate the community action team responsibility of this project to FOMEKO. We feel that either FOMEKO or the NCH should have the administrative control over the Nutrition Planning Unit. The USAID is continuing a dialogue with the GOZ in this regard.

Because of the different roles played by the planning unit and the action team we feel the planning unit could be most effective within close proximity of a powerful NCH while an action team would be more effective under a action oriented organization like FOMEKO. The fact that FOMEKO is highly regarded by members of the NCH should help in coordination of the planning and action roles.

Further details on the organizational location of the planning unit and action team as well as the type of administrative and budget support they can expect will be worked out in the ProAg. The situation, though most favorable to the quick formation and effective operation of the Nutrition Planning Unit and Program Action team, is still somewhat fluid.

AID ACTIVITIES IN ZAIRE THAT RELATE TO THIS PROJECT

Many of AID's major projects and activities in Zaire, both on-going and proposed, have links with the proposed Nutrition Planning Project. At least sixteen different AID funded activities, on-going, in planning, or in the early planning stage may have direct or indirect positive linkages to the nutritional health sector of Zaire.

AID has four active transport sector loans in Zaire providing a total of \$23,650,000 to help the country rehabilitate and upgrade its vast road, rail and river transport networks. Another \$7,500,000 water transport loan is being considered by AID. We understand the IBRD, which has placed a high level planning unit within the GOZ's Office of the President to help the country rationalize its overall planning efforts, considers the lack of reliable and low cost transportation in many areas in Zaire the key bottleneck to national development, holding up the growth of agricultural and other production needed to sustain economic vitality. Zaire is beginning to cope with its massive transport problem but up to now it has tended to concentrate its resources on the major routes to facilitate the movement of mineral exports, its major foreign exchange earner.

AID's transport sector help is now being directed to projects which will help open up the agriculture areas of the agriculture areas of the Interior. However, the link between transportation and national nutrition and health problems is not direct and the Nutrition Planning Unit will be providing policy guidance to the GOZ in this area once it has a working strategy document. We do know now that the areas with the poorest access to reliable

transportation also by and large are reported to have populations with the highest incidence of nutritional problems and deficiencies.

AID has also financed a MCH/FP clinic in Kinshasa which will soon be establishing satellite clinics in nearby neighborhoods. This clinic ^{66000497?} started less than one year ago, already reaches 200 mothers and their young children each day. It is operated under FOMECO. The pregnant and new mothers are given realistic nutrition education training and nutritional status measurements of their children are made by staff personnel. The system is set up with a low level of sophistication. The MCH/FP project may link closely with the proposed project in that its measurable, small and controllable universe may make it a good candidate for a nutrition intervention demonstration area.

AID is also supporting two projects in the Agriculture Sector one now underway entitled Agriculture Planning and another programmed for ^{6600050?} FY76 entitled Agricultural Economic Development. These projects are ^{6600052?} essentially designed to build the planning and programming capacity in the agricultural sector of Zaire.

PASA technical assistance personnel from the USDA have, under the first project, helped the GOZ take a hard look at its agricultural sector. The second project, encouraged by the GOZ now that the first has pointed out weaknesses in the GOZ's agricultural planning efforts, will help beef up the GOZ's capacity to gather agricultural data and use it for planning, policies and projects.

They both tie nicely into this Nutrition Planning Project since it is imperative for nutrition planners to have access to good food production statistics. The Ministry of Agriculture may soon be

in a position to make its programming efforts respond to the needs pointed up by the information generated by the Nutrition Planning Unit.

In addition AID has three integrated rural development projects for Zaire in the early planning stage. These projects, if implemented, would help to improve the nutritional/health status and food intake of the lower income peoples in the immediate project areas. Also, if these projects do get underway one or more may serve as a demonstration area for nutrition intervention(s).

AID also is planning assistance through a Private Voluntary Organization to increase the fish catch on Lake Kivu. An increased level of sustainable catch could easily be absorbed by Zaire's population, which is generally short of protein. ^{660056?}

AID is now considering assistance to Zaire for improving the unsophisticated technology used in rural villages. Many such improvements such as better hand tools, plastic pipe for water etc., may effect the nutritional/health status of the village people. This project's outputs can be fed into the Nutrition project's inputs of data for more comprehensive planning.

There are also two projects under active consideration for AID FY1976 funding which, if implemented, would be closely linked with the implementation and purpose of this project. These are the Endemic Disease Control Project and the Health Systems Management Project. ⁶⁶⁰⁰⁵⁸ Project Identification Documents (PID's) on both are now being reviewed. The main objective of the former is to provide technical assistance to the GOZ to help it set up a malaria control plan to form a vector-borne disease control unit in Kinshasa and to provide necessary technical assistance for

the vector-borne disease intervention elements in the nutrition project demonstration areas. This last objective will enable the nutrition project attempt vector borne disease (mainly malaria) interventions without getting so involved with malaris control as to lose sight of the project objective of reducing malnutrition and mortality.

The proposed Health Systems Management Project objective is to help GOZ health planners and program managers adapt modern management techniques so the government's health sector agencies can meet the goals objectives and standards which are now being elaborated by the National Council of Health. This paper already mentioned one of these goals, a reduction of the crude mortality rate from the present 20 + per 1,000 to 10 per 1,000 by 1980.

The need for very careful resource allocation and continued assessment of policies, plans and programs in the health sector may be perhaps the best way for the GOZ to aim for this lofty mortality reduction goal. Although the Health Systems Management project is still in its early planning stage it appears to be a soundly conceived project that could be a welcome assist to this nutrition project.

Also, in the longer range view, dependent upon the DAP analysis, GOZ longer range goals and objectives in the health sector, and the information generated by the IBRD planning unit in the Office of the President, and the success of AID's health sector related projects our mission may propose a health sector loan for Zaire for FY77 or FY78.

Project Title & Number: Zaire: Nutrition Planning

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>The GOZ's stated objective is to reduce Zaire's crude mortality rate from over 20* per 1,000 persons presently to 10 per 1,000 persons by 1980 (*probably about 22.5 per 1,000 in 1974).</p>	<p>Measures of Goal Achievement:</p> <p>Zaire's crude mortality rate reduced from over 20 per 1,000 presently to 10 per 1,000 by 1980 (or mortality rate showing measurable indications of dropping to 10 per 1,000 within a reasonable time frame through trends established in the 1975 - 1980 period.</p>

IGN SUMMARY

FRAMEWORK

(INSTRUCTION: THIS IS AN OPTIONAL FORM WHICH CAN BE USED AS AN AID TO ORGANIZING DATA FOR THE PAR REPORT. IT NEED NOT BE RETAINED OR SUBMITTED.)

Life of Project: _____
 From FY _____ to FY _____
 Total U. S. Funding _____
 Date Prepared: _____

MEANS OF VERIFICATION

Examination of existing national records and statistics on mortality which have been collected and refined as an integral part of this project.

IMPORTANT ASSUMPTIONS

Assumptions for achieving goal targets:

1. Reaching and sustaining crude mortality rate of 10 per 1,000 requires integrated nutrition/health data collection, data analysis and planning efforts coupled with effective nationwide nutrition/health interventions being continually improved by forwards and backwards feedback.
2. Concentration on reducing malnutrition in key groups will have predicted effects of substantially reducing mortality rate.
3. GOZ, Donors and Private Voluntary Organizations will make substantial and well directed inputs to the development of key nutrition related sectors including agriculture, public health, sanitation and transportation as well as making substantial and well directed inputs directly into nutrition.
4. Policies and programs followed will result in a higher level and more equitable distribution of nutrition and health related services and will have their main focus on the key target groups (Children 0-5 years and pregnant/nursing mothers).

Project Title & Number: _____

NARRATIVE SUMMARY

Project Purpose:

1. To formulate a National Nutrition Strategy for Zaire; such strategy to be based on a sufficient amount of reliable, properly analyzed data from all sectors effected by or effecting nutrition on the national level and based on data and experience of the interventions tested in the selected intervention demonstration area(s).
2. To train a sufficient number of Zairians to understand this strategy and to implement the strategy in an effective manner.
3. To reduce mortality rates in key target groups in intervention demonstration areas, and to establish methods of replication of successful interventions on a nationwide scale.

OBJECTIVELY VERIFIABLE INDICATORS

- Conditions that will indicate purpose has been achieved: End of project status.
1. Existence of National Nutrition Strategy.
 2. Systems approach to combatting malnutrition carried out and successful in reducing and maintaining lowered rate of malnutrition in key target groups in three to five demonstration areas.
 3. Child (0-5 yrs.) mortality rates reduced by significant amounts in demonstration areas. (Project pre-implementation target is 63% reduction in child mortality in demonstration areas. Experience generated from test interventions will be used to modify this target as appropriate and reduction of child mortality or crude mortality rate reductions will be tested).
 4. A minimum total of 15 Zairians trained in nutrition planning and nutrition related fields working both at national and community levels.
 5. Procedures established for measuring nutritional/health status of Zaire's population on a continuing basis.
 6. Nutrition planning unit continuing evaluations of nutrition interventions making recommendations for action programs and prescribing policies for GOZ decision makers and local communities.

IGN SUMMARY

FRAMEWORK

Life of Project:

From FY _____ to FY _____

Total U. S. Funding _____

Date Prepared: _____

-48-

PAGE 46

MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<ol style="list-style-type: none"> 1. Existence of approved National Nutrition Strategy. 2. Examination of plans and projects of other GOZ Departments for consideration of nutritional objectives. 3. Existence of trained Zairians. 4. Existence of National Nutrition Survey and Food Balance Sheet. 5. Review and appraisal of surveys, studies and resulting recommendations. 6. Records of nutritional status in demonstration areas. 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> 1. Recommendations of the Nutrition Planning Unit and the Program Action team will be accepted and implemented by GOZ officials, local communities, PVOs and donors. 2. GOZ departments successfully coordinate the implementation of projects and analysis of the nutritional/health status of the country's population. 3. Methodology of proposed systems approach will be successful in reducing and maintaining a lowered rate of malnutrition, morbidity and mortality in demonstration areas and other areas affected by the expanded program.

Project Title & Number: ZAIRE NUTRITION PLANNING

NARRATIVE SUMMARY

C-1 Outputs:

1. Operating and useful GOZ Nutrition Planning Unit.
2. Experienced and effective Program Action Team.
3. Effective communication established between Nutrition Planning Unit and Program Action Teams with dissemination of nutrition related data to GOZ, PVO and Donor decision makers.
4. Data system established and working (continual and systematic nutrition/health surveys, food production and consumption data reports and analyses, continual review of GOZ, PVO and donor nutrition related projects and programs).
5. Completed description and analyses of nutrition system and sub-systems in Zaire. (National Level Nutrition System and Nutrition Sub-systems in Demonstration Areas).
6. Completed Analyses of on-going nutrition projects and/or nutrition-related interventions in demonstration areas with recommendations for modification and/or replication.
7. Completed Analyses of other than AID-financed nutrition projects and/or nutrition related interventions in Zaire with recommendations for modification and/or replication.

OBJECTIVELY VERIFIABLE INDICATORS

Magnitudes of Outputs:

1. Total of 15 trained and qualified Zairians working for Nutrition Planning Unit and/or in experienced program action teams.
2. Accurate Nutritional/Health status baseline data for entire country; (a) nutritional/health surveys, two sample national surveys completed by end of third year; (b) national food balance sheet completed by end of third year.
3. Reports and analysis on determinants of nutrition/health including, reports of economic status versus nutrition/health, sanitation, food production/consumption statistics as well as other agricultural information, administrative policies/problems in health and other sectors transportation etc.; approximately eight useful reports of which three completed by end of year three.
4. Analyses of at least three on-going, other than AID sponsored interventions to test for efficacy and for replication criteria.
5. Test interventions underway in 3 to 5 demonstration areas; the timing of the start of such interventions having been keyed to specific established indicators.
6. The 15 Zairians mentioned in C-2 (1) above have received on-the-job and short term training/site visitation overseas; and 8 of the 15 have or are receiving long term

IGN SUMMARY
FRAMEWORK

Life of Project:
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared: _____

MEANS OF VERIFICATION

IMPORTANT ASSUMPTIONS

1. Existence of planning unit; experienced action intervention teams and 15 trained Zairians.
2. Contractor reports
3. Review of National Nutritional Health Survey, National and Demonstration Area Food Balance Sheets and other Nutrition/Health Systems reports.
4. Review of the recommended test intervention results.

- Assumptions for achieving outputs:
1. In country capability to assist in conducting surveys and studies exists or can be developed in a timely manner. Country will have ability to take over more and more of survey/study work as project advances.
 2. National agency encompassing Nutrition/Health coordination role will have permanent and effective nutrition planning unit as part of its staff.
 3. GOZ and AID will provide financing and staff for implementation of surveys, studies and test interventions and provide timely and complete dissemination of results.
 4. All connected GOZ agencies (agriculture, transport, etc.) will modify own reporting requirements; provide inputs for nutrition planning and disseminate results.
 5. Experienced contractors in systems analysis in nutrition and nutrition related fields can be recruited.
AID/W can provide inputs, particularly commodities and short term consultants when required.

Project Title & Number: ZAIRE NUTRITIONAL PROGRAM

D-2

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS
<p><u>D-1 inputs: US</u></p> <ol style="list-style-type: none"> 1. Seven US contractor personnel experienced in systems approach fields of; research, nutrition, health and sanitation, agriculture, economics. (Estimated Man Months, 318+) 2. S.T. consultants/teachers in nutrition, economics, health and sanitation, agriculture statistics and surveys, transportation, marketing. 3. Participant training; 1) on-the-job and US and third country training, 2) site visitation-overseas nutrition projects. 4. Commodities for recommended intervention, surveys and studies and project support. 5. Operational support including operational travel, rent and utilities, publications and supplies etc. 	<p>Implementation Target (Type and Quantity) <u>BUDGET SCHEDULE</u></p> <p>(See Budget - Schedule (PROP COVER SHEET) and Course of Action Section in PROP)</p>
<p><u>GOZ</u></p> <ol style="list-style-type: none"> 1. Fifteen full-time Zairian personnel and part-time other GOZ personnel in parallel fields as U.S. contractors. 2. Commodities for surveys, studies, interventions. 3. In-kind contributions such as office space, furniture, related surveys and studies, time of GOZ officials, etc. 4. Operational support including in-country travel, Zairian personnel, administrative and clerical project support and local personnel support. 	
<p><u>OTHER</u></p> <ol style="list-style-type: none"> 1. Operational support personnel (GOZ, donor private) available to implement interventions. 	

FIGURE SUMMARY

FRAMEWORK

Life of Project:
 From FY _____ to FY _____
 Total U. S. Funding _____
 Date Prepared: _____

0-3 MEANS OF VERIFICATION	0-4 IMPORTANT ASSUMPTIONS
<ol style="list-style-type: none"> 1. AID and contractor records 2. AID and GOZ training records 3. AID procurement documents 4. GOL budget and counterpart allocation records 5. Information from results of the major program evaluation to be undertaken at the end of the third project year. 	<p>Assumptions for providing inputs:</p> <ol style="list-style-type: none"> 1. Critical project inputs available in sufficient quantity and quality and when needed. 2. Qualified Zairians available in sufficient quantity when needed and will stay with project. 3. US expects in system approach to nutrition and nutrition related fields will be available as needed.

PROJECT COST ESTIMATES

A. General Assumptions

AID will commit funds at this time for its share of the project costs through FY 1977. Funds for FY 1978 and beyond will depend upon an evaluation of the project to take place during FY 1977.

AID will commit \$1,860,000 at this time to finance up to 182 man-months of consultant services (costing up to \$1,140,000), to finance commodities needed for test interventions (up to \$580,000) to finance up to 114 man months of participant training (costing about \$124,000) and to finance up to \$16,000 of equipment needed for the CERENA nutrition laboratory.

During the same period it is expected the GOZ will provide up to \$390,000 worth of in kind services and \$450,000 of budget support from its counterpart resources or up to \$840,000.

The GOZ will provide about 31% of the project's three year cost.

Dependent upon the FY 77 AID evaluation, AID may finance an estimated \$1,417,000 in FY 1978 and FY 1979. AID direct financial involvement would probably end at the end of FY 1979. If AID involvement continues, the GOZ would contribute a minimum of \$300,000 worth of in kind services in FY 1978 and FY 1979 as well as an unknown but expected considerable amount of direct budget support.

B. Consultant Services

AID financed consultant services contracts would be negotiated so they would or could be terminated at the end of FY 1977. The costs of consultant services (both long and short term) allow for travel and living expenses as well as for overhead for a health services firm. If all the consultants hired for the project are from a health services firm, the overhead rates of these

firms might result in an increase in this category expense beyond \$1,140,000. We feel this would be somewhat offset by a reduction in the number of man-months due to the contract negotiation time, say 170 man months versus 182 man months. This category of expense could reach \$1,250,000 under more pessimistic cost assumptions.

G. Participant Training Costs

AID financed participant training costs of \$124,000 have only a minimum amount of flexibility if one of the main purposes of the project is to be achieved, that of training a sufficient number of Zairians to understand and implement Zaire's National Nutrition Strategy.

D. Commodity Costs

The estimated three fiscal year AID financed commodity costs of \$580,000 allow for about 15 interventions during that period. This is the maximum number expected. It is likely that the Community Action teams working with the National Nutrition Planning Unit in a coordinated manner, will undertake interventions more cautiously to insure interventions when undertaken have a reasonably good chance of success and have criteria which will encourage widespread replication within Zaire. Perhaps spending on commodities during FY 1975 - FY 1977 will not exceed \$400,000; the \$580,000 estimate allows for the most optimistic prediction of project success.

E. Other Costs

AID will finance \$16,000 of equipment for the CERENA nutrition research laboratory during FY 1975 - FY 1977.

F. GOZ contributions

GOZ will contribute an identified \$840,000 of goods and services during the first three fiscal years. In addition the time of GOZ officials should

be considered an indirect project cost to be borne by the COZ. Also, we estimate there will be some expenses incurred by communities not otherwise accounted for in the cost estimates. And in becoming involved in this effort the COZ may incur unknown but substantial budgetary commitments in the years beyond FY 1977.

G. Other Donors

At this point AID is the only international donor agency becoming directly involved in nutrition in Zaire. However, there are a few international donor agencies involved in COZ's health sector, among them, WHO, Belgium and perhaps the UNDP in the near future. We also expect the IBRD may take a serious look at Zaire's health/nutrition sector. In addition, several PVO's are involved in nutrition related activities in Zaire, and some of these activities may overlap with the activities of this project. Since there are no direct tie-ins to the AID/COZ project at this point, the funds being provided by other donors and PVO's for Zaire's health/nutrition sector are not included as a project cost element.

Nevertheless, if this project is even moderately successful AID and the COZ expects other donors and PVO's to fund many of its programmatic recommendations.

H. Shifts of Funds Between Categories

Up to \$250,000 may be shifted between categories to allow for increased costs in one or more categories. This financial flexibility will enhance the operational flexibility of the project.

EVALUATION PLAN

I. General Evaluation Activity

The monitoring and evaluation of the activities of this project will be based on firm baseline health/nutrition data collected from the national level and from the community (demonstration area) level and will continue throughout its life. Evaluation is, in itself, a key aspect to the projects success and is discussed throughout the PROP. In addition an independent evaluation of the project will be made beginning on or about the last quarter of FY1977.

The continuing project evaluations are considered below.

II. Continuing Project Evaluations

A. Baseline data

Baseline data will be collected on the health and nutrition status of the country by the Nutrition Planning Unit. Baseline Data at the micro-level will be collected by the Community Action team. This data will be analysed and refined at both levels throughout the life of the project and feedback between the two levels will be a continuing aspect of the project.

The amount of data and its usefulness should continually grow as a result of the continuing collection analysis and feedback processes. In addition, the information being collected and disseminated

should have a positive effect upon the quality and quantity of data available in other sectors, such as agriculture. I.E., the GOZ department of agriculture should become aware of deficiencies in food consumption data from the statistical information generated by the Nutrition Planning Unit. This department should, in turn, use this information in better programming of its own activities.

B. Project "Success" Indicators and Project Evaluation

The U.S. contract personnel working on the project will be required by contract to submit a project inception report and project progress reports at regular intervals (probably quarterly). In addition, all U.S. contractor personnel will be required to meet with the USAID Kinshasa Program Officer every quarter. In addition joint USAID Contractor and GOZ meetings to review the project and to suggest necessary changes should be held at least bi-annually.

These project monitoring activities, if they cover the most important aspect of the project in a reliable and thorough way will enable AID, the GOZ and the contract personnel to rough and fine tune both the active intervention elements and the data collection and analysis elements of the project.

The PROP logical framework matrix mentions six separate achievements of the project linking directly with the project's purposes. (See page 46). None of them is expected to be fully

achieved within the 33 month period now left before the end of Fiscal Year 1977. However, the reports and the face to face meetings, should enable AID/W and USAID to judge the program of the project against the course of action called for in the PROP. Slippages can be caught early and corrected or the scope and expected achievements of the project can be revised providing AID is privy to and agrees will all such significant changes.

Since the EOPS called for in the matrix cannot be achieved by the end of FY77 it should be stressed again that AID fully intends to continue funding this project beyond FY77 if it is showing positive signs of being a successful and rational project. Thus the project itself should have reached the level noted in Phase VI course of action sometime prior to the start of the independent evaluation which is to begin at about month thirty. The evaluation should be able to discern if by reaching this level, this in itself is sufficient reason for continuing the project.

If the project's course of action is lagging behind schedule the independent evaluation should not necessarily suggest eliminating AID funding beyond FY77, for, in fact, the project may be progressing towards its goals at a slower pace or being taken in a slightly different direction than projected in the "Course of Action" section. However, the evaluation will serve as a key determinant in AID's decision to or not to continue funding, and the level of funding it would support.

This FY77 independent evaluation cannot and will not be waited for passively by USAID, the GOZ, contract personnel or AID/W; the quarterly progress reports and periodic meetings will serve as an agent to foster continuing evaluation and monitoring of the project. This continual evaluation should strengthen the project and make the independent evaluation job easier.

The continual evaluation and the independent evaluation will look towards the progress indicators noted in the matrix and the course of action table. Since the matrix EOPS indicators are set for the proposed end of project status (five years after project inception) only some or part of some output and/or purpose indicators will be met by the end of three years, however unless strong mitigating arguments can be made, we would expect the overall progress of the project as determined by the independent evaluation, to be close to that outlined in the course of action. (Section III of this Prop.)

C. Experimental and Control Areas

Since this project is to some degree experimental, in that something similar has never been tried on such a large scale in Zaire, the continuing evaluation and the independent evaluation of demonstration area interventions can be assisted by comparisons between demonstration areas and control areas not participating in nutrition/health interventions. This control area concept will be factored into the scope of work of the services to be provided by the consultants after discussion with the GOZ. We would expect to keep it simple and provide for only the most basic control area statistical analysis. We feel, nevertheless, that the control area concept will point up the value of interventions and enhance the probability that this project will be successful.

CAUSES OF MALNUTRITION IN ZAIRE

At the request of the Medical Service of the Presidency (FOMECO) with the assistance of the National Office of Research and Development (O.N.R.D.), A.I.D. cooperated with the GOZ in a preliminary assessment of the causes of malnutrition in Zaire. A.I.D. furnished an expert in nutrition planning who worked for several months with the GOZ and USAID in defining the problem and recommending a systematic approach to its solution. In discussing the causes, the concept of nutrient gap was used. Nutrient gap is defined simply as the difference between all categories of nutrients needed and the actual nutrients consumed. This includes proteins, calories, vitamins and other essential body requirements. The nutrient gap can be applied to the nation as a whole, a region or community, a household or an individual within a household. The following illustration shows where losses are likely to occur in the supply and flow of nutrients which are finally eaten and digested by an individual.

National Level

Production & Imports
minus Exports

Losses: Storage
Transportation
Processing

Regional or Community Level

Production

Losses: Storage
Misallocation
Seasonality

Family Level

Production

Losses: Preparation
Storage
Misallocation
Food Habits
Lack of Knowledge of
correct nutritional practices

Individual Level

Consumption

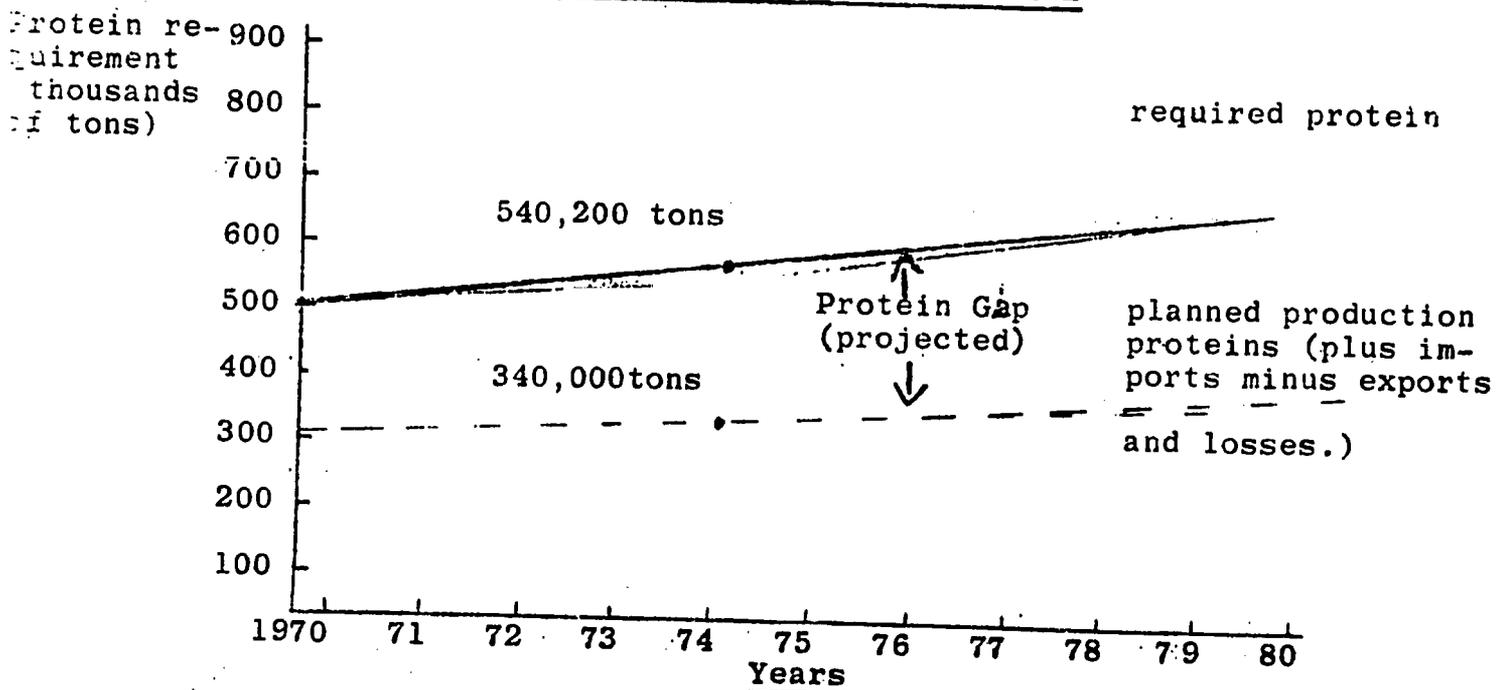
Losses: Malabsorption of Nutrients
or Food Waste
(resulting from disease, infection,
food and water pollution)

3. Nutrients needed are the minimum daily requirements (adjusted for regions and countries) as determined by the U.N. Food and Agriculture Organization (F.A.O.).

1. Causes at the National Level

A nutrient gap exists at the National level in Zaire. Estimates of per capita protein intake for Zaire range from 32.7 grams per day⁴ to 43.4 grams per day.⁵ This is approximately half of the required 70 grams of protein per day as recommended by the F.A.O. for this area.⁶ Calorie intake is estimated at 85 percent of the required level. In Kinshasa a study of 1471 families by the Institute for Economic and Social Research shows deficits in calorie, protein and vitamin B₁, B₂, niacin and phosphorous intake with only 13.6 percent of the population meeting its protein and calorie requirements. This means that 86.4 percent of the population is undernourished. The following graph on protein production and requirements for the Zairian population reflect the best available information as derived from the Government of Zaire Department of Agriculture Food Balance Sheet for 1970 and the 1970-1980 Food Production Plan:

GRAPH I THE NATIONAL PROTEIN GAP FOR ZAIRE*



* Assumes 70 GM per day protein requirement. Gap may be considerably lower if 55 GM per day is more accurate assessment of protein needs.

4. International Bank for Reconstruction and Development, Recent Economic Trends and Prospectives for the Future in Zaire, Mar. 5, 1973, Volume I.

5. Government of Zaire, Department of Agriculture. Food Balance Sheet, 1970.

6. International Bank for Reconstruction and Development. Recent Economic Trends and Prospectives for the Future in Zaire. Mar. 5, 1973.

PROJECT NO. 660-11-560-054	SUBMISSION <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION	DATE 7/1/74	ANNEX C Page 3
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The top line of this graph shows the required tons of protein needed to meet the average daily requirement of 70 grams of protein per day for the entire population of Zaire. The bottom line shows the actual and projected protein production for Zaire. The difference between required proteins and protein availability is the "Protein Gap". Thus, in 1974, based on a population of 24 million people, approximately 540,000 tons of protein are needed to supply per capita protein requirements. Projected production, however, indicates that only 340,000 tons will be produced for consumption, giving Zaire a protein gap of 200,000 tons for 1974. The national nutrient gap (of which protein is a large part) is caused not only by insufficient production but also by losses due to storage, transportation and processing.

2. Causes at the Regional or Community Level

Per capita food consumption and production statistics may be valuable in determining the overall protein/calorie gap in the nation; however, the numbers are potentially misleading since the actual availability of these nutrients in Zaire varies according to region or community. At the regional level, three areas in Zaire are generally recognized as most acute in nutritional deficiencies: 1) The southern part of the Bandundu region primarily in the Kwango/Kwilu areas; 2) the savannah areas of southern Kasai Occidental; and 3) the central Kivu region. In these areas the major causes of malnutrition or the "nutrient gap" are limited production potential and unexploited protein potential combined with the consumption of manioc as a staple food crop which is a very low source of protein. Nutrient losses in these areas are also a result of the poor transportation network which could not accommodate the importation of surplus protein production even if it existed. Other locations of chronic nutritional deficiency are the urban centers as shown in the O.N.R.D. consumption studies in Kinshasa, Bukavu, and Kisangani. Here losses also occur from inadequate transportation and marketing which, coupled with low income results in curtailed food consumption for the urban dweller. During 1973 the cost of living in Kinshasa increased by 25 percent. In the last half of 1973 basic food items increased even more sharply--bread by 42 percent, rice by 82 percent and palm oil by 70 percent. During the month of December alone manioc roots, the staple food of most Zairians, increased by 60 percent in Kinshasa.

3. Causes at the Family Level

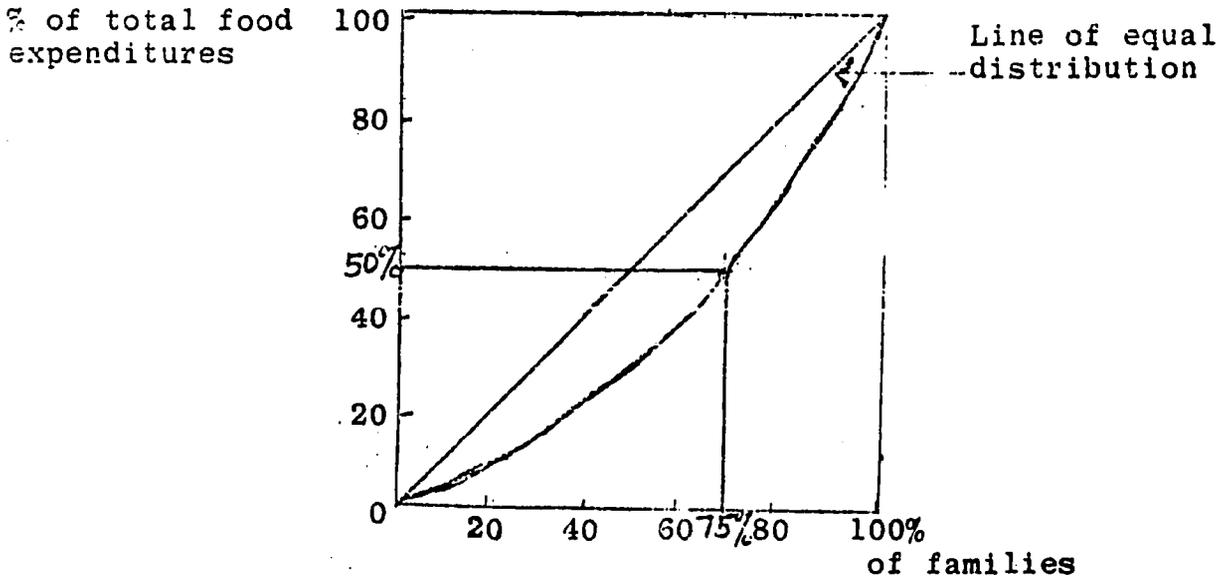
At the family or household level the nutrient gap in urban areas is a problem of misallocation among families, with the greatest disparity found between the few rich and the many poor.

7. Most recently (June, 1974) the Government has announced substantially lower fixed prices for basic food items--rice and palm oil as well as their intention to reduce prices for manioc, fish and beans.

The following graph describes the distribution of food among families in Kinshasa. For example, 50 percent of the food is consumed by 75 percent of the families, which means that the remaining 50 percent is consumed by only 25 percent of the families. If the average consumption of protein (all families) is 40 grams per day for each family member we would expect to find 25 percent of the families consuming 82 grams of protein per person/per day and 75 percent existing on only 27 grams of protein per person/per day.

Graph #2Distribution of Total Food Expenditures by Family

(Lorenz Curve)



In the rural areas where most of the families consume food produced by themselves, losses as a result of transportation and marketing are minimal. Here, the nutrient gap is more a function of losses in food preparation, storage, and misallocation among family members where various taboos, customs and family feeding order reduce nutrient availability. Among the Bateke and Bakongo tribes, for example, pregnant women do not eat eggs. In the Bena Kalambayi tribe in the Kasai, it is taboo for a pregnant woman to eat beef. Similarly in Kisangani pregnant women do not eat various protein sources such as goat meat and pork. Insufficient production, in some cases, is also a constraint if the family cannot produce the required nutrients as a result of seasonality or inadequate agricultural methods.

PROJECT NO.	SUBMISSION	DATE	ANNEX C
660-11-560-054	<input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION	7/1/74	Page 5

4. Causes at the Individual Level

The major cause of malnutrition at the individual level is malabsorption of nutrients as a result of disease and infection as well as impure water and inadequate sewage facilities. The major diseases in the key target group of children under five have been discussed. These diseases, when accompanied by fever, drastically raise the nutrient requirement of an individual. Thus even though a child or infant may have a very high protein/calorie intake, his or her requirements when sick may be much higher, resulting in a nutrient gap or malnutrition. In pregnant and lactating women nutrient requirements are also raised resulting in an insufficient intake of iron and consequent anemia.

Impure water and inadequate sewage facilities in Zaire result in water-borne diseases and gastro/enteritis, also causing malabsorption of nutrients. According to a recent IBRD water survey,⁸ sanitary infrastructure is insufficient throughout the country, and the incidence of waterborne diseases is significant in all regions. Before independence there were an estimated 1400 standpipes and 1600 wells with hand pumps in rural areas. Data is very limited on present water conditions and needs; however, the IBRD report states that many of these systems have fallen into disrepair and that some \$1 million worth of projects have been identified in three regions.

Although 30 percent of the population is urban, (including Kinshasa with more than 1.5 million, ten other cities of more than 100,000, and 70 towns of more than 2,000) only one-quarter of this group has piped water. There are few public standpipes, and the outlying squatter settlements draw water from wells or rivers. Most cities have a small central sewerage system; however, these have not been maintained. This, in conjunction with non-functioning sewerage treatment plants, is a key factor in water pollution as sewage runs into streams and rivers. The IBRD report maintains that the more serious effects of this situation have been kept in check by low population density (mostly single-family houses in cities) and the usual proximity of large fast-flowing streams. Sections do exist, however, where high density zones are far from rivers and where streams are polluted. The survey recommends priority attention to the rehabilitation and extension of water supply and distribution in the cities with a parallel effort in the rural areas. The sewage problem is most severe in Matadi and Lubumbashi where there are now serious health hazards.

8. I.B.R.D. in cooperation with the World Health Organization (WHO) "Zaire Water Supply and Sewage Sector Study," Two Volumes, March 29, 1974.

PROJECT NO. 660-11-560-054	SUBMISSION <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REVISION	DATE 7/1/74	ANNEX C Page 6
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In short, while little data is available on the direct links between impure water/inadequate sewage facilities and diseases, it is known that the incidence of water-borne diseases and other water-related diseases is very high, thus drastically affecting the nutritional status of Zairians through intestinal malabsorption.

Detailed analysis of the food distribution at these three levels (regional, family and intrafamily) is needed to determine why nutrient gaps occur in some regions and communities and not in others, in some families and not others, and in some family members and not others. Just as a protein gap was calculated for the nation of Zaire, so can nutrient gaps be calculated for the regions and communities, families and individual members in order to better determine the key intervention points.